



Economic Growth Model with Regional Expenditure as a Moderation Variable: Scale in Berau Regency

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ABSTRACT: The motivation of this paper aims to investigate the relationship between local taxes, DAU, and DBH on the economic growth of Berau Regency. Apart from that, the paper also identifies the relationship between regional taxes, DAU, and DBH on economic growth which interacts with regional expenditure in Berau Regency. Government revenue is an important instrument for regions to foster economic growth. At the same time, government spending is used as a fiscal support to review the degree of budget absorption. With surplus revenue performance, it will generate financing which also plays a vital function in boosting economic growth. Secondary data for 2013–2022 was collected from government budget documents. Then, the data is tabulated using a time-series linear regression model with moderating variables. The statistical output finds that regional taxes and DBH have a negative effect on economic growth. However, DAU actually has a positive effect on economic growth. Uniquely, the interaction between regional taxes and DAU which is moderated by regional spending has a positive influence on economic growth. Then, regional spending plays a negative role in the relationship between DBH and economic growth. Future implications of considering practical regulations that do not only depend on income from the DAU side, but must focus on the existence of regional taxes in Berau Regency. By optimizing regional taxes, it also allows for a large fiscal gap in terms of regional spending. Financing the development of Berau Regency requires adequate expenditure allocation.

Keywords: Regional Taxes, Regional Spending, Economic Growth, Time-Series Linear Regression



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INTRODUCTION

Economic growth is one of the most essential indicators for diagnosing the development output of a nation or region, especially in the economic sector (Dragoi, 2020; Nuraini & Hariyani, 2019). The existence of economic growth data shows the government's performance in various economic activities that produce added value or public income in a certain period. Easterlin (2023), Kapsos (2006), Mahmood & Ahmad (2018) and Rahman & Alam (2021) state that positive growth

indicates economic intensity, and conversely, negative growth represents a decline in economic aggregates. In the national context, economic growth is defined as an increase in gross domestic product (GDP) regardless of whether the increase is greater or smaller than the population or whether changes in economic structure occur or vice versa ([Brinkman & Brinkman, 2011](#); [Kaminitz, 2023](#); [Leamer, 2009](#)). Meanwhile, explicitly, regional economic growth is defined as the rate of increase in output per capita in the long term as measured by gross regional domestic product (GRDP) at constant prices ([Buan et al., 2021](#)).

Proxy economic growth refers to GRDP which is extracted from the total value of goods and services obtained from various economic activities in the region. Meanwhile, regional economic growth rates are calculated based on GRDP at constant prices. Like GDP, according to [Amalia et al. \(2020\)](#) and [Landefeld et al. \(2008\)](#), there are three types of scenarios for predicting GRDP, including the following: (1) Production, (2) Income, and (3) Expenditures. First, the production format is estimated based on the total value of services and final goods produced from various production units within one period. Broadly speaking, production units are classified into seventeen economic structures. Second, the income format is calculated through the amount of remuneration received by input factors that play a role in the production process within one period. What is included in production payment includes: wages and salaries, land rent, capital interest, and profits. In an implicit articulation, GRDP is also reflected in depreciation and net indirect taxes (indirect taxes minus subsidies). Third, the expenditure format is projected based on all components of final demand which are reflected in the consumption expenditure of households and non-profit private institutions, gross domestic fixed capital formation and stock changes, and government consumption expenditure and net exports (export value minus import value) for one period of time.

Specifically, GRDP is called an economic total which is determined by the size of economic achievement in a region. As mentioned above, the GRDP value was developed to assess the level of economic growth. On the other hand, to compile real economic growth, the effects of price changes that are attached to aggregate economic figures according to current prices must be removed. Losing the influence of price changes, economic aggregates will be formed according to constant prices.

Since January 2001, regional autonomy began to be implemented to accommodate the wishes of each region towards comprehensive government decentralization. [Siddiquee et al. \(2012\)](#) emphasized that granting regional autonomy is projected to provide flexibility to regions in managing regions through potential businesses, so that it is useful in optimizing active community participation. In addition, by channeling authority such as regional autonomy, it will also increase efficiency, accountability and effectiveness in the Indonesian public sector. This is motivated by demands for regions to look for other alternative sources of financing that can support development routines without reducing or having to depend on transfer funds from the central government. Autonomous regions have the authority and ability to explore, use and manage their financial resources competently for the benefit of government administration. With such complex responsibilities, local governments are able to manage local wisdom sources.

Talking about decentralization, to see its relationship to public services, [Camões \(2020\)](#) and [Goel et al. \(2017\)](#) differentiate decentralization into three criteria, i.e: (1) Political decentralization, (2) Administrative decentralization, and (3) Fiscal decentralization. The first category is the delegation of higher authority to regions regarding various aspects of decision making, including setting standards and various regulations. In the second category, administrative decentralization revolves around the redistribution of authority, responsibility and resources between various levels of government. Administrative requirements can be fulfilled according to the adequate capacity of each institution at each level. The third category, as access to authority to explore sources of income, the right to receive transfers from larger government, determine routine expenditure, and investment governance. [Canare \(2021\)](#), [Matete \(2022\)](#), and [Ozmen \(2014\)](#) highlight that by choosing a decentralized design, it is hoped that two balances will be created. First, bridging the participation, initiative and creativity of the population in development which leads to reducing the gap in equitable development results in all regions by empowering resources and involving local wisdom. Second, improve the allocation of productive resources by shifting public decision making to the lowest level of government with complete, accurate information.

Basically, decentralization policies are aimed at improving past centralized programs ([Undang et al., 2023](#)). Rapid development involving fiscal matters certainly requires the allocation of funds from the government to absorb financing for expenditure items which include routine expenditure and development expenditure ([Tenrinippi, 2020](#)). [Roy et al. \(2022\)](#) revealed that local government spending is reported in the regional income and expenditure budget (APBD) as a routine obligation for regional cash expenditures, for example realizing various operational agendas in government. With the proportion of expenditure increasing, large funds are needed so that this expenditure can be met. When regional autonomy was implemented, the role of regional governments in managing their own government system became greater. This demand to finance government affairs has the consequence that government officials must work hard and independently, in order to be able to carry out a transition that is oriented towards public services. The function of fiscal decentralization itself is to achieve prosperity for the entire population and give autonomous regions the authority to regulate and manage public interests.

Fiscal policy is a mechanism for improving economic conditions or known as economic regulation which aims to strive for a more ideal economy through government expenditure and revenue channels. Another understanding of fiscal policy is the government's decision to facilitate state spending and taxation to stabilize a more inclusive economy ([Nikolov & Pasimeni, 2023](#); [Nkalu & Agu, 2023](#); [Tcherneva, 2012](#)). From a macroeconomic perspective, fiscal policy is a part of it that plays a crucial scheme as follows: (1) Helping to minimize fluctuations in the business cycle, (2) Maintaining sustainable economic growth and high employment opportunities, and (3) Releasing from high inflation or turbulent.

From the three points above, the direction of fiscal policy is to strengthen the macro economy. In a detailed pattern, fiscal policy is aimed at reducing the budget deficit by regulating or stimulating the country's economy through government spending and revenues. [Zeyneloğlu & Koenig \(2016\)](#) explain six important lessons from the foundations of fiscal policy: (1) Guaranteeing real economic growth that matches the potential growth rate by maintaining full employment opportunities, (2)

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Keeping the economy away from recession by implementing reasonable commodity prices, (3) Prioritizing potential growth rates without disrupting the achievement of other population goals, (4) Encouraging national production (GDP) through a conducive economic climate, (5) Expanding employment opportunities to reduce unemployment by opening employment opportunities across business fields, and (6) Overcoming hyper-inflation. Here, APBD is a form of decentralization that is implemented in fiscal policy to demonstrate the capability of government authority. [Surjaningsih et al. \(2012\)](#) presents that there are two fiscal pillars in the federal government system, namely taxes and intergovernmental grants (such as revenue sharing).

Regional government as stipulated in Law of the Republic of Indonesia No.: 32 of 2004 states that for the implementation of regional government authority, the central government transfers balancing funds consisting of: (1) General allocation funds/DAU, (2) Special allocation funds/DAK, (3) and profit sharing funds/DBH from both taxes and natural resources. Apart from assistance from the central government, regional governments also have their own main sources of funding, such as local original income/PAD which includes: (1) Regional taxes, (2) Regional levies, (3) Management of separated regional assets, and (4) Other-other legitimate regional original income. This transfer fund from the central government is a means of reducing financial inequality between regions, both at the Regency and City or Provincial levels ([Wijaya et al., 2019](#)). The main aim is to stimulate the regional economy ([Roy et al., 2020](#)).

Funds received by regions, whether self-generated such as regional taxes and regional levies or originating via central government transfers, will be a source of further financing and implementation of regional economic development activities. Activities that are actualized routinely or non-routinely are useful for creating and stimulating the welfare of the population. One of the parameters for determining economic development is the economic growth trend. [Azizah et al. \(2022\)](#), [Sima et al. \(2023\)](#), and [Yushkov \(2015\)](#) emphasize that economic growth can be realized through fiscal decentralization. With the encouragement of fiscal decentralization, regional economic growth can continue. Economic growth in an area is generally measured by referring to the volume of production of goods and services or what is known as "GRDP". As a preference to see whether economic development is successful or not, the majority of GRDP in various regions of Indonesia has not been maximized.

Berau is one of the districts that has great potential in carrying out economic development because it is supported by natural wealth and infrastructure. Regional taxes in Berau Regency are the largest component in forming PAD, where revenue is relatively positive from time to time. In principle, this is a regional government strategy to encourage regional taxes. With the enthusiasm of the residents of Berau Regency who obediently pay taxes, the final contribution is PAD. This also creates urgency in choosing regional taxes as a dimension that has implications for economic growth moderated by regional spending. Take for example past papers that similarly highlight causality between the proposed variables, where there is a systematic linkage of local taxes in increasing economic growth through the role of government spending ([Amri et al., 2023](#); [Lubis, 2023](#); [Nguyen et al., 2022](#); [Nguyen & Darsono, 2022](#)). But, balancing funds and regional expenditures in Berau Regency have also continued to show positive signals in recent years, especially for balancing funds sourced from DAU and DBH. Yet, this actually contradicts the fact

that economic growth fluctuates every year. Surprisingly, in 2022, Berau Regency's GRDP growth will be 3.95 percent or down 1.41 points from the previous period which reached 5.36 percent ([BPS-Statistics of Berau Regency, 2023](#)).

This effort can be operated by allocating regional spending under regional needs and conditions. If the program implemented using regional expenditure, such as capital expenditure, can be realized well, then the regional economic development process will spur impressive economic growth. Even though the regional income received is quite large, if the region cannot allocate it into expenditure carefully, then the effectiveness of fair development will not be optimal. [Adefolake & Omodero \(2022\)](#), [Balasoju et al. \(2023\)](#), [Basheer et al. \(2019\)](#), [Ha et al. \(2022\)](#), and [Maganya \(2020\)](#) claim that state or regional tax revenues are one element that has the potential to reduce economic growth. The logical reason is that with taxes, public consumption will decrease, which is triggered by a decrease in the production of goods and services in the market. To overcome this problem, the government implemented regional expenditure or expenditure policies. To test the extent of the quality of Berau Regency's regional autonomy, the focus of this paper is to analyze the effect of regional revenue on economic growth which is controlled by regional spending. By studying the relationship of the components of government revenue (regional taxes, DAU, and DBH) to economic growth through the role of regional spending, the research contribution focuses on two sides. First, it is an alternative for government management to highlight regional revenues and commit to sustainable economic growth. Second, as a solution in advancing future scientific work by considering and adopting existing variables based on case studies elsewhere.

METHOD

Data Collection and Sources

The collection technique for study purposes is library research. The library research approach processes and documents data attributes and all types of information related to needs. The secondary data sources are sorted via annual government publications throughout 2013–2022. This secondary data is in quantitative form. In preparing this paper, extra data was also collected through searching for supporting literature from various publications. Locations for archiving data collected from Berau Regency government agencies include: (1) Regional Revenue Service, (2) BPS-Statistics, and (3) Regional Planning and Development Agency.

Key Variables

The target of this paper is to describe the influence of a set of independent variables on the dependent variable and test the integration of moderating variables in the causality between the independent variables and the dependent variable. In social sciences, moderator variables are classified as part of a class of variables and are often called specification variables ([Magill, 2011](#)). Specification variables are variables that reflect the relationship between the predictor (independent variable) and the criterion (dependent variable). By means, specification or

moderator variables can be developed using two dimensions or constructivities. The key variables in this study are illustrated in Figure 1.

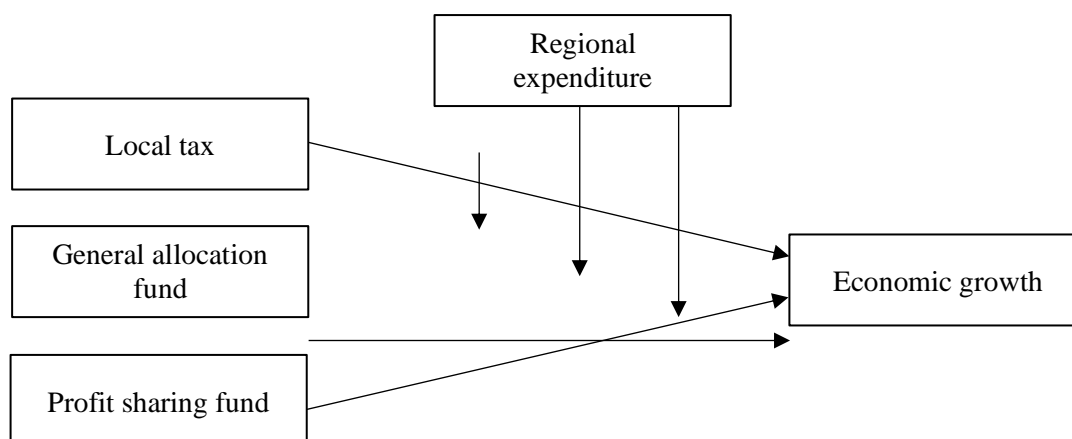


Figure 1. Conceptual Framework

As explained above, the dependent variable is played by economic growth, while regional taxes, DAU, and DBH are set as independent variables, and regional expenditure is positioned as a moderating variable. To identify the composition of each variable, Table 1 below summarizes the variable units, classifications and units of account.

Table 1. Arrangement of Variables

Type	Variable Name	Indicator	Unit
Independent variables	Local tax	Realization of government tax revenues	Nominal (Rp.)
	General allocation fund/DAU	Realization of government general allocation fund revenues	Nominal (Rp.)
	Profit sharing fund/DBH	Realization of government revenue sharing funds	Nominal (Rp.)
Moderator variable	Regional expenditure	Realization of government expenditure	Nominal (Rp.)
Dependent variable	Economic growth	GRDP growth at constant 2010 prices	Percentage (%)

Analysis Tools

Empirical methods are applied to test the proposed hypothesis using moderated regression analysis (MRA) with time-series data. [Ratnasari et al. \(2022\)](#) explained that MRA is suitable for studies that use moderating variables. In relevance to this paper, there is one moderating variable, i.e regional spending. Moderator variables can weaken or strengthen causality between the independent variable and the dependent variable ([King, 2013](#); [Söderlund, 2023](#)). Thus, the benefits of the

moderator variable in the interaction of this relationship can have a positive or vice versa impact. The general model formulation is written as follows:

$$\hat{Y} = f(X_1, X_2, X_3, \dots, n)$$

From the basic equation above, the function form of the first equation without the moderating variable is as below:

$$\hat{Y} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \mu$$

where: \hat{Y} = Economic growth; α = Intercept or constant; β = Regression coefficient; X_1 = Local tax; X_2 = DAU; X_3 = DBH; and μ = Residue.

For the equation function in multiple linear regression with moderating variables, edit as follows:

$$\hat{Y} = \alpha + \beta_1 X_1 Z + \beta_2 X_2 Z + \beta_3 X_3 Z + \mu$$

where: \hat{Y} = Economic growth; α = Intercept or constant; β = Regression coefficient; $X_1 Z$ = Interaction of regional taxes with regional spending; $X_2 Z$ = Interaction of DAU with regional spending; $X_3 Z$ = Interaction of DBH with regional spending; and μ = Residue.

RESULT AND DISCUSSION

Descriptive Statistics

After calculating the data selected through SPSS, it is necessary to describe some data output objects including the average value (mean) and standard deviation (S.D). For results without using moderation, a description of the resulting data is explained in Table 2.

Table 2. Descriptive Statistics without Moderating Variable (N = 10)

Variables	Mean	S.D
Economic growth	5.0211	5.04650
Local tax	23.3601	1.57254
DAU	24.1067	6.44119
DBH	27.2128	3.53026

Source: Secondary data is processed (2023).

Table 2 above verifies that economic growth is the dependent variable as well as regional taxes, DAU, and DBH as independent variables with case studies in Berau Regency throughout 2013–2022. If broken down by variable, it is known that the mean and SD scores for economic growth are 5.0211 and 5.04650. In local taxes, the average score is 23.3601 with an S.D of 1.57254. Other results recapitulate that DAU has a mean and S.D score of 24.1067 and 6.44119. From DBH, the

average score is 27.2128 with S.D of 3.53026. Then, for the equation after the moderating variable involving regional spending, the descriptive statistics are displayed in Table 3.

Table 3. Descriptive Statistics with Moderating Variable (N = 10)

Variables	Mean	S.D
Economic growth	5.0211	5.04650
Local taxes and regional expenditure	51.4232	1.85023
DAU and regional expenditure	50.4013	13.29539
DBH and regional expenditure	54.8444	7.09565

Source: Secondary data is processed (2023).

From Table 3, it is concluded that the mean and SD scores for economic growth are 5.0211 and 5.04650. On the one hand, the interaction between regional taxes and regional expenditure has a mean score of 51.4232 with S.D reaching 1.85023. Uniquely, the interaction between DAU and regional expenditure produces a mean and SD score of 50.4013 and 13.29539. Finally, the interaction of DBH and regional expenditure found that the mean and S.D scores reached 54.8444 and 7.09565.

Classic Assumption Test

A scientific study with testing based on a regression approach can be carried out after fulfilling the requirements of classical assumptions. The classical assumption tests applied in this paper are normality and multicollinearity. First, calculating the classical assumptions serves as a signal whether the residual values in the regression model have exceeded the normal distribution. If initial data is used, the results obtained in this test are classified as abnormal. The main reason is because there is a large gap between one variable and another, so data transformation needs to be carried out to make it normal via natural logarithm (ln). In the following, the normal probably plot of standardized residual will be displayed as a form of synchronization through the normality test, both before there is a moderating variable and after it is entered using a moderating variable.

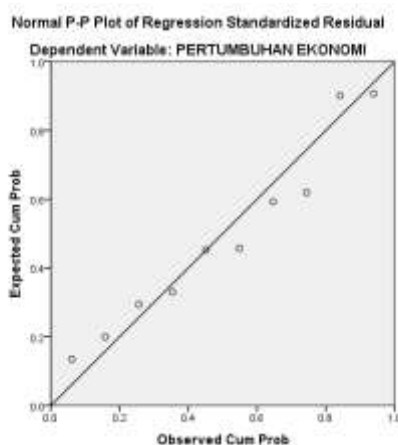


Figure 2. Normality Test without Moderating Variable

Source: Secondary data is processed (2023).

Figure 2 above validates the normal distribution pattern which shows that the data distribution points are close to a diagonal line. After transformation, this regression model is suitable for use in research. Next, Figure 3 below validates the normality test for data that includes moderating variables.

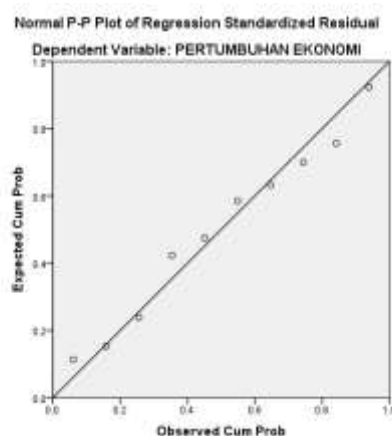


Figure 3. Normality Test with Moderating Variable

Source: Secondary data is processed (2023).

From Figure 3, it can be concluded that the data with the moderating variable produces a pattern that spreads close to the diagonal line. Through data transformation, the existing regression model is suitable for use in research. Second, a good study model can be detected by collinearity statistics of each independent variable. To find out, multicollinearity testing is implemented.

Table 4. Multicollinearity Test without Moderating Variable

Variables	Collinearity Statistics	
	Tolerance	VIF
Local tax	.592	1.691
DAU	.749	1.335
DBH	.663	1.509

Source: Secondary data is processed (2023).

Table 4 indicates that the tolerance and VIF scores for the three variables (regional tax, DAU, and DBH) are 0.592, 0.749, and 0.663 (>0.1) with VIF values reaching 1.691, 1.335, and 1.509. From these results, it was concluded that all existing variables without using moderation had a tolerance score greater than 0.1 (>0.1) with a VIF smaller than 10 ($VIF < 10$). That way, the data in this paper does not contain symptoms of multicollinearity.

Table 5. Multicollinearity Test with Moderating Variable

Variables	Collinearity Statistics	
	Tolerance	VIF
Interaction of local tax and regional expenditure	.410	2.437

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Interaction of DAU and regional expenditure	.753	1.328
Interaction of DBH and regional expenditure	.619	1.615

Source: Secondary data is processed (2023).

Evaluation of the multicollinearity assumption refers to the tolerance scores for all independent variables, namely regional taxes, DAU, and DBH which interact with regional expenditure, which are 0.410, 0.753, and 0.619, where the VIF values reach 2.437, 1.328, and 1.615, respectively. In line with the previous multicollinearity test without the moderating variable, even by including the moderating variable, these three independent variables have a tolerance greater than 0.1 (>0.1) with a VIF smaller than 10 ($VIF < 10$). Thus, the data in this study also does not contain symptoms of multicollinearity (see Table 5).

Model Feasibility

In this session, there were two classes in assessing the feasibility of the model being prepared. First, is the coefficient of determination. [Wijayanti et al. \(2022\)](#) stated that the coefficient of determination (R^2) is focused on measuring the ability and strength of the model in explaining variations in the dependent variable. In general, there is a change in the results of the determination test, before the moderating variable and after the moderating variable, where based on the R^2 score, the model without the moderating variable is better than including the moderating variable.

Table 6. Coefficient of Determination without Moderating Variable

Model	R Square	Adjusted R Square
1	.681	.521

Source: Secondary data is processed (2023).

Table 7. Coefficient of Determination with Moderating Variable

Model	R Square	Adjusted R Square
2	.622	.434

Source: Secondary data is processed (2023).

In the first equation, the R^2 coefficient shows 68.1%, which indicates that the economic growth variable is reflected by regional taxes, DAU and DBH. Then, the remaining 31.9% is influenced by other variables outside the model design (see Table 6). In the second equation, the model that influences the economic growth variable actually only reaches 62.2%. Even though there is a strong interaction between regional taxes, DAU, and DBH with regional expenditure, there are still 37.8% of other variables that are not part of the research model (see Table 7).

Second, the simultaneous test or what is often known as the "ANOVA test" is intended to examine whether the model used is appropriate or vice versa. In the first and second equations, the respective F-calculated score and probability are obtained with a threshold of 5% ($q < 0.05$) as follows:

Table 8. Simultaneous Effects without Moderating Variable

Model	F	Sig.
1	5.213	.001 ^b

Source: Secondary data is processed (2023).

Table 9. Simultaneous Effects with Moderating Variable

Model	F	Sig.
2	5.068	.001 ^b

Source: Secondary data is processed (2023).

Using a significance level of 5%, it appears that for the first equation which does not include the moderating variable, the F test is found to be 5.213 with a probability below the provisions ($\alpha = 0.001$). With a probability value smaller than the specified alpha value, the model in this study is fit (see Table 8). In the second equation involving the moderating variable (regional spending), Table 9 finds that the F test is 5.058 with a probability score also below the alpha standard ($\alpha = 0.001$). Therefore, involving moderation is able to support the second model.

Hypothesis Test

By the motivation of the paper, the basic objective to be achieved is the relationship between regional taxes, DAU, and DBH on economic growth and secondly examining the interaction between regional taxes, DAU, and DBH on economic growth which is modified through the role of regional spending. Among the three variables, only DAU has positive implications for economic growth. Meanwhile, although found to be significant, regional taxes and DBH actually influence economic growth negatively. When DAU increases by 1%, economic growth increases by 12.4%. Surprisingly, when regional taxes and DBH increased by 1%, it further reduced economic growth to 173.3% and 36.1% (see Table 10).

Table 10. Partial Effects without Moderating Variable

Linkages	Coefficient	T-statistics	Sig.
Local tax → Economic growth	-1.733	-3.786	.000
DAU → Economic growth	.124	1.253	.215
DBH → Economic growth	-.361	-1.574	.066

Source: Secondary data is processed (2023).

Table 11. Partial Effects with Moderating Variable

Linkages	Coefficient	T-statistics	Sig.
Local tax → Regional expenditure → Economic growth	-1.934	-4.121	.000
DAU → Regional expenditure → Economic growth	.065	1.354	.181
DBH → Regional expenditure → Economic growth	-.214	-2.148	.036

Source: Secondary data is processed (2023).

Referring to Table 11, there are similarities between statistical findings from time-series models without moderation paths and those operated via moderation paths. Through the role of regional spending, DAU has a positive interaction with economic growth, while regional taxes and DBH have a negative interaction with economic growth. If DAU increases by 1%, it can increase economic growth to 6.5%. Yet, the more local taxes and DBH increase by 1%, the more economic growth decreases by 193.4% and 21.4%.

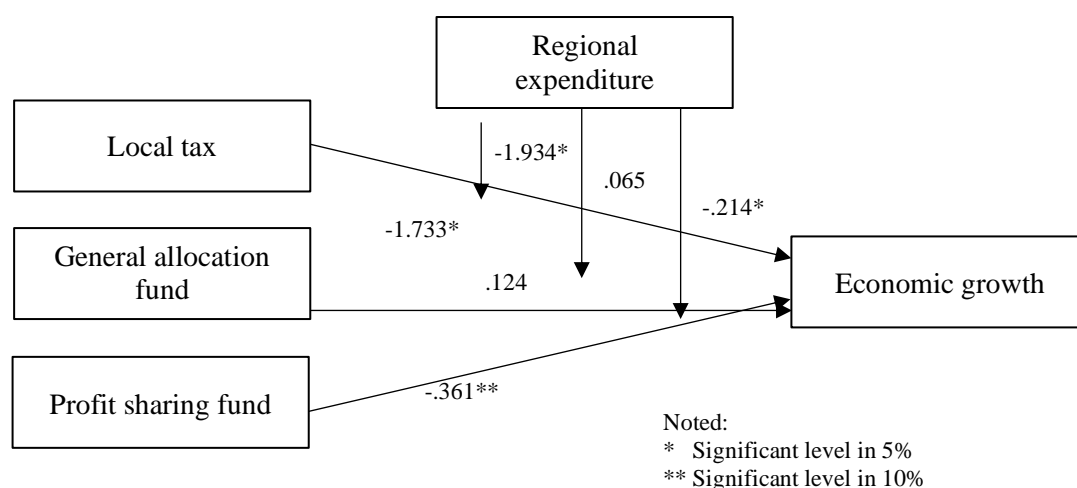


Figure 4. Analyzed Model

Source: Secondary data is processed (2023).

Overall, DAU is the only variable that has a positive impact on economic growth, either without regional spending or with the role of regional spending. From the opposite side, although the probability level of regional taxes and DBH shows a significant relationship to economic growth naturally or through regional spending, it does not have a systematic impact in increasing economic growth. The probability of DAU does show an insignificant effect on economic growth, even though it is through regional spending. Even so, DAU is able to boost economic growth positively in the long term.

Lokal Taxes without and with the Role of Regional Expenditures on Economic Growth

Authentic facts justify that regional taxes have a negative impact on economic growth, either directly without regional spending or indirectly through regional spending. It is often found that the majority of district/city regional taxes in Indonesia have a positive effect on the level of economic growth. The reason is that regional tax flows are used to finance physical and non-physical development processes. However, some local taxes in some cases actually have a negative impact on economic growth. This is because public or corporate funds that should be used for consumption are deducted to pay taxes, so that the ability to buy goods/services. As a result, if the tax proceeds obtained from the mobility of people's consumption are not optimally allocated for development, this will trigger a slowdown in economic growth.

The results of the study also prove that after the interaction between regional taxes and regional expenditure, the effect on the level of economic growth in Berau Regency is negative. The

inclusion of a moderating variable, namely regional spending, is projected to reduce the negative influence. Cutting public consumption to pay taxes if allocated for better development changes through regional spending can stimulate economic growth. With an insignificant probability, it is triggered by the fact that tax funds obtained by Berau Regency are dominantly less than optimal than other income, including sources outside regional taxes. Take, for example, other sources of government income such as balancing funds and other components of PAD, i.e regional levies and separate management of regional assets.

For example, [Stoilova \(2017\)](#) reveals that the tax structure in the European Union relies on increasing consumption taxes and at the same time reducing taxes on capital and labor which is useful in stimulating the strength of economic growth. During 1996–2013, the state tax burden tended to be directed towards property taxes, personal income taxes, and selective consumption with properties that are conducive to supporting economic growth. Theoretically, countries that drastically reduce private incentives to boost investment will greatly harm economic growth performance. In the model proposed by [Jaimovich & Rebelo \(2017\)](#), the priority of taxation towards desired growth is sometimes non-linear. Low tax rates increasingly have very little impact on long-term economic growth. But, in the short term, along with the increase in tax rates, it will have a negative effect on economic growth. The dramatic, minimal impact of tax rates on growth prospects is difficult to develop using an empirical approach.

Facts using panel data (City and Regency) in Central Java, [Susanto & Sugianto \(2019\)](#) authenticate that the tax structure built by PAD is one-way towards GRDP growth. Apart from that, tax revenues show a significant influence on GDP growth. In comparison, the financial impact since the enactment of the state tax regime has had a negative contribution to the local economy in the United States (Chairassamee et al., 2023). The complex relationship of several tax groups, such as property tax, sales tax, payroll tax, income tax, and other tax sources triggers economic growth in local communities at the state level. With tax increases that are not balanced with an inclusive labor market, entrepreneurship and innovation, it is detrimental to job owners engaged in the non-agricultural sector and produces new problems such as local unemployment.

DAU without and with the Role of Regional Expenditures on Economic Growth

Empirical results show that DAU has a positive impact on economic growth, either directly without regional spending or indirectly through regional spending. The striking difference from the existing findings emphasizes that although the probability level does not appear to have a significant effect on economic growth, it can increase positively without and with the role of regional spending. The realization of DAU can influence economic growth because the allocation of DAU funds first goes to employee expenditure items. It is relevant to what was mentioned in the previous chapter, that allocation to employee expenditure items will stimulate positive economic growth. The reason is, government employees channel and spend their wages for daily needs. Indirectly, this has an impact on increasing purchasing power, prosperity and happiness per capita across sectors. DAU and regional expenditure in Berau Regency have a strong interaction with economic growth. The main purpose of including regional expenditure variables is to see the moderating effect. With an impressive DAU allocation to support regional spending, at least the local government's efforts to encourage decentralization can be developed independently.

Most recently, a scientific magazine highlighted by [Wahyuni \(2020\)](#) emphasized that Surakata's economic growth cannot be separated from fiscal policy. Apart from PAD, DAU also has a partial effect on economic growth. One of the levels of regional government financial independence can be determined by DAU. [Sulangi et al. \(2022\)](#) observed thirty-one samples to test the causality between DAU and fiscal independence. During 2018–2019, it was proven that DAU had an influence on the fiscal independence of all provinces in Indonesia. Automatically, with good financial independence, a region also has the opportunity to improve its economy. Especially in West Java, the roots of economic problems such as unemployment can be prevented with appropriate budget policies. A pro-active development agenda towards alleviating unemployment requires expanding employment opportunities through the reallocation of government spending ([Holik, 2020](#)).

[Alvaro \(2022\)](#) understands that the fiscal ratio (including DAU and government spending therein) has a significant effect on the economic growth of one hundred and twenty-two districts confirmed as underdeveloped regions in Indonesia. In the case of the Malang government, [Adur et al. \(2019\)](#) highlighted that DAU contributes significantly to economic growth or capital expenditure. Tests based on path analysis also confirm that DAU has no effect on economic growth through government capital expenditure. Interestingly, Cahyaning (2018) thinks about the causality between DAU and capital expenditure allocation through GRDP growth. Here, GRDP growth acts as a moderating variable. Since the 2013–2015 era, governments in cities and districts throughout East Java have relied heavily on DAU and PAD to encourage capital expenditure rather than DBH. Other statistics actually say something different, where GDP growth is able to positively moderate DBH on capital expenditure. Meanwhile, GRDP growth was unable to moderate DAU or PAD towards capital expenditure.

DBH without and with the Role of Regional Expenditures on Economic Growth

Existing reality shows that DBH has a negative effect on economic growth. Also, it was confirmed that DBH had no impact on economic growth even though it was supported by regional spending. In that context, if there is a shift in the situation in DBH revenues in Berau Regency, it will actually be in the opposite direction or there will be no change at all in economic growth. The capacity of the Berau Regency government in the economy has proven to be weak.

In line with an investigation that shared findings about DBH having a negative effect on economic growth. This difference is caused by the realization that the DBH received by the government is not directly used for the development process of Berau Regency, so that even though the DBH allocation is large, it does not have a direct impact on economic growth. Likewise, the mismatch with DBH produces a negative influence on the level of economic growth even though it includes regional expenditure elements as a moderating variable. Therefore, rejecting the initial hypothesis that the inclusion of regional spending will increase the influence of DBH on economic growth systematically. Empirical reality shows that the interaction between DBH and regional expenditure in Berau Regency has a negative influence on the level of economic growth. The primary concern for including regional spending elements is to boost the DBH function for economic growth. The existence of an effect termed "crowding out" illustrates that revenue in terms of DBH in the regional development phase in bridging economic growth is a failure. The high government budget

deficit, which originates from taxes and natural resources, actually reduces the purchasing power of the population. In turn, weakening macroeconomic activity.

The latest study by [Yanti & Nurtati \(2020\)](#) concluded that the intensity of regional balancing funds partially has no effect on district and city capital expenditure in West Sumatra Province. Also, regional balancing funds actually have a simultaneous impact on economic growth. Likewise, capital expenditure on economic growth mediated by regional balancing funds is insignificant. Likewise, DBH competency shows a negative slope towards unemployment and economic growth in East Kalimantan. Another truth also represents that DBH has an indirect effect on unemployment through economic growth ([Pinem et al., 2021](#)). [Anggraini et al. \(2023\)](#) focuses on determining economic growth based on aspects of government revenue in Jambi Province. Since 2017–2021, it shows an insignificant effect of DBH on the rate of economic growth in the eleven regions that are the focus of the data. At the scale of cities and districts throughout East Java, the impact of regional autonomy policies examined based on shows the flypaper effect between revenue sharing on government spending. On the other hand, [Kurniana et al. \(2017\)](#) detect that government spending has a negative effect on economic growth. Revenue sharing through regional spending also contributes negatively to economic growth, so that regional spending does not succeed as an intermediary variable. From Eastern Indonesia, specifically South Sulawesi, [Salmawati & Junaidi \(2023\)](#) discussed the causality between the allocation of city and district government expenditure on GRDP. Compared to DAU and DAK, the diagnosis results show that DBH has a significant effect on GRDP.

CONCLUSION

Through a series of existing identification stages, this paper indicates six important pillars, including the following: (1) Regional taxes have a negative relationship to economic growth because they are triggered by the effect of high taxes further reducing the level of public consumption which has implications for the macro economy; (2) DAU is positively related to economic growth because DAU is predominantly channeled to pay employee salaries and its usefulness is automatically felt in real terms; (3) DBH actually has a negative relationship to economic growth, where the allocation of DBH itself does not create conducive economic growth; (4) The interaction of regional taxes and regional expenditure is positively related to economic growth, so that regional expenditure is an essential instrument in initiating the function of regional taxes to support economic growth; (5) The interaction of DAU and regional spending is positively related to economic growth as shown by the distortion of DAU as one of the indicators of regional spending; and (6) The interaction between DBH and regional expenditure is negatively related to economic growth because it is triggered by an increase in sources of development financing from regional expenditure that does not depend on DBH.

The Berau Regency government is advised not only to rely on regional financial sources outside PAD (such as balancing funds and remaining regional budgets), but to focus on PAD, especially regional taxes. Moreover, regional independence is reflected in the management and strategies for obtaining sustainable PAD. The regional economy can be seen from fiscal consistency as the main

corridor for development financing. For this reason, future regulations can prioritize more priority regional spending.

This paper pioneers an empirical case that not only concentrates on the impact of regional taxes, DAU, and DBH on economic growth, but also includes regional spending as a fundamental thing in bridging the effects of income allocation to support GRDP. Given the existing weaknesses, future studies could consider including types of balancing funds (apart from DAU and DBH), including DAK and other PAD components outside regional taxes (such as other legitimate PAD, results of separated regional wealth management, and regional levies). The aim is that empirical investigation allows for a more actual space. Furthermore, the analytical model can be expanded to include more than one moderating variable other than capital expenditure.

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