

DETERMINANTS OF INCLUSIVE HUMAN DEVELOPMENT ACROSS REGENCIES AND CITIES IN CENTRAL JAVA

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Article Information: Received --- June 25, 2026, Published --- August 10, 2026

Abstract

The unequal distribution of development benefits poses a structural challenge that the conventional Human Development Index has yet to fully capture, necessitating a more holistic approach through the concept of inclusive human development. Central Java Province confronts a stark development paradox where, despite ranking third in population size and fourth as a national economic contributor, its Inclusive Human Development Index ranks only 24th out of 38 provinces, marked by a sluggish rate of improvement and persistent disparities across regencies and cities. This study aims to analyze the effects of education expenditure, health expenditure, minimum wage, labor force participation rate, open unemployment rate, poverty rate, and economic growth on inclusive human development across 35 regencies and cities in Central Java during 2021–2024. Using panel data regression and the Random Effect Model (REM), the results indicate that minimum wage has a positive and significant effect, while the open unemployment rate has a negative and significant effect on inclusive human development. In contrast, education expenditure, health expenditure, labor force participation rate, poverty rate, and economic growth do not have significant effects. These findings suggest that labor market conditions play a more important role than fiscal and macroeconomic factors in promoting inclusive human development. This study contributes to the literature on inclusive development and provides policy insights for fostering more equitable human welfare across regions.

Keywords: Inclusive Human Development Index; Fiscal Policy; Labor Market; Poverty; Economic Growth

INTRODUCTION

Human development has become one of the most important indicators for assessing development performance because it reflects improvements in people's quality of life through education, health, and living standards. However, conventional measures of human development often focus only on average achievements and fail to capture how development outcomes are distributed across society. As a result, improvements in the Human Development Index (HDI) may conceal disparities in access to education, healthcare, and economic opportunities among different population groups (Desai et al., 2022). In response to this limitation, the concept of inclusive human development has emerged, emphasizing that development should not only improve average welfare but also ensure that its benefits are distributed equitably across society (Dörffel & Schuhmann, 2022; Stylianou et al., 2023).

The concept is closely related to Sen's Capability Approach, which views development as the expansion of individuals' capabilities and opportunities to achieve valuable lives (Sen, 1999). Building on this perspective, Hicks (1997) proposed an inequality-adjusted measure of human development by incorporating income distribution into human development assessment. Consequently, inclusive human development reflects both the achievement of human welfare and

Despite its strong economic potential, Central Java continues to face challenges in achieving inclusive human development. As the fourth-largest contributor to Indonesia's Gross Domestic Product (GDP), accounting for 8.25 percent of national output, the province benefits from a dominant manufacturing sector and a strategic location within Java Island (Badan Pusat Statistik Provinsi Jawa Tengah, 2026a, 2026b). Nevertheless, Central Java ranked only 24th among Indonesia's 38 provinces in terms of Inclusive Human Development Index in 2024, indicating that economic progress has not been fully translated into equitable human welfare improvements.



Furthermore, the Inclusive Human Development Index in Central Java increased only modestly from 45.61 in 2021 to 46.99 in 2024, while disparities among regencies and cities remained substantial. This condition suggests that structural factors continue to constrain the achievement of more inclusive development outcomes.



Previous studies have produced inconsistent findings regarding the determinants of human development and income inequality. In the fiscal dimension, education and health expenditures were found to improve human development outcomes through better access to education and healthcare services (Firmansyah & Wasil, 2024; Ratuludji et al., 2023). However, other studies reported that increased public spending does not necessarily lead to higher human development due to inefficiencies in budget allocation and implementation (Damayanti & Suryaningrum, 2023; Siregar et al., 2024). From the perspective of income distribution, Rindiani et al. (2025) found that education and health expenditures contribute to reducing income inequality. In contrast, Mahdi &

Sulistiyono (2023) reported that education and health expenditures do not have a significant effect on the Gini ratio.

Similar inconsistencies are evident in labor market variables. Faizin (2021) found that minimum wages improve human development through higher purchasing power and welfare. In contrast, Izzah & Hendarti (2021) reported that minimum wages do not significantly affect human development outcomes. From the perspective of income distribution, Saputri & Setyanto (2023) found that minimum wages reduce income inequality, whereas Suryani & Woyanti (2021) showed that wage increases may widen income disparities. Likewise, Sari & Warsitasari (2023) found that labor force participation contributes to improving human development, while Cahyanti et al. (2021) reported limited effects on development outcomes. Regarding income distribution, Rosalitta & Muljaningsih (2022) found that labor force participation significantly affects income distribution, whereas Azhar & Nuryadin (2025) argued that its effect depends on labor market conditions.

Contradictory findings are also observed for unemployment, poverty, and economic growth. Triwahyu et al. (2026) found that unemployment and poverty reduce human development by limiting access to income, education, and healthcare. In contrast, Kasnelly & Wardiah (2021) found that unemployment does not significantly affect human development, while Kiha et al. (2021) reported insignificant effects of poverty on human development outcomes. From the perspective of income distribution, Mahdi & Sulistiyono (2023) found that unemployment increases income inequality, whereas Hutabarat & Arka (2023) found no significant relationship. Similarly, Andini et al. (2026) reported that poverty exacerbates income inequality, while Hutabarat & Arka (2023) found that poverty does not significantly affect income distribution. Regarding economic growth, Syofya & Shintia (2024) found that economic growth promotes human development, whereas Wahyuningrum & Soesilowati (2021) reported insignificant effects. Moreover, Aurellia & Sirait (2026) found that economic growth reduces income inequality, while Safrita et al. (2021) argued that economic growth may widen income disparities when its benefits are distributed unevenly across society.

Despite the growing body of literature on human development and income inequality, most studies examine these issues separately using either the Human Development Index (HDI) or the Gini ratio, thereby providing limited insights into how fiscal, labor market, and socioeconomic factors simultaneously influence development achievements and distributional equity. Moreover, empirical studies employing the Inclusive Human Development Index at the regency and city level in Indonesia remain scarce, particularly those that simultaneously incorporate fiscal, labor market, and socioeconomic determinants within a single analytical framework. To address this gap, this study employs the Inclusive Human Development Index as an integrated measure of human development and income distribution and examines the effects of education expenditure, health expenditure, minimum wage, labor force participation, unemployment, poverty, and economic growth across 35 regencies and cities in Central Java during 2021–2024. The findings are expected to enrich the literature on inclusive development and provide policy recommendations for promoting more equitable human welfare and reducing regional disparities.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

Inclusive Human Development

Inclusive human development refers to a development process that not only improves average achievements in health, education, and living standards but also ensures that these achievements are distributed equitably across society. The concept is rooted in Sen's Capability Approach, which views development as the expansion of people's capabilities and freedoms to achieve valuable life outcomes (Sen, 1999). Building upon this framework, Hicks (1997) proposed an inequality-adjusted measure of human development by incorporating income distribution into human development assessment. Therefore, inclusive human development reflects both human

welfare achievements and distributional equity. This integrated perspective makes inclusive human development a comprehensive measure that captures both human development achievements and income distribution, making it suitable for analyzing the effects of fiscal, labor market, and socioeconomic factors.

Education Expenditure

Education expenditure represents government spending allocated to improve educational services and human capital development. According to Human Capital Theory proposed by Becker (1964), investment in education enhances knowledge, skills, and productivity, thereby improving welfare and economic opportunities. Firmansyah & Wasil (2024) and Ratuludji et al. (2023) found that education expenditure positively contributes to human development through improved educational access and human capital formation. In addition, Rindiani et al. (2025) reported that education expenditure helps reduce income inequality by expanding educational opportunities across population groups.

H1: Education expenditure positively affects inclusive human development.

Health Expenditure

Health expenditure refers to government spending allocated to healthcare services and public health programs. According to Human Capital Theory proposed by Becker (1964), good health is a fundamental component of human capital because healthy individuals are more productive and capable of participating in economic activities. Ratuludji et al. (2023) found that health expenditure positively affects human development by improving access to healthcare services and enhancing population health outcomes. In addition, Rindiani et al. (2025) reported that health expenditure contributes to reducing income inequality through more equitable access to health services.

H2: Health expenditure positively affects inclusive human development.

Minimum Wage

Minimum wage is the lowest wage level established by the government to ensure a decent standard of living for workers. According to Efficiency Wage Theory proposed by Shapiro & Stiglitz (1984), higher wages can improve worker productivity and welfare. Higher minimum wages may enhance inclusive human development by increasing purchasing power and reducing income disparities. Faizin (2021) found that minimum wages positively influence human development through improvements in household welfare and purchasing power. In addition, Saputri & Setyanto (2023) reported that minimum wages contribute to reducing income inequality.

H3: Minimum wage positively affects inclusive human development.

Labor Force Participation Rate

The labor force participation rate reflects the proportion of working-age individuals actively involved in economic activities. According to Human Capital Theory proposed by Becker (1964), labor market participation enables individuals to utilize their capabilities and generate income. Higher participation rates may improve welfare and expand economic opportunities across society. Sari & Warsitasari (2023) found that labor force participation contributes positively to human development by increasing access to employment and income-generating activities. In addition, Rosalitta & Muljaningsih (2022) reported that labor force participation contributes to improving income distribution.

H4: Labor force participation rate positively affects inclusive human development.

Open Unemployment Rate

Open unemployment rate measures the proportion of unemployed individuals within the labor force. According to labor market theory, unemployment reflects an imbalance between labor supply and labor demand (Borjas, 2020). High unemployment reduces household income and limits access to education, healthcare, and other basic needs. Triwahyu et al. (2026) found that unemployment negatively affects human development by restricting individuals' access to economic opportunities and welfare improvements. In addition, Mahdi & Sulistyono (2023) reported that unemployment contributes to increasing income inequality.

H5: Open unemployment rate negatively affects inclusive human development.

Poverty

Poverty refers to the condition in which individuals are unable to fulfill basic needs due to limited economic resources. According to Nurkse's Vicious Cycle of Poverty Theory by Nurkse (1953), low income leads to low savings, low investment, and low productivity, which in turn perpetuate poverty. High poverty levels limit access to education, healthcare, and decent living standards while widening income disparities. Triwahyu et al. (2026) found that poverty negatively affects human development by restricting access to education, health services, and economic opportunities. In addition, Andini et al. (2026) reported that poverty contributes to increasing income inequality.

H6: Poverty negatively affects inclusive human development.

Economic Growth

Economic growth reflects an increase in economic output and productive capacity within a region. According to the Kuznets Hypothesis by Kuznets (1955), economic growth may improve welfare and eventually reduce inequality when its benefits are distributed broadly across society. Economic growth can enhance inclusive human development by creating employment opportunities, increasing income, and strengthening government fiscal capacity. Syofya & Shintia (2024) found that economic growth positively affects human development by improving welfare and expanding economic opportunities. In addition, Aurellia & Sirait (2026) reported that economic growth contributes to reducing income inequality through a more equitable distribution of economic benefits.

H7: Economic growth positively affects inclusive human development.

RESEARCH METHODS**Research Design**

This study employed a quantitative research approach using panel data regression analysis. The research focused on 35 regencies and cities in Central Java Province during the period 2021–2024, resulting in 140 observations. Secondary data were obtained from the Central Bureau of Statistics (BPS) and the Directorate General of Fiscal Balance (DJPK).

Variables and Measurement

The dependent variable in this study was the Inclusive Human Development Index (IHDI), calculated by adjusting the Human Development Index (HDI) with the Gini Ratio following Hicks (1997):

$$IHDI = HDI \times (1 - Gini) \dots\dots\dots (1)$$

The independent variables consisted of education expenditure (EDU), health expenditure (HEALTH), minimum wage (WAGE), labor force participation rate (LFPR), open unemployment rate

(UNEMP), poverty rate (POV), and economic growth (GROWTH). Education expenditure, health expenditure, and minimum wage were transformed into natural logarithms.

Data Analysis Techniques

This study employed panel data regression analysis by combining cross-sectional and time-series data. Data processing and estimation were conducted using Stata 18 software. The panel regression model is specified as follows:

$$IHDI_{it} = \beta_0 + \beta_1 \ln EDU_{it} + \beta_2 \ln HEALTH_{it} + \beta_3 \ln WAGE_{it} + \beta_4 LFPR_{it} + \beta_5 UNEMP_{it} + \beta_6 POV_{it} + \beta_7 GROWTH_{it} + \varepsilon_{it} \dots\dots\dots (2)$$

Where IHDI is the Inclusive Human Development Index (index points); β_0 is the constant; β_{1-7} are the regression coefficients; $\ln EDU$ is the natural logarithm of education expenditure (million rupiah); $\ln HEALTH$ is the natural logarithm of health expenditure (million rupiah); $\ln WAGE$ is the natural logarithm of minimum wage (rupiah per year); $LFPR$ is the labor force participation rate (percent); $UNEMP$ is the open unemployment rate (percent); POV is the poverty rate (percent); $GROWTH$ is the economic growth rate (percent); ε is the error term; i denotes cross-sectional units (regencies/cities); and t denotes time periods (2021–2024).

Panel Data Regression Model Selection

The selection of the panel data regression model aims to determine the most appropriate estimation model among the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Model selection was conducted using the Chow test, Hausman test, and Lagrange Multiplier (LM) test.

Coefficient of Determination (R^2)

The coefficient of determination (R^2) was used to measure the ability of the independent variables to explain variations in the Inclusive Human Development Index. A higher R^2 value indicates greater explanatory power of the model.

F-Test

The F-test was conducted to determine whether education expenditure, health expenditure, minimum wage, labor force participation rate, unemployment rate, poverty rate, and economic growth jointly affect inclusive human development.

z-Test

The z-test was conducted to assess the partial effect of each independent variable on the Inclusive Human Development Index and to determine whether each variable had a statistically significant influence on the dependent variable.

RESULTS AND DISCUSSION

Data Analysis

Based on the Chow, Hausman, and Lagrange Multiplier tests, the Random Effect Model (REM) was selected as the most appropriate model for estimating the determinants of inclusive human development across regencies and cities in Central Java. While the Chow test favored the Fixed Effect Model (FEM) over the Common Effect Model (CEM), both the Hausman and Lagrange Multiplier tests indicated that REM was the most appropriate model. The estimation results are presented in Table 1.

Table 1. Random Effect Model Estimation Results

Variable	Coefficient	z-statistic	Prob.
Constant	-40.21061	-1.06	0.289
lnEDU	-0.79252	-1.33	0.183
lnHEALTH	-0.27867	-1.43	0.153
lnWAGE	8.40300	3.12	0.002
LFPR	-0.03977	-0.70	0.481
UNEMP	-0.32623	-2.44	0.015
POV	-0.10443	-0.94	0.347
GROWTH	-0.03296	-0.24	0.809
Wald Chi ² (7)	49.58		
Prob > Chi ²	0.0000		
R-squared (Overall)	0.3124		

Source: Results of Estimated Stata 18 (processed)

Based on Table 1, the results of the panel data regression estimation with the Random Effect Model (REM) obtained the following equation results:

$$IPMI_{it} = -40.21061 - 0.79252lnEDU_{it} - 0.27867lnHEALTH_{it} + 8.40300lnWAGE_{it} - 0.03977LFPR_{it} - 0.32623UNEMP_{it} - 0.10443POV_{it} - 0.03296GROWTH_{it}$$

The interpretation of the estimated coefficients is as follows:

1. The constant coefficient is -40.21061, indicating the estimated value of the Inclusive Human Development Index when all explanatory variables are assumed to be constant.
2. The coefficient of education expenditure (lnEDU) is -0.79252, indicating that a 1 percent increase in education expenditure is associated with a 0.79252-point decrease in the Inclusive Human Development Index, ceteris paribus.
3. The coefficient of health expenditure (lnHEALTH) is -0.27867, indicating that a 1 percent increase in health expenditure is associated with a 0.27867-point decrease in the Inclusive Human Development Index, ceteris paribus.
4. The coefficient of minimum wage (lnWAGE) is 8.40300, indicating that a 1 percent increase in minimum wage is associated with an increase of 8.40300 points in the Inclusive Human Development Index, ceteris paribus.
5. The coefficient of labor force participation rate (LFPR) is -0.03977, indicating that a one percentage-point increase in LFPR is associated with a decrease of 0.03977 points in the Inclusive Human Development Index, ceteris paribus.
6. The coefficient of unemployment rate (UNEMP) is -0.32623, indicating that a one percentage-point increase in unemployment rate is associated with a decrease of 0.32623 points in the Inclusive Human Development Index, ceteris paribus.
7. The coefficient of poverty rate (POV) is -0.10443, indicating that a one percentage-point increase in poverty rate is associated with a decrease of 0.10443 points in the Inclusive Human Development Index, ceteris paribus.
8. The coefficient of economic growth (GROWTH) is -0.03296, indicating that a one percentage-point increase in economic growth is associated with a decrease of 0.03296 points in the Inclusive Human Development Index, ceteris paribus.

Coefficient of Determination (R^2)

Based on Table 1, the overall R^2 value is 0.3124. This indicates that education expenditure, health expenditure, minimum wage, labor force participation rate, unemployment rate, poverty rate, and economic growth explain 31.24 percent of the variation in the Inclusive Human Development Index across regencies and cities in Central Java. The remaining 68.76 percent is explained by other factors outside the model.

F-Test

Based on Table 1, the Wald Chi-square value is 49.58 with a probability value of 0.0000. Since the probability value is lower than the significance level of 5 percent (0.05), H_0 is rejected and H_1 is accepted. This indicates that education expenditure, health expenditure, minimum wage, labor force participation rate, unemployment rate, poverty rate, and economic growth collectively affect the Inclusive Human Development Index across 35 regencies and cities in Central Java. These findings imply that inclusive human development is determined not only by a single factor but also by the interaction of fiscal, labor market, and socioeconomic conditions.

z-Test

Based on Table 1, the results of the z-test for each variable can be described as follows:

1. The coefficient of education expenditure (InEDU) is -0.79252 with a z-statistic value of -1.33 and a probability value of $0.183 > 0.05$. Therefore, H_0 is accepted. This indicates that education expenditure has a negative but insignificant effect on the Inclusive Human Development Index across regencies and cities in Central Java.
2. The coefficient of health expenditure (InHEALTH) is -0.27867 with a z-statistic value of -1.43 and a probability value of $0.153 > 0.05$. Therefore, H_0 is accepted. This indicates that health expenditure has a negative but insignificant effect on the Inclusive Human Development Index across regencies and cities in Central Java.
3. The coefficient of minimum wage (InWAGE) is 8.40300 with a z-statistic value of 3.12 and a probability value of $0.002 < 0.05$. Therefore, H_0 is rejected. This indicates that minimum wage has a positive and significant effect on the Inclusive Human Development Index across regencies and cities in Central Java.
4. The coefficient of labor force participation rate (LFPR) is -0.03977 with a z-statistic value of -0.70 and a probability value of $0.481 > 0.05$. Therefore, H_0 is accepted. This indicates that labor force participation rate has a negative but insignificant effect on the Inclusive Human Development Index across regencies and cities in Central Java.
5. The coefficient of unemployment rate (UNEMP) is -0.32623 with a z-statistic value of -2.44 and a probability value of $0.015 < 0.05$. Therefore, H_0 is rejected. This indicates that unemployment rate has a negative and significant effect on the Inclusive Human Development Index across regencies and cities in Central Java.
6. The coefficient of poverty rate (POV) is -0.10443 with a z-statistic value of -0.94 and a probability value of $0.347 > 0.05$. Therefore, H_0 is accepted. This indicates that poverty rate has a negative but insignificant effect on the Inclusive Human Development Index across regencies and cities in Central Java.
7. The coefficient of economic growth (GROWTH) is -0.03296 with a z-statistic value of -0.24 and a probability value of $0.809 > 0.05$. Therefore, H_0 is accepted. This indicates that economic growth has a negative but insignificant effect on the Inclusive Human Development Index across regencies and cities in Central Java.

Classic Assumption Test**a. Normality**

The normality was conducted to determine whether the residuals in the regression model are normally distributed. This study employed the Skewness and Kurtosis Test to examine the distribution of residuals. The results of the normality test are presented in Table 2.

Table 2. Normality Results

Variable	Obs	Pr(skewness)	Pr(kurtosis)	Joint test	
				Adj Chi ² (2)	Prob>Chi ²
Resid	140	0.5156	0.3675	1.25	0.5341

Source: Results of Estimated Stata 18 (processed)

Based on Table 2, the probability value of the joint test is 0.5341, which is greater than the significance level of 0.05. Therefore, H_0 is accepted, indicating that the residuals are normally distributed and the normality assumption is fulfilled.

b. Multicollinearity

The multicollinearity was conducted to determine whether there is a high correlation among the independent variables in the regression model. This study employed the Variance Inflation Factor (VIF) to detect multicollinearity. The results of the multicollinearity are presented in Table 3.

Table 3. Multicollinearity Results

Variable	VIF	1/VIF
lnEDU	1.48	0.674878
lnHEALTH	1.14	0.876179
lnWAGE	1.79	0.558265
LFPR	1.54	0.647312
UNEMP	1.53	0.651913
POV	2.01	0.496726
GROWTH	1.04	0.965366
Mean VIF	1.51	

Source: Results of Estimated Stata 18 (processed)

Based on Table 3, all VIF values are below 10, with a mean VIF of 1.51. Therefore, it can be concluded that there is no indication of multicollinearity among the independent variables.

c. Heteroscedasticity

The heteroscedasticity was conducted to examine whether the variance of the residuals remains constant across observations. This study employed the Glejser test to detect heteroscedasticity. The results of the heteroscedasticity are presented in Table 4.

Table 4. Heteroskedasticity Results

Variable	Prob.
lnEDU	0.615
lnHEALTH	0.144
lnWAGE	0.658
LFPR	0.170
UNEMP	0.612
POV	0.411
GROWTH	0.519

Source: Results of Estimated Stata 18 (processed)

Based on Table 4, the probability values of all independent variables are greater than 0.05. Therefore, H_0 is accepted, indicating that the model does not suffer from heteroscedasticity problems.

d. Autocorrelation

The autocorrelation was conducted to examine whether the residuals are correlated across time periods. This study employed the Wooldridge Test for autocorrelation in panel data. The results of the autocorrelation are presented in Table 5.

Table 5. Autocorrelation Results

Criteria	Value
F-statistic	1.724
Prob > F	0.1980

Source: Results of Estimated Stata 18 (processed)

Based on Table 5, the probability value is 0.1980, which is greater than the significance level of 0.05. Therefore, H_0 is accepted, indicating that there is no autocorrelation problem in the model.

Discussion

The Effect of Education Expenditure on Inclusive Human Development

The results indicate that education expenditure has a negative but insignificant effect on the Inclusive Human Development Index across regencies and cities in Central Java. This finding suggests that higher education expenditure has not been able to simultaneously improve human development achievements and reduce income inequality (Gini Ratio), which jointly determine inclusive human development. The insignificant relationship may reflect that education spending is often directed toward meeting educational needs in less-developed regions, while its benefits require time to improve human capabilities and distributional outcomes. This finding is not fully consistent with Human Capital Theory proposed by Becker (1964), which emphasizes education as

an investment that enhances human capital and welfare. The result is consistent with Simanjuntak et al. (2025), Adan et al. (2023), and Mahdi & Sulistyono (2023) who found that education expenditure does not significantly improve human development and income distribution simultaneously.

The Effect of Health Expenditure on Inclusive Human Development

The results indicate that health expenditure has a negative but insignificant effect on the Inclusive Human Development Index across regencies and cities in Central Java. This finding suggests that higher health expenditure has not been able to simultaneously improve human development achievements and reduce income inequality (Gini Ratio). The insignificant effect may occur because health spending is often concentrated in regions with greater healthcare needs, while improvements in health outcomes and welfare distribution generally require a longer period to materialize. Consequently, increased health expenditure does not automatically translate into more inclusive development. This finding is not fully consistent with Human Capital Theory proposed by Becker (1964), which views health as an important investment in human capital. The result is supported by Siregar et al. (2024), Fernando & Yustie (2025), Mahdi & Sulistyono, (2023), and Febrianti & Suseno (2025).

The Effect of Minimum Wage on Inclusive Human Development

The results indicate that minimum wage has a positive and significant effect on the Inclusive Human Development Index across regencies and cities in Central Java. This finding suggests that higher wages improve human development achievement while reducing income inequality (Gini Ratio), thereby promoting more inclusive development. Higher income increases households' ability to access education, healthcare, and decent living standards, while also improving the welfare of lower-income workers and narrowing income disparities. This finding is consistent with the Efficiency Wage Theory proposed by Shapiro & Stiglitz (1984), which emphasizes the welfare and productivity effects of higher wages, as well as Capability Approach by Sen (1999), which highlights the importance of income in expanding individual opportunities. The result is supported by Faizin (2021) and Hidayat & Perwithosuci (2024), who found a positive effect of minimum wage on human development, as well as Saputri & Setyanto (2023) and Nurdini et al. (2024), who reported its contribution to reducing income inequality.

The Effect of Labor Force Participation Rate on Inclusive Human Development

The results indicate that the labor force participation rate has a negative but insignificant effect on the Inclusive Human Development Index across regencies and cities in Central Java. This finding suggests that higher labor force participation does not necessarily improve human development achievements or reduce income inequality (Gini Ratio). The insignificant relationship may occur because increased labor force participation is often concentrated in informal and low-productivity employment, which provides limited income and welfare gains. As a result, greater participation does not automatically translate into better human development and more equitable welfare distribution. This finding is not fully consistent with Human Capital Theory proposed by Becker (1964) and Capability Approach by Sen (1999), which emphasize productive employment and expanded opportunities. The result is supported by Nugraha et al. (2025), Endang & Anam (2024), Oktasari & Suradi (2025), and Syahputra et al. (2024), who found that labor force participation does not necessarily improve human development and income distribution simultaneously.

The Effect of Unemployment Rate on Inclusive Human Development

The results indicate that the unemployment rate has a negative and significant effect on the Inclusive Human Development Index across regencies and cities in Central Java. This finding

suggests that rising unemployment simultaneously suppresses human development achievements and worsens income inequality (Gini Ratio). Without access to employment and income, households face greater difficulties in financing education, healthcare, and other basic needs, while the benefits of economic activity become concentrated among employed groups. Consequently, unemployment reduces both welfare achievements and distributional equity. This finding is consistent with Labor Market Theory proposed by Borjas (2020), which explains unemployment as a labor market imbalance, and Capability Approach by Sen (1999), which emphasizes employment as a means of expanding individual capabilities. The result is supported by Triwahyu et al. (2026), Mahdi & Sulistyono (2023), and Andini et al. (2026).

The Effect of Poverty on Inclusive Human Development

The results indicate that poverty has a negative but insignificant effect on the Inclusive Human Development Index across regencies and cities in Central Java. This finding suggests that higher poverty tends to weaken human development achievements and worsen income distribution (Gini Ratio), although the effect is not statistically significant. The insignificant relationship may reflect the declining poverty trend and improvements in access to education and healthcare during the study period, which helped offset the adverse effects of poverty on inclusive development. This finding is consistent with Nurkse's Vicious Cycle of Poverty Theory by Nurkse (1953), which links poverty to limited development opportunities, and Capability Approach by Sen (1999), which emphasizes access to capabilities beyond income alone. The result is supported by Suryani (2024), Mononimbar et al. (2022), and Ardiani & Prabowo (2024).

The Effect of Economic Growth on Inclusive Human Development

The results indicate that economic growth has a negative but insignificant effect on the Inclusive Human Development Index across regencies and cities in Central Java. This finding suggests that economic growth has not been able to simultaneously improve human development achievements and reduce income inequality (Gini Ratio). The insignificant effect may occur because the benefits of growth are not evenly distributed across regions and population groups, causing increases in economic output to have limited impacts on welfare equity. Consequently, economic expansion does not automatically generate more inclusive development outcomes. This finding is consistent with the Kuznets (1955), which argues that economic growth may initially be accompanied by unequal distribution of benefits, and Capability Approach by Sen (1999). The result is supported by Wahyuningrum & Soesilowati (2021), Sihite et al. (2024), and Safrita et al. (2021).

CONCLUSION

The results show that minimum wage has a positive and significant effect on the Inclusive Human Development Index, while the unemployment rate has a negative and significant effect across regencies and cities in Central Java. In contrast, education expenditure, health expenditure, labor force participation, poverty, and economic growth do not significantly affect inclusive human development. These findings suggest that labor market conditions play a more important role in promoting inclusive human development than fiscal and macroeconomic factors during the study period.

The findings imply that local governments should prioritize policies that expand employment opportunities and improve workers' welfare through effective wage policies. In addition, education and health expenditures should be allocated more efficiently to ensure that development benefits are distributed more equitably across society. This study is limited to 35 regencies and cities in Central Java during 2021–2024 and includes only selected fiscal, labor market, and socioeconomic variables. Future research is encouraged to extend the observation period, expand regional coverage, and incorporate additional variables related to inequality, governance, social protection,

and institutional quality to obtain a more comprehensive understanding of inclusive human development.

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