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Analysis of Factors Affecting Income Inequality in West Java 2012- 2022

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Abstract: This study aims to analyze the effect of economic growth, human development index and labor on income inequality in West Java in 2012-2022. The method used in this research is a quantitative approach using secondary data in the form of panel data of 27 regencies or cities in West Java in 2012-2022 to be further analyzed using panel regression using EViews 12 with the Random Effect Model (REM) model. The results showed that simultaneously the variables of economic growth, human development index and labor had a significant effect on income inequality. While partially the economic growth variable has a positive and significant effect on income inequality, the human development index (HDI) has a positive and significant effect on income inequality, labor has a positive and insignificant effect on income inequality.

Keyword: Income Inequality, Economic Growth, Human Development Index, Labor Force.

INTRODUCTION

One of the goals of the Sustainable Development Goals (SDGs) is to reduce inequality, where all people must be ensured equal opportunities and reduce income inequality (United Nation, 2016). Income inequality is often a problem in developing countries. Income inequality occurs when the population growth rate is not equal to the economic growth rate. The high level of income inequality certainly has a negative impact on economic stability because it will hinder economic development (Suryani & Woyanti, 2021). Income inequality is a condition that shows the existence of uneven income received by the community in a region. Kuznet in (Lala, et al, 2023) revealed that inequality in the level of community income tends to increase along with the decline in economic activity. The income gap is a situation where the income gap between regions is still large and ultimately causes serious problems, because the balance of people's welfare is an expectation that must be achieved by a nation. The income gap is initially caused by regional differences in terms of natural resources and population conditions. The process of economic development is closely related to the inequality of income distribution itself. Therefore, tactics are needed to achieve equality through good and adequate growth and

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to ensure that the gap does not worsen. Income inequality not only creates enthusiasm and encourages underdeveloped regions to pursue regional development, but can also have negative impacts such as economic inefficiency, reduced social stability and solidarity, and inequality of social welfare. Therefore, monitoring income inequality is a very important issue, because efforts to equalize development results are one of the strategies and directions of Indonesia's national growth.

The level of income inequality can be measured using various methods. A very commonly used calculation of income inequality is the Gini Ratio Index. This calculation is sufficient to explain the relationship between high-income population groups and other population groups (Farhan & Sugianto, 2022). The range of numbers used in the Gini index is between 0 and 1. Where if the index number is close to 0, the lower the income inequality, otherwise if the Gini index number is close to 1, the higher the income inequality.

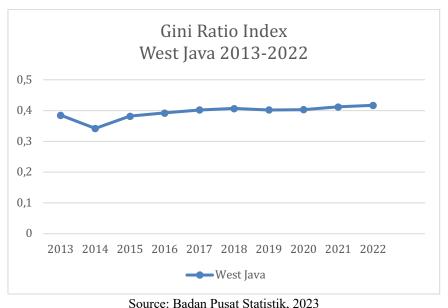


Figure 1. West Java Gini Ratio Index 2013-2022

Based on the graph above, it can be seen that the level of income inequality in West Java has increased and decreased every year. The highest level of income inequality occurred in 2022 at 0.417 and the lowest occurred in 2014 at 0.342. The Gini ratio index increases gradually from 2019 to 2022. The occurrence of a massive increase in a row, especially in 2020 to 2022, is the domino effect of the COVID-19 virus outbreak, where in those vulnerable years the economic turnover slowed down due to the decline in economic activity in the community, such as companies that could not afford to incur higher operating costs so they were forced to lay off their employees (layoffs). This condition is then considered as a trigger for an increase in the level of income inequality. This directly illustrates that in Indonesia there is an imbalance in income distribution which results in the growth of the poor population. Income inequality is an important condition to pay attention to. This is because income inequality will certainly determine the level of welfare of a society. This indicates that the higher the level of income inequality, the lower the level of welfare. A continuously declining level of welfare will push the community into a vicious cycle of poverty, which can have a domino effect on the community itself, such as difficulty in gaining access to education and health so that the level of education obtained by the community itself is low, and a low level of education will have an impact on the low productivity of the community. Therefore, people who have a low level of productivity will be unable to compete in the labor market, in the end the unemployment rate becomes higher and hampers the process of economic development of a country.

Income inequality can be said to be a common phenomenon that occurs in every process of economic development of a region or even a country. Income inequality can be caused by several factors, one of which is economic growth. Economic growth is a type of continuous change in the state of a country's economy that is considered favorable within a certain period of time. Increased creation of goods and services in the socio-economic sphere is closely related to economic development. In long-term macroeconomics, the focus is on the improvement of the economy as a country's capacity to produce goods and services increases over time. Economic growth refers to the increase in the production of goods and services in a country, such as increased production of industrial products, infrastructure development, increased application in the service sector, and increased productivity. increased production of manufactured goods Masu. capital goods. The growth rate of real national income is an indicator that provides an overview of the development of a country's economy. According to classical economic theory, economic growth is influenced by population growth, capital, availability of natural resources and technology.

Rapid economic growth will increase people's income to overcome poverty. However, this usually does not happen evenly, high income usually occurs in urban communities, unlike rural communities (Amali & Syafri, 2023). Changes in the economic structure from agriculture to industrialization encourage urbanization, which causes increased economic growth in urban areas. Differences in labor productivity in rural and urban areas will result in a gap in income earned by rural and urban communities. This will lead to an increase in income inequality. Therefore, changes in economic structure will lead to increased economic growth but it is followed by higher income inequality (Alamanda, 2021).

Other factors that play an important role in income distribution inequality are human development index (HDI) and labor force. The human development index (HDI) is a measure of human development achievements based on a number of basic components of quality of life. Calculating the HDI as an indicator of human development has important objectives, including building an indicator that measures the basic dimensions of human development and the expansion of freedom of choice. Utilizing a number of indicators to keep the measure simple. Forming one composite index rather than using a number of basic indices (Latifah, 2017). HDI shows that the level and distribution of schooling for the entire population determines the distribution of income (Backer & Chiswick 1966; Mincer 1974). According to (Putra, 2018) the Human Development Index (HDI) explains how the population can access development results in obtaining income, health, education, and so on. The human development index measures the ratio of life expectancy, literacy, education and living standards for all countries around the world, usually measured by real income per person. The level of human development index will affect the level of labor productivity of the population. The lower the HDI, the lower the productivity of the population, and conversely, the higher the HDI, the lower the productivity of the population. However, of course, each region will have a different human development index, which can increase income inequality in a region (Amali & Syafri, 2023).

In addition, labor has a major effect on income inequality. Labor is a human being who can be used in the production process which includes the physical condition of the body, skills, ability to think owned by the workforce. According to the Basic Law on Manpower No. 13 of 2003, labor is every person who is able to do work both inside and outside of labor relations in order to produce services or goods to meet their own needs and for the community. the amount of labor that offers itself in helping the production process, depends on the amount of supply or supply of labor available in the community. The number of people who offer themselves to be labor is divided into 3 groups, namely people who have worked, people who are ready to work, and people who are looking for work.

Where the high labor force that is ready or already working will free an area from poverty (Fuady, et al, 2021). However, the limited availability of employment will be a problem. The unequal employment with labor will result in labor not being fully absorbed in the workforce. Thus, workers with lower-middle social status have limited choices, they can only choose jobs with low wages rather than not having a job at all. In contrast, workers with upper-middle social status have many options to work in various sectors with higher wages. This can lead to increased income inequality in society.

However, in addition to the empirical gap found based on the data in Figure 1, this study is also motivated by the inconsistency of previous research results found. (Lestari & Amaliah, 2023) found that economic growth does not have a significant effect on income inequality between districts / cities in West Java Province. Different findings were obtained (Lala, et al, 2023) with the findings that economic growth has a positive and significant effect on income inequality. Likewise with the human development index, (Salsabila & Pramukty, 2023) found that the Human Development Index to minimize the level of Income Distribution Inequality, what must be done is to improve the three basic dimensions of education, health, and living standards. However, (Chusainy, et al, 2023) found that the Human Development Index variable has a negative and insignificant effect on income inequality. Due to the inconsistency of research findings, researchers are interested in finding the constancy of these research findings, so researchers replicated the analysis of factors affecting income inequality.

LITERATURE REVIEW

Income Inequality

Income inequality refers to a condition indicating an uneven distribution of income received by the population within a region. Kuznets, as cited in Lala et al. (2023), stated that income inequality tends to increase as economic activity declines.

Income disparity is a situation where significant gaps in income exist between regions, ultimately leading to serious issues. Achieving a balanced distribution of public welfare is a goal every nation strives for. Income disparities are initially caused by regional differences in natural resources and demographic conditions. The process of economic development is closely linked to income distribution inequality. Therefore, strategies are required to achieve equality through adequate and sustainable growth while ensuring that inequality does not worsen.

Income inequality does not only motivate and encourage underdeveloped regions to pursue local development but also poses negative consequences. These include economic inefficiency, reduced social stability and solidarity, and disparities in social welfare. Hence, monitoring income inequality is a crucial issue, as equitable distribution of development outcomes is one of the strategies and directions of Indonesia's national growth agenda.

Economic Growth

Economic growth refers to a continuous change in the economic condition of a country that is considered beneficial over a specific period. The increase in the creation of goods and services in the socio-economic sector is closely related to economic development. In long-term macroeconomics, the focus is on economic improvement alongside the growing capacity of a country to produce goods and services over time.

Economic growth involves the increased production of goods and services within a country, including the growth of industrial product output, infrastructure development, advancements in the service sector, and productivity improvements. This encompasses the rise in the production of manufactured goods, capital goods, and other related sectors.

The rate of growth in real national income serves as an indicator that reflects the economic progress of a country. According to classical economic theory, economic growth is

influenced by population growth, capital accumulation, the availability of natural resources, and technological advancements.

Human Development Index

The Human Development Index (HDI) is a measure of human development achievements based on several fundamental components of quality of life. The calculation of HDI as an indicator of human development serves important purposes, including building indicators that measure the basic dimensions of human development and expanding the freedom of choice. This involves utilizing several indicators to keep the measurement simple and forming a composite index instead of using multiple basic indices (Latifah, 2017).

The HDI indicates that the level and distribution of education among the population determine income distribution (Backer & Chiswick, 1966; Mincer, 1974). According to Putra (2018), the HDI explains how people can access the benefits of development in terms of income, health, education, and more. The HDI is measured by comparing life expectancy, literacy, education, and living standards across all countries globally, usually measured by real income per capita.

Labor Force

The labor force refers to individuals who can be utilized in the production process, encompassing their physical condition, skills, and intellectual abilities. According to Indonesia's Labor Law No. 13 of 2003, the labor force includes everyone capable of performing work, either within or outside of formal employment relationships, to produce goods or services for their own needs or for society.

The number of workers offering themselves for participation in the production process depends on the availability or supply of labor within a society. Those offering themselves as part of the labor force can be categorized into three groups: those currently employed, those ready to work, and those actively seeking employment.

METHOD

This study uses secondary data with a panel data approach. Panel data is a combination of cross-sectional and time-series data. The cross-sectional data in this research covers 27 regencies or cities in West Java Province. Meanwhile, the time-series data refers to variables such as income inequality, economic growth, human development index, and labor force, collected over the period from 2012 to 2022. The study aims to determine the influence of independent variables on the specified dependent variable.

The independent variables analyzed in this research are economic growth, the human development index, and the labor force. Meanwhile, income inequality serves as the dependent variable explained by the influence of the independent variables. To analyze the relationship between these variables, the researcher employs panel data regression with the assistance of Eviews software.

The panel data analysis process begins with selecting the appropriate method to analyze the data obtained. Three common methods used in panel data analysis are the Common Effect, Fixed Effect, and Random Effect models. The selection among these methods is conducted using specific statistical tests, namely the Chow Test and the Hausman Test. The Chow Test is used to determine whether the Common Effect or Fixed Effect model is more suitable, while the Hausman Test is employed to choose between the Fixed Effect or Random Effect model.

After selecting the appropriate method, the next step is to conduct a classical assumption test. The purpose of this test is to ensure that the data meet the basic requirements necessary for regression analysis, ensuring the validity of the results. In this study, the classical assumption test is limited to the multicollinearity test, which aims to identify whether there is

an excessively strong correlation among the independent variables that could affect the accuracy of the regression results. Following this, regression testing is performed to measure the influence of the independent variables on the dependent variable. Finally, hypothesis testing is conducted to determine whether the analyzed independent variables significantly influence income inequality in the observed regencies or cities.

Overall, this study seeks to provide a deeper understanding of the factors affecting income inequality in West Java by employing panel data analysis techniques that incorporate a long time frame and various regencies or cities as units of analysis.

RESULT AND DISCUSSION

Chow Test

Based on the chow test and hausman test, the panel data model used is Random Effect. The Chow test is conducted to determine which is the best estimation model between the *Common Effect Model (CEM)* or the *Fixed Effect Model (FEM)*. Based on the results of the Chow Test and Hausman Test, the result is the *Random Effect Model*. Where the criteria for the chow test are if the p value> 0.05 then the *common effect is* selected, but if the p value <0.05 then the *fixed effect is* selected. The following are the results of the chow test:

Table 1. Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F Cross-section Chi-square	7.377705	(26,267)	0.0000
	160.798776	26	0.0000

Source: EViews Processing Results

Based on data processing using EViews 12, it can be seen that the table shows the probability value of the cross section chi-square is 0.000 < 0.05. Then it can be concluded that H0 is rejected and Ha is accepted. Thus, the model chosen is the Fixed Effect Model (FEM).

Hausman Test

Furthermore, the Hausman Test is carried out, this test is carried out to determine which estimation model is the best between the Fixed Effect Model (FEM) or the Random Effect Model (REM). With the criteria if the p value > 0.05 then the random effect is selected, but if the p value <0.05 then the fixed effect is selected. The following are the results of the Hausman Test:

Table 2. Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.714758	3	0.1939

Source: EViews Processing Results

Based on this table, it can be seen that the probability value is 0.1939> 0.05, meaning that H0 is accepted and Ha is rejected, so the model chosen is the Random Effect Model.

Multicollinearity Test

After conducting tests to determine the model to be used, the next stage is to conduct a classical assumption test consisting of a multicollinearity test. The multicollinearity test can

show that there is no high correlation value between independent variables if the value is less than 0.90. The following are the results of the multicollinearity test:

Table 3. Multicollinearity Test Results

	X1	X2	Х3
X1	1.000000	0.098438	0.030236
X2	0.098438	1.000000	0.104646
X3	0.030236	0.104646	1.000000

Source: EViews Processing Results

The multicollinearity test results show the correlation value between independent variables> 0.90. This means that there is no high correlation value between independent variables, so it is concluded that there is no multicollinearity between independent variables.

Panel Data Regression Test

Next, the random effect model panel data regression test was conducted. The following are the results of the panel data regression test:

Table 4. Panel Data Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.044533	0.034143	1.304307	0.1932
X1	0.003399	0.001414	2.404257	0.0168
X2	0.004260	0.000466	9.140930	0.0000
X3	0.000390	0.000989	0.394324	0.6936

Source: EViews Processing Results

F test

Table 5. F Test Results

B. C.	
R-squared Adjusted R-squared	0.233504 0.225656
S.E. of regression	0.035167
F-statistic	29.75297 0.000000
Prob(F-statistic)	0.000000

Source: EViews Processing Results

Based on the results of data processing, the F-statistic value is 0.0000 <0.05, so H0 is rejected and Ha is accepted. So that all independent variables consisting of economic growth, human development index and labor together have a significant effect on income inequality.

Coefficient of Determination (R Squared)

Table 6. Test Results of the Coefficient of Determination

0.233504 0.225656
0.035167
29.75297
0.000000

Source: EViews Processing Results

The coefficient of determination (R2) test results show an R-Squared value of 0.233 or 23.3%. Thus it can be concluded that economic growth, human development index and labor affect income inequality by 23.3% and the remaining 76.7% is influenced by other variables.

RESULTS AND DISCUSSION

Based on the table, the economic growth variable has a probability value of 0.0168 < 0.05 with a coefficient value of 0.003399. So it can be stated that economic growth has a positive and significant effect on income inequality. Increased economic growth will result in increased income inequality. The higher the economic growth of a region, the higher the income level. This is due to uneven economic growth in various regions, regions with higher economic growth tend to have a more equitable income distribution, but regions with low economic growth will have a lower income distribution. Thus, income inequality is formed in the various regions (Wibowo & Pangestury, 2023). This is also consistent with the Neo Marxist theory which states that economic growth will always lead to a widening gap between the rich and the poor (Harahap, 2022). Economic growth has a positive impact on income inequality. That is, as the economy grows, production increases, so output increases. Increased production increases national income and per capita income, which in turn reduces regional income disparities.

The results of this study indicate that economic growth has a positive and significant influence on income inequality in the regions studied. Based on statistical test results, a probability value of 0.0168, which is less than 0.05, was obtained, indicating that the relationship between the two variables is indeed significant. The coefficient value of 0.003399 suggests that an increase in economic growth contributes to a rise in income inequality. This indicates that while the overall economy grows, not all segments of society or regions benefit equally. Some areas with higher economic growth may experience more equitable income distribution, whereas regions with lower growth tend to face greater inequality. This disparity can be attributed to factors such as differences in access to resources, infrastructure, or human resource quality, which affect a region's ability to reap the benefits of economic growth.

The analysis also shows that the Human Development Index (HDI) has a positive and significant impact on income inequality. With a probability value of 0.0000, which is less than 0.05, and a coefficient value of 0.004260, it can be concluded that the HDI significantly contributes to income inequality in a region. This finding suggests that higher disparities in the Human Development Index within a region lead to greater income inequality. Differences in the quality of human development across areas result in clear disparities between more advanced and less developed regions. Regions with higher HDI levels tend to have better quality of life, including better access to education, healthcare, and living standards. In contrast, regions with lower HDI levels face challenges in improving human resource quality, directly impacting the low income generated by those regions (Amali & Syafri, 2023).

These findings align with the research conducted by Putri et al. (2015), which stated that the Human Development Index (HDI) has a positive and significant impact on income inequality, indicating that changes in income inequality can be influenced by fluctuations in the HDI. Disparities in human development across regions can lead to greater gaps in income distribution, as regions with higher-quality human resources tend to generate more economic opportunities and better productivity. To minimize income distribution inequality, it is crucial to focus on improving the three main dimensions of HDI: education, health, and living standards. Education is the key factor in enhancing the quality of human resources, which in turn helps communities achieve economic stability through improved skills and knowledge. With better education, individuals have greater opportunities to secure better employment, ultimately helping to reduce income disparities between regions. Furthermore, improvements in the health sector and the enhancement of living standards also play a vital role in improving the overall quality of life, which can reduce income inequality at both regional and national levels.

The analysis results indicate that the labor force variable has a probability value of 0.6936, which is greater than 0.05, and a coefficient of 0.000390. Based on these results, it can

be concluded that while the labor force has a positive influence on income inequality, this influence is not significant. Although a larger labor force can increase the production of goods and services, thereby boosting regional economic growth, if the increase in the labor force is not matched by sufficient job opportunities, it may exacerbate income inequality. An oversupply of laborers without suitable job opportunities often results in many workers receiving lower wages. For instance, individuals without adequate skills or education may accept low-paying jobs rather than remaining unemployed. Conversely, those with higher education levels and better social standing are more likely to secure better-paying jobs. This situation widens the income gap between individuals with access to high-paying jobs and those stuck in low-wage employment (Arsyillah, 2019).

These findings are consistent with the research conducted by Arsyillah (2019), which stated that as the working-age population increases, the number of employed individuals also tends to rise. If there is a positive correlation between the labor force and productivity, an increase in the labor force can boost production output, which is expected to raise income levels. However, while theoretically, an increase in the labor force could enhance income, in reality, inequality in the distribution of available jobs may instead lead to higher income inequality.

In this context, a higher labor force participation rate does not necessarily guarantee a reduction in income inequality. This is because an increase in the labor force that is not matched by improvements in job quality or equitable employment opportunities will exacerbate income disparities between individuals and regions.

CONCLUSION

Based on the results obtained, it shows that:

- 1. Economic growth variable has a positive and significant effect on income inequality. Where the higher economic growth that is not evenly distributed in various regions will cause high income inequality.
- 2. The Human Development Index (HDI) variable has a positive and significant effect on income inequality. Where the higher HDI that is not evenly distributed in various regions will cause high income inequality.
- 3. The labor variable has a positive and insignificant effect on income inequality. Where the higher labor force with limited employment will lead to higher income inequality.

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