

# GOVERNMENT SPENDING AND ECONOMIC GROWTH DYNAMICS IN SULAWESI ISLAND 2015-2024

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## ABSTRACT

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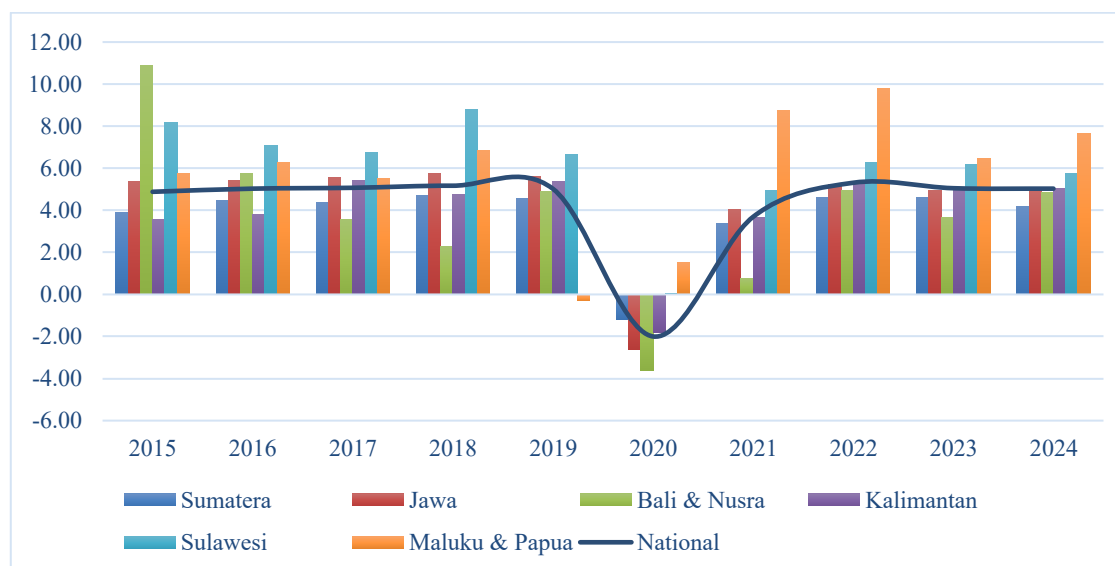
This study analyzes the extent to which government spending sourced from the State Budget (APBN) on functional classifications related to the tourism sector, public facilities, public order and security, and the environment affects the economic growth of Sulawesi Island during 2015–2024. This study employs a quantitative approach using secondary data on APBN realization and Gross Regional Domestic Product (GRDP) published by Ministry of Finance and BPS-Statistics Indonesia. The data were analyzed using panel data regression with a Fixed Effects Model (FEM). The findings indicate that government spending on public facilities, public order and security, and the environment has a positive and statistically significant association with economic growth. Meanwhile, government spending on tourism also shows a positive relationship with economic growth, but the effect is not statistically significant. These findings imply that public expenditures supporting basic services, security, and environmental quality play a more direct role in promoting regional economic growth in Sulawesi.

## Introduction

Government plays an important role in promoting economic growth through public consumption, investment, and fiscal policy. In addition, factors such as public debt, institutional factors, political culture, trade openness, and infrastructure also strongly influence economic performance (Bostan et al., 2023; Čermáková et al., 2020; Jaćimović et al., 2025; Kang, 2022; Liu & Lyu, 2021). At the regional level, Gross Regional Domestic Product (GRDP) at constant prices is commonly used to measure economic performance through its growth rate (Rijpma et al., 2025). Although there is a long-standing debate among economists and social scientists regarding the measurement of economic development indicators, it is widely acceptable to use this indicator. In general, GRDP reflects the total value added generated by production activities within a region and is therefore a relevant indicator for assessing regional economic growth.

From the perspective of economic convergence theory, less developed regions tend to grow faster than more developed ones, allowing them to gradually catch up over time. Paprotny (2021), for example, shows that many developing countries have experienced convergence with developed countries in social and economic aspects. In the Indonesian context (see Figure 1), this perspective suggests that regions in Eastern Indonesia have the potential to achieve higher growth than regions in Central and Western Indonesia. However, such growth is closely linked to government fiscal intervention, particularly through the allocation and implementation of public spending.

Figure 1. Economic Growth per Region/Island in Indonesia



Source: BPS-Statistics Indonesia (processed)

Sulawesi is one of the regions in Eastern Indonesia with considerable potential for economic growth. Over the past decade, the realization of State Budget (APBN) spending received by provinces in Sulawesi has consistently exceeded five trillion rupiah annually (see Table 1). At the same time, the structure of government spending varies across provinces according to development priorities and regional needs. Based on the OECD classification (2025), government spending can be grouped into several functional categories, including public services, defense, public order and security, and economic functions. In the case of Sulawesi, these variations in expenditure allocation are important to examine because they may influence regional economic performance differently.

Table 1. Realization of State Budget Expenditure per Function in 2024 in Provinces on Sulawesi (Billions of Rupiah)

	Gorontalo	Sulawesi Barat	Sulawesi Selatan	Sulawesi Tengah	Sulawesi Tenggara	Sulawesi Utara
Public Services	7,004.62	7,307.96	35,095.21	20,209.32	20,604.63	14,988.09
Defense	229.60	135.67	3,379.07	482.72	480.25	1,117.29
Order and Security	990.80	949.38	3,935.89	1,800.50	1,672.52	1,745.80
Economics	2,588.08	1,435.93	6,032.38	3,169.77	2,375.45	2,250.96
Environment	92.60	84.98	590.64	211.45	264.19	172.45
Housing and Public Facilities	130.58	294.18	933.72	830.18	347.05	561.82
Health	118.12	124.65	2,333.76	219.45	211.48	971.60
Tourism and Culture	2.67	1.33	1.62	1.38	1.72	3.02
Religion	132.28	177.24	589.01	210.12	221.64	148.69
Education	1,102.32	763.00	5,501.43	1,751.92	1,846.69	1,830.38
Social Protection	0.00	0.00	89.34	18.01	23.20	16.54
Total	12,391.68	11,274.32	58,482.08	28,904.82	28,048.83	23,806.65

Source: Directorate General of Treasury, Ministry of Finance (processed)

The provinces on Sulawesi have significant economic potential supported by abundant natural resources and productive sectors such as agriculture, plantations, fisheries, maritime affairs, and tourism. Among these sectors, tourism has become increasingly important. According to the National Tourism Development Index (IPKN) published by the Ministry of Tourism and Creative Economy (2024), South Sulawesi ranked among the top five provinces nationally in 2022. In 2024, South Sulawesi and North Sulawesi recorded IPKN scores of 4.35 and 4.03, respectively, both at or above the national average. These indicate that Sulawesi has relatively strong tourism potential compared with many other regions in Indonesia.

Other provinces in Sulawesi also possess promising tourism assets, including Bunaken Marine Park, the Togean Islands, Tojo Una-Una, and Likupang as a super-priority tourism destination. However, budget allocation for tourism development remains relatively limited compared with other strategic sectors, such as the economy, education, and health. This raises an important question about whether government spending on tourism-related functions can contribute meaningfully to regional economic growth.

Based on this background, this study examines the effect of government spending on economic growth in the provinces of Sulawesi over the 2015–2024 period. More specifically, it analyzes the contribution of spending on tourism, public facilities, public order and security, and the environment to regional economic growth. The study is expected to provide a clearer understanding of which expenditure components contribute most to growth and to offer policy implications for future budget allocation.

## Literature Review

Government spending is widely known as an important instrument for promoting economic growth, primarily through increasing aggregate demand and providing public infrastructure (Aritenang, 2020; Eguchi et al., 2024). From a Keynesian perspective, government spending can expand output and support income generation, although the current effect estimated using a new Keynesian model is much smaller (Cogan et al., 2010). Empirical studies in Indonesia have generally shown that public spending can positively affect regional economic growth, although the magnitude of the effect varies depending on the composition of expenditures and the efficiency of implementation (Nie & Song, 2025; Nurlina, 2015; Sugiyarto et al., 2025).

However, the contribution of government spending to regional economic growth varies across expenditure functions, depending on sectoral characteristics and regional needs. Recent literature emphasizes that the effect of government spending should not be viewed only in aggregate terms. Different expenditure functions produce different economic outcomes because each sector affects growth through distinct channels. Productive expenditures tend to have a stronger impact on regional growth than non-productive expenditures, particularly when they improve connectivity (transportation and communication), human capital (education and health infrastructure), and stimulate economic activity directly (Babatunde, 2018; Yaghi & Tomaszewski, 2023; Yang et al., 2019). Therefore, examining government spending by function is important for understanding which types of expenditures contribute more strongly to regional economic performance.

In provinces such as those in Sulawesi, the composition of government spending on strategic functions, such as tourism, public facilities, public order and security, and the environment, is postulated to drive regional economic acceleration. Starting with spending in the tourism sector, this expenditure, such as destination development, tourism promotion, and supporting facilities, can increase tourist arrivals, stimulate local business activity, generate employment, and raise regional income (Castilho & Fuinhas, 2025; Nie & Song, 2025; Zhao et al., 2023). This effect is particularly relevant in regions with strong tourism potential, where government budgets can strengthen the attractiveness and competitiveness of destinations (Wang et al., 2026; Zhang et al., 2024).

Spending on public facilities is also expected to contribute positively to economic growth. Investment in infrastructure such as roads, transportation, information systems, and public services can increase GDP and labor demand (Suárez-Cuesta & Latorre, 2023). More broadly, such spending reduces transportation and transaction costs, improves market access, and encourages business productivity and competitiveness (Kosmopoulou & Press, 2022). For this reason, expenditures on public facilities are generally considered to have a direct and positive effect on economic growth.

Government spending on public order and security may also affect economic growth, although through a less direct channel. This expenditure aims to create social stability and a secure environment that further encourages private investment, supports business continuity, and reduces uncertainty in economic activities (Sohalio, 2023). In a similar way, environmental spending plays an important role in the context of sustainable development (Holum & Jakobsen, 2024). Government expenditure on environmental management, conservation, waste management, and natural resource protection can preserve ecological quality and maintain the long-term productivity of economic sectors that depend on natural resources, such as agriculture, fisheries, and tourism (Johnson et al., 2023; Koiry & Huang, 2023; Xie et al., 2023). Although the short-term growth impact of environmental expenditure may be less visible than infrastructure spending, its long-term contribution is substantial because environmental degradation can undermine economic resilience and reduce development sustainability. In regions where natural resources play a major role in the economy, environmental expenditure is therefore highly relevant.

Taken together, all the literatures suggest that government spending affects economic growth through multiple pathways, and the impact differs by expenditure function. This indicates that the effectiveness of fiscal policy depends not only on the size of public expenditure but also on how budgets are allocated across strategic sectors. However, many previous studies typically focus on total government spending or specific disaggregated functional spending. Thus, our study fills this gap by examining the specific on four related functional areas (tourism, public facilities, public order and security, and the environment) within the same regional setting.

## Method

This study employs a quantitative approach using panel data covering six provinces on Sulawesi Island over the 2015–2024 period. The dataset combines time-series and cross-sectional observations, resulting in a balanced panel. Secondary data were obtained from the official websites of BPS-Statistics Indonesia and the Directorate General of Treasury, Ministry of Finance.

The dependent variable in this study is Gross Regional Domestic Product (GRDP) at constant 2010 prices, which is used as a proxy for regional economic performance. The use of constant-price GRDP allows the analysis to capture real changes in output by excluding the effects of inflation and price fluctuations over time. The independent variables consist of realized central government expenditure sourced from the State Budget (APBN), obtained from the Integrated Budget Execution Information System (SINTESA) managed by the Directorate General of Treasury-Ministry of Finance. These expenditure data represent the actual spending of central government for certain programs and activities in the provinces of Sulawesi.

To examine the relationship between government spending and regional economic performance, this study estimates the following panel regression model:

$$GRDP_{it} = \alpha_0 + \alpha_1 Tourism_{it} + \alpha_2 Facilities_{it} + \alpha_3 Security_{it} + \alpha_4 Environment_{it} + \varepsilon_{it} \quad (1)$$

where  $GRDP_{it}$  denotes real Gross Regional Domestic Product in province  $i$  and year  $t$ .  $Tourism$  refers to realized government expenditure on tourism and culture functions,  $Facilities$  refers to expenditure

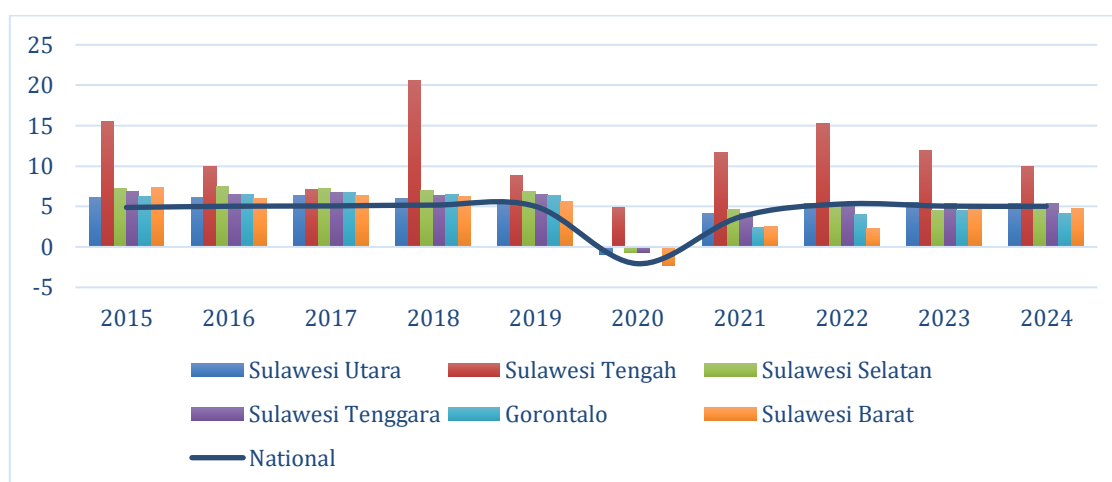
on public facilities, *Security* refers to expenditure on public order and security, and *Environment* refers to expenditure on environmental functions. Here, the value of GRDP is represented in trillions of Rupiah, whereas government spending is in billions of Rupiah. Then the parameters  $\alpha_0$ ,  $\alpha_1$ ,  $\alpha_2$ ,  $\alpha_3$ ,  $\alpha_4$  are the coefficients to be estimated, while  $\varepsilon$  is the error term. In this model,  $i$  represents the provincial cross-sectional unit (Gorontalo, Sulawesi Barat, Sulawesi Selatan, Sulawesi Tengah, Sulawesi Tenggara, and Sulawesi Utara) and  $t$  represents the year of observation (2015, ..., 2024).

## Results and Discussion

Over the 2015–2024 period, the economy of the Sulawesi region generally performed better than the national average (see Figure 2). Economic growth in most provinces on Sulawesi exceeded the national growth rate, indicating relatively strong regional economic dynamics. Among the provinces, Sulawesi Tengah recorded the highest growth during the period, reaching a peak of 20.56% in 2018. Even during the COVID-19 pandemic in 2020, when the national economy slowed and growth declined in many provinces, Sulawesi Tengah still maintained positive growth of 4.86%, although this was its lowest growth rate during the ten-year observation period.

In contrast, Sulawesi Barat showed relatively weaker economic performance than the other provinces on the island, with an average growth rate of 4.81%, slightly below the national average. During the 2020 pandemic, Sulawesi Barat also experienced the deepest economic contraction among the provinces in Sulawesi, at -2.34%.

Figure 2. Economic Growth in Sulawesi



Source: BPS-Statistics Indonesia (processed)

The realization of APBN spending in the provinces of Sulawesi over the past ten years is presented in Table 2. Based on that table, Sulawesi Selatan received the highest budget allocation among the provinces on Sulawesi Island, with an average of approximately 30.6 trillion rupiah per year. On the other hand, Sulawesi Barat received the lowest allocation, averaging 5.8 trillion rupiah. These differences in budget allocation across provinces are influenced by several factors, including administrative area, population size, the complexity of regional development, fiscal capacity, and local revenue. Such factors are important considerations for the government in determining the distribution of the central budget across regions on Sulawesi Island.

Table 2. Realization of APBN Expenditure in Sulawesi (Trillions of Rupiah)

Year Province	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Mean
Sulawesi Utara	9.41	7.32	12.08	12.59	12.17	11.61	12.96	12.45	22.78	23.81	13.72
Sulawesi Tengah	8.22	6.36	10.29	10.53	11.54	11.23	11.14	10.64	30.19	28.90	13.90
Sulawesi Selatan	20.36	17.55	22.88	26.16	26.04	25.24	26.80	27.50	55.81	58.48	30.68
Sulawesi Tenggara	7.86	5.85	9.53	10.54	10.99	10.38	11.89	11.13	29.20	28.05	13.54
Gorontalo	4.68	3.84	5.15	5.44	5.30	5.32	5.70	5.67	10.82	12.39	6.43
Sulawesi Barat	3.80	2.91	4.50	4.77	5.02	4.77	5.49	5.12	10.62	11.27	5.83
Mean	9.06	7.30	10.74	11.67	11.84	11.43	12.33	12.08	26.57	27.15	14.02
Minimum	3.80	2.91	4.50	4.77	5.02	4.77	5.49	5.12	10.62	11.27	5.83
Maximum	20.36	17.55	22.88	26.16	26.04	25.24	26.80	27.50	55.81	58.48	30.68
Range	16.56	14.64	18.38	21.39	21.02	20.47	21.31	22.38	45.19	47.21	24.85
STD	5.43	4.82	6.07	7.07	6.98	6.75	7.10	7.42	15.23	15.63	8.25

Source: Directorate General of Treasury, Ministry of Finance (processed)

Before conducting the inference analysis, it is necessary to determine the most appropriate estimation model. This study considered three statistical tests for model selection, namely the Chow test, the Hausman test, and the Lagrange Multiplier (LM) test. These tests were used to identify the most suitable panel data model among the Common Effects Model (CEM), the Fixed Effects Model (FEM), and the Random Effects Model (REM). As presented in Table 3, the results of the Chow and Hausman tests show that all probability values are below the 0.05 significance level. These findings indicate that the FEM is the most appropriate model for this study. Therefore, the LM test did not need to be carried out.

Table 3. Selection Model Tests

Test	Purpose	Statistic	Prob.	Conclusion
Chow Test	CEM vs FEM	15.824	0.000	FEM is more suitable
Hausman Test	FEM vs REM	55.425	0.000	FEM is more suitable

Furthermore, to ensure that the regression model meets the Best Linear Unbiased Estimator (BLUE) assumptions, three classical assumption test was conducted, including the Normality Test, Multicollinearity Test, and Heteroscedasticity Test. First, Table 4 indicated that the research data were not normally distributed (prob. value <0.05). However, in large sample sizes, then the violations of this normality assumption will not cause any impact for the modelling results (Schmidt & Finan, 2018). In this study, the number of observations was 60 (more than 30), so deviations from the normality assumption can be ignored.

Table 4. Normality Test

Jarque-Bera	15.580
Probability	0.0004

The second test was presented in Table 5. The results indicate that all independent variables in the model have inter-variable correlations  $< 0.60$ . This condition indicates that there is no strong linear relationship among the independent variables, so the regression model is free from multicollinearity.

Table 5. Multicollinearity Test

	Tourism	Facilities	Security	Environment
Tourism	1.000	0.082	0.259	-0.086
Facilities	0.082	1.000	0.545	0.515
Security	0.259	0.545	1.000	0.453
Environment	-0.086	0.515	0.453	1.000

Lastly, the heteroscedasticity test was presented in Table 6. Based on the results, all variables had p-values  $> 0.05$ . Thus, it can be concluded that the residual variance in the model is constant or homogeneous, meaning no signs of heteroscedasticity were found in the data used.

Table 6. Heteroscedasticity Test

Variable	Coefficient	Std. Error	t-stat	Prob.
Tourism	-1.02E-15	8.77E-16	-1.164	0.250
Facilities	-1.04E-16	5.30E-17	-1.971	0.054
Security	-3.31E-17	2.07E-17	-1.500	0.140
Environment	9.02E-19	1.67E-18	0.540	0.592
Constant	14.730	3.791	3.885	0.000

Finally, the parameter estimates reported in Table 7 show that the coefficients of government spending on public facilities, public order and security, and the environment ( $\alpha_2$ ,  $\alpha_3$ , and  $\alpha_4$ ) are 8.51, 3.49, and 5.23, respectively. This means that, holding other variables constant, a one trillion rupiah increase in spending on these functions is associated with increases in GRDP of 8.51 trillion rupiah, 3.49 trillion rupiah, and 5.23 trillion rupiah, respectively. In addition, the t-statistic probability values for these variables are 0.01, 0.00, and 0.00, respectively, all of which are below the 0.05 significance threshold. These results indicate that spending on public facilities, public order and security, and the environment has a positive and statistically significant effect on GRDP in Sulawesi Island.

Table 7. Model Estimation Results

Variable	Coefficient	Std. Error	t-stat	Prob.
Tourism	4.91E-15	3.44E-15	1.425	0.160
Facilities	8.51E-16	3.19E-16	2.672	0.010
Security	3.49E-16	1.153E-16	3.038	0.004
Environment	5.23E-17	8.86E-18	5.903	0.000
Constant	69.890	20.008	3.493	0.001
R <sup>2</sup>	0.958			
Adj. R <sup>2</sup>	0.950			
F-stat	126.569			
Prob.	0.000			

Based on the estimated parameters, the effect of government spending on tourism-related functions on economic growth can be explained as follows. Government spending on public facilities, public order and security, and the environment has a significant positive effect on economic growth. This may be explained by the role of such spending in creating conditions that support tourism sector development. Spending on public facilities provides essential infrastructure, such as road access, public transportation, lighting, and cleanliness in tourist areas, all of which improve visitor comfort. Spending on public order and security also plays an important role in increasing

tourists' sense of safety, which is a key factor in attracting visitors. In addition, environmental spending contributes to the creation of clean, healthy, and sustainable tourist destinations. This is particularly important because environmentally conscious tourists tend to prefer destinations that prioritize sustainability, thereby enhancing destination image and encouraging sustainable tourism development. These findings suggest that the Central Government needs to pay greater attention to budget allocations in these sectors in Sulawesi, given their important role in accelerating regional economic growth.

In contrast, government spending on tourism itself shows a positive but statistically insignificant effect on economic growth. Although the coefficient indicates that tourism spending contributes to an increase in GRDP, its effect is relatively smaller than that of other spending functions. This may be due to the relatively limited allocation for tourism compared with other sectors. In addition, tourism spending is often directed toward temporary activities, such as annual events with limited duration. While such activities may generate multiplier effects for the local economy, their limited scale and frequency reduce their overall impact on aggregate economic growth.

## Conclusion

Based on the discussion and analysis of the relationship between government spending and economic growth on Sulawesi Island during 2015–2024, several conclusions can be drawn. On average, economic growth in the provinces of Sulawesi was relatively higher than the national average. Sulawesi Tengah recorded the highest growth rate in 2018, reaching 20.60%, and still grew by 4.86% in 2020 despite the economic slowdown caused by the COVID-19 pandemic.

The realization of government spending financed through the State Budget (APBN) varied considerably across the provinces on Sulawesi. Sulawesi Selatan received the largest allocation, while Sulawesi Barat received the smallest portion. Despite this variation, the regression result indicates that this spending could push the economic growth in Sulawesi. The FEM model in our study able to explain 95.04% of the variation in GRDP, indicating that it plays an important role in regional economic performance.

In terms of functional allocation, government spending on public facilities, public order and security, and the environment has a positive and statistically significant effect on economic growth. These findings suggest that spending in these sectors contributes directly to productivity and helps create a conducive environment for broader economic activity, including the development of tourism. Meanwhile, government spending on tourism also shows a positive relationship with economic growth, but its effect is not statistically significant. This implies that, although tourism spending has the potential to stimulate economic activity, its relatively limited allocation has not yet made a substantial contribution to economic growth in Sulawesi.

Based on these findings, it is recommended that the central government increase budget allocations for tourism-related functions in the provinces of Sulawesi. A larger allocation is expected to support tourism programs and destination development, generate multiplier effects for the regional economy, and ultimately accelerate sustainable economic growth across Sulawesi.

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