

# SUPPLY AND DEMAND SIDE DRIVERS OF REGIONAL ECONOMIC GROWTH: EVIDENCE FROM JAVA ISLAND

**Tania Zahra Zhafira, Aris Soelistyo\*, Muhammad Firmansyah**

Fakultas Ekonomi dan Bisnis, Universitas Muhammadiyah Malang

Email : taniazahra36@gmail.com, aris\_s@umm.ac.id, firmansyah92@umm.ac.id

## ABSTRACT

*This study aims to analyze the influence of supply-side and demand-side factors on economic growth in six provinces on Java Island during the 2015–2024 period. Supply-side factors include mean years of schooling, life expectancy, labor productivity, and the number of employed labor force, while the demand-side factor is represented by government consumption expenditure. Economic growth is measured using Gross Regional Domestic Product (GRDP) at constant prices. This study employs a quantitative approach using panel data regression with 60 observations, and the best estimation model is selected through the Chow test and Hausman test. The results show that all independent variables simultaneously have a significant effect on economic growth in Java. Partially, supply-side variables have a more dominant influence than government expenditure. These findings indicate that improvements in human capital quality and labor productivity play an important role in promoting regional economic growth. This study is limited by its coverage, which only includes six provinces on Java Island, and by the limited number of variables used, so it may not fully capture all determinants of economic growth. Therefore, future research is recommended to incorporate additional variables such as investment, infrastructure, and technology, expand the regional scope, and use a longer observation period or different analytical methods to produce more comprehensive results with stronger generalizability.*

**Keywords:** Economic Growth, Supply-Side Factors, Human Capital, Labor Productivity, Panel Data Regression

## INTRODUCTION

Economic growth is one of the main indicators used to assess the economic performance of a region because it reflects the increase in the capacity to produce goods and services over time. In regional macroeconomic analysis, economic growth is generally measured using Gross Regional Domestic Product (GRDP), particularly GRDP at constant prices (ADHK), as it is able to describe changes in real output without being affected by price fluctuations. An increase in GRDP at constant prices indicates a region's ability to expand its production capacity and improve the economic welfare of its population (Nilasari, 2025).

However, regional economic growth does not always show a stable trend. Based on data from BPS, the development of economic growth in Java Island during the period 2015–2024 shows a fluctuating pattern. In the early period, economic growth tended to be stable, but it experienced a contraction in 2020 due to the COVID-19 pandemic and then gradually recovered during the period 2021–2024. These fluctuations indicate that economic growth in Java Island has not been fully stable and is still influenced by various structural factors, such as the quality of human resources, labor productivity, and regional fiscal policies Amsyah, (2025). These issues make economic

growth a strategic topic that needs to be examined more deeply in order to formulate appropriate and sustainable development policies.

Economic growth is influenced by two groups of factors, namely demand-side factors and supply-side factors. From the demand side, increases in consumption, investment, government expenditure, and exports play an important role in encouraging aggregate demand. Meanwhile, from the supply side, the quality of human resources, labor productivity, and the number of employed labor force are important factors in increasing long-term production capacity. Therefore, indicators such as education, health, labor productivity, and government expenditure have a strategic role in determining regional economic performance as reflected in GRDP values. (Rohman & E.S S, 2024).

One of the key factors in regional economic growth is the quality of human resources or human capital. High-quality human capital makes a significant contribution to increasing productivity and economic growth (Quartano et al., 2024). Human capital is understood as the economic value embedded in the abilities, knowledge, skills, ideas, and innovations of human resources that influence labor productivity (Anshory & Wijayanti, 2022). Improvements in the quality of human capital are believed to encourage

production efficiency and sustainably increase economic output. (Rasnino et al., 2022)

The quality of human capital is generally represented by education and health indicators, including mean years of schooling and life expectancy. Mean years of schooling reflects the educational attainment of the population, while life expectancy describes the health conditions and productivity of society. Research Rasnino et al., (2022) shows that mean years of schooling has a positive and significant effect on GRDP, while life expectancy has a positive but insignificant effect. In contrast, Karismawati et al., (2025), found that mean years of schooling has a positive but insignificant effect, whereas life expectancy has a positive and significant effect on GRDP. These differences indicate inconsistencies in empirical findings regarding the roles of education and health in regional economic performance. Research by Hasnawati et al., (2024), also found that several human development indicators, including health variables, do not always have a significant influence on economic growth because the relationship between health and economic growth is complex and influenced by various other macroeconomic factors.

In addition to the quality of education and health, labor is a primary production factor that determines the level of output in a region. Labor productivity reflects the efficiency of labor utilization in producing output, while the number of employed labor force indicates the ability of the economy to absorb labor and generate income. Research by Linda et al., (2020), found that labor productivity has a positive and significant effect on GRDP. However, Darmawati & Arafat, (2022), showed different results, indicating that labor productivity does not have a significant effect on economic growth. Meanwhile, Fathonah et al., (2024), stated that labor has a positive and significant effect on GRDP. In addition, Utami et al., (2021), also found that the labor force has a positive and significant effect on economic growth. Another finding by Iman & Hakim, (2026), showed a negative and insignificant effect. These differing findings indicate the existence of a research gap regarding the role of labor in regional economic growth.

Another factor influencing economic growth is government expenditure as an instrument of fiscal policy. Government expenditure plays a role in encouraging aggregate demand, providing infrastructure, improving public services, and stabilizing the economy. Agustina et al., (2024), found that government expenditure has a positive and significant effect on GRDP in East Kalimantan. However, showed that government

expenditure does not have a significant effect on GRDP. These differences indicate that the impact of government expenditure on economic performance may vary across regions and time periods.

Based on these findings, a research gap can be identified. A study conducted by Ari & Wibowo, (2021) showed that mean years of schooling has a positive and significant effect on economic growth, whereas Bah, (2023), found that mean years of schooling has an insignificant effect on economic growth. Research by Karismawati et al., (2025) showed that life expectancy has a positive and significant effect on economic growth, whereas Cui et al., (2025), found that life expectancy does not have a significant effect on economic growth. Other studies also indicate that health indicators as part of human capital do not always directly influence economic growth because their contribution is more evident in the long term through improvements in the quality of human resources (Sart & Sa, 2023)

Research by Puspitasari, (2022), showed that labor productivity and the size of the labor force have a positive and significant effect on economic growth. In contrast, Darmawati & Arafat, (2022), found different results, indicating that labor productivity does not have a significant effect on economic growth. In addition, Agustina et al., (2024) found that government expenditure has a positive and significant effect on GRDP, while, Amalia, (2023) showed different results, indicating that government expenditure has a positive but insignificant effect on economic growth. Research by Okunlola et al., (2021), also explains that government expenditure does not always have a significant effect on economic growth, depending on institutional conditions and conflict situations. Furthermore, previous studies generally analyzed education, health, labor, and government expenditure variables separately and were limited to specific regions, so they have not provided a comprehensive picture of the interaction between supply-side and demand-side factors in driving regional economic growth. Therefore, this study fills the gap by integrating all these variables into a single empirical model based on panel data at the provincial level in Java Island for the period 2015–2024, in order to obtain a more comprehensive understanding of the determinants of regional economic growth.

The novelty of this study lies in the integration of supply-side and demand-side factors within a comprehensive empirical framework at the regional level. This study not only analyzes the role of education and health as indicators of human capital but also simultaneously incorporates labor

productivity, the number of employed labor force, and government expenditure in explaining the dynamics of Gross Regional Domestic Product in Java Island. In addition to variable limitations, the selection of the 2015–2024 research period has particular significance as it reflects an important phase in national development, especially during the administration of President Joko Widodo, which emphasized strengthening the quality of human resources through policies in education, health, and economic development.

This study has high urgency considering that Java Island is the center of national economic growth with the largest contribution to Indonesia's GDP. Fluctuations in economic growth in this region have the potential to affect national economic stability (Prasetyo, 2025). Therefore, an empirical study is needed to identify the main factors influencing regional economic growth as a basis for formulating more effective and sustainable development policies.

Therefore, this study aims to analyze the effects of supply-side factors, including mean years of schooling, life expectancy, labor productivity, and the number of employed labor force, as well as the demand-side factor in the form

of government expenditure, on GRDP at constant prices (ADHK) in six provinces on Java Island during the period 2015–2024. This study is expected to provide a more comprehensive empirical contribution to the regional development economics literature and serve as a reference for formulating development policies oriented toward improving the quality of human resources and achieving sustainable economic growth.

## RESEARCH METHODS

This study employs a quantitative research design with an explanatory approach aimed at analyzing the effects of supply-side and demand-side factors on economic growth in Java Island. The study uses data from six provinces, namely DKI Jakarta, West Java, Central Java, DI Yogyakarta, East Java, and Banten, covering the period 2015–2024. The sample selection was conducted using the purposive sampling method, based on the criteria of data completeness and consistency obtained from an official institution, the Central Statistics Agency (BPS). The variables and their measurements are as follows:

| Variable                            | Definition                                                                                                                                                                                       | Unit of Measurement                         |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| Economic Growth (Y)                 | The difference in Gross Regional Domestic Product (GRDP) relative to standardized Gross Domestic Product, calculated as $\frac{(GDP_1 - GDP_2)}{gdp2}$ a or expressed in logarithmic GDP values. | Nilai logaritma PDRB                        |
| Average Years of Schooling (X1)     | The average number of years of formal education completed by the population aged 15 years and above.                                                                                             | Years                                       |
| Life Expectancy (X2)                | The average estimated length of life that a population is expected to attain from birth.                                                                                                         | Years                                       |
| Labor Productivity (X3)             | The ability of the labor force to generate economic output, measured by the total value of production (GRDP) produced per worker.                                                                | Logarithmic value of labor productivity     |
| Number of Employed Labor Force (X4) | The total number of working-age individuals who are employed across various sectors in each province.                                                                                            | Logarithmic value of employed labor force   |
| Government Expenditure (X5)         | The total realization of regional government consumption expenditure as recorded in GRDP by expenditure.                                                                                         | Logarithmic value of government expenditure |

The initial stage of the analysis was conducted through descriptive statistical analysis, which aims to provide a general overview of the characteristics of the research data. Descriptive statistics are used to explain the preliminary patterns of the data through the mean, minimum value, maximum value, and standard deviation of each research variable (Martias et al., 2021). The main data analysis method used in this study is panel data regression, considering that the research data have both cross-sectional and time-series dimensions, allowing the analysis to capture the dynamics of economic growth across provinces while controlling for unobserved heterogeneity (Widiarti et al., 2025).

The selection of the best estimation model was carried out through several stages, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The Chow test was used to determine the best model between CEM and FEM, while the Hausman test was used to select between FEM and REM. The selected model was then evaluated through statistical tests, including the F-test to examine the simultaneous effect of independent variables on economic growth, the t-test to examine the partial effect of each independent variable, and the coefficient of determination ( $R^2$ ) to measure the model's ability to explain variations in GRDP at constant prices (ADHK). All analytical procedures were conducted at a 5 percent significance level to obtain empirical results that are accurate and scientifically reliable (Hermawan et al., 2022).

The verification of variables in this study is expressed in the form of the following panel data regression equation:

$$\begin{aligned} LOGY_{it} = & \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} \\ & + \beta_3 LOGX_{3it} \\ & + \beta_4 LOGX_{4it} + \beta_5 LOGX_{5it} \\ & + \varepsilon_{it} \end{aligned}$$

Where:

$LOGY_{it}$  : Provincial economic growth in Java during the 2015–2024 period is measured by calculating the logarithmic value of Gross Regional Domestic Product (GRDP).  $X_{1it}$  : The average years of schooling in the provinces of Java during the 2015–2024 period.  $X_{2it}$  : Life expectancy in the provinces of Java during the 2015–2024 period.  $LOGX_{3it}$  : Labor productivity in the provinces of Java during the 2015–2024 period.  $LOGX_{4it}$  : The number of employed labor force in the provinces of Java during the 2015–2024 period.  $LOGX_{5it}$  : Government expenditure as reported in the GRDP data.  $\beta_0$  : Constant (intercept).  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  : Regression coefficients.  $\varepsilon_{it}$  : Error term.  $i$ : 'Province,  $T$ : Time.

## RESULTS AND DISCUSSION

Regional economic growth in Java during the period 2015–2024 shows an increasing trend based on statistical data, except in 2020 when it recorded a negative value due to the COVID-19 pandemic. Meanwhile, the variables influencing economic growth tend to show varied patterns. The results of the descriptive statistical analysis reveal the mean values, standard deviations, and value ranges of all research variables. Economic growth, proxied by Gross Regional Domestic Product (GRDP) at constant prices, has an average value of 1,070,555.9 with a standard deviation of 644,135.32. This indicates the existence of variations in economic growth levels among provinces in Java Island during the period of study.

|                                     | N  | Mean        | Minimum    | Maximum    | Std.<br>Deviation |
|-------------------------------------|----|-------------|------------|------------|-------------------|
| Y (Economic Growth)                 | 60 | 1070555,9   | 83474.45   | 2151041.33 | 644135.3176       |
| X1 (Mean Years of Schooling)        | 60 | 9.21        | 7.57       | 11.49      | 1.10931984        |
| X2 (Life Expectancy)                | 60 | 72.85       | 69.48      | 75.95      | 1.809192933       |
| X3 (Labor Productivity)             | 60 | 117.19      | 42.93      | 421.13     | 117.1556668       |
| X4 (Number of Employed Labor Force) | 60 | 12152964.32 | 1891218    | 24417110   | 8312313.491       |
| X5 (Government Expenditure)         |    | 170429394.8 | 12719134.3 | 5778223848 | 739399657.5       |

Source: Processed Excel Data

Mean years of schooling has an average value of 9.21 years with a standard deviation of 1.11, indicating that the level of education among the population is relatively evenly distributed, although differences still exist across provinces. Life expectancy has an average value of 72.85 years with a standard deviation of 1.81, reflecting relatively stable health conditions among the population in Java Island.

Labor productivity shows an average value of 117.19 with a standard deviation of 117.16,

indicating considerable differences in labor efficiency across provinces. The number of employed labor force has an average value of 12,152,964 people with a standard deviation of 8,312,313, reflecting variations in labor absorption capacity across regions. Meanwhile, government expenditure has an average value of 170,429,394.8 with a standard deviation of 73,939,657.5, indicating differences in fiscal capacity and government spending intensity among provinces in Java Island.

**Table 3. Chow Test**

| Effect Test              | Statistic | d.f.   | Prob   |
|--------------------------|-----------|--------|--------|
| Cross-section F          | 2.981253  | (5.49) | 0.0199 |
| Cross-section Chi-square | 15.935828 | 5      | 0.0070 |

Source: Processed Excel Data

$H_0$  = Using the Common Effect Model (CEM)

$H_1$  = The Fixed Effect Model (FEM) is preferred.

Based on Table 3, the results of the Chow test indicate that the F-probability value is 0.0199.

At a significance level of  $\alpha = 5\%$ , the P-value < 0.05 or  $0.0199 < 0.05$  This indicates that  $H_0$  is rejected; therefore, the selected model is the Fixed Effect Model (FEM).

**Table 4. Hausman Test**

| Test Summary    | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob   |
|-----------------|-------------------|--------------|--------|
| Cross-section F | 14.906267         | 5            | 0.0108 |

Source: Panel Data Regression Output (EViews)

$H_0$  = Using the Random Effect Model

$H_1$  = The Fixed Effect Model is preferred.

Based on Table 4, the test results show a probability value of 0.0108 at a significance level

of 0.05. This indicates that the probability value is less than 0.05 ( $0.0108 < 0.05$ ), therefore the most appropriate model for estimating the data is the Fixed Effect Model (FEM).

**Table 5. Panel Data Regression Analysis**

| Variable | Coefficient | Std. Error | t-Statistic | Prob.  |
|----------|-------------|------------|-------------|--------|
| C        | -12.78133   | 0.426197   | -29.98926   | 0.0000 |
| X1       | -0.026635   | 0.007471   | -3.565028   | 0.0008 |
| X2       | 2.85E-05    | 2.65E-05   | 1.076649    | 0.2869 |
| LOG(X3)  | 1.035373    | 0.016375   | 63.22742    | 0.0000 |
| LOG(X4)  | 1.062577    | 0.025803   | 41.18092    | 0.0000 |
| LOG(X5)  | -0.000733   | 0.001089   | -0.673223   | 0.5040 |

| CROSSID | Effect    |
|---------|-----------|
| 1       | 0.036699  |
| 2       | -0.059354 |
| 3       | -0.063259 |
| 4       | 0.121893  |
| 5       | -0.071356 |
| 6       | 0.035377  |

#### Cross-section fixed (dummy variables)

|                   |             |                       |           |
|-------------------|-------------|-----------------------|-----------|
| R-squared         | 0.999983    | Mean dependent var    | 13.53586  |
| Adjusted squared  | R- 0.999980 | S.D dependent var     | 1.022610  |
| S.E of regression | 0.004630    | Akaike info criterion | -7.748378 |
| Sum squared resid | 0.001050    | Schwarz criterion     | -7.364415 |
| Log likelihood    | 243.4513    | Hannan-Quinn criter   | -7.598189 |
| F-statistic       | 287807.8    | Durbin-Watson stat    | 1.448948  |
| Prob(F-statistic) | 0.000000    |                       |           |

Source: Panel Data Regression Output (EViews)

Based on the results of data processing presented in Table 5, the following regression equation can be formulated:

$$\begin{aligned} \text{Log}Y_{it} = & -12.78 - 0.02663X_{1it} \\ & + 0.0000285X_{2it} \\ & + 1.05357\text{og}X_{3it} \\ & + 1.06257\text{Log}X_{4it} \\ & - 0.00073\text{Log}X_{5it} + \varepsilon_{it} \end{aligned}$$

The constant value of **-12.78** indicates that when all independent variables—namely mean years of schooling, life expectancy, labor productivity, the number of employed labor force, and government expenditure—are assumed to be constant or equal to zero, the logarithmic value of GRDP is estimated to be -12.78.

The individual effects (cross-section effects) indicate differences in characteristics among provinces. Provinces with positive effects, namely CrossID 1, 4, and 6, tend to support higher GRDP levels compared to the average of other provinces. Meanwhile, CrossID 2, 3, and 5 have negative effects, indicating that these provinces have certain characteristics that result in relatively lower GRDP levels compared to other provinces in the sample.

The results of the t-test show that variables X1, X3, and X4 have a significant effect on economic growth, with probability values of 0.0008, 0.0000,

and 0.0000, respectively, which are smaller than  $\alpha = 0.05$ . Meanwhile, variables X2 and X5 do not have a significant effect on economic growth, with p-values of 0.2869 and 0.5040, respectively, which are greater than  $\alpha = 0.05$ .

The F-test results show that the F-statistic value is 287,807.8, which is greater than the F-table value of 2.543, and the probability value is  $0.0000 < 0.05$ , meaning that  $H_0$  is rejected and  $H_1$  is accepted. This indicates that simultaneously the variables mean years of schooling, life expectancy, labor productivity, employed labor force, and government expenditure have a significant effect on GRDP in six provinces on Java Island.

The R-squared value is 0.999983 and the Adjusted R-squared value is 0.999980. This indicates that 99.9983% of the variation in economic growth across the provinces of Java Island during the period 2015–2024 can be explained by the variables mean years of schooling, life expectancy, labor productivity, the number of employed labor force, and government expenditure included in the model. Meanwhile, the remaining 0.0017% is explained by other variables outside the scope of this research model.

**Table 6. Multicollinearity Test Results**

| Correlation | X1        | X2        | X3        | X4        | X5       |
|-------------|-----------|-----------|-----------|-----------|----------|
| X1          | 1.000000  | 0.213868  | 0.729540  | -0.696905 | 0.089657 |
| X2          | 0.213868  | 1.000000  | -0.185261 | -0.180112 | 0.073753 |
| LOG(X3)     | 0.729540  | -0.185261 | 1.000000  | -0.183380 | 0.546298 |
| LOG(X4)     | -0.696905 | -0.180112 | -0.183380 | 1.000000  | 0.432031 |
| LOG(X5)     | 0.089657  | 0.073753  | 0.546298  | 0.432031  | 1.000000 |

Source: Panel Data Regression Output (EViews)

Based on Table 6, the results of the multicollinearity test indicate that all correlation coefficients  $< 0.8$  suggesting that there is no

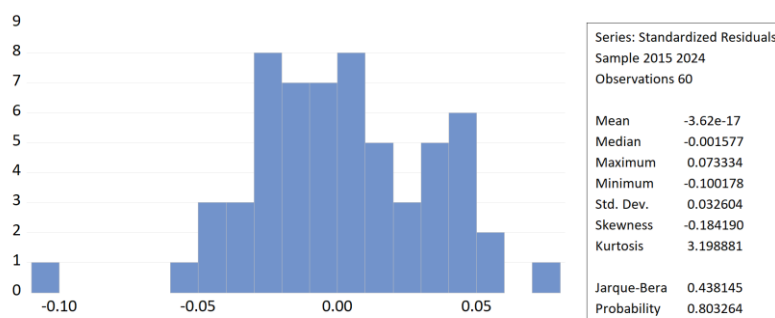
indication of multicollinearity among the independent variables.

**Table 7. Heteroskedasticity Test Results**

| Variable | Coefficient | Std. Error | t-Statistic | Prob.  |
|----------|-------------|------------|-------------|--------|
| C        | -0.017317   | 0.100241   | -0.172753   | 0.8636 |
| X1       | -0.000161   | 0.001964   | -0.081743   | 0.9352 |
| X2       | -1.20E-05   | 0.000696   | -0.017206   | 0.9863 |
| LOG(X3)  | -0.001988   | 0.004305   | -0.461724   | 0.6463 |
| LOG(X4)  | 0.002341    | 0.006784   | 0.345077    | 0.7315 |
| LOG(X5)  | -0.000411   | 0.000286   | -1.436381   | 0.1572 |

Source: Panel Data Regression Output (EViews)

Based on Table 7, the results of the heteroskedasticity test using the Glejser (ABSRES) method indicate that the model does not exhibit heteroskedasticity, as all probability values are greater than 0.05.

**Picture 1. Normality Test Results**

Source: Panel Data Regression Output (EViews)

Based on the normality test using the Jarque–Bera test, the Jarque–Bera statistic is 0.438145 with a probability value of 0.803264. Since the probability value exceeds the significance level ( $\alpha = 0.05$ ), it can be concluded that the residuals are normally distributed.

### **The Effect of Supply-Side Factors on Economic Growth**

The supply-side factors in this study include Mean Years of Schooling, Life Expectancy, Labor Productivity, and the Number of Employed Labor Force. Theoretically, these factors are closely related to the Human Capital Theory proposed by Schultz and Becker, as well as the Endogenous Growth Theory developed by Romer, which states that the quality of human resources and labor productivity are the main determinants of long-term economic growth (Oltulular, 2025).

The results of the panel data regression estimation show that supply-side factors have a significant influence on economic growth in the provinces of Java Island during the period 2015–2024, although the direction and magnitude of the effects vary across indicators. The variable Mean Years of Schooling shows a negative and significant effect on economic growth. This finding is not entirely consistent with the Human Capital Theory, which states that improvements in education will increase labor productivity and economic output. However, empirically, this result can be explained by the structural conditions of the economy in Java Island, where increases in educational attainment have not been fully accompanied by the availability of productive employment opportunities and the alignment between graduates' competencies and labor market needs (Hakim, 2025).

In addition, increases in mean years of schooling may delay the entry of the productive-age population into the labor market, which in the short term may reduce the level of economic output. This finding is consistent with the study by Karismawati et al., (2025) which found that mean

years of schooling has a negative effect on GRDP in West Halmahera Regency, and also supports the results of Rasnino et al., (2022) which state that the effect of education on economic growth is contextual and highly dependent on regional economic structures. This finding is also consistent with Baya, (2024), who found that education measured by mean years of schooling has a negative and significant effect on economic growth. These results indicate that improvements in education do not always directly promote economic growth when the quality of education and labor absorption are not yet optimal.

Meanwhile, Life Expectancy shows a positive but insignificant effect on economic growth. Theoretically, improvements in public health will increase work capacity, extend productive age, and improve labor efficiency, as explained in the Human Capital Theory. However, the insignificance of this result indicates that the impact of health on economic growth is indirect and requires a relatively long period to be reflected in increased economic output. Research by Alwago, (2022) also shows that there is no strong empirical evidence that several health variables are able to increase economic growth in the long run. This finding indicates that improvements in health indicators do not always directly encourage increases in economic output, because the influence of health on economic growth tends to be indirect and requires a relatively long period to produce a measurable impact on economic performance. In addition, increases in life expectancy are also accompanied by a growing elderly population, which may increase the dependency burden. This result is consistent with the findings of Rasnino et al., (2022) which show that life expectancy has a positive but insignificant effect on GRDP.

In contrast to these two indicators, Labor Productivity and the Number of Employed Labor Force are proven to have a positive and significant effect on economic growth. This finding is consistent with Sinungan's Labor Productivity

Theory, which states that increases in labor productivity will raise output with the same level of input (Putra, 2024). In addition, Employment Theory (Mankiw) explains that the greater the number of workers absorbed into economic activities, the greater the output produced (Awaludin et al., 2024). The results of this study are consistent with the findings of Juli, (2025), as well as Nurhidayat & Ompusunggu (2023), which show that labor productivity and labor absorption have a positive and significant effect on economic growth.

Thus, the results of this study confirm that supply-side factors are the main drivers of economic growth in Java Island, particularly through improvements in labor productivity and labor absorption, while improvements in the quality of education and health have not yet fully provided positive impacts in the short term.

### **The Effect of Demand-Side Factors on Economic Growth**

The demand-side factor in this study is represented by government consumption expenditure. Theoretically, government expenditure is an important component of aggregate demand as explained in Keynesian Theory. This theory states that an increase in government spending can stimulate demand for goods and services, increase production, create employment opportunities, and ultimately promote economic growth through the multiplier effect (Rahadiano et al., 2026).

However, the regression estimation results show that government consumption expenditure has a negative and insignificant effect on economic growth in Java Island during the period 2015–2024. This finding indicates that regional government spending has not been able to provide a significant impact on the increase in regional economic output. Empirically, this condition can be explained by the structure of government expenditure, which is still dominated by routine and administrative spending, making it less productive in encouraging economic activity and value creation (Fitrianty & Lestari, 2024).

In addition, differences in budget management effectiveness and spending priorities among provinces in Java Island also contribute to the weak influence of government expenditure on economic growth. This result is consistent with the study by Amalia et al, (2023), which found that government expenditure does not have a significant effect on GRDP and indicates that the effectiveness and quality of government spending are more important than the size of the budget allocated. Research by Gebreyesus, (2023), also shows that government expenditure has a positive

but insignificant effect on economic growth. Thus, although theoretically government expenditure plays a role as a driver of aggregate demand, empirically its effect depends heavily on the efficiency and orientation of such spending.

The results of this study provide theoretical implications that regional economic growth is not only influenced by demand-side factors but is more strongly determined by supply-side factors, particularly labor productivity and labor absorption. These findings reinforce Human Capital Theory and Endogenous Growth Theory, which emphasize the importance of the quality of human resources as the main driver of long-term economic growth. However, the negative effect of mean years of schooling indicates that improvements in education have not been fully aligned with labor market needs, thereby enriching the literature with evidence that the effectiveness of education in promoting economic growth is contextual and depends on the regional economic structure (Sari et al., 2025).

From a practical perspective, the results of this study provide implications for regional governments that economic development policies should focus on improving labor productivity, creating employment opportunities, and strengthening the linkage between the education sector and industrial needs. In addition, government expenditure should be directed toward productive spending such as infrastructure development, labor skill enhancement, and support for leading regional sectors in order to generate a significant impact on regional economic growth.

### **CONCLUSION**

This study analyzes the effects of supply-side and demand-side factors on economic growth in six provinces on Java Island during the period 2015–2024 using panel data regression. The results show that labor productivity and the number of employed labor force have a positive and significant effect on economic growth, indicating that efficiency and labor absorption are the main drivers of increased regional output. In contrast, mean years of schooling has a negative and significant effect, indicating a mismatch between educational attainment and labor market needs, as well as the possibility of delayed entry of educated workers into productive economic activities. Life expectancy has a positive but insignificant effect, indicating that improvements in health quality tend to influence economic growth in the long run. Meanwhile, government consumption expenditure has a negative and insignificant effect, indicating that consumptive government spending has not

been effective in promoting regional economic growth.

Overall, the findings of this study confirm that supply-side factors, particularly labor productivity and labor absorption, have a more dominant role in driving economic growth than demand-side factors. Therefore, development policies should focus on improving the relevance and quality of education, strengthening labor productivity, and expanding employment opportunities, accompanied by the allocation of government expenditure toward more productive sectors. However, this study has several limitations, including the use of aggregate indicators and a relatively limited observation period, which may not fully capture the long-term effects of education and health on economic growth. Future research is recommended to include additional variables such as investment, technological progress, and industrial structure, as well as to use a longer observation period or a dynamic modeling approach in order to obtain a more comprehensive understanding of the determinants of regional economic growth.

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