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"Entrepreneurship on Global Economics Development in the Era of Society 5.0"

Determinants of Income Disparity on East Java Province in 2017 - 2021**Sinta Sekarmahardi ^{1*} Muhammad Arif ¹**¹ Muhammadiyah University of Surakarta

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***Email:** b300190204@student.ums.ac.id**ABSTRACT**

Income inequality is an income imbalance that occurs in society, resulting in differences between various communities. Income inequality reflects how evenly distributed the results of development in an area are. This research aims to explain the condition of income inequality in East Java Province in 2017 – 2021 and the factors that influence it. Using five independent variables namely GRDP per capita, district minimum wage, spending per capita, poverty severity index, and the total labor force. With these data then analyzed using panel data regression analysis, Random Effect Model (REM) is the best model to explain the influence of variables tied to the independent variables in this study. Based on the influence validity test, it is known that the variables that have a significant effect on the inequality of income distribution in East Java Province in 2017-2021 are the poverty severity index, district minimum wage, and per capita expenditure.

Keywords: Inequality, Panel, GRDP per capita, Expenditure per Capita, district minimum wage, Poverty Severity Index, Total Work Force.

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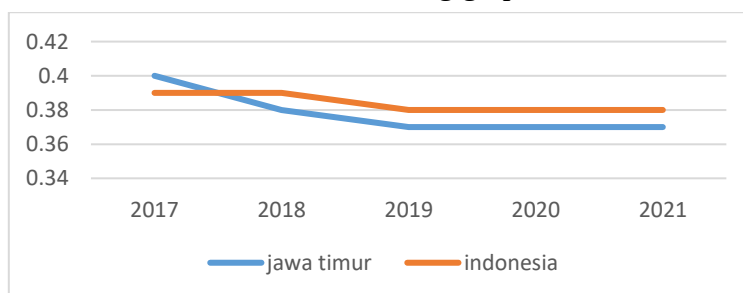
INTRODUCTION

Economic development is a process that causes an increase in people's per capita income in the long term by taking into account population growth followed by fundamental changes in the economic structure of an area. Economic development essentially aims to improve the welfare of a society (Agusalim & Pohan, 2018). It is necessary to increase economic growth and a more equitable income distribution to prosper the community. Improvement and regional economic growth will influence improving the welfare of the people in an area. Economic development requires government intervention. Government intervention is needed in an economy to steer the economy towards full employment conditions (Boediono, 1990). One of the factors that are the root cause of economic growth is income inequality (Rozali et al., 2022).

Income inequality is a difference in the income generated by the community that creates an unequal distribution of people's income (Todaro & Smith, 2006). Inequality in income distribution is a problem that often occurs due to differences between the payment of a region still lagging and a developed area. The greater the income gap, the greater the variation in income distribution, which will cause an income disparity (Musdifar, 2012).

Indonesia is still experiencing an economic disparity between the rich and the poor. Therefore, the problem of income inequality in Indonesia is serious to the economy and cannot be resolved (Hasyim, 2015). This income inequality problem occurs in almost all regions of Indonesia, especially in the East Java region. East Java has a very large total population and reliable human resources for economic development. However, the level of inequality in East Java is still high. High-income inequality in East Java occurs because some regions experience fast economic growth, but other areas experience slow economic growth so that development and progress are uneven (Arif & Wicaksani, 2017). This is inversely proportional to East Java's economic growth above the national. East Java's unequal economic development model and different growth potentials result in inequality in the development (Mauliddah & Rosmaniar, 2020).

Income inequality cannot be separated from the Gini ratio. The Gini coefficient or Gini ratio is a measure that is commonly used to measure the overall level of income inequality (Cardorel et al., 2020). The Gini Coefficient values range from 0 to 1, with 0 showing perfect evenness and 1 showing imperfect evenness. A Gini Index value of <0.4 indicates low inequality, 0.4 - 0.5 indicates moderate imbalance, and > 0.5 indicates high inequality (Badan Pusat Statistik, 2022). Income inequality in the provinces of East Java and Indonesia from 2017 to 2021 is shown in the following graph.



Graph 1. Gini Ratio 1East Java and Indonesia Provinces.

Source: Badan Pusat Statistik, 2021 (data processed)

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The graph also shows that the value of inequality in the Provinces of East Java and Indonesia in 2017 – 2020 has decreased. East Java Province experienced the highest inequality in 2017, reaching 0.40, even though this value was greater than inequality in Indonesia which was at 0.39, and in 2018 the value of inequality in East Java decreased to 0.38, while in Indonesia still at 0.38. Even in 2019-2021 the provinces of East Java and Indonesia have a stable inequality value East Java is at 0.37, and Indonesia is at 0.38. The decrease in the value of inequality every year indicates an improvement in income and equitable distribution of development in the region. However, despite the decline, the government must seriously address the income inequality problem. The reduction in inequality every year does not prove that income disparities between regions are low or that income is evenly distributed.

According to (Damanik et al., 2018) "The factors that cause uneven income distribution are (1) inflation, where an increase does not follow money income increases but in goods production. (2) Low social mobility. (3) Large investments in capital-intensive projects increase the percentage of additional working capital income compared to the percentage of income originating from work so that unemployment increases. (4) The deteriorating exchange rate of developing countries in trade with developed countries. (5) High population growth resulting in decreased per capita income".

Minimum wages can also affect income inequality because regions with high minimum wages will have high incomes. The minimum wage will also affect the output produced by an area. According to (Kaufman, 2000) the purpose of a minimum wage is to meet the standard of living of a society. The higher the minimum wage, the more people's income will increase, increasing people's welfare so that income inequality will decrease.

In addition to the minimum wage, poverty is also a factor that affects income distribution inequality. These two things are interrelated because poverty can occur due to economic disparities. Poverty can be said as a condition of a society with a weak economy. Differences in income distribution between high-income and low-income groups and the number of people below the poverty line are still problems in developing countries. Coupled with government policies usually aimed at solving short-term issues, these policies fail to address the lower class of the economy. In addition, the influence of foreign conditions, especially in terms of development funds. Poverty is a significant problem for the poor in every region (Ernawati, 2021).

Previous researchers have carried out related research on income inequality. Research conducted by (Suryani, 2021) concluded that inequality in income distribution in Yogyakarta Province in 2010-2018 was influenced by district/city minimum wages, unemployment and the human development index.

This previous research has conducted research with object locations in Yogyakarta Province regarding inequality of income distribution. From the results of research entitled "The Effect of Economic Growth, HDI, District/City Minimum Wage and Unemployment on Inequality of Income Distribution in Province of DI Yogyakarta (2010-2018)", this study aims to see to what extent the HDI variable, district minimum wage/city, unemployment and economic growth affect the inequality of income distribution that occurs in the province of Yogyakarta. However, this previous study did not use the variables GRDP per capita, per capita expenditure, poverty severity index and workforce size. So in this study, researchers wanted to find out how these variables influenced income inequality in the East Java region in 2017 - 2021.

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METHOD

The income gap in this study is measured using the Gini index, which is also used for the dependent variable. In this study, secondary data were obtained from the East Java Central Bureau of Statistics and related agencies. The secondary data is cross-sectional results for 38 cities/regencies in East Java province and cross-time data from 2017 – 2021. The variables that are thought to affect the income gap in East Java province are:

- GRDP per capita is the total increase in goods and services in a certain year in a certain period and a certain area averaged over the entire population. Per capita GRDP data obtained from the central statistics agency and expressed in units of billions of rupiah (Fatihudin & Mauliddah, 2019).
- District/city minimum wage is the minimum standard used by employers or industry players to provide wages to workers in their business or work environment (Wardhana et al., 2022). District/city minimum wage data is taken from the East Java governor's decree and is expressed in rupiah units.
- Per capita expenditure is the cost incurred for the consumption of all household members for a month divided by the number of household members adjusted for purchasing power parity. Per capita expenditure data is obtained from the central statistics agency and expressed in units of thousands of rupiah (Badan Pusat Statistik, 2022).
- Poverty severity index is an index that provides information on the description of the distribution of spending among the poor. Poverty severity index data were obtained from the central statistics agency and expressed in percent units.
- Number of the workforce. The Labor Force (AK) is the working-age population (15 years and over) who are working or have jobs but are temporarily not working and are unemployed. Data on the labour force is obtained from the Badan Pusat Statistik and expressed in units of people.

This research model uses a panel data equation that examines the effect of GRDP per capita, district/city minimum wages, per capita expenditure, poverty severity index and workforce size. In general, the formula for the panel regression model is as follows:

$$GINI_{it} = \beta_0 + \beta_1 \log PDRB_{it} + \beta_2 IKK_{it} + \beta_3 \log PP_{it} + \beta_4 \log AK_{it} + \beta_5 \log UMK_{it} + \mu_{it}$$

Information:

GINI	: Gini index / income inequality in East Java Province (%)
PDRB	: Gross Regional Domestic Product of East Java Province (billion rupiah)
IKK	: Poverty Severity Index of East Java Province (%)
PP	: expenditure per capita of East Java Province (Rp)
AK	: Number of Workforce in East Java Province (people)
UMK	: Regency Minimum Wage, East Java Province (Rupiah)
β_0	: Constant
$\beta_1 \dots \beta_5$	: Regression Coefficient
Log	: Logarithmic Operations
μ	: Confounding Variable
i	: Observation (district/city)

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t : The amount of time

The estimation stage of panel data regression analysis will include: parameter estimation of econometric models using the Pooled Least Square (PLS) approach, Fixed Effect Model (FEM), and Random Effect Model (REM); selection of the best-estimated model by Chow test and Hausman test, and Lagrange Multiplier test if necessary; model goodness-of-fit test on the selected estimated model; and test the validity of the effect of independent variables on the selected estimated model. The type of data used in this study is panel data, a combination of time series and cross-sectional data.

RESULT

The panel data method is used in this study because the data used is a combination of time series data and cross-section data. The estimation results of the econometric model with the three approaches, namely Pooled Least Square (PLS)/ CEM, Fixed Effect Model (FEM) and Random Effect Model (REM), along test results election the model summarized in Table 1.

Table 1
Estimation of Panel Data Regression Econometric Model - Cross section

Variable	Regression Coefficient		
	CEM	FEM	BRAKE
C	0.124171	0.637968	0.077079
LogPDRB	0.001104	-0.041393	0.000820
IKK	-0.043206	0.007057	-0.022219
Log (PP)	0.074816	-0.073958	0.084065
Log (AK)	0.008937	0.067431	0.008289
Log (UMK)	-0.041108	-0.004266	-0.043577
R ²	0.270561	0.650441	0.109009
adjusted. R ²	0.250739	0.550566	0.084798
F statistics	13.64969	6.512602	4.502343
Prob. F statistics	0.000000	0.000000	0.000578

Model Selection Test

A. Chow

Cross-Section F (37.147)= 4.317585 ; Prob. F (37.147) = 0.0000

B. Hausman

Cross-Section random $\chi^2(5) = 14.063733$; Prob. $\chi^2 = 0.0152$

The Chow test and Hausman test show that (REM) is selected as the best-estimated model, as seen from the probability or significance in the Chow test having a prob value of 0.0000 < 0.01 and the Hausman test having a prob value of 0.0152 > 0.01. The complete estimation results from the REM model are shown in Table 2.

Table 2.
Random Effect Model (REM) Estimation Model

GINI _{it} = 0.077079 + 0.000820 LogPDRB _{it} - 0.022219 IKK _{it} + 0.084065 LogPP _{it} + (0.9020) (0.0510) *** (0.0022) ** 0.008289 LogAK _{it} - 0.043577 LogUMK _{it} (0.2914) (0.0018) **
R ² = 0.109009 ; _ DW = 1.982060 ; F. = 4.502343 ; Prob. F = 0.000678

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Source : BPS, processed. **Information:** * Significant at $\alpha = 0.01$; ** Significant at $\alpha = 0.05$; ***Significant at $\alpha = 0.10$; The number in brackets is the probability of the t statistic.

From Table 2, it can be seen that the REM estimated model exists with a probability or determination (R^2) of 10.9%; which means that the Gini index variable is influenced by GRDP per capita, poverty severity index, per capita expenditure, the size of the labour force and district minimum wages, the remaining 89.1% is influenced by other variables not included in the econometric model. Separately from other variables in the econometric model, three independent variables significantly affect. The significant variables are the poverty severity index with a probability of 0.0510 (< 0.10), the per capita expenditure variable with a probability of 0.0022 (< 0.05), and the district minimum wage variable with a probability value of 0.0018 (< 0.05).

The poverty severity index variable has a regression coefficient of -0.022219 with a linear relationship pattern. If the poverty severity index increases by 1 percent, the Gini index will decrease by -0.022219 index points. Conversely, if the poverty severity index decreases by 1 percent, the Gini index will reduce by -0.022219 index point.

Per capita expenditure variable has a regression coefficient of 0.084065 with a linear-logarithmic relationship pattern. If per capita expenditure increases by 1 percent, the Gini index will increase by $0.084065/100 = 0.00084065$ index point. Conversely, if per capita expenditure decreases by 1 percent, the Gini index will decrease by $0.084065/100 = 0.00084065$ index point.

The district/city minimum wage variable has a regression coefficient of -0.043577 with a linear-logarithmic relationship pattern. If the district/city minimum wage increases by 1 percent, the Gini index will decrease by $-0.043577/100 = -0.00043577$ index point. Conversely, if the district/city minimum wage decreases by 1 percent, the Gini index will decrease by $-0.043577/100 = -0.00043577$ index point.

The per capita GRDP variable has a regression coefficient value of 0.000820 with a probability of 0.9020 (> 0.1). This means that the size of the per capita GRDP does not affect income inequality in East Java province in 2017 – 2021.

The variable number of the workforce has a regression coefficient of 0.008289 with a probability of 0.2914 (> 0.1). This means that the workforce size does not affect income inequality in East Java province in 2017 – 2021.

RESULT AND DISCUSSION

The Effect of Poverty Severity Index on Income Inequality

The selected estimation model explains that the poverty severity index variable has a negative effect, meaning that the poverty severity index will decrease when income inequality increases. The results of this study have a significant impact. This shows the influence of income inequality on the poverty severity index. This can happen because, based on poverty severity index data shows that the number of poverty severity indexes every year does not always increase but decreases, with this decrease causing the effect on income inequality to reduce or have a negative impact. The results of this study are also in line with research conducted by (Safrita et al., 2021) which states that poverty has a negative and significant effect on income inequality.

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The Effect of Per Capita Expenditures on Income Inequality

The selected estimation model explains that the per capita expenditure variable positively influences income inequality, meaning that when per capita expenditure increases, income inequality will also increase. However, the results of this study are inversely proportional to research conducted by (Dai et al., 2023) which states that per capita expenditure has a negative effect on income distribution inequality. This happens because per capita expenditure can illustrate the level of people's purchasing power, and the level of welfare will increase if real per capita consumption increases.

The Effect of District Minimum Wage on Income Inequality

The selected estimation model explains that the district minimum wage (UMK) variable has a negative effect, meaning that when the district minimum wage rises, income inequality decreases. This decline occurs because the district minimum wage when it increases will only be felt by people who work and will not be handled by people who have not worked or are unemployed. It is this inequality that causes a decrease due to the influence of the district minimum wage. This study's results align with research conducted by (Litwin, 2015), which states that the district minimum wage (UMK) has a negative effect on income inequality. The same research results were also carried out by (Zulviana, 2022), which stated that the UMK had a negative impact on income inequality in Central Java province from 2014 – 2019. The same results were also found (Noviana, 2020), where the minimum wage has a negative effect on income inequality in 33 provinces in Indonesia. This is because a fair and equitable wage rate can reduce income inequality, where wages can encourage a person to work enthusiastically so that income distribution is evenly distributed among workers.

The Effect of GRDP Per Capita on Income Inequality

The selected estimation model explains that the per capita GRDP variable does not affect income inequality in East Java Province in 2017 – 2021. This occurs because per capita GRDP cannot yet be used as a measure for a region to reduce income inequality. An increase in per capita GRDP growth has not been able to reduce income inequality in society because many people do not necessarily feel an increase in per capita GRDP, or only rich people can enjoy it. Meanwhile, people with low or poor incomes can only enjoy little or nothing at all. Therefore, an increase in per capita GRDP does not affect the income inequality that occurred in East Java Province in 2017 – 2021. This study's results align with research conducted by (Zulviana, 2022), which states that GRDP had no effect on income inequality for each SWP in the Province of Central Java in 2014-2019.

The Effect of Total Workforce on Income Inequality

The selected estimation model explains that the variable number of the workforce has no significant effect on income inequality in cities/districts of East Java Province. This could happen because the research time was too short, so the components of the total workforce did not change significantly. The positive and insignificant results of the study show that the number of the force has no significant effect on income inequality. The results of this study are in line with research conducted by (Masruri, 2016) which states that the labour force participation rate (TPAK) has no effect on income inequality between regions in Central Java Province in 2011 – 2014.

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IMPLICATIONS

The results of the research that has been conducted show that a high district minimum wage will lead to reduced income inequality in the East Java region. Therefore, the government needs to increase the minimum wage standard in the East Java region and maintaining a constant real value minimum wage will stop the increase in inequality. Setting a higher minimum wage can improve income distribution to reduce income inequality.

High per capita spending will encourage high levels of income inequality. The higher the spending, the higher the distribution of income. The high per capita expenditure will cause economic instability in a region and uneven social welfare because not all people have high incomes, so the government's role is highly expected in the economy to reduce the impact of market failures, achieve prosperity, and justice in society.

The results of the research that has been done show that a decreasing poverty severity index will increase the level of income inequality in East Java. The poverty severity index data in East Java shows that the number of poverty severity indexes yearly does not always increase but decreases. With this decrease, the effect on income inequality decreases. The government is expected to pay more attention to the community poverty level so that income inequality falls.

CONCLUSION

The following conclusions can be drawn based on the analysis of the research on income inequality in East Java province.

1. Based on the Gini index data, it can be seen that income inequality in the province of East Java in 2017 – 2021 is classified as relatively low to moderate inequality, from 0.2 to 0.4.
2. The model chosen in this study is the Random Effect Model (REM) to select the best estimator model to explain the influence of variables related to the independent variables in this study. The variable poverty severity index, per capita expenditure and district minimum wages significantly affect income distribution inequality in East Java province in 2017 – 2021. The per capita expenditure variable has a positive effect, while the poverty severity index and district minimum wage have a negative impact. Meanwhile, two other variables, Per Capita PRDB and the size of the workforce have no significant effect on the unequal income distribution in East Java Province.

East Java is a region with very large human resources, so it is expected to be able to improve economic development in the area. However, in reality, the level of income inequality in East Java is still quite high. With this research, it is hoped that the government will pay more attention to the level of inequality that exists in the province of East Java and the factors that affect the level of income inequality in East Java so that it is hoped that the government will continue to work on reducing the level of income inequality. Because the district minimum wage impacts increasing income inequality, the government needs to establish a new wage standard by paying attention to each sector of the necessities of life so that the disparity in East Java province will decrease. Furthermore, poverty alleviation needs to be done by opening jobs so that people get jobs to overcome the problem of poverty. Further research is suggested to add more other variables, a wider area and a longer time to find out more about the problem of inequality in Indonesia.

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