

Article

Local government expenditure, domestic investment, and employment in Central Java: A panel analysis of real economic output

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Keywords: local government expenditure; domestic investment; employment; real economic output; panel data

Abstract

Regional economic development depends on the interaction between public expenditure, private investment, and employment. This study examines the associations of local government expenditure, domestic investment, and employment with real economic output across 35 regencies and cities in Central Java Province, Indonesia, during 2019–2023. Secondary data comprised 175 observations and were analysed using a logarithmic fixed effects panel regression selected through Chow and Hausman tests. Economic output was measured using gross regional domestic product at constant 2010 prices. The results show that government expenditure, domestic investment, and employment were positively and statistically significantly associated with real output. Their estimated elasticities were 0.0251, 0.0116, and 0.2670, respectively. The reported model was statistically significant overall, with an R^2 of 0.9981 that includes the contribution of regional fixed effects. These findings support coordinated development policies that improve expenditure allocation, facilitate domestic investment, and strengthen employment opportunities. However, the dependent variable captures output levels rather than annual economic growth rates, and the observational design does not establish causality. Foreign investment was excluded because of data limitations. Future research should incorporate additional investment sources, distinguish expenditure composition, and examine common temporal shocks and potential endogeneity to strengthen understanding of regional economic performance and inform local policymaking.

Introduction

Regional economic development depends on the capacity to expand productive activities and coordinate public resources, private capital, and employment. Real economic output provides an important basis for assessing this capacity because it measures production after accounting for price changes. As explained by Sukirno (2011), constant-price measures value output using prices from a specified base year, allowing economic performance to be examined without the direct influence of inflation. At the regional level, gross regional domestic product (GRDP) at constant prices therefore measures real output, while its percentage change over time represents the economic growth rate. This distinction is important because the present study analyses real GRDP levels rather than annual growth rates.

Central Java provides a relevant setting for examining the factors associated with regional output. Its 35 regencies and cities encompass different economic structures, population sizes, and productive capacities. These differences create variation in the scale of economic activity and in the resources available to support development. The study period, 2019–2023, offers an opportunity to examine these regional relationships over time rather than relying exclusively on comparisons within a single year. However, the number of administrative regions alone does not establish economic resilience, and provincial performance should not be assumed to represent the conditions of every regency and city.

Local government expenditure is one potential component of regional economic performance. Public spending supports administrative functions, infrastructure, and services that may facilitate production and economic participation. Sasana (2012) discusses the government's allocation, distribution, and stabilisation roles, providing a basis for considering expenditure within regional development analysis. Through these functions, government spending can support economic activity directly and improve the conditions under which households and businesses operate.

Nevertheless, expenditure totals do not independently establish the quality or effectiveness of fiscal management. Differences between regional budgets may reflect population size, service responsibilities, fiscal capacity, and development needs. Unequal expenditure amounts should therefore not automatically be interpreted as evidence of unfair allocation or inadequate development priorities. The relevant empirical question is whether changes in realised local government expenditure are associated with changes in real output after accounting for persistent regional differences and the other factors included in the model.

Domestic investment represents the contribution of privately financed capital formation. Investment can expand production facilities, introduce equipment, and create opportunities for business development and employment. Yanti et al. (2021) discuss domestic investment in relation to economic growth, supporting its relevance to the analysis of productive capacity. However, the realised investment recorded in a region measures investment activity rather than the accumulated capital stock or its productivity. Its relationship with output may depend on project implementation, sectoral composition, and the time required for investments to become operational.

Investment differences across regions and cities also require careful interpretation. Higher investment may reflect existing market access, infrastructure, industrial networks, or business opportunities. Lower investment does not necessarily demonstrate that a region has failed to develop its potential. Examining domestic investment alongside expenditure and employment provides a more informative basis for assessing its conditional association with regional output.

Employment constitutes the labour input through which public infrastructure and private capital can support production. The present study measures employment using the number of employed residents aged 15 years and above. This variable should be distinguished from the total labour force, which also includes unemployed individuals. Employment counts capture the scale of labour participation in production but do not directly measure skills, working hours, job quality, or labour productivity. Consequently, higher employment may coincide with greater output without establishing that workers have become more productive or that economic benefits are distributed evenly.

Taken together, government expenditure, domestic investment, and employment represent related dimensions of regional productive activity. Their inclusion within a common model enables each association to be assessed while holding the other explanatory variables constant. It also prevents differences in output from being attributed solely to public spending, capital investment, or labour availability. However, this joint specification does not itself test whether the three factors reinforce one another; such complementarities would require additional interaction terms or other analytical procedures.

This study therefore examines the associations of local government expenditure, domestic investment, and employment with real GRDP across Central Java's 35 regencies and cities during 2019–2023. Using 175 regional-year observations, the panel analysis accounts for persistent differences between regions through a fixed effects specification. Its contribution is to provide geographically focused evidence on how fiscal expenditure, domestic investment, and employment relate to real economic output. The findings are intended to inform discussion of expenditure priorities, investment facilitation, and employment development, while recognising that observational estimates do not establish causal policy effects.

Literature Review

Keynesian Perspective. The Keynesian perspective explains economic activity through aggregate demand, comprising household consumption, investment, government expenditure, and net exports. As discussed by Sukirno (2011), investment and public spending can support production by increasing demand for goods and services. Their contribution depends on economic conditions, the availability of productive capacity, and the extent to which expenditure generates activity within the economy.

This perspective provides a theoretical foundation for examining local government expenditure and domestic investment. Government spending may support demand through procurement, public services, and infrastructure development. Domestic investment can generate demand during project implementation while expanding productive capacity once facilities and equipment become operational. These mechanisms operate over different periods, so contemporaneous expenditure and investment measures may capture only part of their relationship with output.

Nevertheless, the variables used in this study are not identical to the expenditure components in national accounting. Total local government expenditure includes categories with different economic functions, while recorded domestic investment represents realised investment activity rather than the entire investment component of regional demand. Keynesian reasoning therefore provides a basis for the expected relationships without implying an exact accounting correspondence.

Adam Smith's Perspective on Labour and Production. Adam Smith's explanation of economic development emphasises the division of labour, specialisation, and market expansion. As presented by [Arsyad \(2010\)](#), a broader market can facilitate specialisation, enabling workers to improve their efficiency and contribute to greater production. Labour thus supports economic development through both its availability and the productivity with which it is employed.

Population size, labour force participation, and employment should nevertheless be distinguished. A larger population does not automatically generate greater production unless individuals can participate in productive activities. Likewise, an increase in employment does not necessarily indicate improved labour productivity. The present study therefore uses the number of employed residents as a measure of labour input, while recognising that it does not directly capture specialisation, skills, working hours, or efficiency.

Real Economic Output and Economic Growth. Real economic output measures the value of goods and services produced after accounting for price changes. At the regional level, GRDP at constant prices enables comparisons of production over time without the direct influence of inflation. Economic growth, in contrast, refers to the percentage change in real output between periods. Following [Sukirno \(2011\)](#), this distinction separates the scale of production from its rate of expansion.

[Case and Fair \(2007\)](#) explain that output can be assessed through expenditure and income approaches. The expenditure approach considers spending on final goods and services, while the income approach considers the earnings generated through production. These perspectives connect productive activity with expenditure and factor remuneration, providing a basis for examining public spending, investment, and employment. The dependent variable in this study is GRDP at constant 2010 prices. It therefore represents real regional output rather than the annual economic growth rate. The empirical analysis examines associations with output levels, and the hypotheses are formulated accordingly.

Local Government Expenditure. Local government expenditure refers to realised public spending undertaken within a regional government's budget. It supports public administration, service provision, infrastructure, and other governmental responsibilities. The government's allocation, distribution, and stabilisation functions provide a basis for connecting expenditure with regional economic activity ([Sasana, 2012](#)).

The relationship between spending and output depends on expenditure composition and implementation. Infrastructure spending may improve market access or reduce production constraints, whereas public services may support economic participation through different channels. Consequently, total expenditure is a broad measure of fiscal activity rather than a direct indicator of spending quality.

This study uses total realised local government expenditure. Its coefficient therefore summarises the association between aggregate expenditure and real output without identifying which budget categories generate the observed relationship. Differences in regional scale, responsibilities, and fiscal capacity must also be considered when interpreting expenditure amounts.

Domestic Investment. Domestic investment, or *Penanaman Modal Dalam Negeri* (PMDN), represents investment undertaken by domestic investors. [Sukirno \(2011\)](#) explains investment as expenditure on capital goods and production equipment that supports productive capacity. Such investment may expand existing businesses, establish new activities, and create opportunities for employment.

Investment contributes to economic activity through both demand and capacity channels. Project development generates expenditure on goods and services, while operational facilities can subsequently increase production. [Yanti et al. \(2021\)](#) discuss domestic investment in relation to economic growth, supporting its relevance to regional economic analysis. However, annual realised PMDN is an investment flow rather than a measure of accumulated capital stock. Its association with current output may depend on project completion, sectoral allocation, and the time needed for productive benefits to emerge. The present study examines contemporaneous investment while recognising these limitations.

Employment. Employment measures the number of individuals engaged in work and contributing labour to economic activity. In this study, it refers to employed residents aged 15 years and above. This measure excludes unemployed members of the labour force and should not be interpreted as the total working-age population.

[Sukirno \(2011\)](#) identifies labour availability and quality as relevant to productive capacity. Employment provides the human input needed to operate equipment, deliver services, and

undertake production. Its contribution nevertheless depends on complementary capital, skills, and the organisation of work.

An employment count captures the scale of labour input but does not directly measure productivity or job quality. Higher employment may be associated with greater output because more individuals participate in production, even when output per worker remains unchanged. The distinction is important when translating regional estimates into employment policy.

Hypothesis Development

Local Government Expenditure and Real Economic Output. Local government expenditure may support real output through public demand and improvements in the conditions enabling production. Procurement and service delivery can generate economic activity, while infrastructure investment may improve access, connectivity, and the reliability of essential services. Keynesian reasoning provides a demand-based explanation for this relationship, while the allocation function of government highlights the potential contribution of public resources to productive activity (Sukirno, 2011; Sasana, 2012).

These benefits are conditional on expenditure priorities and implementation. Spending that addresses relevant production constraints may support output more effectively than poorly targeted or delayed expenditure. Total realised spending nevertheless provides a useful starting point for examining the aggregate fiscal relationship.

Simarmata and Iskandar (2022) report a positive relationship between regional expenditure and economic growth. Their findings provide supporting empirical context, although the present study examines real output levels rather than growth rates. Holding domestic investment and employment constant, higher local government expenditure is therefore expected to be associated with higher real regional output. *H1: Local government expenditure is positively associated with real economic output.*

Domestic Investment and Real Economic Output. Domestic investment can expand productive capacity through new facilities, equipment, and business activities. It may also introduce improved production processes and increase the demand for labour and intermediate inputs. Sukirno (2011) provides a theoretical basis for connecting capital expenditure with the capacity to produce goods and services.

The expected relationship operates through both investment-related demand and subsequent production. Its strength may depend on whether projects become operational within the observation period and whether investment complements existing regional resources. Realised investment should consequently not be assumed to generate immediate or uniform output gains across regions.

Demrosalinda et al. (2022) report a positive and significant relationship between domestic investment and economic growth. This provides empirical support for the proposed productive-capacity mechanism, while differences in outcome measurement remain relevant. Holding government expenditure and employment constant, greater domestic investment is expected to be associated with higher real regional output. *H2: Domestic investment is positively associated with real economic output.*

Employment and Real Economic Output. Employment supplies the labour needed to transform public infrastructure and private capital into productive activity. Additional employed workers can increase the scale of production when suitable equipment, skills, and economic opportunities are available. Smith's perspective on specialisation further suggests that the organisation of labour can strengthen productive performance as markets expand (Arsyad, 2010).

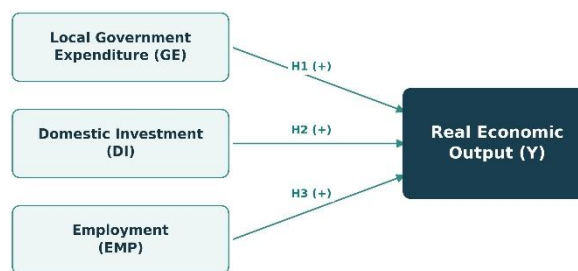
However, the present employment measure does not directly test specialisation or productivity. Its expected positive association concerns the contribution of labour participation to aggregate output. The extent of this contribution may vary with sectoral structure, capital availability, and the quality of employment.

Setijawan et al. (2021) report a positive and significant relationship between labour and economic growth, providing relevant empirical context. Holding government expenditure and domestic investment constant, higher employment is therefore expected to be associated with higher real regional output. *H3: Employment is positively associated with real economic output.*

Conceptual Framework. The conceptual framework brings together public expenditure, domestic investment, and employment as explanatory variables for real economic output. Each hypothesis concerns the association of one variable with output while accounting for the other two. The framework does not specify interaction effects or establish causal relationships.

Fig 1.

Conceptual Framework
Linking Local Government
Expenditure, Domestic
Investment, and Employment
to Real Economic Output



Methods

Research Design and Data. This study employed a quantitative panel-data design covering all 35 regencies and cities in Central Java Province during 2019–2023. The dataset comprised 175 regional-year observations. Descriptive analysis and panel regression were used to examine the associations of local government expenditure, domestic investment, and employment with real regional economic output. Estimation was conducted using EViews 13.

Variable Measurement. The dependent variable was real economic output, measured using GRDP at constant 2010 prices. The explanatory variables were realised local government expenditure, realised domestic investment (PMDN), and employment. Their operational definitions and measurement units are presented in Table 1.

Table 1. Operational Definitions of the Study Variables

Variable	Operational definition	Original unit
Real economic output	GRDP at constant 2010 prices	Billion rupiah
Local government expenditure	Total realised expenditure recorded in the regional government budget	Billion rupiah
Domestic investment	Realised domestic investment recorded for each regency or city	Million rupiah
Employment	Number of employed residents aged 15 years and above	Persons

Source: Operational definitions adopted in the study.

Real GRDP captures the level of regional production rather than its annual growth rate. Employment measures individuals engaged in work and excludes unemployed labour force members. Government expenditure and domestic investment represent annual expenditure flows rather than accumulated public or private capital stocks.

Model Specification. A logarithmic specification was adopted to estimate proportional relationships between the explanatory variables and real output:

$$\ln(Y_{it}) = \alpha + \mu_i + \beta_1 \ln(GE_{it}) + \beta_2 \ln(DI_{it}) + \beta_3 \ln(EMP_{it}) + \varepsilon_{it}$$

Logarithmic transformation facilitates elasticity interpretation and expresses the relationships in proportional terms. Differences in measurement units alone do not require logarithmic transformation. Its application requires positive observations; any treatment of zero investment values must therefore be documented.

Model Selection and Diagnostic Assessment. We considered pooled ordinary least squares, fixed effects, and random effects specifications. The Chow test compared pooled and fixed-effects models, while the Hausman test compared fixed and random effects. Both tests favoured the fixed effects specification at the 5% significance level.

Diagnostic assessment examined multicollinearity and heteroskedasticity. Pairwise correlations among the explanatory variables were evaluated using an absolute correlation of 0.80 as a screening threshold for potentially high linear association. Heteroskedasticity was assessed using the Breusch–Pagan–Godfrey test. These diagnostics informed interpretation of the regression estimates but did not independently establish unbiasedness or consistency (Gujarati & Porter, 2013).

Statistical Inference. Individual coefficients were evaluated using two-sided t-tests at a 5% significance level. A directional hypothesis was supported when its coefficient was positive and statistically significant. The reported χ^2 -test assessed overall model significance, while R^2

summarised model fit, including the contribution of regional fixed effects. A separate restriction test is required to establish the joint significance of the three explanatory variables if the reported overall test also includes regional effects. The estimates were interpreted as conditional associations rather than causal effects. Regional fixed effects account for persistent differences between locations, but do not eliminate potential reverse causality, time-varying omitted factors, or common temporal shocks.

Result and Discussion

The panel analysis covered 175 observations from 35 regencies and cities in Central Java during 2019–2023. The results are presented in three stages: model selection, diagnostic assessment, and interpretation of the fixed effects estimates. Statistical decisions were evaluated at the 5% significance level.

Panel Model Selection. The Chow and Hausman tests were used to determine the appropriate panel specification. The Chow test compared pooled ordinary least squares with fixed effects, while the Hausman test compared fixed and random effects. Table 2 summarises the reported results.

Table 2. Panel Model Selection Results

Test	Reported p-value	Decision	Preferred specification
Chow test: cross-section chi-square	0.000	Reject common intercepts	Fixed effects over pooled OLS
Hausman test	0.000	Reject the random effects specification	Fixed effects over random effects

Source: Reported EViews 13 results.

The Chow test indicated that regional intercept differences should be retained. The Hausman test also favoured fixed effects, supporting its use over the random effects specification. Together, these results established the fixed effects model as the preferred approach among the alternatives considered. Following model selection, diagnostic assessment examined residual variance and linear associations among the explanatory variables.

Diagnostic Assessment. Heteroskedasticity was assessed using the Breusch–Pagan–Godfrey test. Multicollinearity screening examined pairwise correlations among government expenditure, domestic investment, and employment. Table 3 presents the available diagnostic information.

Table 3. Regression Diagnostic Results

Diagnostic	Reported result	Interpretation
Breusch–Pagan–Godfrey test	p-value for $\text{Obs} \times R^2 = 0.0961$	Homoskedasticity not rejected at the 5% level
Pairwise correlation screening	All reported correlations below 0.80	No high pairwise correlation reported under the adopted criterion

Source: Reported EViews 13 results.

The heteroskedasticity test returned a p-value of 0.0961, providing insufficient evidence to reject the null hypothesis of constant residual variance. This result does not conclusively establish homoskedasticity, but the test did not identify a statistically significant departure at the adopted threshold.

The reported correlations were below 0.80, indicating no high pairwise association under the screening criterion. However, the individual correlation coefficients were not supplied, and pairwise screening alone cannot exclude every form of multicollinearity. With these diagnostics reported, the analysis proceeded to the estimated associations between the explanatory variables and real regional output.

Fixed Effects Estimates and Individual Hypothesis Tests. The logarithmic specification expresses the slope coefficients as elasticities. Each coefficient indicates the approximate percentage change in real output associated with a 1% increase in the corresponding explanatory variable, holding the other included variables and regional fixed effects constant. Table 4 reports the available estimates and hypothesis decisions.

Table 4. Fixed Effects Estimates and Hypothesis Decisions

Variable	Coefficient	t-statistic	Reported p-value	Hypothesis decision
Constant	6.045550	—	—	—
ln(Local government expenditure)	0.025102	7.407027	0.000	H1 supported
ln(Domestic investment)	0.011594	4.190703	0.000	H2 supported
ln(Employment)	0.266956	5.017024	0.000	H3 supported

Source: Reported fixed effects estimates, EViews 13.

Local government expenditure exhibited a positive and statistically significant coefficient of 0.025102. A 1% increase in expenditure was associated with an approximately 0.0251% increase in real output, conditional on domestic investment, employment, and regional fixed effects. The estimated direction and reported significance support H1. Domestic investment also exhibited a positive and statistically significant association. Its coefficient of 0.011594 indicates that a 1% increase in realised investment was associated with an approximately 0.0116% increase in real output, holding the other model components constant. This result supports H2.

Employment had a positive and statistically significant coefficient of 0.266956. A 1% increase in the number of employed residents was associated with an approximately 0.2670% increase in real output. This result supports H3. Although employment had the largest estimated elasticity, the analysis does not establish that its coefficient differed significantly from the other elasticities.

The fitted specification can be expressed as:

$$\ln(\widehat{Y}_{it}) = 6.045550 + \widehat{\mu}_i + 0.025102 \ln(GE_{it}) + 0.011594 \ln(DI_{it}) + 0.266956 \ln(EMP_{it})$$

The individual tests identify significant conditional associations for all three explanatory variables. Overall model significance and fit were examined next.

Overall Model Significance and Fit. Table 5 presents the reported probability of the overall F-test and the coefficient of determination.

Table 5. Overall Model Significance and Explanatory Fit

Indicator	Reported value
Probability of the overall F-statistic	0.000
R ²	0.998068
Number of observations	175
Number of regencies and cities	35
Observation period	2019–2023

Source: Reported EViews 13 results.

The reported overall F-test was statistically significant. However, the F-statistic and its degrees of freedom were not supplied. If the test includes regional fixed effects, it establishes significance of the full specification rather than a separate joint test of the three explanatory variables.

The R² indicates that the fitted model accounted for approximately 99.81% of the observed variation in the logarithm of real output. This figure includes the contribution of regional fixed effects and cannot be attributed exclusively to expenditure, investment, and employment. Approximately 0.19% of the observed variation remained unexplained within the sample. Overall, the reported estimates support positive associations between all three explanatory variables and real economic output. These findings describe conditional relationships in output levels; they do not establish causal effects or directly estimate annual economic growth rates.

Discussion

The findings indicate that local government expenditure, domestic investment, and employment were positively associated with real economic output across Central Java's 35 regencies and cities during 2019–2023. These relationships remained statistically significant after accounting for the other explanatory variables and time-invariant regional characteristics. The results support the relevance of public spending, private investment, and labour participation to regional production. However, they concern output levels rather than annual growth rates and should be interpreted as conditional associations rather than causal policy effects.

Local Government Expenditure and Real Economic Output. The positive expenditure coefficient is consistent with the Keynesian perspective discussed by Sukirno (2011). Government spending

can support demand through procurement and service provision, while infrastructure expenditure may improve the conditions enabling private production. [Sasana's \(2012\)](#) discussion of allocation, distribution, and stabilisation provides an additional basis for understanding the role of public resources in regional economic activity. The estimated elasticity was 0.0251, indicating that a 1% increase in expenditure was associated with an approximately 0.0251% increase in real output. Although statistically significant, this proportional association was relatively small. Statistical significance should therefore be distinguished from the magnitude of the estimated relationship.

The finding is consistent with the positive relationships reported by [Simarmata and Iskandar \(2022\)](#) and [Setijawan et al. \(2021\)](#). Nevertheless, differences in geographical coverage, expenditure measures, and outcome definitions limit direct comparison. Studies examining economic growth rates address a different empirical outcome from the real output levels analysed here. Total expenditure also combines activities with different purposes and transmission mechanisms. The present estimate cannot identify whether infrastructure, public services, administrative expenditure, or other categories contributed most strongly to output. Nor can higher spending be interpreted as evidence of greater efficiency. Larger economies may generate stronger fiscal capacity and greater expenditure requirements, creating the possibility of reverse relationships.

For policy, the findings support attention to spending composition and implementation rather than expenditure expansion alone. Regional governments should assess whether allocations address productive constraints and whether projects deliver usable services and infrastructure. More detailed expenditure data would help identify which fiscal activities are most closely associated with regional production.

Domestic Investment and Real Economic Output. Domestic investment exhibited a positive and statistically significant association with real output. This finding is compatible with the capital-formation mechanism described by [Sukirno \(2011\)](#): investment can finance equipment, production facilities, and business activities that expand productive capacity. Investment-related expenditure may also support demand before projects become operational.

The estimated elasticity of 0.0116 indicates a modest contemporaneous association. A 1% increase in realised domestic investment corresponded to an approximately 0.0116% increase in real output, holding expenditure, employment, and regional effects constant. This estimate should not be interpreted as the full long-term return to investment because the model does not capture accumulated capital or explicitly examine delayed project benefits. The result aligns with the positive investment relationships reported by [Demrosalinda et al. \(2022\)](#) and [Nariswara \(2021\)](#). Such comparisons support the relevance of domestic investment to regional performance, while differences in periods and model specifications remain important. The present analysis provides evidence for Central Java without establishing that investment has an identical relationship with output in every region or sector.

Realised investment is a flow rather than a measure of operational capital stock. Its contribution may depend on project completion, sectoral allocation, and connections with local suppliers and labour markets. These mechanisms were not measured directly. Higher output may also attract investment, so the positive coefficient cannot establish a one-way causal relationship. The policy implication is to improve the conditions under which investment becomes productive. Reliable infrastructure, administrative predictability, and access to suitable workers can support project implementation. Investment monitoring should also examine operational activity and local economic linkages alongside the value of realised investment.

Employment and Real Economic Output. Employment had the largest estimated elasticity among the three explanatory variables. A 1% increase in employed residents was associated with an approximately 0.2670% increase in real output. This positive relationship is consistent with labour's role as an input in production.

Smith's perspective on specialisation, as presented by [Arsyad \(2010\)](#), provides a broader explanation of how labour organisation can support productive activity. However, the study measures the number of employed residents rather than specialisation, skills, or output per worker. The estimate therefore supports an association between the scale of employment and aggregate production without demonstrating an improvement in labour productivity. The finding is consistent with the positive labour relationships reported by [Nurmainah \(2013\)](#), [Priambodo \(2017\)](#), and [Setijawan et al. \(2021\)](#). These comparisons reinforce employment's relevance to regional economic analysis, although differences between employment counts, labour force measures, and productivity indicators should be recognised.

The larger elasticity does not establish employment as the most effective policy instrument. The variables differ in measurement, adjustment periods, and the costs required to change them. Moreover, no formal test was reported to determine whether the estimated elasticities differed

significantly. Employment policy should consequently address productive participation and job quality together. Skills development, labour–employer matching, and access to complementary capital may help workers participate in higher-value activities. Simply increasing employment counts does not guarantee better earnings, secure work, or improved productivity.

Integrated Interpretation and Model Fit. The findings indicate that expenditure, domestic investment, and employment each contributed statistically to the fitted specification. Their theoretical roles are related: public services and infrastructure can support business activity, investment can expand productive capacity, and employment supplies labour for production. However, these complementarities were not directly tested. Significant individual coefficients do not establish interaction effects between the variables.

The reported R^2 of 0.9981 indicates a very close in-sample fit, but includes the contribution of regional fixed effects. Persistent differences in regional economic scale may account for a substantial part of this explanatory performance. The statistic therefore cannot establish that the three explanatory variables alone explain nearly all economic activity, nor does it demonstrate predictive accuracy or causal validity. The period also spans circumstances that may have affected regions simultaneously. Regional fixed effects account for stable differences between locations, but do not automatically address common temporal shocks. Including year effects and assessing residual dependence would strengthen interpretation of the reported significance.

Policy Implications and Research Limitations. The study supports coordinated regional development policies that improve public expenditure allocation, facilitate productive domestic investment, and strengthen employment opportunities. These priorities should be tailored to local conditions rather than based on an expectation that equal spending or investment totals will produce equal economic outcomes.

Interpretation remains limited by the five-year observation period, aggregate measures, exclusion of foreign investment, and potential reverse causality and omitted variables. The available diagnostics also do not resolve concerns about serial correlation, cross-sectional dependence, or common time effects. Future research should distinguish expenditure categories, incorporate foreign investment where data permit, and examine investment lags and employment quality. Specifications incorporating year effects and appropriate covariance adjustments would improve inference. Analysing growth rates or output per worker alongside real output levels would further clarify whether changes reflect economic expansion, regional scale, or improvements in productive efficiency.

Conclusion

This study found that local government expenditure, domestic investment, and employment were positively and statistically significantly associated with real economic output across 35 regencies and cities in Central Java during 2019–2023. Their estimated elasticities were 0.0251, 0.0116, and 0.2670, respectively, while the model, including regional fixed effects, explained approximately 99.81% of the observed variation in logarithmic real output. These findings support coordinated policies that improve expenditure allocation, facilitate productive investment, and strengthen employment opportunities. Regional governments should prioritise spending that addresses local development needs, improve infrastructure and investment services, and connect workforce development with available economic opportunities. The study is limited by its five-year observation period, aggregate indicators, exclusion of foreign investment because of incomplete data, and potential omitted variables and reverse causality. Since the dependent variable measures output levels rather than annual growth rates, the estimates do not directly establish effects on economic growth or productivity. Future research should incorporate additional investment sources, expenditure composition, employment quality, common year effects, and lagged relationships to strengthen understanding of regional economic performance.

References

- Arsyad, L. (2010). *Ekonomi pembangunan* (5th ed.). UPP STIM YKPN.
- Case, K. E., & Fair, R. C. (2007). *Principles of economics* (8th ed.). Pearson Prentice Hall.
- Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics* (5th ed.). McGraw-Hill/Irwin.
- Nariswara, Z. H. (2021). Analisis pengaruh jumlah penduduk, investasi (PMDN), dan belanja langsung terhadap pertumbuhan ekonomi di kabupaten/kota di Jawa Tengah tahun 2015–2019. *Jurnal Ilmu Ekonomi*, 5(3), 536–550.

- Nurmainah, S. (2013). Analisis pengaruh belanja modal pemerintah daerah, tenaga kerja terserap, dan indeks pembangunan manusia terhadap pertumbuhan ekonomi dan kemiskinan (studi kasus 35 kabupaten/kota di Provinsi Jawa Tengah). *Jurnal Bisnis dan Ekonomi*, 20(2), 131–141.
- Priambodo, A. (2017). Analisis pengaruh pendapatan asli daerah, belanja modal, tenaga kerja terhadap pertumbuhan ekonomi. *Economics Development Analysis Journal*, 4(1), 1–9.
- Rorimpandey, D. M., Engka, D. S. M., & Rorong, I. P. F. (2022). Pengaruh indeks pembangunan manusia, tenaga kerja dan investasi dalam negeri terhadap pertumbuhan ekonomi di Kabupaten Minahasa Utara periode 2006–2020. *Jurnal Berkala Ilmiah Efisiensi*, 22(6), 1–12.
- Sasana, H. (2012). Pengaruh belanja pemerintah daerah dan pendapatan perkapita terhadap indeks pembangunan manusia (studi kasus di kabupaten/kota di Provinsi Jawa Tengah). *Media Ekonomi dan Manajemen*, 25(1), 1–12.
- Setijawan, B., Anwar, N., & Suharno. (2021). Pengaruh investasi, tenaga kerja dan pengeluaran pemerintah terhadap pertumbuhan ekonomi di Provinsi Jawa Tengah. *J-MAS: Jurnal Manajemen dan Sains*, 6(2), 332–337.
- Simarmata, Y. W., & Iskandar, D. D. (2022). Pengaruh pengeluaran pemerintah, investasi, jumlah penduduk, kemiskinan terhadap pertumbuhan ekonomi dan indeks pembangunan manusia: Analisa two stage least square untuk kasus Indonesia. *Jurnal Dinamika Ekonomi Pembangunan*, 5(1), 78–94.
- Sukirno, S. (2011). *Makroekonomi: Teori pengantar* (3rd ed.). Rajagrafindo Persada.
- Yanti, S., Fadliyanti, L., & Manan, A. (2021). Pengaruh belanja modal, investasi PMDN dan investasi PMA terhadap pertumbuhan ekonomi kabupaten/kota di Provinsi NTB. *Ekonomis*, 7(1), 18–39.