

DETERMINANTS OF ECONOMIC DISPARITIES AMONG REGENCIES AND CITIES IN CENTRAL JAVA, 2015–2023

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Abstract

Interregional economic disparity represents a persistent structural challenge in the development of Central Java Province, where economic growth remains disproportionately concentrated in major urban centers, leaving peripheral areas underdeveloped. This study aims to investigate the determinants of economic inequality among regencies and municipalities in Central Java from 2015 to 2023. Employing a quantitative approach, the analysis utilizes panel data regression with a fixed effects model and robust standard errors to address heteroskedasticity. The dataset comprises 315 observations across 35 regions over nine years. The independent variables include population size, open unemployment, average years of schooling, and the number of medium- and large-scale manufacturing industries. The results indicate that population size and open unemployment exert statistically significant effects on interregional economic inequality, whereas average years of schooling and industrial concentration do not exhibit such influence. These findings underscore the importance of employment-driven and spatially balanced development strategies, as well as long-term investment in educational infrastructure, to mitigate inequality and foster inclusive regional growth.

Keywords: Economic inequality, population size, open unemployment, manufacturing industry, panel data.

INTRODUCTION

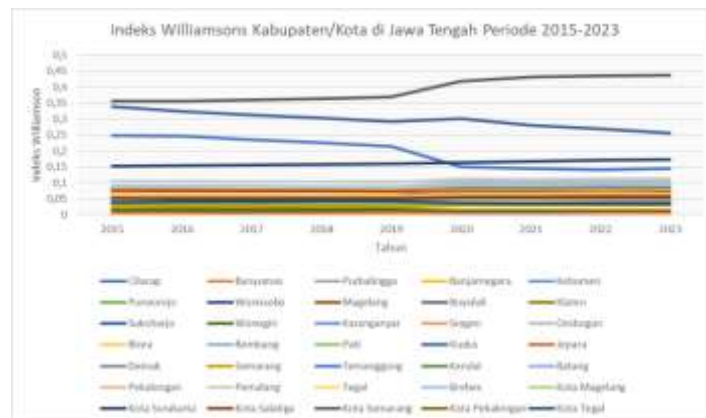
Equitable development is one of the main objectives of economic development. High economic inequality between regions not only reflects the unequal distribution of resources, but also has the potential to hamper the process of sustainable development. Economic inequality between regions is a fundamental problem faced by many developing countries, including Indonesia. This phenomenon reflects the uneven distribution of development results, where economic growth tends to be concentrated in big cities and areas with adequate infrastructure access, while rural and peripheral areas are left behind (Todaro & Smith, 2015). This inequality not only affects the local economy, but also encourages excessive urbanization, increases rural poverty, and exacerbates social injustice.

One of the indicators used to measure economic inequality between regions is the Williamson Index. An index value close to 0 indicates low inequality and an index value close to 1 indicates higher inequality. The following presents the state of economic inequality between regions in Central Java Province based on the Williamson index from 2015-2023 in Figure 1 and the state of economic inequality between districts/municipalities in Central Java Province based on the Williamson index from 2015-2023 in Figure 2.



Source: Central Bureau of Statistics, Indonesia (Data processed)

Figure 1. The state of economic inequality between regions in Central Java Province based on the Williamson index from 2015-2023



Sumber: : Central Bureau of Statistics, Central Java (Data processed)

Figure 2. The state of economic inequality between districts/cities in Central Java Province based on the Williamson index from 2015-2023

Based on data from the Central Bureau of Statistics (BPS), the condition of economic inequality between districts/cities in Central Java Province is classified as very high. This is indicated by the average value of the Williamson Index in the 2015-2023 period which reached 0.606, close to the maximum value of 1. This means that there is a large difference in the level of economic development between regions in the province. Some regions, especially big cities such as Semarang and Surakarta, have much higher levels of gross regional domestic product (GRDP) per capita compared to other underdeveloped districts. This inter-regional economic inequality suggests that economic growth has not been evenly distributed, but rather concentrated in certain growth centers.

In contrast, economic inequality between regions within a kabupaten or kota tends to be low, with index values close to zero. This reflects that the distribution of development within the same region is relatively even. Nonetheless, there are several districts/cities that show high internal inequality, with index values exceeding 0.2 and approaching 0.5 by 2023. These regions include Semarang City, Surakarta City, and Cilacap Regency. The high economic inequality in these regions indicates a development gap between subdistricts or regions within a region, which can be caused by the concentration of industry, services, and infrastructure in the city center, as well as limited access and public services in peripheral areas. This condition illustrates the complexity of economic inequality in Central Java, where inequality occurs both between and within regions, requiring a more comprehensive and targeted policy approach.

Various factors are believed to influence economic inequality, such as population, open unemployment, education level, and number of industries. First, a large population without an increase in productivity can exacerbate inequality through increased unemployment, resulting in

disparities in economic growth between regions (Firdaus & Hasmarini, 2023). Second, open unemployment directly increases economic inequality, as it reduces people's purchasing power and weakens the household economic base (Oktafianto et al., 2019). Third, education and the quality of human resources are crucial factors. Inequalities in access to and quality of education can exacerbate economic inequality between regions, especially in developing countries like Indonesia. Research shows that education level, measured using average years of schooling and illiteracy rate, has a significant influence on economic inequality between regions in Indonesia. The study found that illiteracy rate contributes positively to inequality, while average years of schooling has a negative influence (Surbakti et al., 2023). Fourth, the industrial sector also plays a role in increasing or decreasing inequality. The manufacturing industry is seen as the driver of the regional economy. The number of manufacturing industries in a region plays an important role in influencing economic inequality between regions. Research shows that the manufacturing industry not only provides employment but also contributes to more equitable economic growth across regions. Although there is an increase in the industrial sector in several regions in East Java, the distribution of benefits from this industrial growth is uneven, which causes regional inequality to remain (Novianto & Handayani, 2018).

Based on the data and empirical facts, it is important to study the determinants of economic inequality among districts/municipalities in Central Java. The results of this study can assist the Central Java regional government in formulating development policies that are more targeted, effective, and in accordance with the characteristics of each region. The results of this study can also serve as an evaluation tool to see how effective policies have been in addressing inequality, as well as identifying which regions need strategy adjustments. This study aims to (1) analyze the effect of population, open unemployment, education level, and number of manufacturing industries jointly on the level of economic inequality between districts/municipalities in Central Java Province in the period 2015-2023; and (2) analyze the effect of population, open unemployment, education level, and number of manufacturing industries partially on the level of economic inequality between districts/municipalities in Central Java Province in the period 2015-2023.

In contrast to previous empirical studies that mostly discuss the effect of economic growth or government spending on regional inequality, this study specifically examines the role of demographic factors, employment, education, and industrial structure on inter-regional inequality. In the Indonesian context, studies that combine these four variables simultaneously at the district/city level are still relatively limited, especially using a long-term panel data approach. The utilization of data covering 35 kabupaten/kota in Central Java Province for nine years is able to capture the dynamics of economic inequality more comprehensively. Thus, the results of this study are expected to enrich the literature on regional inequality and provide input for the formulation of evidence-based regional development policies.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

Economic inequality between regions was coined by Douglas C. North in his analysis of Neo-Classical growth. In the theory, a prediction of the relationship between the level of development between regions is mentioned, and this hypothesis is known as the Neo-Classical Hypothesis. In the Neo-Classical hypothesis, development inequality between regions tends to increase at the beginning of a country's development process. This process will continue until the development inequality is at its peak. As the development process continues, inequality will decline. Inequality in developing countries tends to be higher than in developed countries. Thus, the development inequality curve between regions is inverted U-shaped (Sjafrizal, 2017). The truth of the Neo-classical hypothesis has been empirically proven to be true based on the test conducted by Williamson through a study of inter-regional development inequality in developed and developing countries using time series and cross section data.

Economic inequality between regions is an important issue in regional economics because it has a direct impact on equitable development and community welfare. In the context of Central Java Province, differences in the level of development and welfare between districts/cities indicate a complex dynamic between the central and peripheral regions. To understand this phenomenon, this study uses Gunnar Myrdal's Cumulative Causation Theory (1957) (1957) as the main theoretical framework and Albert O. Hirschman's Unbalanced Growth Theory (1958) as the supporting theory.

Myrdal introduced the concepts of backwash effects and spread effects. Backwash effects refer to forces that pull factors of production (such as capital and skilled labor) from peripheral areas to growth centers, thereby worsening conditions in peripheral areas. In the context of this study, population is crucial; population migration from rural to urban areas in Central Java can drain human resources and slow down development in the home region, reflecting backwash effects. In addition, the high number of open unemployment in a region can be a strong indicator of backwash effects, where growth centers are unable to absorb the entire labor force, or instead attract labor without creating adequate employment, thus creating economic imbalances. On the other hand, spread effects are positive effects that spread from the center to the periphery, such as increased demand for peripheral products or diffusion of innovations, but Myrdal argues that in many cases, backwash effects are more dominant, resulting in increased inequality.

In line with Myrdal, Hirschman with his concept of unbalanced growth states that development cannot occur equally in all sectors and regions at once. Initial investment will be concentrated in certain sectors or regions that have great potential (leading sectors), which can create regional imbalances in the short term before trickle-down effects occur. Concentration of manufacturing industries in certain areas of Central Java may encourage rapid growth in these areas, but at the same time may exacerbate inequality by attracting resources and skilled labor from other regions, thus creating a development gap.

Economic inequality between regions can be measured using the Williamson Index. Jeffrey G. Williamson (Williamson, 1965) used this index to measure development inequality among regions. Williamson examined the relationship between regional disparities and the level of economic development using data from developed and developing economies. The study found that during the development stage, regional disparities become larger and development is concentrated in certain regions. This method is derived from the calculation of regional income per capita and the population of each region.

Economic inequality between districts/municipalities in Central Java Province is a phenomenon that is influenced by various economic and social factors. In this study, the four main factors that are thought to play a role in regional inequality are population, open unemployment, education level, and the number of manufacturing industries. High population density can increase competition in access to economic resources, while regions with low population are at risk of stagnation due to lack of market activity and investment. The unemployment rate is a factor that exacerbates inequality, where regions with high unemployment tend to have low purchasing power and minimal economic productivity, thus triggering labor migration to more developed regions. In addition, the level of education plays a role in improving people's welfare, as individuals with higher education are more likely to get high-income jobs, which in turn contributes to economic equality. The manufacturing industry also plays an important role in reducing inequality, as it creates jobs, increases economic growth, and attracts investment that accelerates regional development.

H1: Total population, open unemployment, education level, and number of manufacturing industries together have a significant effect on economic inequality among regencies and cities in Central Java Province.

The population that continues to increase from year to year in Central Java Province can have an impact on inequality between regions. An increase in population, if not matched by an increase in employment opportunities, quality of education, and equitable development, will increase the gap between regions. Based on Myrdal's theory, which states that regions with large populations tend to absorb resources from peripheral regions (backwash effect), thus increasing inequality. This is in line

with the research of Irawan et al. (2024), which shows that areas with high population density but minimal facilities tend to experience greater inequality than areas with a balanced distribution of population and resources. Another study by Juliana & Soelistyo (2019) shows that population has a positive and significant effect on development inequality. While another study by Michael (2020) found that population has a negative and significant effect on regional inequality between districts/cities in West Java Province.

H2: Population affects economic inequality among regencies and cities in Central Java Province.

The number of open unemployment is one of the important indicators in assessing the economic condition of a region. In Central Java Province, inequality between regions can be caused by the significant difference in unemployment rates between districts/municipalities. Regions with high open unemployment tend to have low productivity, weak purchasing power, and slow economic turnover. Conversely, regions with low unemployment generally have higher economic activity and better access to jobs. According to the theory of economic dualism proposed by Lewis, inequality between the traditional and modern sectors is one of the main causes of regional inequality, where unemployment is one of the indicators that reflect this inequality. Research by Firdaus & Hasmarini (2023) found that an increase in the unemployment rate has a positive correlation with income inequality and inter-regional disparities. Another study by Zusanti et al. (2020) also shows that the open unemployment rate has a positive and significant effect on regional inequality in Java Island in the period 2010-2018.

H3: Open unemployment has a positive effect on economic inequality among regencies and cities in Central Java Province.

Higher education is generally associated with better economic opportunities and can affect regional inequality. Gary S. Becker in his work views education not only as a consumption expenditure, but as a form of investment made by individuals to improve their productive capabilities. Like investments in physical assets (e.g. machinery or factories), investments in education aim to generate economic returns in the future (Becker, 1964). In Central Java Province, differences in access to and quality of education between districts/municipalities may contribute to regional inequality. Regions with high levels of education tend to have a more productive and competitive labor force, which is more capable of driving economic growth and attracting investment. Conversely, regions with low levels of education will be left behind in terms of economic and social development. This is in line with human capital theory, which states that education plays a role in increasing labor productivity and long-term economic growth. Research by Nizar & Nasution (2023) shows that the education index has a significant effect on reducing income inequality, reducing the number of poor people, and increasing GRDP per capita. Another study by Azizah & Suhartini (2021) shows that the Average Years of Schooling (RLS) has a negative effect on development inequality in West Java in 2015-2019.

H4: Education level has a negative effect on economic inequality among regencies and cities in Central Java Province.

The number of industries spread across various districts/cities in Central Java Province plays a strategic role in shaping the structure of the regional economy. A high concentration of industries in certain areas, such as industrial estates or large cities, creates inequality if not accompanied by equitable industrial development in other areas. Regions that have more industries tend to experience more rapid economic growth, increased employment opportunities, and increased community income, while areas with minimal industry are left behind economically. This is in line with the economic base theory, which states that the industrial sector acts as the main driver of regional growth through job creation and increased output. Research by Sukmawati & Robertus (2023) specifically states that industrial agglomeration partially has a negative and significant effect on regional inequality in the Kedungsepur region in 2011-2020. Another study by Chrisetyoningrum (2022) shows that industrial agglomeration has a negative effect on income inequality. This indicates that an increase in industrial agglomeration can reduce income inequality between regions.

H5: The Number of industries has a negative effect on economic inequality among regencies and cities in Central Java Province.

RESEARCH METHODS

This research is a type of quantitative research, which is a research method based on the philosophy of positivism. The philosophy of positivism is a school of philosophy that argues that valid knowledge can only be obtained through objective observation and analysis of empirical data, not through speculation or axioms. This research uses numerical data collected systematically to test hypotheses and measure relationships between variables objectively and statistically. Explanatory research is a type of quantitative research that aims to explain the cause-and-effect relationship between variables, test the effect of independent variables on dependent variables systematically, and test the hypotheses proposed (Sugiyono, 2017). This study uses secondary data. Secondary data is a data source that does not directly provide data to data collectors. The secondary data used was obtained from official agencies such as the Central Java Provincial Statistics Agency (BPS) and district/city BPS. The data collected covers the period from 2015 to 2023, covering all districts/cities in Central Java Province.

Economic inequality between regions is defined as the unevenness of development or income distribution between regions as measured by differences in per capita income between regions. The Williamson Index is used to measure the level of inequality by utilizing data on Gross Regional Domestic Product (GRDP) per capita at constant prices and population in each region. This index was developed by Jeffrey G. Williamson in 1965. Williamson examined the relationship between regional disparities and the level of economic development. The Williamson Index has the advantage of being a clear measure of regional inequality, especially between sub-regions. The Williamson Index can be found using the formula:

$$IW = \frac{\sqrt{\sum (Y_i - Y)^2 f_i / n}}{Y} \dots\dots\dots (1)$$

Description:

IW: Regional Inequality with Williamson Index

Y_i: GRDP per capita in regency or city

Y : Provincial average GRDP per capita

f_i: total population in the regency or city

n: total population of the Province.

Data Analysis Technique

This research uses quantitative methods with the data analysis technique used is panel data regression analysis. Panel data is data from one or more variables collected periodically over a certain time interval. Panel data is a combination of time series data and cross section data so that panel data shares more information and is more informative (Baltagi, 2015). . The data used in this study includes 35 districts / cities in Central Java Province during the 2015-2023 time period. The selection of panel data regression was carried out because it was able to reveal the dynamics of the relationship between variables both between regions and between times, and could overcome heterogeneity that was not directly observed.

The analytical method used for panel data regression in this study is Ordinary Least Square (OLS) with the analytical tool used is Eviews 12. Before performing panel data regression, it is necessary to test the estimation of the regression model to select the best model between the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). After the best model is selected, a classic assumption test is carried out which includes multicollinearity test and heteroscedasticity test. Then hypothesis testing is carried out to test the feasibility of the research model which includes the R-squared coefficient of determination, simultaneous significance test (F-test), and partial significance test (T-test). The regression equation model for the dependent variable of economic inequality can be described as follows:

$$IW = \alpha + \beta_1 \text{LOG}(PDDK)_{it} + \beta_2 \text{LOG}(JPT)_{it} + \beta_3 \text{LOG}(RLS)_{it} + \beta_4 \text{LOG}(IND)_{it} + \varepsilon_{it} \dots \dots \dots (2)$$

Notes:

- IW = Regional inequality (Williamson Index)
- PDDK = Total Population
- JPT = Total Open Unemployment
- RLS = Education Level
- IND = Number of Manufacturing Industries
- i = cross section (Regency / City in Central Java Province)
- t = time series (period 2015-2023)
- α = Constant
- β = Independent variable regression coefficient
- ε = Error term.

RESULTS AND DISCUSSION

Result

Based on Table 1, the Chow test shows that there is no individual effect on the model, so the selected model is FEM. Then in the Hausman Test, the selected model is FEM because the results show a correlation between the error model and the independent variables.

Table 1. Summary of the best model estimation test results and classical assumption tests

Best Model Estimation				
Testing	Statistics Count	Probability	Decision	Conclusion
Chow Test	287.237176	0.0000	Reject H0	Selected FEM
Hausman Test	29.892281	0.0000	Reject H0	Selected FEM
Classical Assumption Test				
Multicollinearity Test (with VIF)				
LOG_PNDDK	5.19	-	Less than 10	Passed
LOG_JPT	3.99	-	Less than 10	Passed
LOG_RLS	1.90	-	Less than 10	Passed
LOG_IND	1.46	-	Less than 10	Passed
Heteroscedasticity Test (with Geljser Test)				
LOG_PNDDK	1.166726	0.2443	More than 0.05	Passed
LOG_JPT	-0.360417	0.7188	More than 0.05	Passed
LOG_RLS	-0.199323	0.8422	More than 0.05	Passed
LOG_IND	-2.507598	0.0127	Less than 0.05	Not Passed

Source: Data Processing Results with Eviews 12, 2025.

The Variance Inflation Factor (VIF) value of each variable shows a VIF value smaller than 10, meaning that it passes the test, which indicates that there is no significant multicollinearity problem in the regression model (Gujarati, 2015). Based on the Geljser Test results in Table 2, it shows that the significance value of each variable except the LOGIND variable is greater than 0.05, while for the LOGIND variable, the probability value of 0.0127 is smaller than 0.05, meaning that there is an indication of heteroscedasticity in the model. To overcome this problem and maintain the validity of statistical inference, corrections are made to the standard error using the robust standard error method with the White cross-section (period cluster) approach. The following are the results of FEM

estimation using the robust standard error method with the White cross-section (period cluster) approach.

Table 2. Summary of FEM estimation results using the robust standard error method with the White cross-section (period cluster) approach.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C (<i>Intercept</i>)	0.877632	0.158031	5.553557	0.0005
LOG_PNDDK	-0.066030	0.013368	-4.939299	0.0011
LOG_JPT	0.006939	0.001575	4.406495	0.0023
LOG_RLS	0.026395	0.016974	1.554998	0.1586
LOG_IND	-0.004536	0.001707	-2.657296	0.0289
R-Squared	0.981512			
Adjusted R-Squared	0.978966			
F-statistic	385.5855			
Prob(F-statistic)	0.000000			

Source: Data Processing Results with Eviews 12, 2025.

Based on the estimation results, the FEM equation using the robust standard error method with the White cross-section (period cluster) approach can be written as follows:

$$IW^i = 0,877632 - 0,066030LOGPNDDK^i + 0,006939LOGJPT^i + 0,026395LOGRLS^i - 0,004536LOGIND^i \dots\dots\dots(3)$$

Notes:

IW = Regional inequality (Williamson Index)

PDDK = Total Population

JPT = Total Open Unemployment

RLS = Education Level

IND = Number of Manufacturing Industries

i = cross section (Regency / City in Central Java Province)

t = time series (period 2015-2023).

Based on the coefficient of determination test results in Table 2, the R-squared value of 0.981512, or equivalent to 98% indicates that the model is able to explain 98% of the variation in the Williamson Index variable. In other words, the variables of population, open unemployment, education level, and number of manufacturing industries together can explain 98% of the changes that occur in the Williamson Index. The remaining 2% is influenced by other factors outside this model. The F-statistic value is 385.5855, and the F-statistic probability is 0.000000 or smaller than the 0.05 (5%) significance level, so that H0 is rejected and H1 is accepted. Thus, it can be concluded that together there is a significant influence between population, open unemployment, education level, and the number of manufacturing industries on economic inequality between districts/cities in Central Java in 2015-2023.

The population variable t-statistic value of -4.939299 is greater than the t table of 1.967 and the probability value of 0.0011 is smaller than the significance level of 0.025 (2.5%), then H0 is rejected and H1 is accepted, meaning that population has a negative and significant effect on economic inequality between regions in Central Java Province in 2015-2023. The open unemployment variable t-statistic value of 4.406495 is greater than the t table of 1.967 and the probability value of 0.0023 is smaller than the significance level of 0.025, then H0 is rejected and H2 is accepted, meaning that open unemployment has a positive and significant effect on economic inequality between regions in Central Java Province in 2015-2023. Meanwhile, the variables of education level and number of manufacturing industries with probability values of 0.1586 and

0.0289, respectively are greater than the 0.025 significance level, meaning that these two variables do not have a significant influence on economic inequality between districts/cities in Central Java Province in 2015-2023.

Discussion

The variables of population size, open unemployment rate, education level, and number of manufacturing industries collectively have a significant impact on economic inequality between districts/cities in Central Java Province during the period 2015–2023. These findings indicate that demographic and structural factors play a crucial role in driving regional economic inequality. This aligns with Gunnar Myrdal's (1957) theory of cumulative and circular causation, which explains that economic development tends to create cumulative effects that widen regional disparities through backwash effects and spread effects. Developed regions will continue to attract investment, skilled labor, and other resources (backwash), while underdeveloped areas experience a loss of economic potential and limited access to productive resources. This disparity is exacerbated if population growth and unemployment are not balanced by improvements in education quality and local industrial capacity. Therefore, to reduce economic disparities, policies are needed that can strengthen the spread effects through infrastructure development, improvements in human resource quality, and more equitable industrial distribution across regions.

The population variable has a significant effect on economic inequality between districts/cities in Central Java Province. The results obtained are in accordance with research by Adriana (2024) which suggests that there is a negative effect of population on regional inequality and research by Michael (2020) which suggests that population has a negative and significant effect on regional disparities between districts/cities in West Java Province. Marx in his theory argues that the more the number of people, the higher the production produced, thus it will encourage an increase in GRDP per capita and economic growth, so as to reduce economic inequality. However, population growth still needs to be monitored by the government so that it is not excessive and has a negative impact due to limited employment opportunities. The government can build the best possible education and health facilities so that they can be accessed by all communities. With equitable access, it is expected that people can grow into superior resources and have high productivity, so that they can get decent jobs. People who get decent jobs will be able to increase their income which can encourage an increase in demand, so that production will also increase.

The open unemployment variable has a positive and significant influence on economic inequality between districts/cities in Central Java Province in 2015-2023. The results of this study indicate that more people who are unemployed will increase economic inequality between districts/municipalities in Central Java Province. The high level of open unemployment in a region can be a strong indicator of backwash effects, where growth centers are unable to absorb the entire labor force, or instead attract labor without creating adequate employment, thus creating economic imbalances and increasing inequality. This is in line with research by Zusanti et al. (2020) shows that the open unemployment rate has a positive and significant effect on regional inequality in Java Island in the 2010-2018 period. Another study by Firdaus & Hasmarini (2023) also found that an increase in the unemployment rate has a positive correlation with income inequality and inequality between regions.

The education level variable has no significant effect on economic inequality between districts/cities in Central Java Province in 2015-2023. It can be concluded that in the observation period and region of this study, education level has not been the main determinant of economic inequality between regions. Most likely, the effect of education on inequality requires a longer time (lag effect) or needs to be sharpened through indicators that are more sensitive to inequality between regions, such as the education index or access to secondary and higher education.

As for the variable number of medium and large-scale manufacturing industries, it shows that this variable does not have a significant influence on economic inequality between districts/cities in Central Java Province in 2015-2023. This insignificance can be explained by several possibilities.

Although medium and large-scale industries have the potential to create high economic value added, their distribution in Central Java Province tends to be concentrated in certain areas that have become industrial centers, such as Kendal Regency, Jepara Regency, or Semarang City. This causes its contribution to economic equality between regions to be limited. In addition, the presence of manufacturing industries is not necessarily optimally integrated with the local economy in the regions where they are established, as production, distribution, and profit-making activities are often centralized and do not have a significant direct economic impact on the surrounding areas. Thus, the number of medium- and large-scale industries recorded in a region does not necessarily reflect a real contribution to reducing economic inequality between regions in the short term.

CONCLUSION

Based on the results of the research that has been conducted, the following conclusions can be drawn:

1. The variables of total population, open unemployment, education level, and the number of manufacturing industries collectively exert a statistically significant influence on interregional economic disparities among regencies and cities in Central Java Province during the 2015–2023 period.
2. The total population partially has a significant effect on economic inequality among regencies and cities in Central Java Province in 2015-2023.
3. Open unemployment partially has a positive and significant effect on economic inequality among regencies and cities in Central Java Province in 2015-2023.
4. The level of education partially has no significant effect on economic inequality *among regencies and cities* in Central Java Province in 2015-2023.
5. The number of manufacturing industries partially has no significant effect on economic inequality among regencies and cities in Central Java Province in 2015-2023

The results of this study provide several policy implications that are relevant for the Central Java Provincial Government in tackling economic inequality between regions, namely:

1. The regression results show that population size, open unemployment, education level, and number of manufacturing industries collectively have a significant effect on economic inequality, thus requiring the formulation of integrated policies that are not sectoral in nature. One strategic instrument that can be used is the optimization of the General Allocation Fund (DAU) and the Special Allocation Fund (DAK). The central government needs to consider a DAU formulation that is more sensitive to indicators of inter-regional inequality, so that regions with fiscal constraints and greater development challenges receive an adequate share. Meanwhile, the DAK can be directed in a more thematic and productive manner to support key sectors such as education, employment, and local industry development in underdeveloped regions. This approach is expected to promote equitable development and reduce economic disparities between districts/cities in Central Java.
2. Regions with high populations tend to have a greater concentration of economic activity. Therefore, the policy of redistribution and equitable distribution of infrastructure between regions needs to be strengthened so that there is no concentration of economic growth only in areas with high population. The government can consider incentivizing development in low-population areas to reduce regional disparities.
3. The high level of open unemployment can worsen economic inequality between regions because it shows an imbalance between labor supply and employment opportunities. The government needs to expand labor-intensive programs, job training based on local needs, and encourage labor-intensive investment in areas with high unemployment to reduce economic inequality.

This study has several limitations, including the limited use of quantitative macroeconomic variables, without considering structural factors such as infrastructure distribution, regional

spending, or the quality of governance that could also potentially affect economic inequality between regions. In addition, this study has not differentiated the leading industrial sectors in each district/city, which may affect economic value added differently. Therefore, future research is recommended to include structural and institutional variables, and cluster regions based on potential economic sectors. With this approach, the results of the analysis will better reflect the reality on the ground, and provide a stronger basis for formulating development policies that are responsive to local conditions.

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