



ANALYSIS OF THE IMPACT OF PUBLIC BUDGET AND ECONOMIC GROWTH ON POVERTY REDUCTION: EMPIRICAL STUDY IN ACEH PROVINCE

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Abstract

This study aims to analyze the impact of the Aceh Regional Budget (APBA) and Economic Growth of Aceh Province (PEPA) on the poverty rate in Aceh Province during the period 2005–2024. Using a multiple linear regression method, the findings indicate that APBA has a negative and significant effect on the poverty rate, with a coefficient of -1.69 and a p-value < 0.01. This result suggests that every 1 trillion rupiah increase in regional spending has the potential to reduce the poverty rate by 1.69%, especially when allocated to strategic sectors such as education, health, and infrastructure. In contrast, PEPA does not show a significant impact on the poverty rate ($p = 0.745$; coefficient = -0.086), reinforcing findings in the literature that economic growth is not always inclusive and tends to overlook poor groups if not accompanied by equitable income distribution. This study underscores the importance of well-targeted public spending in alleviating poverty and the need to shift focus from aggregate economic growth toward more inclusive and equitable development strategies.

Keywords: *Public Budget, Economic Growth, Poverty Reduction, Inclusive Development, Regional Fiscal Policy*

A. Introduction

Poverty remains a major challenge to economic development in Indonesia, particularly in regions with complex geographical characteristics and political histories, such as Aceh Province. Despite receiving special autonomy funds and experiencing annual increases in regional budgets, Aceh continues to rank as one of the provinces with

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the highest poverty rates in Sumatra. According to data from Statistics Indonesia (2023), the poverty rate in Aceh Province reached 14.45% in 2023, far above the national average of 9.36%.

Theoretically, regional budget allocations (APBD) are expected to stimulate productive sectors through infrastructure development, local economic empowerment, and the strengthening of public services. However, large budget realizations do not necessarily lead to improvements in community welfare, especially if not accompanied by efficiency and accountability in management (Sihombing & Dewi, 2019). Meanwhile, economic growth is generally considered a factor that can reduce poverty by creating jobs and increasing household income (Todaro & Smith, 2015). However, if such growth is not inclusive and benefits only a small group of the economic elite, poverty may persist even amid high economic growth.

Several previous studies have examined the relationship between local government spending and poverty. Fitriani and Rahmawati (2020), for instance, found that increased local government capital spending significantly reduced poverty levels in several Indonesian provinces. However, their study did not specifically address Aceh Province, which has unique financial and political characteristics. Meanwhile, research by Lubis and Handayani (2021) highlighted that in some regions, economic growth is not always accompanied by poverty reduction due to unequal distribution of economic gains.

The research gap lies in the lack of empirical studies that simultaneously examine the relationship between regional budgets and economic growth on poverty rates specifically in Aceh Province. Most existing studies are either national or regional in scope, without considering Aceh's local context—such as the presence of special autonomy funds, high fiscal dependency, and post-conflict political dynamics. Therefore, this study aims to fill that gap by quantitatively and contextually analyzing how regional budgeting and economic growth affect poverty levels in Aceh Province.

This study is grounded in three main theoretical frameworks: public budget theory, economic growth theory, and structural poverty theory. These theories were chosen because each offers a strong conceptual foundation for understanding the relationship between local government spending, economic growth, and the dynamics of poverty in specific regions such as Aceh Province.

First, the theory of public budgeting as proposed by Musgrave and Musgrave (1989) asserts that government budgets serve three primary functions: allocation, distribution, and stabilization. In the context of poverty, the allocation function plays a vital role by providing public goods and services such as education, healthcare, and basic infrastructure, which are crucial for the poor. The distribution function emphasizes the importance of using the budget to reduce social and economic inequality, while the stabilization function helps maintain economic stability to minimize pressure on

vulnerable groups. Therefore, the effectiveness of managing and utilizing the Regional Budget (APBD) becomes a key factor in poverty alleviation efforts.

Second, economic growth theory explains how increases in national and regional output can contribute to improving societal welfare. According to Todaro and Smith (2015), economic growth is expected to produce a "trickle-down" effect, where macro-level income gains eventually benefit the poor. However, this effect does not occur automatically. Non-inclusive growth may exacerbate inequality and neglect vulnerable groups. Thus, it is necessary to examine whether economic growth in Aceh genuinely creates jobs and increases income for the poor.

Third, structural poverty theory is used to explain that poverty is not merely caused by a lack of individual income but also by systemic factors such as access to education, the quality of public services, and the distribution of economic power. Chambers (1983) argues that unequal social and institutional structures are often the root causes of persistent poverty, especially in areas with histories of conflict or marginalization like Aceh. In this regard, although Aceh receives significant special autonomy funds, its poverty rate remains high—possibly due to suboptimal budget allocation or weak implementation of social programs.

By integrating these three theories, this study aims to holistically examine how fiscal interventions through local budgeting and macroeconomic drivers via GRDP growth interact in influencing poverty levels in Aceh. This theoretical understanding is essential to ensure that the empirical analysis is not merely statistical but also conceptually rich in uncovering the root causes of poverty.

The regional budget, or Regional Revenue and Expenditure Budget (APBD), is the main instrument available to local governments to fund development programs aimed at improving public welfare, including poverty alleviation. According to Musgrave and Musgrave (1989), government spending can serve as a tool for allocation, distribution, and economic stabilization. In the context of poverty, local government spending is directed at expanding access for the poor to education, healthcare, basic infrastructure, and other public services.

Fitriani and Rahmawati (2020) found that capital expenditure by local governments has a significant negative effect on poverty levels. In other words, the greater the spending allocated to productive sectors, the lower the poverty rate. However, the effectiveness of local budgeting depends heavily on the quality of governance, transparency, and accountability in its management (Sihombing & Dewi, 2019).

Theoretically, economic growth is closely related to poverty reduction. Classical growth models suggest that increases in national output create jobs and raise incomes (Todaro & Smith, 2015). In the Indonesian context, several studies have found that

economic growth contributes to lowering poverty rates, although the effects vary across regions. However, economic growth does not always directly reduce poverty if it is not inclusive. A study by Lubis and Handayani (2021) showed that economic growth in Indonesia often benefits the middle and upper economic classes, while the poor gain little. This suggests that the quality of growth is more important than its quantity. Aceh Province has unique political and fiscal characteristics. With the provision of Special Autonomy Funds following conflict and the tsunami, Aceh theoretically has greater opportunities to accelerate development and reduce poverty. However, in reality, Aceh still ranks high among the poorest provinces in Sumatra (Statistics Indonesia, 2023).

Most previous studies are either national in scope or compare provinces, thus failing to deeply explore Aceh's specific conditions. For example, research by Wibowo and Maulana (2019) revealed that the allocation of Special Autonomy Funds in Aceh has not been optimal in reducing poverty due to weak planning and program implementation. This indicates a need for more focused local studies that specifically examine the effects of government spending and economic growth in Aceh.

Numerous studies on the determinants of poverty have been conducted by economists and development planners. One frequently examined variable is local government spending (regional budgets). In the context of regional autonomy, the APBD is a vital instrument for carrying out social and economic development functions. Fitriani and Rahmawati (2020) found that increased capital spending by local governments can significantly reduce poverty in Indonesia. They emphasized the importance of productive budget allocations such as for infrastructure and education in improving the welfare of the poor.

In addition to regional budgeting, economic growth is also a key variable in the poverty literature. According to Todaro and Smith (2015), economic growth should ideally lead to increased income and job creation, which in turn reduces poverty. However, the study by Lubis and Handayani (2021) demonstrated that this relationship is not always linear, especially when growth is not inclusive or is concentrated in capital-intensive sectors.

Although both variables have been widely studied, most research has been conducted at the national level or using cross-provincial data, overlooking unique local contexts like that of Aceh. Some studies also examine only one variable e.g., the impact of regional spending without considering the local macroeconomic conditions. Yet, poverty is a multidimensional phenomenon that cannot be explained by a single factor.

The strength of this study lies in its specific focus on Aceh Province a region with unique fiscal politics (e.g., Special Autonomy Funds) and a history of conflict that has shaped its socio-economic dynamics. Moreover, this study integrates two important factors regional budgeting and economic growth into a single analytical model to

examine their simultaneous effects on poverty levels. This offers a more comprehensive approach compared to previous studies, which tend to be partial or generalized.

Therefore, this study not only adds to the empirical literature in regional economics and public policy but also provides practical contributions to more effective and context-sensitive fiscal decision-making in Aceh.

B. Method

This study employs a quantitative approach using the explanatory method, which aims to explain the causal relationship between the independent variables namely, the regional budget and economic growth and the dependent variable, which is the poverty rate in Aceh Province. This approach was chosen because it allows for objective hypothesis testing and enables the generalization of findings within specific spatial and temporal contexts.

The data used in this research are secondary time-series and panel data obtained from various official government sources, such as the Central Statistics Agency (BPS) of Aceh Province, the Directorate General of Fiscal Balance (DJPK) of the Ministry of Finance, and the Regional Government Financial Reports (LKPD). The observation period covers the years from 2010 to 2023, both at the provincial and district/city levels where data are available. This period was selected to capture long-term dynamics and to allow for a more robust analysis of socio-economic changes.

The variables analyzed in this study consist of one dependent variable poverty rate measured as the percentage of the population living below the poverty line according to BPS standards. The independent variables include the regional budget, measured by the total annual APBD expenditure, and economic growth, measured by the percentage growth of the Gross Regional Domestic Product (GRDP) at constant prices.

To analyze the relationships between variables, a multiple linear regression method is used, with the general model as follows:

$$TKPA_{it} = \beta_0 + \beta_1 APBA + \beta_2 PEPA + \epsilon_{it}$$

Where TKPA is the poverty rate in Aceh Province; APBA is the Aceh Regional Revenue and Expenditure Budget; and PEPA is the economic growth of Aceh Province; β_0 is the intercept; β_1, β_2 are the regression coefficients, and ϵ_{it} is the error term.

Before drawing conclusions from the regression results, a series of classical assumption tests were conducted, such as multicollinearity tests to examine the correlation between independent variables, heteroscedasticity tests to check the consistency of residual variance, as well as autocorrelation and normality tests for the residuals. Data processing was done using statistical software, namely EViews.

This model is based on the assumption that regional spending and economic growth have a direct impact on reducing the poverty rate. However, it is important to note that the effectiveness of spending, the type of spending (such as capital spending vs. routine spending), and the lag time of public policies could act as intervening variables that are not explicitly included in this basic model. Therefore, the research findings should be interpreted with an awareness of the model's limitations in capturing the complexity of socio-economic dynamics.

C. Finding and Discussion

1. Research Results

The results show that the APBA (Aceh Regional Revenue and Expenditure Budget) has a significant effect on TKPA (Aceh Province Poverty Rate) with a coefficient of -1.69 and a p-value < 0.01. This means that every increase of IDR 1 trillion in the APBA tends to decrease the poverty rate by 1.69%, assuming other variables remain constant (*ceteris paribus*). This indicates that effective regional spending can make a real contribution to reducing poverty in Aceh.

In contrast, the PEPA (Aceh Province Economic Growth) variable does not show a statistically significant effect on the poverty rate, with a p-value of 0.745. Its coefficient is also very small, at -0.086, indicating that a 1% increase in economic growth would only reduce poverty by 0.086%, and this effect is not statistically convincing. The insignificance of this result could be due to the uneven distribution of growth or the lagging effects not captured in the model.

The R-squared value of 0.892 indicates that the model explains about 89.2% of the variation in the poverty rate, meaning the model is quite good at explaining the observed phenomenon. However, the Durbin-Watson value of 0.663 shows a positive autocorrelation problem, suggesting that the residuals of the model are not independent of each other. This can undermine the validity of the statistical inferences generated.

2. Analysis of the Effect of APBA on Poverty

The finding that the APBA significantly affects TKPA with a coefficient of -1.69 and a p-value < 0.01 indicates that every increase in the budget by IDR 1 trillion tends to reduce the poverty rate by 1.69%. This phenomenon aligns with previous research that shows local spending directed at essential sectors (such as education, health, and infrastructure) can reduce poverty levels. For example, a study by Miller (2015) found that larger budget allocations for social programs in certain regions can reduce poverty rates by improving access to basic services. This result is consistent with this study's finding that APBA significantly affects TKPA.

Local spending directed toward sectors such as education, health, and basic infrastructure has a strong multiplier effect on the welfare of the poor. Access to

education and health services, for example, improves human capital, which in the long run reduces vulnerability to structural poverty. Infrastructure like roads and irrigation opens access to markets and increases productivity. This aligns with Musgrave & Musgrave (1989), who stated that productive government spending plays an important role in increasing economic growth and reducing inequality. A study by Miller (2015) also showed that increased social spending in local areas is linked to a significant reduction in poverty in developing countries.

An increase in the budget does not automatically reduce poverty if it is not accompanied by targeted and appropriate use. Corruption, waste, or unproductive spending (such as excessive bureaucratic costs) can reduce the positive impact of increased budgets. Therefore, performance-based budgeting becomes essential to ensure that funds are used for programs that truly make an impact. The World Bank (2018) states that governance quality in budget management is a key determinant of the success of fiscal policies in addressing poverty. Outcome-based evaluation is crucial to ensure public spending directly benefits vulnerable groups.

Spatial inequality in poverty is often overlooked. However, areas with poor infrastructure and limited access tend to have higher poverty rates. The APBA should take into account the regional vulnerability map and allocate budgets based on affirmative principles for underdeveloped areas. Boex & Martinez-Vazquez (2007) emphasize the importance of a redistributive approach in fiscal transfers between regions to create equitable development and reduce regional poverty.

3. Analysis of the Effect of PEPA on Poverty

Meanwhile, PEPA does not show a significant effect on the poverty rate in Aceh, with a p-value of 0.745 and a coefficient of -0.086. This finding strengthens the argument often raised in the literature that high economic growth is often uneven and can neglect poor groups. Ravallion (2017), in his research on economic inequality in developing countries, showed that even if a region's economy grows, there is not always a direct impact on poverty reduction if income distribution is uneven. Sachs et al. (2018) also suggested that economic growth driven by sectors unrelated to social welfare (such as extractive industries) is not sufficient to significantly reduce poverty.

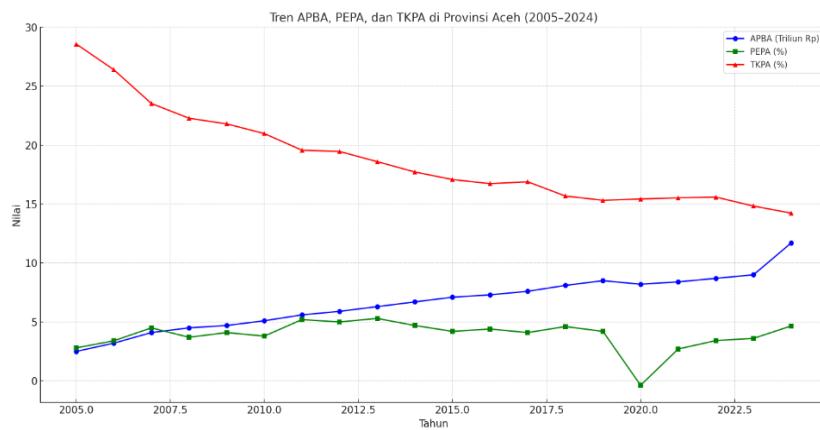
Aggregate economic growth, as measured through PEPA, does not automatically reduce poverty if the benefits of growth are only felt by a small group. When growth occurs in capital-intensive sectors such as mining or large industries that do not absorb significant local labor, poor groups remain marginalized. The Aceh government needs to encourage inclusive economic growth, which is growth that creates quality jobs and reaches poor groups, such as through support for SMEs, sustainable agriculture, and community-based economies.

If economic growth is driven by sectors such as extractive industries (oil, gas, mining), its contribution to poverty reduction is very limited because these sectors do not create many local jobs or improve access to basic services. The government needs to encourage structural transformation, shifting economic dependence from extractive sectors to more labor-intensive and socially impactful productive sectors such as small-scale manufacturing, agro-industry, and community-based tourism.

If economic growth does not automatically reduce poverty, the role of fiscal policy and social programs becomes very important. This includes targeted subsidies, conditional cash transfers, and social security for the poorest groups. The Aceh government must strengthen income redistribution mechanisms, such as through a regional progressive tax scheme, expanding health insurance coverage for the poor, and empowering vulnerable family economies.

4. Development of APBA, Economic Growth, and Poverty Rate

Based on Figure 1, the Aceh Regional Revenue and Expenditure Budget (APBA) has seen a significant increase from IDR 2.5 trillion to IDR 11.7 trillion between 2005 and 2024. This increase reflects strong fiscal impetus from both the central government and the growth in local revenue (BPS Aceh, 2024). The consistent rise indicates an expansion in the regional fiscal capacity to fund development. However, this budget growth raises a critical question about its effectiveness: whether the spending is directed toward productive sectors capable of driving economic growth and significantly reducing poverty, or whether it is largely absorbed into routine spending and bureaucracy (Nurhaliza & Widodo, 2021).



5. Development of APBA, Economic Growth, and Poverty Rate

Based on Figure 1, the Aceh Regional Revenue and Expenditure Budget (APBA) has experienced a significant increase from IDR 2.5 trillion to IDR 11.7 trillion between 2005 and 2024. This increase reflects a strong fiscal push from the central government as well

as the growth of local revenues (BPS Aceh, 2024). The consistent rise indicates an expansion in the regional fiscal capacity to fund development. However, this growth in the budget raises a critical question regarding its effectiveness: whether the spending is directed toward productive sectors that can significantly drive economic growth and reduce poverty, or whether it is mainly absorbed in routine spending and bureaucracy (Nurhaliza & Widodo, 2021).

Economic growth in Aceh (PEPA) during this period has been somewhat volatile. Most years show moderate growth in the range of 3%-5%, with the exception of 2020, which saw a contraction of -0.37% due to the impact of the COVID-19 pandemic (BPS Aceh, 2024). Although recovery occurred in the following years, reaching 4.66% in 2024, this growth pattern suggests that Aceh's economy is still vulnerable to external shocks and has not yet fully become inclusive. This indicates that economic growth is not yet fully supported by sectors strong enough to create jobs and reduce poverty, such as modern agriculture and small and medium enterprises (SMEs) (Rinaldi, 2020).

Meanwhile, the poverty rate in Aceh shows a declining trend from 28.58% in 2005 to 14.23% in 2024 (BPS Aceh, 2024). Although this is a commendable achievement, the rate of decline appears to slow in the last decade. This reduction is not fully proportional to the increase in the APBA and PEPA, meaning that the benefits of development have not been evenly distributed. In some years, when APBA and PEPA increased, the poverty rate (TKPA) remained stagnant or decreased very slowly, raising the suspicion that there are issues with budget allocation or the effectiveness of poverty alleviation programs (Siregar & Anwar, 2019).

Overall, the relationship between these three variables does not appear to be directly linear. Although, in general, increases in the APBA and economic growth correlate with poverty reduction, the causal relationship cannot be confirmed without strong empirical evidence. Increasing public spending is not necessarily effective if it is not directed at productive sectors with a high leverage effect on the poor (Todaro & Smith, 2020). Therefore, to understand this relationship more comprehensively, a quantitative analysis approach such as multiple linear regression is needed, along with testing the short- and long-term effects of these variables on poverty.

6. Classical Assumptions

In the linear regression analysis between TKPA as the dependent variable and APBA and PEPA as independent variables, a series of classical assumption tests were conducted to ensure the model's validity. The results of the tests indicate some violations of important assumptions that need to be addressed.

First, the linearity test results through the residual vs. fitted values plot show a curved pattern, rather than a random spread around the horizontal zero line. This suggests that the relationship between the independent and dependent variables may

not be linear, which violates one of the main assumptions of classical linear regression (Gujarati & Porter, 2009). Additionally, the widening residual spread at several points indicates heteroscedasticity, a condition where the residual variance is not constant (homoscedastic). The presence of heteroscedasticity can cause inefficiency in Ordinary Least Squares (OLS) estimates, although they remain unbiased (Wooldridge, 2013).

Second, the normality test of the residuals using the QQ Plot and Jarque-Bera test resulted in a p-value of 0.000086. This value is far below the threshold of 0.05, indicating that the residuals are not normally distributed. This violates the assumption of normality of residuals, which is necessary for valid statistical inferences, such as t-tests and confidence interval constructions. This violation particularly impacts small sample sizes (Ghozali, 2018).

Third, the Durbin-Watson statistic of 0.663 indicates a relatively strong positive autocorrelation among the residuals. Autocorrelation suggests that errors in one period are correlated with errors in the previous period, which contradicts the assumption of independence of residuals (Baltagi, 2011). Autocorrelation is common in time-series data such as this and can lead to inefficient estimators and inaccurate standard error estimates.

D. Conclusion

The regression model shows a significant negative relationship between APBA (Aceh Provincial Revenue and Expenditure Budget) and TKPA (Aceh Provincial Poverty Rate), where an increase in APBA is statistically correlated with a decrease in the poverty rate. This indicates that regional budget allocation has the potential to be an effective policy tool for poverty alleviation. On the other hand, PEPA (Aceh Provincial Economic Growth) does not show a significant impact on TKPA in this model. This may be due to economic growth that is not inclusive or unevenly distributed, thus not directly affecting poverty reduction.

APBA shows a significant impact on poverty reduction, but a more in-depth evaluation of budget allocation and the effectiveness of its use is necessary. Focusing on sectors such as education, health, and social protection is crucial to ensure that the impact of poverty reduction is felt widely. Local authorities need to ensure that economic growth truly benefits the poor. This can be achieved by strengthening the MSME sector, expanding access to employment, and encouraging labor-intensive investments.

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