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DETERMINANTS OF INCOME INEQUALITY VILLAGES AND CITIES IN INDONESIA

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ABSTRACT

The image of development in Indonesia is getting worse when development progress is felt by the upper class. The segmentation of the upper and lower levels of society is reflected in the gap between life in the village and the city. The purpose of this study is to analyze the determinants of income inequality based on the classification of villages, cities, and between villages and cities in Indonesia. The data analysis method used is panel data regression which is an analytical technique that is observed over a certain period. The data used is annual secondary data from 2016-2020 in 34 provinces of Indonesia. Inequality analysis is carried out by calculating the Gini index based on household expenditure data. Economic growth, population, human development index, domestic investment, technology development index, and employment opportunities are independent variables. The results of this study found that there was a significant negative relationship the technology development index and positive relationship population in city and between village and city areas. Then the variable employment opportunity have a significant negative relationship to income inequality in the village.

Keywords: *Income Inequality, National Development, Rural and Urban Inequality.*
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Introduction

Indonesia as a developing country has a level of inequality that shows stagnation in several periods. In the last five years, it was noted that Indonesia had an inequality level ranging from 0.38. In 2015, Indonesia had a level of inequality that touched 0.42 (figure 1). The Gini index, which once touched the number 0.42, indicates that the level of inequality in Indonesia is high. In the scope of Southeast Asia and even the world, Indonesia is also a developing country with the highest level of inequality (World Bank, 2015).

Income inequality between rich and poor groups can be an indicator of the cause of income inequality in Indonesia (Suryahadi et al., 2012; Verianto et al., 2022). The occurrence of differences in income levels between individuals is caused by the quality of the human development index and differences in capital control (Yusuf et al., 2014). The increase in welfare felt by the rich group is inversely proportional to the welfare of the poor group due

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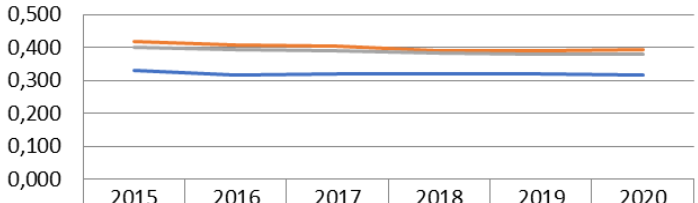
to technological barriers that make it difficult to penetrate the workforce (Dabla-Norris et al., 2015).

Indonesian people scattered in different places of residence, such as in villages and cities, certainly have different levels of welfare (Badan Pusat Statistik, 2020). The relationship between the village and the city has indicated a beneficial relationship. Villages that produce agricultural products certainly need consumption and vice versa (Khoiruddin & Musta'in, 2020). However, there are also some complaints in this relationship, such as exploiting the city over the village. The exchange rate of agricultural products is considered low and does not have high bargaining power compared to industrial products from cities (Tarigan, 2003).

Figure 1: Gini Ratio Trends in Rural, Urban, and Between Rural-Urban



	2015	2016	2017	2018	2019	2020
Desa	0,329	0,316	0,320	0,319	0,320	0,317
Kota	0,419	0,409	0,404	0,391	0,390	0,393
Desa dan Kota	0,402	0,394	0,391	0,384	0,380	0,381

Source: Badan Pusat Statistik (2020)

Kuznets (1955) hypothesizes that it will create an inequality gap at the beginning of a country's economic growth. However, after being in the zone of advanced economic growth, the condition will be stable. Developing countries like Indonesia pursue economic growth by requiring significant investments (Kindleberger, 1988). This, of course, results in inequality between rural and urban areas. Several factors cause the city to give a positive impression and the village to give a negative impression. The factor is because the city represents dynamism and progress while the village represents backwardness and laziness. The condition of the city that is dense and full of competition makes people more required to move to survive. The conditions are different, of course, with the village area, which seems to survive even though it does not work because there are lots of garden products.

Research conducted by Oksamulya (2020) on income inequality in Indonesia using the variables of education, investment, and migration. This study explains that the migration variable has a significant positive effect, while the education variable has a negative effect. Other studies with the variable economic growth concluded that economic growth has a significant positive effect on income inequality in Banten (Lestari et al., 2019). In contrast to research in DIY Province, there is no effect of economic growth on income inequality in the Province of the Special Region of Yogyakarta (Sukma, 2021).

Variable population in research Ayu (2018) The results of simultaneous and partial data processing show that the population affects income inequality. However, another study found that population does not matter significantly to the inequality of income distribution in the City and District of East Java Province in 2016-2019 (Banowati, 2021). On variable investment, it is also found that investment and economic growth have no significant effect on income inequality in Jambi Province (Wijaya et al., 2015). For the Human Development Index variable, there are several studies which reveal that this variable does not affect income inequality such as research by Prasetya et al., (2022) that the HDI value is not affecting income inequality

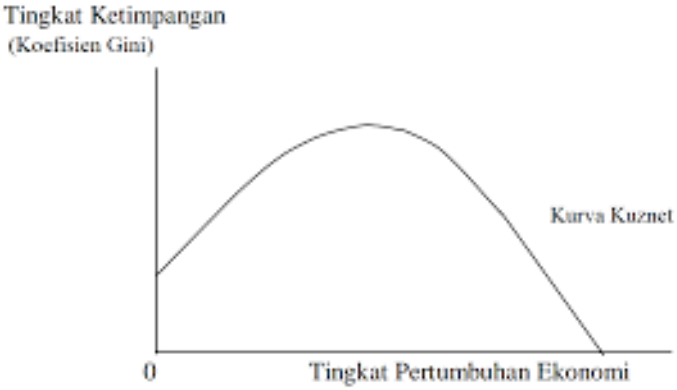
in Indonesia is thought to be due to the inequality of human quality between provinces in Indonesia. Nevertheless, on the other hand, according to Kusuma et al., (2019) partially GRDP, inflation, and HDI had a significant influence on income inequality in DI Yogyakarta from 2011-2017.

The inconsistency in the study results became the basis for the author to re-evaluate income inequality research with several variables that were considered inconsistent results. In addition, the result of this research lies in income inequality research in Indonesia which rarely uses the technology development index variable. This study has a research question: whether economic growth, population, domestic investment, human development index, technological development index, and employment opportunities affect income inequality in Indonesia?. The purpose of this study is to analyze and examine the factors that cause income inequality based on the zone between villages and cities, villages, and cities in 34 provinces in Indonesia for the period 2016-2020.

Literature Review

Inequality Theory

Income distribution is a concept that studies the distribution of individual income in social life (Sadono, 2006). The difference in income between the rich and the poor is an indicator of income inequality (Baldwin, 1986). Sjafrizal (2014) explains the income inequality between regions due to differences in resources and demographics. The ability of regions in the economic sector will also be different. Different resource and production factors between regions lead to different income distributions, causing disparities (Kuncoro, 2006). The theory of income inequality can also be seen from the Kuznets. Hypothesis through an inverted U-curve. The economic growth of a region will initially experience high-income inequality. However, if economic growth is stable, income inequality will be more even (Kuznets, 1995).



Source: Todaro & Smith (2006)

Figure 2: Kuznets curve

Based on the curve graph, it can be analyzed that high and low levels of inequality are unavoidable. At the beginning of economic growth, there will be high-income inequality, but it will be stable at a certain level of economic growth.

Relationship Between Variables

The relationship between economic growth and income inequality

Economic development success is represented by good economic growth accompanied by a low level of inequality (Kuncoro, 2006). Research conducted by Khoiruddin et al. (2020)

shows that the open unemployment rate, district/city minimum wage, and economic growth significantly affect income inequality. At the same time, the variable of fiscal decentralization does not affect income inequality. Another study by Istiqamah et al.,(2018) shows that economic growth has a significant positive effect on income inequality and the number of poor people in Indonesia's provinces.

Relationship between population and income inequality

The economic development must pay attention to the aspect of the population because this is related to the supply of jobs, defense, and plans for further development (Latumaerissa, 2015). The increasing number of people who are not productive will create new problems such as unemployment, housing, and health (Arsyad, 2010). This is supported by research using the population variable in Ayu (2018) study. The simultaneous and partial data processing results show that the population affects income inequality. Another study found that the number of residents affects income inequality in the village of Palopat Maria, Padangsidimpuan Hutaimbaru District (Matondang, 2018)

The relationship between the human development index and income inequality

Economic development will be better when human resources, as an essential factor in education and health, also experience good development so that the management of economic development will be more focused (Arsyad, 2010). UNDP (1990), in measuring the welfare of society, sparked the study of the worldwide human development index and reported it in annual data. Todaro & Smith (2006) divided the ranking of the human development index on a scale of one (highest) and zero (lowest). This hypothesis is supported by research Kusuma et al., (2019) that partially GRDP, inflation, and HDI had a significant influence on income inequality in DI Yogyakarta from 2011-2017.

The relationship of domestic investment to income inequality

Mankiw (2006) defines that investment as an initial component of economic development. Investment dynamics are indicators that affect the high or low level of economic development (Dumairy, 1996). Domestic investment is investment sourced from the domestic government for public needs (Pujoalwanto, 2015). Domestic investment is expected to increase the workforce in all regions of Indonesia to increase the community's prosperity. However, investment can be problematic if only done in certain areas so that there will be inequality with other regions that are not investment priorities. Investment and inflation have a positive and significant impact on growth. The economy in Klungkung Regency, Bali Province, supports this hypothesis. (Ayu, 2018).

The relationship between technology development index and income inequality

Todaro & Smith (2006) argues that information technology is essential in economic growth. With technology, it is hoped that it will be easier to access information in finding work. However, technology can also lead to inequality because technological advances in one area are different (Oksamulya, 2020). Research that supports this hypothesis is that ICT infrastructure has an indirect impact on reducing income inequality through economic growth (Untari et al., 2019)**.**

The relationship between employment opportunities and income inequality

The macroeconomic indicator representing income inequality is the employment opportunity variable (Zivanomoyo & Mukoka, 2015). The employment opportunity indicator is

essential in increasing people's income because of adequate employment opportunities(Amri & Nazamuddi, 2018). In research conducted by Maisa (2020), government spending does not significantly affect income inequality in West Sumatra. Meanwhile, investment, job opportunities, and economic growth negatively impact income inequality in 19 districts and cities in West Sumatra.

Data and Research Methods

Secondary data processed by the Central Statistics Agency (BPS) from 34 provinces in Indonesia with a period of 2016-2020 is the primary data in this study. In estimating income inequality, the researchers put income inequality as the dependent variable with the independent variables in economic growth, population, domestic investment, Human Development Index (IPM), Technology Development Index (IPT), and job opportunities. The following table presents the variables and sources of data acquisition:

Table 1: Variables and Data Sources

No.	Variable	Measurement	Data Source
1	Income Inequality	$GR = 1 - \sum_{i=1}^{n} Pi(Fi + F1 - 1)$	The Central Bureau of Statistics Indonesia (BPS)
2	Economic Growth	$PE = (\frac{PDRB_t - PDRB_{t-1})}{PDRB_{t-1}}) \times 100\%$	
3	Population	$P=(L-M)+(I-M)$	
4	Domestic Investment	Investment Realization Rate	
5	Human Development Index	$IPM = \sqrt[3]{IHealth \times IEducation \times IExpenditure}$	
6	Technology Development Index	$IP - TIK = 0,4\ Access + 0,4\ use + 0,2\ skill$	
7	Employment Opportunity	$TKK = \frac{a}{b} \times 100\%$	

Panel data analysis is the analysis used in this study. In order to present panel data effectively in cross-sectional data, the values of one or more variables are collected for several sample units at a time (Gujarati & Porter, 2009). In panel data, the same cross-sectional unit is surveyed several times with the following econometric model:

$$INQit = \beta_0 + \beta_1 EG_{it} + \beta_2 P_{it} + \beta_3 Inv_{it} + \beta_4 HDI_{it} + \beta_5 TDI_{it} + \beta_6 EO_{it} + \mu_{it} \quad (1)$$

Information:
INQ = Income inequality
EG = Economic growth
P = Population
Inv = Domestic investment
HDI = Human development index
TDI = Technology development index
EO = Employment opportunity
Uit = Error

The above model aims to measure the elasticity of changes in the independent variable to the dependent variable. The estimation method in panel data regression is carried out using the standard effect model, the fixed-effect model, and the random effect model. The best estimation model will be selected in the test. There are two stages in selecting the best model, namely the Chow Test, which is used to test the best model between the common

effect model (CEM), and the fixed effect model (FEM). The second stage is the Hausman test to test the best model between the fixed effect model (FEM) and the random effect model (REM). A good regression model must produce BLUE estimates or best, linear, unbiased estimator (Widarjono, 2007).

Finding and Discussion

Variable Descriptive Statistics Test

Data published by BPS (Badan Pusat Statistik, 2020) on income inequality in Indonesia shows that the average value of income inequality in Indonesia by the province as a whole is 0.355. The average value of inequality in urban areas is more significant than that in rural areas, which is 0.382, with a value of income inequality in rural areas of 0.312. Cumulatively, the region with the highest income inequality in Indonesia is DI Province. Yogyakarta with a Gini ratio of 0.44.

Indonesia's average economic growth rate by province is 3.93%, with the highest economic growth rate being Central Sulawesi province in 2018 of 20.56% and the lowest value being -15.75% in Papua province in 2019. Apart from that, Dalin terms of regional development, investment has an essential role in supporting the running of the economy, where the average value of the domestic investment is 9454.24 billion.

The population has two sides to the economy. Suppose an increase follows the skills and mastery of technology and extensive job opportunities. In that case, the increase in population will be a significant supporting factor driving the economy. Based on data from BPS, the average population in Indonesia by province is 7799 thousand people with a Human Development Index (HDI) of 70.28 and a Technology Development Index, which is still centralized in the province with an average of 4.95 and an employment opportunity rate of 95.34%.

Table 2: Descriptive statistics

	Rural_ Inequality	City_ Inequality	RuralCity_ Inequality	EG	Pop	Inv	HDI	TDI	EO
Mean	0.3122	0.3628	0.3550	3.9323	7799.8	9454.24	70.284	4.955	95.342
Median	0.3062	0.3617	0.3515	5.1500	4175.1	4190.60	70.540	4.9300	95.803
Max	0.4255	0.4440	0.4360	20.560	49316	62094.8	80.770	7.6100	99.115
Min	0.2245	0.2735	0.2595	-15.750	666.30	8.80000	58.050	2.4100	90.967
Std. Dev.	0.0423	0.0387	0.0361	3.7434	10965	13035.9	4.0297	0.9690	1.7501
Skewness	0.6974	-0.0960	0.0360	-1.1368	2.6060	2.10111	0.0542	0.1060	-0.5042
Kurtosis	3.1481	2.3504	2.5003	9.0968	8.8370	6.7698	4.2301	3.1847	2.6361
Jarque-Bera	13.9351	3.2504	1.8054	299.91	433.76	225.75	10.802	0.5606	8.1420
Probability	0.0009	0.1969	0.4055	0.0000	0.0000	0.0000	0.0045	0.7555	0.0171
Sum	53.0770	61.6805	60.3455	668.49	1325964	1607220	11948.2	842.43	16208.1
Sum Sq. Dev.	0.3025	0.2533	0.2209	2368.2	2.03E+10	2.87E+10	1744.31	158.68	517.644
Obs	170	170	170	170	170	170	170	170	170

Source: Data processed

Panel Data Regression Selection

After analyzing the data, we selected the best type of model used in this study was carried out using the Chow Test and Hausman Test for the three research models on income inequality in villages, cities, and society as a whole.

1. The Chow test aims to determine the choice model that is better to use between common and fixed effects.
   a. A fixed and common test in the village

Table 3: Fixed and Common Effect Test Result for Village

	Statistic	d.f.	Prob.
Cross-section F	86.7718	(33.130)	0.0000
Cross-section Chi-square	533.2311	33	0.0000

Source: Data processed

   b. A fixed and common test in the City

Table 4: Fixed and Common Effect Test Result for City

	Statistic	d.f.	Prob.
Cross-section F	40.3144	(33.130)	0.0000
Cross-section Chi-square	411.2155	33	0.0000

Source: Data processed

   c. A fixed and common test in Villages and Cities

Table 5: Fixed and Common Effect Test Result for Village and City

	Statistic	d.f.	Prob.
Cross-section F	84.9048	(33.130)	0.0000
Cross-section Chi-square	529.6957	33	0.0000

Source: Data processed

The three tables above show that if all probability values are at 0.0000 < = 0.01 then H0 is rejected, making it better to use the fixed-effect model than the common effect model.

2. Hausman test aims to determine the choice of a better model is used between fixed effects and random effects.

   a. Fixed and random test in the village

Table 6: Fixed and Random Effect Test Result for Village

	Chi-Sq.Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	13.0105	6	0.0429

Source: Data processed

   b. Fixed and random test in the City

Table 7: Fixed and Random Effect Test Result for City

	Chi-Sq.Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	24.2309	6	0.4237

Source: Data processed

   c. Fixed and random tests in Villages and Cities

Table 8: Fixed and Random Effect Test Result for Village and City

	Chi-Sq.Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	13.0181	6	0.0427

Source: Data processed

The three tables above show that all probability values are in the numbers 0.0429 > =0.01, 0.4237 > =0.01, and 0.0427 > =0.01 thenH0 failed to be rejected, which means it is better to use the random effect model than the fixed effect model. Based on the model selection test, it is known that the best model used in analyzing income inequality in rural areas, cities and society as a whole in Indonesia is the Random Effect Model (REM). The results of data processing from the random-effects model are as follows:

Table 9: Random Effect Model Test Results

Income Inequality	Village	City	Village and City
Economic growth	0.131048	1.252938	1.390107
	(0.8959)	(0.2120)	(0.1664)
Population	0.236976	2.038899**	1.694800*
	(0.8130)	(0.0431)	(0.0920)
Domestic investment	0.417156	0.474248	-0.646751
	(0.6771)	(0.6360)	(0.5187)
Human development index	-0.406934	0.608177	-0.737186
	(0.6846)	(0.5439)	(0.4621)
Technology development index	-0.810410	-3.962710***	-2.244160**
	(0.4189)	(0.0001)	(0.0262)
Employment opportunity	-1.370682**	1.478221	0.053399
	(0.0324)	(0.1413)	(0.9575)
C	3.368398***	0.670822	3.073122***
	(0.0009)	(0.5033)	(0.0025)
R Squared	0.051754	0.201137	0.206677
Adj-R Squared	0.051754	0.171731	0.177474
F-test	1.482718	0.000002	0.000001

Source: Data processed
Note : ***, **, * respectively show significance at alpha : 1%, 5% and 10%

$$Village\ Inequality = 3.368398 + 0.131048\ EG + 0.236976\ Pop + 0.417156 Inv - 0.406934\ HDI - 0.810410\ TDI - 1.370682\ EO + \epsilon \quad (2)$$

$$City\ Inequality = 0.670822 + 1.252938\ EG + 2.038899\ Pop + 0.474248\ Inv + 0.608177\ HDI - 3.962710\ TDI + 1.478221\ EO + \epsilon \quad (3)$$

$$Village\ and\ City\ Inequality = 3.073122 + 1.390107\ EG + 1.694800\ Pop - 0.646751\ Inv - 0.737186\ HDI - 2.244160\ TDI + 0.053399\ EO + \epsilon \quad (4)$$

Based on the random effect model (REM) method through panel data regression testing, it is known that inequality in the village is influenced by employment opportunities at an alpha of 5% with a coefficient value of -1.370682. As for the urban area, income inequality is significantly affected by the population with a coefficient of 2.038899 at 5% alpha and the technology development index with coefficient value -3.962710 at alpha 1%. The inequality between villages and cities is caused by the number of residents with a coefficient value of 1.694800 at 10% alpha and the technology development index with coefficient value -2.244160 at 5% alpha.

3. Normality test was conducted to assess whether the confounding or residual variables had a normal distribution. As seen in the table below are the test results for the normality test:

Table 10: Normality Test Table

Jarque-Bera	22.37699
Probability	0.000014

Source: Data processed (2022)

The table above shows the Jarque-Bera probability value of 0.000014 < 0.05, according to the Central Limit Theorem theory, that is, if the number of observations is large enough (n > 30), then the assumption of normality can be ignored, in this study the number of samples is 42, so the data is assumed to be normally distributed.

4. Multicollinearity Test

The multicollinearity test whether the regression model found a correlation between the independent variables. The test is carried out by looking at the correlation value between independent variables using independent variables. If < 0.08, it has been free from multicollinearity problems and vice versa. As seen in the table below are the test results for the multicollinearity test:

Table 11: Multicollinearity Test

	Inv	TDI	HDI	Pop	EO	EG
Inv	1.0000	0.4214	0.3984	0.7668	-0.2686	-0.0989
TDI	0.4214	1.0000	0.8419	0.1313	-0.1535	-0.2483
HDI	0.3984	0.8419	1.0000	0.1362	-0.2032	-0.0923
Pop	0.7668	0.1313	0.1362	1.0000	-0.2420	-0.0236
EO	-0.2686	-0.1535	-0.1535	-0.2420	1.0000	0.0379
EG	-0.0989	-0.2483	-0.2483	-0.0236	0.0379	1.0000

Source: Data processed

From the results of the multicollinearity test above, it is obtained that the correlation value between the independent variables is < 0.8, which means that it can be ascertained that this model does not have multicollinearity problems so that there is no need for transformation in the form of Difference.

5. Heteroscedasticity tests determines whether there is an inequality of residual variance from one observation to another observation. This heteroscedasticity test uses the glejser test method. If the probability value is less than 0.05, then heteroscedasticity occurs, and vice versa if the probability value is more significant than 0.05, then there is no heteroscedasticity. As seen in the table below are the test results for the heteroscedasticity test:

Table 12: Heteroscedasticity Test

Income Inequality	village	City	Village and City
F-Statistics	2.827353	3.238544	2.345651
Obs*R-squared	5.593433	5.457232	5.677822
Prob. Chi-Square(2)	0.0611	0.0723	0.8518

Source: Data processed

Based on the table above, each variable obtained a probability value > 0.05, so it can be concluded that it is inevitable that there is no indication of heteroscedasticity problems in the research regression model.

Income Inequality in the Village

Based on the description of the table, it can be seen that there are differences in the causes of income inequality in rural, urban and community communities as a whole. Within the scope of rural communities, income inequality is influenced by: job opportunities at alpha 5% with a coefficient of -1.370682. It means partial interpretation of the model that is obtained employment opportunity has a negative and significant effect on income inequality. This means that there is an inverse relationship, so every 1% increase in employment opportunities will reduce income inequality by -1.370682%.

These results are supported by research conducted by Maisa(2020) that government spending does not have a significant effect on income inequality in West Sumatra. Meanwhile, investment, job opportunities, and economic growth negatively impact income inequality in 19 districts and cities in West Sumatra. The employment opportunity indicator is an essential factor in increasing people's income because of adequate employment opportunities(Amri et al., 2018). The number of workforces that are not balanced with job opportunities will cause various problems. If it can be appropriately utilized, a large workforce will increase economic activity, which in turn will improve the welfare of the community. However, this can only be achieved if job opportunities fully absorb the workforce.

The rate of population growth that continues to increase in the village, accompanied by the constant and decreasing nature of agricultural land, causes the agricultural sector's absorption of labour to decrease. The result is a shift in the employment of the population from the agricultural sector to outside the agricultural sector and affects the institutional working relationship in the two sectors. This situation occurs in villages adjacent to big cities. The high population growth rate, which should be a driving force for increased economic activity, has become a burden for economic development. This is the leading cause of unemployment and ultimately income inequality.

Income Inequality in City

Income inequality in the city is influenced by the population and the technology development index with a coefficient value of 2.038899 and -3.962710. Impartial interpretation of the model obtained a total population positive and significant effect on income inequality. This means that there is a unidirectional relationship, so every increase in the total population by 1% will increase income inequality by 2.038899%. At the same time, the influence of the technology development index has a coefficient value of -3.962710, which means the technology development index has an inverse relationship. Increasing the technology development index by 1% will reduce income inequality by 3.962710%.

These findings are supported by research using the population variable in the study of Ayu (2018). The simultaneous and partial data processing results show that the population affects income inequality. The Central Bureau of Statistics estimates that 56.7% of Indonesia's population will live in urban areas in 2020. This percentage is predicted to continue to increase to 66.6% in 2035. An increasing but unproductive population will create new problems such as unemployment, housing, and health (Arsyad, 2010).

The technological development index variable that affects income inequality in the city results from research that ICT infrastructure has an indirect impact on reducing income inequality through economic growth(Untari et al., 2019). The use of technology in urban areas is more significant than in rural areas because the city is the centre of economic development.

So that by increasing the technological development index in the city, it will make the community more prosperous and reduce income inequality.

Income Inequality in City and Village

Income inequality in rural and urban areas is influenced by the population and the technological development index with a coefficient value of 1.694800 and -2.244160. Impartial interpretation of the model obtained a total population positive and significant effect on income inequality. This means that there is a unidirectional relationship, so every increase in total population by 1% will increase income inequality by 1.694800%. At the same time, the technology development index's influence has a coefficient value of -2.244160, which means the technology development index has an inverse relationship. Increasing the technology development index by 1% will reduce income inequality by 2.244160%.

This finding is by teori Todaro & Smith (2006), who argues that information technology is an essential component in economic growth because it is easier to access information in finding work. So it is hoped that the development of high technology will result in an even distribution of income in the village. On the other hand, technology can also lead to inequality because technological advances in one area are different (Oksamulya, 2020). The Central Statistics Agency (BPS) estimates that 56.7% of Indonesia's population will live in area surban in 2020. This percentage is predicted to continue to increase to 66.6% in 2035. Urbanization or migration of rural people to cities impacts the areas left behind. The areas left behind will experience slower economic growth because most of the productive age population lives in big cities.

Conclusion

As a developing country, Indonesia is undoubtedly faced with various economic development problems. One crucial problem that never goes away is income inequality. Indonesia, an archipelagic country consisting of 34 provinces, certainly has a different economic portrait from one region to another. Income inequality is increasingly visible and reflected in the life of urban and rural areas. Thus, an analysis of inequality in urban and rural areas needs to be analyzed to improve national development in the future. The contrasting relationship between rural and urban areas is the main issue in this research. Agricultural commodities from the village are considered not worth the value of industrial commodities in the city.

The variable used to analyze the inequality between rural and urban areas uses the p. index economic growth, population, human development index, domestic investment, technology development index, and job opportunities. The data used is annual secondary data from 2016-2020 in 34 provinces of Indonesia. Inequality analysis is carried out by calculating the Gini index based on household expenditure data. By using the annual panel data regression analysis method from 2016-2020, new findings are produced on Indonesia's inequality level.

This study found that job opportunities influenced income inequality in the village at alpha 5% with a coefficient of -1.370682 which means to increase employment Opportunities can reduce income inequality in rural communities by 1.370682. The employment opportunity indicator is an essential factor in increasing people's income because of adequate employment opportunities(Amri & Nazamuddi, 2018). The number of workforces that are not balanced with job opportunities will cause various problems. A large workforce if it can be appropriately utilized will be able to increase economic activity.

It is different in cities, the income inequality of the community is influenced by the population and the technological development index with a coefficient value of respectively

2.038899 and -3.962710. The increasing number of people who are not productive will create new problems such as unemployment, housing, and health (Arsyad, 2010). In the technological development index variable that affects income inequality in the city, it is known that the use of technology in the city is more significant than in the village because the city is the centre of economic development. So that by increasing the technological development index in the city, it will make the community more prosperous and reduce income inequality.

The income gap between rural and urban areas is influenced by the population and the technological development index with a coefficient value of respectively 1.694800 and 2.244160. Impartial interpretation of the model obtained a total population positive and significant effect on income inequality. At the same time, the influence technology development index has a coefficient value of -2.244160 which means the technology development index has an inverse relationship. Urbanization or migration of rural people to cities impacts the areas left behind. The areas left behind will experience slower economic growth because most of the productive age population lives in big cities.

The limitation of this research lies in the variables used. It is hoped that further research can expand the variables that measure the level of income inequality in Indonesia. Recommendations for further research are the use of a more extensive variable.

References

Amri, K., & Nazamuddi. (2018). Is there causality relationship between export and employment: A time series data evidence from Indonesia. *International Journal of Academic Research in Economics and Management Sciences*, *2*, 86–99.

Arsyad, L. (2010). *Ekonomi Pembangunan, Edisi kelima,*[Economic Growth, (5th ed.)]. UPP STIM YKPM.

Ayu, D. F. (2018). Effect of Economic Growth, Unemployment, and Population on Income Inequality in West Java Province 2005-2016 . In *Prosiding Ilmu Ekonomi* (pp. 214–220).

Badan Pusat Statistik. (2020). *Gini Ratio Provinsi 2002-2020*. Badan Pusat Statistik.

Baldwin, R. E. (1986). *Pembangunan dan Pertumbuhan Ekonomi, terjemahan St.Dianjung* [Economic Development and Growth]. PT Bina Aksara.

Banowati, A. (2021). *Pengaruh Pertumbuhan Ekonomi, Indeks Pembangunan Manusia, dan Jumlah Penduduk Terhadap Ketimpangan Distribusi Pendapatan di Kota dan Kabupaten Provinsi Jawa Timur Tahun 2016-2019* [The Effect of Economic Growth, Human Development Index, and Population on Inequality in Income Distribution in Cities and Regencies of East Java Province in 2016-2019]. STIE YKPN Yogyakarta.

Dabla-Norris, E., K. Kochhar, N., Suphaphiphat, F. R., &, & Tsounta, E. (2015). *Cause and Consequenses of Income Inequality: A Global Perspective.* International Monetary Fund.

Dewa Ayu Dwi Gita Pramesti, & Nyoman Mahaendra Yasa. (2019). Pengaruh Investasi dan Inflasi Terhadap Pertumbuhan Ekonomi dan Ketimpangan Distribusi Pendapatan di Kabupaten Klungkung [The Influence of Investment and Inflation on Economic Growth and Inequality of Income Distribution in Klungkung Regency]. *EP Unud*, *8*(11), 2562–2590.

Dumairy. (1996). *Perekonomian Indonesia*. Erlangga.

Gujarati, D. N., &, & Porter, D. C. (2009). *"Basic Econometrics", 5th edition, McGraw-Hill, New York, (terjemahan: Mardanugraha, dkk., 2010, Dasardasar Ekonometrika", Salemba Empat)*.

Istiqamah, Syaparuddin, & Selamet Rahmadi. (2018). Pengaruh Pertumbuhan Ekonomi Terhadap Ketimpangan Pendapatan dan Kemiskinan (Studi Provinsi-Provinsi di Indonesia) [The Effect of Economic Growth on Income Inequality and Poverty (Study of Provinces in Indonesia)]. *Erspektif Ekonomi Dan Pembangunan Daerah*, *Vol. 7*(No. 3), 1–16. https://online-journal.unja.ac.id/pdpd/article/view/6903/9527

Khoiruddin, R., &, & Musta'in, J. L. (2020). Analisa Determinan Ketimpangan Pendapatan di Daerah Istimewa Yogyakarta [Determinant Analysis of Income Inequality in the Special Region of Yogyakarta]. *Tirtayasa Ekonomika*, 15(1), 17-30. http://dx.doi.org/10.35448/jte.v15i1.6407

Kindleberger, C. P. (1988). *Ekonomi Pembangunan Jilid 1* [Economic Development Part I]. Bina Aksara.

Kuncoro, M. (2006). *Ekonomika Pembangunan, Teori, Masalah, dan Kebijakan* [Development Economics, Theory, Problems, and Policy]. UPP AMP YKPN.

Kusuma, D. S. D., Sarfiah, S. N., & Septiani, Y. (2019). Analisis Pengaruh Produk Domestik Regional Bruto (PDRB), Inflasi, dan Indeks Pembangunan Manusia (IPM) Terhadap Ketimpangan Pendapatan di Daerah Istimewa Yogyakarta Tahun 2011-2017 [Analysis of the Influence of Gross Regional Domestic Product (GRDP), Inflation, and Human Development Index (IPM) on Income Inequality in the Special Region of Yogyakarta in 2011-2017]. *Dinamic: Directory Journal of Economic*, *1*(3), 338–347.

Kuznets, S. (1955). Economic Growth and Income Inequality. *The American Economic Review*, *Volume XLV*.

Latumaerissa, J. R. (2015). *Perekonomian Indonesia dan Dinamika Ekonomi Global* [Indonesian Economy and Global Economic Dynamics]. Penerbit Mitra Wacana Medika.

Lestari, D., Rahmi, D., & Julia, A. (2019). Pengaruh Pertumbuhan Ekonomi terhadap Ketimpangan Distribusi Pendapatan di Jawa Barat pada Tahun 2000-2018 [Effect Of Economic Growth on Income Distribution in West Java in 2000-2018]. *Prosiding Ilmu Ekonomi UNISBA*, *5*(1), 68–74.

Maisa Ulfah. (2020). *Pengaruh Pengeluaran Pemerintah, Investasi, Kesempatan Kerja, Dan Pertumbuhan Ekonomi Terhadap Ketimpangan Pendapatan Masyarakat Di Sumatera Barat Dari Tahun 2013 Sampai Dengan 2017* [The Influence of Government Spending, Investment, Job Opportunities, and Economic Growth on Inequality of People's Income in West Sumatra from 2013 to 2017]. Univesitas Andalas.

Mankiw, N. G. (2006). *Pengantar Teori Ekonomi Makro (Edisi Ketiga)* [Introduction to Macroeconomic Theory (3rd Ed.)]. Salemba Empat.

Matondang, Z. (2018). Pengaruh Jumlah Penduduk, Jumlah Pengangguran Dan Tingkat Pendidikan Terhadap Ketimpangan Pendapatan [The Effect of Total Population, Total Unemployment and Education Level on Income Inequality]. *Jurnal Manajemen Keuangan Syariah., 2*(2). https://journal.iainlangsa.ac.id/index.php/ihtiyath/article/view/715/452

Oksamulya, A. (2020). Analisis Determinan Ketimpangan Pendapatan di Indonesia [Determinant Analysis of Income Inequality in Indonesia]. *Jurnal Kajian Ekonomi Dan Pembangunan*, *2*, 141–150.

Prasetya, M. A. W., Lutfitasari, P., Sairo, J., & Saraswati, B. D. (2022). Analisis Pengaruh Lembaga Keuangan Mikro dan Indeks Pembangunan Manusia Terhadap Ketimpangan Pendapatan di Indonesia [Analysis of the Effect of Microfinance Institutions and the Human Development Index on Income Inequality in Indonesia]. *ANALISIS, 12*(1), 60-74. https://doi.org/10.37478/als.v12i1.1137

Pujoalwanto, B. (2015). *Ekonomi Makro: Pengantar Ilmu Ekonomi Makro* [Macroeconomics: Introduction to Macroeconomics]. Ghalia Indonesia.

Sadono, S. (2006). *Ekonomi Pembangunan: Proses, Masalah, dan Dasar Kebijakan* [Development Economics: Processes, Problems, and Policy Basis]. Prenada Media Group.

Sjafrizal. (2014). *Perencanaan Pembangunan Daerah Dalam Era Otonomi* [Regional Development Planning in the Era of Autonomy]. Raja Grafindo Persada.

Sukma, S. (2021). *Pengaruh Pertumbuhan Ekonomi, Jumlah Penduduk, dan Pendidikan Terhadap Ketimpangan Pendapatan di Provinsi Daerah Istimewa Yogyakarta Tahun 2014–2019* [The Influence of Economic Growth, Population, and Education on Income Inequality in the Province of the Special Region of Yogyakarta in 2014–2019] [UII]. moz-extension://e3d2a2ea-0518-43ba-9f40-fa481a332568/enhanced-reader.html?openApp&pdf=https%3A%2F%2Fdspace.uii.

Suryahadi, A., Hadiwidjaja, G., & Sumarto, S. (2012). Economic growth and poverty reduction in Indonesia before and after the Asian financial crisis. *Bulletin of Indonesian economic studies, 48*(2), 209-227.

Tarigan, A. (2003). *Perencanaan Pembangunan Wilayah*. Rajawali Press.

Todaro, M.P. & Smith, S.C. (2006). *Pembangunan Ekonomi Jilid I, Edisi Kesembilan* [Economic Development, 9th ed.]. Erlangga.

UNDP. (1990) *Human Development Report 1990*. United Nations Development Programme.

Untari, R., Priyarsono, D. S., & Novianti, T. (2019). Impact of Information and Communication Technology (ICT) Infrastructure on Economic Growth and Income Inequality in Indonesia. *IJRSET, 6*(1), 109-116. https://doi.org/10.32628/IJSRSET196130.

Verianto, M. I., Faiq, M. N. ., & Aisyah Tarassyta. (2022). The Influence of the Covid-19 Pandemic on Economic Growth Convergence at the District/City Level in East Java: What Is the Right Public Policy?. *JIET (Jurnal Ilmu Ekonomi Terapan), 7*(1), 75–84.

Widarjono, Agus (2007). *Ekonometrika: Teori dan Aplikasi Untuk Ekonomi dan Bisnis, edisi kedua* [Econometrics: Theory and Applications to Economics and Business, 2nd ed.]. Ekonisia FE Universitas Islam Indonesia

Wijaya, D., Haryadi, H., & Zulgani, Z. (2015). Analisis Tingkat Ketergantungan Fiskal dan Hubungannya dengan Pertumbuhan Ekonomi Kota Jambi. *Jurnal Perspektif Pembiayaan dan Pembangunan Daerah, 3*(1), 11-18.

World Bank. (2015). *Country Partnership Framework for The Republic of Indonesia for the period FY16-FY20*. World Bank

Yusuf, A. A., Sumner, A., & Rum, I. A. (2014). Twenty years of expenditure inequality in Indonesia, 1993–2013. *Bulletin of Indonesian Economic Studies, 50*(2), 243-254.

Zivanomoyo, J., & Mukoka, S. (2015). An empirical analysis of the impact of unemployment on economic growth in Zimbabwe. *Archives of Business Research, 3*(6), 38-49.