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Analysis of Factors Affecting Inequality in Indonesia

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ABSTRACT

This research aims to determine the influence of GRDP, government expenditure, population density, investment, and open unemployment on the Gini ratio in Indonesia during the period 2014–2023. The analysis technique uses E-Views 12 by selecting the Error Correction Model (ECM). Based on the results of the analysis, it can be concluded that the variables GRDP, population density, open unemployment, and government expenditures have a partial effect on the Gini ratio. Meanwhile, the investment variable has no partial effect on GRDP. In the GRDP variables, population density, open unemployment, government expenditures, and investment have a simultaneous influence on the Gini ratio.

INTRODUCTION

Population density can affect the quality of life of its residents. In areas with high density, efforts to improve the quality of the population will be more difficult to do. This raises socio-economic problems, welfare, security, land availability, clean water and food needs. The biggest impact is environmental damage (Christiani et al., 2021).

Figure 1. Population density in Indonesia 2014-2023
Source: BPS data processed by the author 2024

Population growth is a dynamic balancing process between population components that can increase and decrease the number of population. Fairly high population growth is a problem that can cause various problems and obstacles in economic development (Azulaidin, 2021).

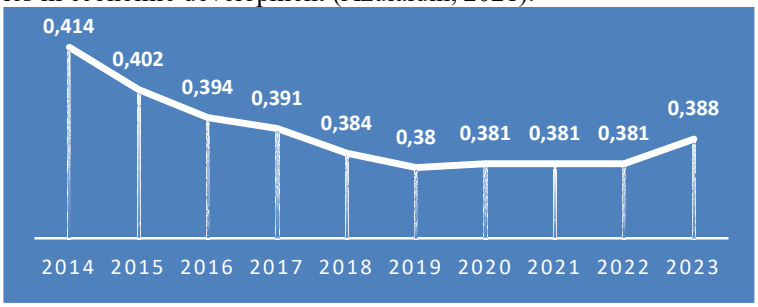

Figure 2. Development of Gini Ratio 2014-2023
Source: BPS data processed by the author 2024

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The Gini Ratio is an indicator used to measure the level of income inequality or income distribution in a country. The Gini Ratio value ranges from 0 to 1, where 0 indicates the level of perfect equality (everyone has the same income) and 1 indicates perfect inequality (one person has all the income). From the 2014-2023 Gini ratio data, it can be seen that Indonesia's Gini Ratio has been on a downward trend from 2014 to 2019, indicating an increase in equality in income distribution.

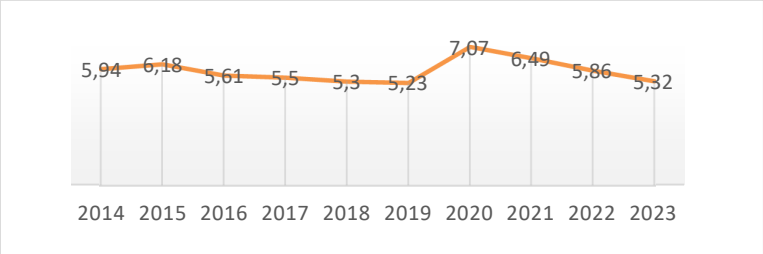

Figure 3. Open Unemployment in Indonesia in 2014-2023
Source: BPS data processed by the author 2024

Unemployment is defined as someone who is in the labor force and actively seeks a job at a certain salary level but does not get the desired job (Muslim, 2014). Sukirno (1997) in the journal Analysis of the Influence of the Open Unemployment Rate by Shinta Setya (2017) stated that unemployment is a condition of a person classified as a member of the labor force and who wants a job but has not yet obtained the job. The Open Unemployment Rate (TPT) is an important indicator in measuring employment conditions in a country.

Figure 4. Indonesia's GDP from 2014 to 2023 on the Basis of Applicable Prices
Source: BPS data processed by the author 2024

One of the markers that is mandatory to recognize the economic situation in a region/region in a certain period of time is the Gross Regional Domestic Product (GDP), either according to the prevailing price provisions or according to the constant price provisions (Reni Hasibuan. at all:2022). GDP in general is the overall added value obtained from all business units in a certain area, or describes the overall value of final goods and services obtained by all aspects of the economy. The higher the GDP per capita, the more prosperous the population of a region. In other words, the number of poor people will decrease (Roseline & Maimunah, 2018).

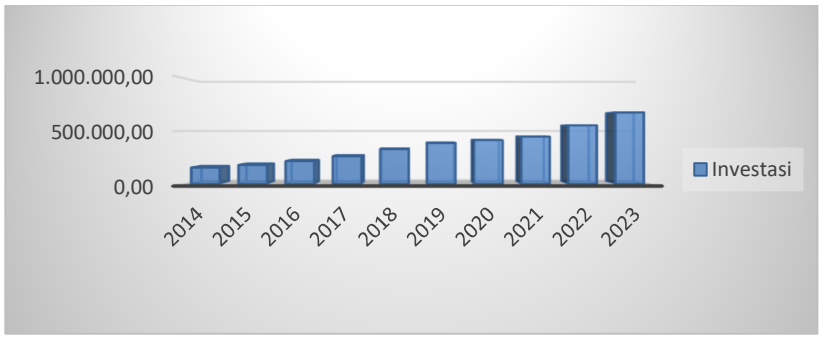

Figure 5. Investment in 2014-2023
Source: BPS data processed by the author

Foreign investment or what is referred to as FDI is seen as the main driver of economic growth that generates profits for developing countries consisting of domestic capital flows themselves and technology transfer, so that they can increase higher incomes (Immurana, 2020). FDI increases wealth reserves by forming fixed capital, thereby stimulating growth in recipient countries. In the form of endogenous growth, FDI is associated with technological gains, offsetting the impact of declining investment yields and keeping the economy on a long-term growth trajectory. Foreign direct investment is a determining factor in product development (Gandhi et al., 2022).

Government expenditure refers to the consumption of goods and services by the government and financing by the government for the purposes of government administration and development activities (Sadono Sukirno, 2013). Although government spending is a relatively small component compared to other expenditures, the impact is very large both from the allocation, distribution, and stabilization functions. Government spending is autonomous because the determination of the government budget is based on expected tax revenue, political considerations. and the problems faced (Samuelson, 2005).

METHOD

This research is a type of quantitative research that aims to provide information about variables. The research site was carried out through data collection in Indonesia for a period of 10 years, namely from 2014 to 2023 and data sources obtained from BPS. The analysis used is ECM to find short-term and long-term regression equations. In this study, secondary data is used as raw material for analysis. Several tests were carried out, such as estimation model determination tests, classical assumption tests, statistical tests. The variables used in this study are, namely the variables of Gini ratio (Y), GDP (Prevailing prices) (X1), government expenditure (X2), population density (X3), investment (X4), and open unemployment (X5).

RESULTS AND DISCUSSION

Results

Table 1. Unit Root Test

ADF Stat	First Difference	
	T-Stat	Prob
Guinea Racing	-9.899607	0.0003
GDP	-251.6122	0.0001
Government Expenditure	-17.93179	0.0000
Population Density	-4.56410	0.0130
Investment	-4.801915	0.0135
Open Unemployment	-3.779228	0.0320

It can be seen that all variables are not stationary at the data level level because the probability of all variables is nothing less at alpha < 0.05 (not significant) which means that all variables are not stationary at the data level. Then from the results of this non-stationary data, it is continued with a test at a higher level, namely a test at the first difference level. However, in the first difference level test, all stationary variables at alpha < 0.05 where the probability value of all variables is less than < 0.05, which means that all variables are stationary at the first difference level.

Table 2. Cointegration Test

Null Hypothesis: ECT2 has a unit root **Exogenous: Constant** **Lag Length: 0 (Automatic - based on SIC, maxlag=1)**			
		t-Statistic	**Prob.***
Augmented Dickey-Fuller test statistic		-4.708426	0.0069
Test critical values:	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	

Pada penelitian ini jika residual stasioner pada tingkat level dapat dikatakan memiliki kointegrasi dimana nilai t-statistic yang signifikan pada nilai kritis 1% dan prob (0.0069) yang stasioner pada alpha < 0,05 maka dapat dikatakan bahwa data tersebut memiliki kointegrasi dan antar variabel memiliki hubungan jangka pendek dan hubungan jangka panjang.

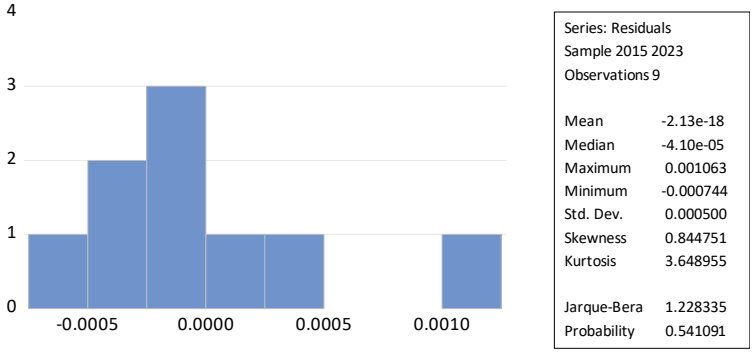

Figure 6. Normality Test

Based on the results of the short-term equation normality test, it is known that the resulting probability is 0.541091 > α = 5%. So it can be interpreted that the data used in the short-term regression of the ECM model is normally distributed.

Table 3. Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test: Null hypothesis: No serial correlation at up to 1 lag			
F-statistic	0.033403	Prob. F(1,1)	0.8849
Obs*R-squared	0.290913	Prob. Chi-Square(1)	0.5896

Based on the results of data processing in the heterokedasticity test, the chi-square probability of Obs* R-Squared is obtained of 0.5896 where the value is greater than α = 5%, so it can be said that in the short-term equation model there is no autocorrelation problem.

Table 4. Multicollinearity Test

Variance Inflation Factors
Date: 04/04/24 Time: 15:14
Sample: 2014 2023
Included observations: 9

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
D(PDRB)	2.37E-24	1.408804	1.265506
D(INVESTASI)	6.50E-16	25.83340	6.380808
D(KEPADATANPENDUDUK)	2.73E-14	9.283973	9.276846
D(PT)	2.95E-07	1.431640	1.419033
D(PM)	1.18E-44	14.32017	12.34122
ECT2(-1)	0.168359	1.155054	1.155041
C	1.35E-06	12.19498	NA

VIF value < 10 which means that there is no multicollinearity

Coefficient of Determination (R^2)

This test was carried out to find out how much influence the independent variable had on the dependent variable. Based on the estimated results, the R^2 value is 0.992225, which means that the independent variable affects the Gini ratio variable by 99% while the remaining 1% is influenced by other factors outside the model.

Hasil Error Correction Model (ECM)

The ECM (Error Correction Model) model is used when a data is not stationary at the level level and stationary at the first difference level. This error correction model is a model that is able to explain the existence of short-term and long-term relationships between variables. The results of the Error Correction Model test estimate are as follows:

Thus, the equation is obtained from the short-term estimate as follows:

D(Rasio Gini) = - 0.000473 + 1.33-11*D(PDRB) - 9.34E-08*D(INVESTASI) + 1.52E-06*D(KEPADATAN PENDUDUK) + 0.002959*D(PT)+ 9.29E-22*D(PM)-1.569749*ECT(-1)

From the results of the short-term estimates above, it shows that only the investment variables have a negative but insignificant effect < 0.05, namely with a probability of 0.0671. while other variables, namely GDP, population density, open unemployment, and government expenditure, have a positive and significant effect with a probability value of < 0.05. In a short-term equation using the ECM method, the ECT coefficient value is produced. The value of the ECT coefficient shows that the magnitude of the Gini ratio in the previous period adjusted for the current change is -1.569749, the ECT coefficient marked negatively indicates that the regression model has a short-term relationship.

Table 5. Partial Significance Test (T-Test)

Variabel Independen	T-Statistic	Prob
D(GDP)	8.660614	0.0131
D(Investment)	-3.662798	0.0671
D(Population Density)	9.198348	0.0116
D (Open Unemployment)	5.449798	0.0321
D(Government Expenditure)	8.550763	0.0134
Prob (F-Statistic)	0.023143	

1. Test on GDP Variables
   Based on the results of the t-stat table above, the probability value is 0.0131, the probability value is smaller (< 0.05), so it can be concluded that the GDP variable in the short term has an effect on the dependent variable.
2. Test Against Investment Variables
   Based on the results of the t-stat table above, the probability value of the Investment variable is 0.0671, the probability value is greater than the significance level (> 0.05), so it can be concluded that the investment variable in the short term does not have a significant effect on the dependent variable.
3. Test Against Population Density
   Based on the results of the t-stat table above, the probability value is 0.0116, the probability value is smaller (< 0.05), so it can be concluded that the population density variable in the short term has an effect on the dependent variable.
4. Test on Open Unemployment Variables
   Based on the results of the t-stat table above, the probability value of the PT variable is 0.0321, the probability value is smaller than the significance level (<0.05), so it can be concluded that the variable of open unemployment in the short term has a significant effect on the dependent variable.
5. Test Against Government Spending
   Based on the results of the t-stat table above, the probability value is 0.0134, the probability value is smaller (< 0.05), so it can be concluded that the government expenditure variable in the short term affects the dependent variable.

Simultaneous Test (F-Test)

From the results of the data processing that has been carried out, a Probability value (F-Statistic) of 0.033403 where the probability value is 0.033403 < 0.05, it can be concluded that all independent variables together have a significant effect with a significance level of <0.05 on the dependent variables.

Discussion

Effect of GDP on Gini Ratio

Based on the results of the t-test, the t-statistical value of GDP is 8.660614 with a positive direction and the probability value of the GDP variable is 0.0131. The probability value is below the significance level of 0.05. Therefore, it can be concluded that the GDP variable has a partial effect on the Gini ratio variable. This shows that the Gross Regional Domestic Product (GDP) variable has a positive relationship with the Gini ratio, this explains that the higher the GDP of a region, the level of inequality or the Gini ratio tends to increase. This means that regions with a fairly high GDP can tend to have a more even or fairer distribution of income compared to regions with a low GDP. This indicates that regions with higher GDP can have better job opportunities and access to economic resources compared to regions with low GDP. The results of this study are in line with the research (Sari, 2021), (Sunanda, Septa, Saputro, & Ondira, 2017). On the other hand, in research (Wibowo & Pangestuty, 2023) GDP has a positive and insignificant influence on the Gini ratio.

Effect of Investment on Gini Ratio

The results of the study show that investment variables have a negative and insignificant effect on the Gini ratio. From the estimation results, the t-statistical value of investment is -3.662798 and the investment probability value of 0.0671 is above the significance level of 0.05. This means that the increasing number of investment or investment that only focuses on developing areas, while there are areas where development is slow and the situation is touched, then inequality occurs. Because people in areas with slow development do not get the opportunity to get jobs. Naturally, the Gini ratio will also increase so that there is no equity. Investment can increase economic growth and create jobs. Investments that are distributed evenly can reduce the gap in the affected community as well as by reducing the value of the Gini ratio.

The results of this study are in line with the research (Erfan & B, 2023). Different studies conducted by (Anggina & Artaningtyas, 20171) which state that investment has a negative and significant effect on the Gini ratio, which means that the higher the growth of investment in a region, the lower the level of inequality or can reduce the value of the Gini ratio. With an increase in investment value, it can increase community productivity which has an impact on increasing people's income, so that there is an equal distribution of income and job opportunities.

Effect of Population Density on Gini Ratio

Based on the results of the t-test, the t-statistical value of population density is 9.198348 with a positive direction and the probability value of the population density variable is 0.0116. The probability value is below the significance level of 0.05. Therefore, it can be concluded that the population density variable has a partial effect on the Gini ratio variable. This shows that the population density variable has a positive relationship with the Gini ratio. Population is the main unit in development in a country, but population can be a burden for the country to build economic growth. The high rate of population growth can be the cause of disparities in society. Population density can have an impact on the quality of life of the community and can also be an obstacle to increasing prosperity in an area. The occurrence of an imbalance between employment opportunities, relatively small population income and a high population density can result in a gap and an increase in the value of the Gini coefficient in the region. This research is in line with research (Utami, 2020) which states that the population density variable has a real influence on the Gini ratio in Indonesia.

The Effect of Open Unemployment on the Gini Ratio

Based on the results of the t-test, the t-value of the open unemployment statistic is 5.449798 with a positive direction and the probability value of the variable of open unemployment is 0.0321. The probability value is below the significance level of 0.05. Therefore, it can be concluded that the variable of open unemployment has a partial effect on the Gini ratio variable. This shows that the variable of open unemployment has a positive relationship with the Gini ratio. Which means that if the open unemployment rate increases, the inequality value or Gini ratio will also increase. High population growth followed by urbanization and followed by high unemployment rates is a problem for a region. Many people move from villages to cities with the aim of finding a job, but not accompanied by provisions to get a good job, this can make people work in the informal sector which tends to have low wages, and can even have the potential to get a job for a long time which can result in an increase in the number of unemployed in the area. This research

is in line with that conducted by (Ratiarum Fatika Yoertiara & Feriyanto, 2022) which states that open unemployment has a positive and significant effect on inequality.

The Effect of Government Spending on the Gini Ratio

Based on the results of the study, it was obtained that the t-statistical value of government expenditure was 5.449798 with a positive direction and the probability value of the variable of government expenditure was 0.0134. The probability value is below the significance level of 0.05. Government spending has a positive and significant effect on the Gini ratio. This shows that government spending is only focused on areas that have developed, while areas that are left behind are not given the opportunity to develop, so the gap can increase. Government spending that is not managed properly and efficiently, the potential to reduce the gap can be hampered. If government spending is not on target and there are acts of corruption and nepotism, inequality will still remain high. The results of this study are in line with (Bhagaskara, 2023) which states that government spending has a positive and significant effect on the Gini ratio.

Equitable government spending can help to reduce inequality, and lower the value of Gini radio. By increasing spending, especially in the infrastructure, health, education, and industrial sectors in underdeveloped areas, these communities can gain access to public services, and obtain jobs. This can improve the quality of life and welfare of the community, increase people's income, and can provide equal opportunities for people in all regions to be able to develop.

CONCLUSION

GDP can affect economic inequality in Indonesia. The higher the amount of GDP in a region, the more evenly distributed income tends to be. Investment cannot affect economic inequality in Indonesia. If investment increases only in developing regions, while there are areas that have not been touched, there will be inequality. Population density can affect economic inequality in Indonesia. Because the high rate of population growth can be the cause of inequality in Indonesia, inequality and a decline in quality of life. Open unemployment can affect economic inequality in Indonesia. Population growth followed by urbanization of societies that are not followed by supportive work skills can increase open unemployment which is followed by rising levels of inequality in Indonesia. Government spending affects economic inequality in Indonesia. If government spending focuses only on areas that have the potential to advance, while there are areas that are lagging behind, there can be gaps, and inequalities in public facilities.

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