



PHENOMENA AND POV REALITY IN CENTRAL JAVA 2017-2023**Garnis Permata Sari¹****Universitas Muhammadiyah Surakarta, Surakarta, Indonesia**b300210159@student.ums.ac.id**Didit Purnomo²****Universitas Muhammadiyah Surakarta, Surakarta, Indonesia**dp274@ums.ac.id

Abstract

This study investigates the interplay between poverty, open unemployment, and the Gender Development Index (IPG) on regional economic growth in Central Java from 2017 to 2023, using GRDP as the dependent variable across 30 regencies and cities. While the Fixed Effect Model reveals a significant negative effect of open unemployment on GRDP, the findings that poverty and IPG do not show statistical significance should be interpreted with caution. The absence of significance may stem from measurement limitations, temporal lags, or regional heterogeneity rather than a definitive lack of influence. Furthermore, the study acknowledges its limitation in not incorporating broader determinants of economic growth, such as capital investment, infrastructure, human capital, and institutional quality, which could contribute to omitted variable bias. The analysis would benefit from being situated within established economic growth theories, such as Solow's neoclassical model or endogenous growth frameworks, to better justify variable selection and interpret findings within a broader theoretical and developmental context. Recognizing the long-term contributions of gender equality to economic development, future research should explore the temporal dynamics of IPG's impact to capture delayed effects often noted in development economics.

Keyword: Economic Growth, Gender Development Index, Open Unemployment, Panel Data Regression, Poverty



INTRODUCTION

Economic growth is a widely used indicator to measure the success of national development. However, growth alone does not fully capture the quality of individual welfare or social equity. Disparities in human development, access to employment, and gender parity often persist despite rising GDP. This raises a critical question: to what extent do social indicators such as poverty, open unemployment, and gender inequality influence regional economic growth? Addressing this question is essential, particularly in regions like Central Java where inter-district disparities remain prominent. This study aims to investigate the impact of poverty, unemployment, and gender development on economic growth, thereby contributing to a more inclusive understanding of development performance.

Recent data from BPS (2024) illustrate significant variations in social indicators across Central Java. Kebumen Regency recorded the highest poverty rate at 16.41%, while Semarang City posted the lowest at 4.25%, revealing stark rural-urban divides. Similarly, open unemployment was highest in Cilacap (9.62%) and lowest in Rembang (1.76%), suggesting uneven labor absorption capacities. Gender disparity also remains a concern; while most regions recorded a Gender Development Index (GDI) above 85%, anomalies such as Kebumen's reported GDI of 3.26—likely a data entry error—underscore the need for critical analysis of gender data. Rather than listing these figures descriptively, this study integrates them to highlight structural challenges that may hinder equitable growth in the province.

Theoretically, this research is grounded in human capital theory and endogenous growth models, which emphasize the role of education, health, and



labor quality in driving sustainable economic progress. High poverty constrains consumption and investment in human capital (Achmad, 2019), while unemployment reflects labor-market inefficiencies that weaken productivity (Ardian et al., 2022). Gender inequality, as measured by the GDI, limits the potential of half the population to contribute meaningfully to the economy (Sulistiyowati, 2021). By exploring the interplay between these variables, this study fills a research gap in understanding how social development indicators affect regional economic performance. The findings are expected to inform policies aimed at achieving balanced and inclusive economic development in Central Java.

LITERATURE REVIEW

Economic Growth

Economic growth is a fundamental measure of economic performance and societal advancement. Traditionally defined as the increase in the production of goods and services (Sukirno, 2004; Todaro, 2003), contemporary perspectives have evolved to encompass qualitative dimensions such as innovation, institutional quality, and human capital development (Barro & Sala-i-Martin, 2004; Romer, 1990). The endogenous growth theory, for instance, emphasizes that long-term economic growth is driven not only by capital accumulation but also by technological progress, education, and policy choices. In the post-COVID-19 era, economic growth is increasingly shaped by digital transformation, labor automation, and global value chain disruptions (ILO, 2021; World Bank, 2022). These shifts necessitate a multidimensional understanding of growth that incorporates macroeconomic indicators and social equity.



Poverty Rate

Poverty remains a central obstacle to inclusive growth. While traditional definitions focus on the inability to meet basic needs (Suryawati, 2004), modern frameworks underscore poverty's interaction with economic structures, institutional barriers, and inequality (World Bank, 2020). Poverty suppresses aggregate demand due to limited purchasing power, weakens labor productivity via underinvestment in health and education, and diverts public resources toward social assistance rather than productive investment (Datt & Ravallion, 2020). In the context of human capital theory, prolonged poverty undermines future economic output by constraining individual capacity to participate in formal labor markets. Moreover, multidimensional poverty often correlates with informal employment, which further impairs state revenue and economic stability.

Open Unemployment Rate

Open unemployment, particularly among youth and urban populations, is a critical indicator of labor market inefficiency. While Keynesian economics views unemployment as a macroeconomic failure of aggregate demand, neoclassical and structuralist perspectives attribute it to rigid labor markets, skill mismatches, and technological displacement (Blanchard & Johnson, 2017). In Indonesia, the prevalence of informal and precarious work complicates the interpretation of open unemployment data, as many individuals fall outside the formal job-seeking framework (BPS, 2023; ILO, 2021). High unemployment reduces household income, dampens consumption, and deters private investment, thereby constraining economic expansion. Additionally, rising automation and



the gig economy post-pandemic have shifted employment dynamics, warranting updated analytical lenses.

Gender Development Index (GDI)

Gender equality, as captured by the GDI, is increasingly recognized as an economic imperative rather than a mere social goal. Studies show that equitable gender participation enhances labor market diversity, innovation, and productivity (UNDP, 2023; Kabeer, 2016). Feminist economic theory highlights structural constraints such as occupational segregation, unpaid care work, and discriminatory institutions—that suppress women’s full economic contribution (Elson, 2010). Although GDI offers a quantitative snapshot, it may not fully capture qualitative disparities in access to decision-making roles or strategic economic sectors. In Indonesia, cultural norms and policy gaps continue to limit women’s integration into high-value economic activities, which in turn hampers the broader goal of inclusive growth.

Hypothesis Development

The Effect of Poverty Rate on Economic Growth

Poverty influences economic growth through several transmission channels, including reduced consumption, diminished human capital formation, and restricted entrepreneurial activity. Chronic poverty inhibits long-term productivity by limiting access to education and health, thereby weakening the labor force. However, empirical findings on this relationship remain mixed—Amelia et al. (2024) found no significant effect, potentially due to regional resilience policies or short-term stimulus, whereas Mataheurilla & Rachmawati (2021) observed a significant negative impact. These differences may stem from methodological approaches or socio-political contexts. Given Indonesia’s



persistent poverty in rural and peripheral areas, re-investigating this link is essential to inform localized growth strategies.

Hypothesis 1: Poverty rate has an effect on economic growth.

The Effect of Open Unemployment Rate on Economic Growth

Open unemployment is a major contributor to economic stagnation and persistent poverty. From a Keynesian perspective, minimizing unemployment is crucial as labor drives economic expansion. High unemployment reduces consumer demand, weakens investment confidence, and disrupts market stability. Empirical studies have yielded inconsistent results Regina et al. (2023) indicated a negative effect, while Sari & Fisabilillah (2021) and Alkhoiriyah & Sa'roni (2021) found a positive and significant impact. These disparities highlight the need to reassess how open unemployment influences economic growth across different periods and conditions.

Hypothesis 2: Open unemployment rate has an effect on economic growth.

The Effect of Gender Development Index on Economic Growth

The Gender Development Index (GDI) measures gender equality and women's participation in development, especially in the economy. Equal involvement of women enhances productivity, diversifies the labor force, and fosters innovation, while dual household incomes can boost overall purchasing power. Nevertheless, studies such as Syukri et al. (2023) and Hidayah & Rahmawati (2020) found no significant impact of GDI on economic growth, possibly due to women's limited roles in strategic sectors or systemic gender discrimination. Hence, further investigation is warranted, particularly in developing countries like Indonesia striving for inclusive growth.



Hypothesis 3: The Gender Development Index has an effect on economic growth.

RESEARCH METHOD

This study adopts a quantitative approach using secondary data, which refers to data not collected firsthand but sourced from credible, pre-existing publications such as government records, journals, and statistical reports (Sugiyono, 2017). The selection of secondary data is grounded in its relevance, accessibility, and credibility, particularly from the Central Statistics Agency (BPS), whose datasets are standardized, nationally recognized, and methodologically consistent across time and regions. Given the macro-level nature of the study—analyzing regional economic growth in relation to structural socio-economic indicators like poverty, unemployment, and gender development—primary data collection would be impractical and methodologically inappropriate due to scope, cost, and replicability concerns. Although secondary data may present challenges such as limited customization or potential gaps, BPS datasets are curated with rigorous quality control, reducing concerns about reliability and validity. Moreover, when minor data gaps are identified, linear interpolation techniques will be employed to preserve time continuity and data integrity without distorting the underlying trends.

The dataset consists of panel data covering 30 regencies/cities in Central Java Province over the seven-year period from 2017 to 2023, resulting in a total of 210 observations (30×7). The dependent variable is regional economic growth, while the independent variables include the poverty rate, open unemployment rate, and Gender Development Index (GDI). The panel data structure allows the



combination of cross-sectional and time-series dimensions, enabling more robust estimation and control for unobserved heterogeneity across regions and time.

The analysis employs panel data regression, which, according to Ghozali (2018), is suitable for understanding both inter-regional differences and intra-regional dynamics over time. Model estimation will consider both Fixed Effects Model (FEM) and Random Effects Model (REM) frameworks. The Hausman test will be conducted to determine the more appropriate model based on the correlation between individual effects and regressors. Diagnostic tests, including multicollinearity checks (using Variance Inflation Factor or VIF), heteroscedasticity tests, and autocorrelation diagnostics, will be conducted to ensure the robustness of the model. All statistical analyses will be executed using EViews software, which offers reliable tools for panel data econometrics and model validation.

RESULTS AND DISCUSSION

Output Model Regression Data Panel

The results of the econometric model estimation in advance with the Pooled Least Square (PLS), Fixed Effect Model (FEM) and Random Effect Model (REM) approaches along with the results of the model selection test are summarized in Table 1.

Table 1.
Results of Econometric Model Estimation of Panel Data Regression - Cross-Section

Variable	Regression Coefficient		
	PLS	FEM	REM
C	7.791519	14.45953	7.791519
POV	-0.011486	-0.070261	-0.011486
TPT	-0.451615	-1.499100	-0.451615



IPG	-0.014220	-0.021392	-0.014220
R2	0.097343	0.388861	0.097343
Adjusted. R2	0.086107	0.279623	0.086107
Statistic F	8.663233	3.559774	8.663233
Prob. Statistik F	0.000018	0.000000	0.000018
Model Selection Test			
Chow			
Cross- Section F(34,207) = 2,904126 ; Prob. F(34,207) = 0,0000			
Hausman			
Cross-Section random χ^2 (3) = 74,940303; Prob. χ^2 = 0,0000			

Source: Eviews data processing, 2025

Selection of the Best Estimation Model

Chow Test

Based on the Chow test (Gujarati, 2006), the hypotheses are H_0 : the Common Effect Model (CEM) is appropriate, and H_1 : the Fixed Effect Model (FEM) is more suitable. The decision rule states that if the probability value of the cross-section chi-square statistic is greater than α (0.05), H_0 is accepted; otherwise, H_1 is accepted. In this case, the test result shows a probability value of 0.0000, which is less than 0.05, indicating that H_0 is rejected and H_1 is accepted. Therefore, the Fixed Effect Model (FEM) is considered more appropriate than the Common Effect Model (CEM) for this panel data analysis.

Hausman Test

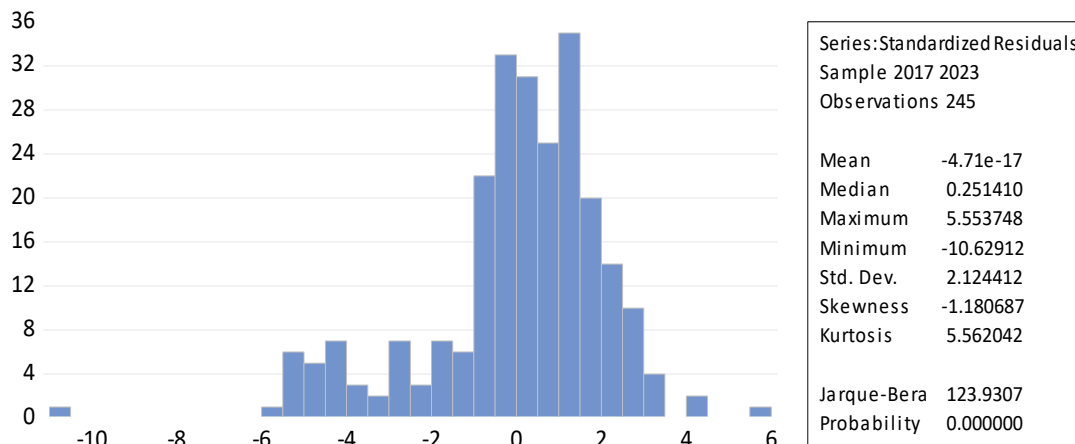
The Hausman test (Gujarati, 2006) is used to determine the more appropriate model between the Fixed Effect Model (FEM) and the Random Effect Model (REM). The hypotheses are: H_0 indicates that REM is preferred, while H_1 suggests FEM is more suitable. If the probability value is greater than the significance level α (0.05), H_0 is accepted, indicating REM is the appropriate model. Conversely, if the probability is less than 0.05, H_1 is accepted, meaning FEM is the better choice. In this study, the Hausman test result shows a



probability value of 0.000, which is below the 0.05 threshold. Therefore, H_0 is rejected and H_1 is accepted, indicating that the Fixed Effect Model is more appropriate than the Random Effect Model for the analysis.

Classical Assumption Test

Normality Test



Based on the figure above, the Jarque-Bera test results show a probability value of 0.000000, which is lower than the significance level ($\alpha = 0.05$), indicating that the data are not normally distributed.

Multicollinearity Test

Table 2.
Multicollinearity Test Results

	POV	TPT	IPG
POV	1.000000	-0.010377	-0.308280
TPT	-0.010377	1.000000	-0.122213
IPG	-0.308280	-0.122213	1.000000

Source: Eviews data processing, 2025

Multicollinearity testing aims to assess the correlation between independent variables (Winarno, 2015). A regression model is considered valid if there is no correlation among the independent variables. To detect multicollinearity in the data, we examine the correlation coefficient. If the



correlation coefficient is greater than 0.80, multicollinearity exists. If the coefficient is less than 0.80, multicollinearity is not present. Based on the multicollinearity test output, it indicates that there is no multicollinearity issue, as the correlation between variables is below 0.80.

Heteroscedasticity Test

Table 3.
Heteroscedasticity Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.160768	0.043546	3.691931	0.0003
POV	-0.009931	0.002285	-4.345860	0.0000
TPT	-0.006050	0.001992	-3.036380	0.0027
IPG	0.000286	0.000379	0.753758	0.4519

Source: Eviews data processing, 2025

Heteroscedasticity testing is conducted to determine whether there is a variance difference in the residuals across observations within a regression model (Ghozali, 2018). When the variance of the residuals is constant across observations, it is referred to as homoscedasticity. The test is performed by regressing the absolute residual values on all independent variables (Winarno, 2015). The hypotheses are as follows: if the probability value is greater than 0.05, there is no heteroscedasticity; if it is less than 0.05, heteroscedasticity is present. Based on the test results, two independent variables, poverty ($0.000 < 0.05$) and HDI ($0.0027 < 0.05$), have probability values below the significance level, indicating the presence of heteroscedasticity in the model.



Hypothesis Testing

Table 4.

Fixed Effect Model (FEM) Estimation Model

$$LnPDRB_{it} = 14,45953 - 0,070261 POV_{it} - 1,499100TPT_{it} - 0,021392IPG_{it}$$

	(0,6742)	(0,0000)*	(0,4408)
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R2 = 0,388861; DW = 2,128208; F.stat = 3,559774; Prob. F = 0,0000

Source: BPS and Kemnaker RI, processed. Note: *Significant at $\alpha = 0.01$; **Significant at $\alpha = 0.05$; ***Significant at $\alpha = 0.10$; The numbers in brackets are the probability of the t-statistic value.

The estimation results from the Fixed Effect Model show that the open unemployment rate (TPT) has a statistically significant negative impact on regional economic growth, as indicated by its very low probability value. This means that as unemployment increases, the Gross Regional Domestic Product (GRDP) tends to decline. On the other hand, poverty (POV) and the Gender Development Index (IPG) do not have a significant effect on GRDP, suggesting that changes in these variables do not directly influence economic growth in Central Java during the study period.

Partial Significance Test (T-Test)

Table 5.

Results of Partial Significance Test (t-test)

Variable	Probability of T-Statistic	Criteria	Conclusion
POV	0.6742	$> 0,05$	Not Significant at $\alpha = 0.05$
TPT	0.0000	$\leq 0,05$	Significant at $\alpha = 0.05$
IPG	0.4408	$> 0,05$	Not Significant at $\alpha = 0.05$

Source: Data processing, 2025

The poverty variable (X1) has a probability of 0.6742, greater than α (0.05), indicating it does not significantly affect PDRB. The TPT variable (X2), with a probability of 0.0000, is smaller than α (0.05), showing a significant negative effect on PDRB. In contrast, the IPG variable (X3) has a probability of 0.4408, greater



than α (0.05), meaning it does not significantly influence PDRB. These results suggest that while poverty and IPG do not have significant effects on PDRB, TPT has a significant negative impact.

Simultaneous Significance Test (F Test)

The F-test is used to determine the extent of the simultaneous influence of all independent variables on the dependent variable. The decision rule for the F-test is based on comparing the resulting probability with the significance level (α) of 0.05. A significant effect is indicated when the probability value is smaller than the significance level ($\alpha = 0.05$), while no significant effect is found if the probability is larger than 0.05. The output of the REM test shows that the Probability F-statistic value is 0.000000, which is smaller than the significance level ($\alpha = 0.05$), indicating that all independent variables poverty rate, TPT, and IPG simultaneously have a significant effect on the dependent variable, PDRB.

Coefficient of Determination (R²)

In the table above, the R-squared value is 0.388861, meaning that statistically, the three independent variables explain 38.88% of the variation in the dependent variable, while the remaining 61.12% is explained by other variables not included in this study.

The Effect of Poverty (POV) on GRDP

The regression analysis indicates that poverty does not have a significant effect on GRDP in Central Java Province. This result is consistent with studies such as Sianturi et al. (2021), which argue that although poverty is an important social issue, its direct impact on GRDP is not always observable. In this context, while poverty reduction can improve human capital, it does not necessarily translate into significant economic growth at the regional level.



This finding contrasts with other studies, such as Istiqomah et al. (2025), which suggest that poverty reduction can lead to increased productivity, thereby contributing to GRDP growth in several provinces. For example, in their research, they found a positive correlation between poverty alleviation and regional economic growth, which was not observed in this study. Therefore, while poverty reduction remains a key objective for social policy, the results of this study show that its direct effect on GRDP is not significant in the context of Central Java Province.

The Effect of Open Unemployment Rate (TPT) on GRDP

Another key finding is the negative correlation between the open unemployment rate (TPT) and GRDP. According to the analysis, a 1% increase in unemployment is associated with a 1.4991% decline in GRDP. This result supports the findings of Rahmawati and Hidayah (2020), who argue that high unemployment negatively impacts economic growth by reducing purchasing power and creating income distribution imbalances. Similarly, Aldino (2018) notes that high unemployment hampers economic productivity due to the underutilization of the available labor force.

These findings align with the conclusions of previous studies, such as those by Rahmawati and Hidayah (2020) and Aldino (2018), which emphasize the importance of managing unemployment for supporting regional economic growth. The negative effect of unemployment on GRDP highlights the need for effective labor market policies to mitigate unemployment and enhance economic productivity.



The Effect of Gender Development Index (IPG) on GRDP

The analysis also reveals that the Gender Development Index (IPG) does not have a significant effect on GRDP in Central Java. This finding is consistent with research by Putri et al. (2024), which states that while the GDI is an important indicator for assessing gender disparities in development, its direct correlation with GRDP is often insignificant. Therefore, although gender equality is crucial in the context of social development, its immediate impact on GRDP may not be measurable in the short term.

However, studies such as Istiqomah et al. (2025) suggest that better gender equality, reflected by a higher GDI, can increase female productivity, which in turn can stimulate regional economic growth. This is in line with the potential long-term benefits of gender equality that may not be immediately visible in the short-run GRDP data. Although this study did not find a significant relationship between IPG and GRDP in Central Java, it opens the door for future research to explore the long-term effects of gender equality on economic development.

CONCLUSION

This study concludes that the fixed effect model is the most appropriate for analyzing poverty-related dynamics across districts and cities in Central Java Province. The findings reveal that poverty and the Gender Development Index (GDI) do not significantly influence regional economic growth. This insignificance may be attributed to the relatively homogeneous poverty levels and GDI scores across the region, or the possibility that their effects manifest indirectly through other variables such as education or labor productivity. In contrast, the open unemployment rate exhibits a significant negative effect on



economic growth, suggesting that higher unemployment levels hinder productive capacity and reduce household income, ultimately weakening regional demand and investment. This aligns with previous studies highlighting the critical role of employment in sustaining economic performance. By focusing on Central Java and employing a fixed effect model, this study offers nuanced insights into localized socio-economic dynamics, underlining the importance of unemployment management in regional development strategies.

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