

Determinants of Income Disparity in Mojokerto City

Syamsul Huda^{1*}

¹ Universitas Pembangunan Nasional Veteran Jawa Timur, Indonesia

Journal of Economics and Management Sciences is licensed under a Creative Commons 4.0 International License.



ARTICLE HISTORY

Received: 03 July 26

Final Revision: 17 July 26

Accepted: 22 August 26

Online Publication: 30 September 26

KEYWORDS

Educational Attainment, Income Inequality, Regional Minimum Wage, Unemployment Rate, Mojokerto City

KATA KUNCI

Disparitas Pendapatan, Pendidikan, Pengangguran, Upah Minimum Regional, Regresi Data Panel

CORRESPONDING AUTHOR

syamsul.huda.ep@upnjatim.ac.id

DOI

10.37034/jems.v8i4.524

ABSTRACT

Income inequality remains one of the major challenges of regional economic development in Indonesia. Despite continuous economic growth, several regions continue to experience unequal income distribution, indicating that economic development has not fully resulted in equitable welfare improvements. This study aims to analyze the effects of educational attainment, regional minimum wages, and unemployment on income inequality in Mojokerto City during the 2017–2022 period. This study employed a quantitative approach using secondary data obtained from Indonesian Bureau of Statistics (BPS). The panel datasets consisted of six cross-sectional units observed over six years (2017–2022), resulting in a total of 36 observations. Panel data regression analysis was applied using model selection procedures through the Chow test and Lagrange Multiplier test. The findings indicate that educational attainment and regional minimum wages have negative and significant effects on income inequality, while unemployment has a positive and significant effect. These results suggest that improving educational quality, maintaining adequate wage policies, and expanding employment opportunities are essential to reducing income disparities and promoting more inclusive regional economic development.

ABSTRAK

Disparitas pendapatan masih menjadi salah satu tantangan utama dalam pembangunan ekonomi regional di Indonesia. Meskipun pertumbuhan ekonomi terus berlangsung, beberapa daerah masih mengalami distribusi pendapatan yang tidak merata, yang menunjukkan bahwa pembangunan ekonomi belum sepenuhnya menghasilkan peningkatan kesejahteraan yang merata. Penelitian ini dilaksanakan dengan maksud untuk menganalisis pengaruh tingkat pendidikan, upah minimum regional, dan pengangguran terhadap disparitas pendapatan di Kota Mojokerto selama periode 2017–2022. Penelitian ini menggunakan pendekatan kuantitatif dengan memanfaatkan data sekunder yang diperoleh dari Badan Pusat Statistik (BPS). Data panel yang digunakan terdiri atas enam unit cross section yang diamati selama enam tahun, sehingga menghasilkan total 36 observasi. Analisis regresi data panel diterapkan dengan menggunakan prosedur pemilihan model melalui uji Chow dan uji Lagrange Multiplier. Hasil penelitian menunjukkan bahwa tingkat pendidikan dan upah minimum regional berpengaruh negatif dan signifikan terhadap disparitas pendapatan, sedangkan pengangguran berpengaruh positif dan signifikan. Temuan ini menunjukkan bahwa peningkatan kualitas pendidikan, kebijakan upah yang memadai, dan perluasan kesempatan kerja merupakan faktor penting dalam mengurangi kesenjangan pendapatan serta mendorong pembangunan ekonomi daerah yang lebih inklusif.

1. Introduction

Economic development is fundamentally intended to improve social welfare through sustainable growth and a more equitable distribution of economic benefits. However, the success of development should not be measured solely by economic growth rates, but also by the extent to which prosperity is shared across different segments of society. The success of development is reflected not only in economic growth but also in its ability to alleviate poverty and reduce income disparities [1]. In many developing countries, including Indonesia, achieving equitable development remains a persistent challenge. Income disparity continues to widen due to unequal access to economic

opportunities, differences in human capital quality, and disparities in regional development [2].

East Java Province, one of the most populous regions in Indonesia, continues to face substantial challenges related to income inequality despite maintaining relatively strong economic performance. Income disparity, commonly measured using the Gini ratio, remains an important indicator of the uneven distribution of economic welfare. Based on data published by Indonesian Bureau of Statistics, Mojokerto City has consistently been among the areas experiencing relatively high levels of income inequality during the 2017–2022 period [3], [4], [5]. This condition suggests that economic growth achieved

at the regional level has not been accompanied by an equally distributed improvement in community welfare.

Mojokerto City presents an interesting case for examining income disparity due to its distinctive economic structure, which is supported by agriculture, trade, small and medium-sized industries, and service sectors. In the agricultural sector, differences in land ownership and productivity contribute to variations in household income. Likewise, in the micro, small, and medium enterprise (MSME) sector, disparities in business capacity, market access, and capital ownership create unequal economic outcomes among business actors. As a result, economic gains tend to be concentrated among specific groups, while lower-income communities benefit less from regional economic development.

Income inequality has long been recognized as one of the major obstacles to inclusive economic development. Sustained economic inequality is often associated with weaker economic growth and heightened social vulnerability [1]. Income inequality is theorized to follow an inverted-U trajectory, characterized by an initial increase during economic transformation and a gradual reduction as development progresses [6]. This theoretical perspective highlights the importance of identifying the factors that contribute to income disparity in order to formulate policies that promote more equitable development outcomes.

One of the factors frequently associated with income inequality is education. Human Capital Theory views education as an investment that enhances individuals' productivity, skills, and earning potential [1], [7]. Individuals with higher educational attainment generally have better employment opportunities and greater access to higher incomes. Thereby contributing to a more equitable distribution of income.

Demographic characteristics, particularly educational attainment, play an important role in determining regional productivity and economic performance [8]. Empirical studies have supported this relationship. Studies conducted in Indonesia suggest that improvements in education play an important role in reducing income disparities [9]. Furthermore, investment in human capital through education contributes positively to achieving a more equitable distribution of income [10]. According to data from Statistics Indonesia, Mojokerto City experienced considerable improvements in educational indicators during 2017–2022, making it important to examine whether these improvements have contributed to reducing income disparity.

Another factor that may influence income inequality is the regional minimum wage. From the perspective of labor market regulation and price control theory, minimum wage policies are intended to protect low-

income workers and improve their welfare through more equitable labor market mechanisms. Appropriate adjustments in minimum wages are expected to narrow income gaps by increasing the purchasing power of lower-income households. The East Java Provincial Government regularly adjusts regional minimum wages based on various considerations, including inflation, economic growth, labor productivity, and the cost of living. Previous empirical findings have generally indicated that minimum wage policies contribute to reducing income inequality, as increases in regional minimum wages are associated with lower levels of income disparity and improved income distribution outcomes [10], [11], [12].

Unemployment is another important factor frequently linked to income inequality. Income inequality tends to increase when unemployment rates are high because limited access to employment constrains the distribution of economic opportunities and earnings [13]. From the perspective of structural unemployment theory, inequality is influenced not only by the number of unemployed individuals but also by skill mismatches and labor market segmentation.

Data from Statistics Indonesia indicate that the open unemployment rate in Mojokerto City remained relatively higher than the provincial average during the study period, particularly following the economic disruptions caused by the COVID-19 pandemic. Nevertheless, empirical findings regarding the relationship between unemployment and income inequality remain inconclusive. Previous empirical studies have produced mixed results regarding the effect of unemployment on income inequality, as some have identified a significant relationship whereas others have reported no significant association [14], [15], [16].

Despite extensive research on income inequality, several gaps remain in the existing literature. First, previous studies examining the effects of education, regional minimum wages, and unemployment on income inequality have produced inconsistent findings. Second, most empirical investigations have been conducted at the national or provincial level, while studies focusing specifically on city-level income inequality, particularly in Mojokerto City, remain limited. Third, the economic characteristics of Mojokerto City, which are dominated by agriculture, MSMEs, and service sectors, may generate different relationships between socioeconomic factors and income disparity compared to other regions.

Based on these considerations, this study aims to analyze the effects of educational attainment, regional minimum wages, and unemployment on income inequality in Mojokerto City during the 2017–2022 period. Specifically, this study seeks to address the following research questions:

- a. Does educational attainment significantly affect income inequality in Mojokerto City?
- b. Does the regional minimum wage significantly affect income inequality in Mojokerto City?
- c. Does unemployment significantly affect income inequality in Mojokerto City?

2. Research Method

This study employed a quantitative research approach to examine the effects of educational attainment, regional minimum wages, and unemployment on income inequality in Mojokerto City during the 2017–2022 period. A quantitative approach was considered appropriate because the study relied on numerical data and statistical analysis to empirically investigate the relationships among variables [17]. The study utilized secondary data obtained from official publications issued by Mojokerto Bureau of Statistics, East Java Bureau of Statistics, and other relevant statistical publications. The datasets combined time-series observations covering the period from 2017 to 2022 and cross-sectional observations representing the units of analysis, resulting in a panel data structure. Data were collected through a documentation method by compiling, recording, and processing statistical information published by the relevant institutions.

The dependent variable in this study was income inequality, measured using the Gini ratio. The independent variables consisted of educational attainment, regional minimum wages, and the open unemployment rate. Educational attainment represented the quality of human capital and was measured using educational indicators published by Statistics Indonesia. The regional minimum wage referred to the annual minimum wage determined by the local government, while unemployment was measured using the open unemployment rate (OUR).

To analyze the relationship among variables, this study employed panel data regression analysis. Panel data regression combines the characteristics of time-series and cross-sectional data, allowing researchers to obtain more efficient estimates than those generated from either approach separately [18]. The empirical model used in this study is specified as follows on Equation (1).

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + e_{it} \quad (1)$$

Panel data estimation can be conducted using three alternative approaches, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Therefore, selecting the most appropriate estimation model requires several statistical procedures. First, the Chow test was performed to determine the preferable model between the Common Effect Model and the Fixed Effect Model. Second, when necessary, the Durbin-Wu-Hausman test was conducted to select between the Fixed Effect

Model and the Random Effect Model. Third, the Lagrange Multiplier (LM) test was employed to determine the most suitable model between the Common Effect Model and the Random Effect Model.

After the optimal panel regression model had been identified, hypothesis testing was carried out using the coefficient of determination (R^2), the F-test, and the t-test. The coefficient of determination was used to assess the explanatory power of the independent variables in explaining variations in income inequality. The F-test was conducted to evaluate the simultaneous effects of all independent variables on the dependent variable, while the t-test was employed to examine the partial effect of each independent variable on income inequality. All statistical analyses and panel data estimations in this study were conducted using EViews software to ensure the selection of the most appropriate panel regression model and to obtain empirically interpretable estimation results.

3. Result and Discussion

3.1. Results

3.1.1. Chow Test

The Chow test was performed to determine whether the Common Effect Model (CEM) or the Fixed Effect Model (FEM) provided a better specification for the data. The results of the Chow test indicate a probability value of 0.3149, which exceeds the 5 percent significance level. Therefore, the null hypothesis cannot be rejected, suggesting that the Common Effect Model (CEM) is more appropriate than the Fixed Effect Model (FEM). Based on this result, the analysis proceeded with the Lagrange Multiplier test.

3.1.2. Lagrange Multiplier Test

The Lagrange Multiplier (LM) test was conducted to determine the most suitable model between the Common Effect Model (CEM) and the Random Effect Model (REM). The LM test produced a probability value of 0.1627, which is greater than the significance level of 0.05. Consequently, the null hypothesis was accepted, indicating that the Common Effect Model (CEM) was the most appropriate model for this study. Since the preferred model had already been identified, the Hausman test was not required.

3.1.3. Panel Data Regression Results

Based on the model selection procedures, this study employed the Common Effect Model (CEM), estimated using the Ordinary Least Squares (OLS) method. The estimated regression equation is presented in Equation (2).

$$Y = 5.1760 + 0.7354X_1 + 0.2174X_2 + 0.1086X_3 \quad (2)$$

The estimated constant value of 5.1760 indicates the level of income inequality when all independent variables are assumed to remain constant. The

coefficient of educational attainment (-0.7354) suggests that a one-unit increase in education is associated with a decrease of 0.7354 units in income inequality, holding other variables constant. Similarly, the coefficient of the regional minimum wage (-0.2174) indicates that an increase in the minimum wage contributes to a reduction in income inequality. In contrast, the unemployment coefficient (0.1086) implies that higher unemployment rates tend to increase income inequality.

3.1.4. Coefficient of Determination (R^2)

The coefficient of determination was used to assess the explanatory power of the independent variables in explaining variations in income inequality. The R-squared value of 0.5106 indicates that educational attainment, regional minimum wages, and unemployment jointly explain 51.06 percent of the variation in income inequality in Mojokerto City. The remaining 48.94 percent is attributable to factors not included in the present model.

3.1.5. Simultaneous Significance Test (F-Test)

The F-test was conducted to evaluate whether the independent variables collectively affect income inequality. The results of the F-test probability value of 0.0003 is lower than the 5 percent significance level, indicating that educational attainment, regional minimum wages, and unemployment simultaneously exert a significant influence on income inequality in Mojokerto City.

3.1.6. Partial Significance Test (t-Test)

The results of the partial significance tests for each independent variable are presented in Table 1. The results indicate that educational attainment has a negative and statistically significant effect on income inequality. Similarly, the regional minimum wage exhibits a negative and significant relationship with income inequality. Meanwhile, unemployment has a positive and significant effect on income inequality in Mojokerto City.

Table 1. t-Test Results

Variable	t-statistic	Sig.	Decision
Educational Attainment	-4.4180	0.0002	Significant
Regional Minimum Wage	-3.3448	0.0025	Significant
Unemployment	2.2720	0.0300	Significant

3.2. Discussion

3.2.1. The Effect of Educational Attainment on Income Inequality

The findings reveal that educational attainment has a negative and statistically significant effect on income inequality. This result supports the Human Capital Theory which argues that education functions as an investment that enhances productivity, skills, and income-generating capacity. Higher educational attainment allows individuals to access better

employment opportunities and achieve higher earnings. Thereby contributing to a more equitable distribution of income.

During the 2017–2022 period, the government of Mojokerto City implemented various educational improvement programs, including expanded access to education, educational assistance schemes, and initiatives aimed at improving teaching quality. These efforts may have contributed to the reduction of income disparities observed during the study period. The findings are consistent with previous empirical evidence indicating that improvements in educational attainment play an important role in reducing income inequality [9], [10].

3.2.2. The Effect of Regional Minimum Wages on Income Inequality

The results also demonstrate that regional minimum wages have a negative and statistically significant effect on income inequality. This finding supports the argument that minimum wage policies can serve as an effective income redistribution mechanism by improving the welfare of low-income workers. By increasing the purchasing power of lower-income households, minimum wage adjustments may contribute to narrowing income gaps within society.

The East Java Provincial Government regularly adjusts regional minimum wages based on several economic considerations, including inflation, economic growth, labor productivity, and living cost standards. Such policies are intended to improve workers' welfare while maintaining economic stability. The findings of this study are consistent with previous studies whom found that increases in minimum wages are associated with lower levels of income inequality [10], [11], [12].

3.2.3. The Effect of Unemployment on Income Inequality

The findings further indicate that unemployment has a positive and statistically significant effect on income inequality in Mojokerto City. This result suggests that higher unemployment rates contribute to widening income disparities by reducing access to stable income and economic opportunities. The impact becomes more pronounced when unemployment is accompanied by skill mismatches and labor market segmentation.

During the observation period, unemployment in Mojokerto City increased substantially, particularly during the COVID-19 pandemic. This situation reduced the earning capacity of many households and intensified economic disparities across different social groups. The findings of this study are consistent with previous empirical evidence suggesting that unemployment contributes to higher levels of income inequality [14]. Nevertheless, these findings contrast with other studies that have reported no statistically

significant relationship between unemployment and income inequality [15], [16].

4. Conclusion

This study examined the effects of educational attainment, regional minimum wages, and unemployment on income inequality in Mojokerto City during the 2017–2022 period. The findings indicate that educational attainment and regional minimum wages have negative and statistically significant effects on income inequality, suggesting that improvements in human capital and wage policies contribute to a more equitable distribution of income. Conversely, unemployment has a positive and significant effect on income inequality, indicating that higher unemployment rates tend to widen economic disparities. Collectively, these findings emphasize the importance of strengthening educational policies, maintaining adequate wage standards, and expanding employment opportunities to promote more inclusive regional development. However, this study is limited by the number of explanatory variables and the relatively short observation period. Therefore, future research is encouraged to incorporate additional determinants of income inequality, such as economic growth, investment, poverty, regional economic structure, and government expenditure, while also considering broader geographical coverage and longer periods of analysis.

References

- [1] Todaro, M. P. & Smith, S. C. (2012). *Economic Development*, 11th Edition. Boston: Pearson.
- [2] Janah, M. (2022). Analisis Pengaruh Tingkat Pdrb Perkapita, Indeks Pembangunan Manusia, Dan Penanaman Modal Asing Terhadap Disparitas Pendapatan Di Indonesia Periode Tahun 2019-2021. *Profit: Jurnal Manajemen, Bisnis Dan Akuntansi*, 1(4), 23–43. <https://doi.org/10.58192/profit.v1i4.183>
- [3] BPS. (2018). *Gini Ratio September 2017 tercatat sebesar 0,391*. Jakarta: Badan Pusat Statistik. Retrieved from <https://www.bps.go.id/id/pressrelease/2018/01/02/1410/gini-ratio-september-2017-tercatat-sebesar-0-391.html>
- [4] BPS. (2019). *Gini Ratio September 2018 tercatat sebesar 0,384*. Jakarta: Badan Pusat Statistik. Retrieved from <https://www.bps.go.id/id/pressrelease/2019/01/15/1548/gini-ratio-september-2018-tercatat-sebesar-0-384.html>
- [5] BPS. (2020). *Gini Ratio September 2019 tercatat sebesar 0,380*. Jakarta: Badan Pusat Statistik. Retrieved from <https://www.bps.go.id/id/pressrelease/2020/01/15/1747/gini-ratio-september-2019-tercatat-sebesar-0-380.html>
- [6] Kuznets, S. (1955). Economic Growth and Income Inequality. *The American Economic Review*, 45, 1-28.
- [7] Becker, G. S. (1964). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. Columbia University Press.
- [8] Syafrizal, S. (1997). *Pertumbuhan Ekonomi dan Ketimpangan Regional Wilayah Indonesia Bagian Barat*. Jakarta: Prisma.
- [9] Hindun, H., Soejoto, A., & Hariyati, H. (2019). Pengaruh Tingkat Pendidikan, Pengangguran, dan Kemiskinan terhadap Disparitas Pendapatan di Indonesia. *Jurnal Ekonomi Bisnis dan Kewirausahaan*, 8(3), 250. <https://doi.org/10.26418/jebik.v8i3.34721>
- [10] Anshari, M., Azhar, Z., & Ariusni. (2018). Analisis Pengaruh Tingkat Pendidikan, Upah Minimum Regional Provinsi Dan Belanja Modal Terhadap Disparitas Pendapatan Di Seluruh Provinsi Di Indonesia. *Jurnal Ecogen*, 1(3). <https://doi.org/10.24036/jmpe.v1i3.4990>
- [11] Mohammad, R., & Firmansyah, F. (2018). Income Inequality in Indonesia: Panel Data of 34 Provinces 2014-2016. *The 3rd International Conference on Energy, Environmental and Information System (ICENIS 2018)*, 73. <https://doi.org/10.1051/e3sconf/20187310003>
- [12] Sulistyaningrum, B. I., Bhinadi, A. & Astuti, R. D. (2022). Pengaruh Pertumbuhan Ekonomi, Indeks Pembangunan Manusia Dan Upah Minimum Provinsi Terhadap Ketimpangan Distribusi Pendapatan Provinsi-Provinsi Di Pulau Jawa Tahun 2011-2020. *SINOMIKA Journal Publikasi Ilmiah Bidang Ekonomi dan Akuntansi*, 1(4), 891-902. <https://doi.org/10.54443/sinomika.v1i4.454>
- [13] Kuncoro, M. (2018). *Perencanaan Pembangunan*. Gramedia Pustaka Utama.
- [14] Yoertiara, R. F., & Feriyanto, N. (2022). Pengaruh pertumbuhan ekonomi, IPM, dan Pengangguran terbuka terhadap Disparitas pendapatan provinsi-provinsi di pulau Jawa. *Jurnal Kebijakan Ekonomi Dan Keuangan*, 1(1), 92–100. <https://doi.org/10.20885/jkek.vol1.iss1.art9>
- [15] Hutabarat, W. B., & Arka, S. (2023). The Effect of HDI, Open Unemployment Rate, and Poverty on Income Disparity in Riau Islands Province in 2011-2022. *Jurnal Simki Economic*, 6(1), 316–327. <https://doi.org/10.29407/jse.v6i1.375>
- [16] Arkum, D., & Amar, H. (2022). The Influence of Economic Growth, Human Development, Poverty and Unemployment on Income Distribution Inequality: Study in the Province of the Bangka Belitung Islands in 2005-2019. *Jurnal Bina Praja*, 14(3), 413–422. <https://doi.org/10.21787/jbp.14.2022.413-422>
- [17] Sugoyono. (2020). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
- [18] Gujarati, D. N. & Porter, D. C. (2009) *Basic Econometrics*, 5th Ed. New York: McGraw-Hill/Irwin.