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The Effect of Population Growth, Income Distribution Inequality, and Poverty on Economic Growth during the Period 2003 to 2020 in the South Sulawesi

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ABSTRACT

The population is one of the factors that can affect economic growth. The population that continues to increase can cause development problems such as inequality in income distribution and poverty. The population in South Sulawesi Province continues to increase, but this increase is not in line with fluctuating economic growth in South Sulawesi Province. This study aimed to determine the effect of population growth, income distribution inequality, and poverty on the economic growth of South Sulawesi Province. The type of data used is secondary data. In addition, this data uses time-series data from 2003 to 2020. This research uses a multiple linear regression model. The results show that population growth and poverty do not affect economic growth in South Sulawesi Province. At the same time, inequality in income distribution affects economic growth in South Sulawesi Province. Based on the research results, it is hoped that the South Sulawesi provincial government can provide jobs or further improve the population's quality. The improvement in the quality of human resources is expected to increase economic growth. Thus, it can reduce poverty and reduce inequality.

Keywords: Economic Growth, Income Distribution Inequality, Population Growth, Poverty

INTRODUCTION

Economic growth is a measure of the success of a country's economic development. As a developing country, Indonesia faces various development problems such as unemployment, poverty, the rate of population growth that continues to increase, and unequal income distribution. Economic growth that can eradicate poverty, create jobs, and create income distribution is a quality economic growth (Prasetyo, 2008).

Economic growth is a condition where there is an increase in the economy's ability to produce goods and services, which can be measured by data on Gross Domestic Product (GDP) or per capita income (Raharjo, 2013). According to classical and neoclassical economists, economic growth is influenced by four factors, namely natural wealth, land area, amount of capital goods, and population (Suryana, 2000). Population growth is the increase in population over time. Population growth is influenced by four factors: births, deaths, and migration. Population growth is one of the most challenging problems for

developing countries like Indonesia to overcome. The problem of population growth can cause various problems in development efforts. In addition, population growth causes a rapid increase in workers. However, not with the ability to create jobs.

The population that continues to increase uncontrollably can be a problem for economic growth. The high population growth rate in developing countries can hinder the development process (Mulyadi, 2003). The high population growth rate that continues to increase will cause food shortages because humans will continue to grow faster than food production. Food shortages will cause hunger and health problems such as malnutrition and starvation. In addition, population growth will cause other problems, namely increasing unemployment, poverty, and lack of natural resources, leading to unequal income distribution (Malthus, 1798).

According to some views, population growth that continues to increase is a positive thing because a large population it is expected to increase development and economic growth (Rochaida, 2016). Adam Smith argues that economic growth is influenced by population growth. An increase in population can increase output in producing goods and services and expand the market to increase economic growth.

In addition to the problem of population growth, the problem of income inequality is also a problem for developing countries. Income inequality can be caused by several things, including uncontrolled population growth, inflation, and development inequality between regions. Income inequality or income distribution inequality is a condition of inequality or unequal distribution of income, or it can be said as the difference in income between the rich and the poor—the more significant the difference, the bigger the inequality. According to (Todaro & Smith, 2009), the income earned by people with high incomes is much greater than that earned by people with low incomes.

Income inequality can be measured using the Gini index or Gini ratio. The Gini ratio value ranges between 1 and 0. If the Gini ratio is 0, then income is perfectly distributed, while if the Gini ratio is 1, there is a perfect inequality of income distribution (Badan Pusat Statistik, 2021a). Inequality of income distribution will lead to a decrease in people's purchasing power for goods and services. The decrease in people's purchasing power will lead to a decrease in the production process of goods and services, which causes a decrease in economic growth. In addition, income inequality can lead to poverty.

Poverty is a person's inability to meet basic needs (Badan Pusat Statistik, 2021b). Poverty is also an inability to fulfill fundamental rights such as the need for education, health, and others. Poverty can be measured using indicators of the ability to meet basic needs (basic needs approach), both the need for food and non-food, commonly referred to as the poverty line (Badan Pusat Statistik, 2021b). According to (Chambers, 1995), poverty is caused by situations of injustice, certainty, inequality, and dependence on the structure of society.

However, increasing population growth is often said to result from poverty. Poverty is an old problem that continues to occur in Indonesia. Various efforts have been made to prevent or reduce poverty. However, the various programs that have been made have been unable to overcome poverty in Indonesia.

Table 1. Population growth, income inequality, poverty, and economic growth

Year	Population Growth (people)	Income Inequality (Gini ratio)	Poverty (people)	Economic growth (%)
2016	8,606,375	0.400	807,03	7.42
2017	8,690,294	0.429	813,07	7.21
2018	8,771,970	0.390	792,64	7.04
2019	8,851,240	0,390	767,80	6.91
2020	8,929,004	0.382	776,83	-0.70

Source: (Badan Pusat Statistik, 2021c)

Table 1 shows that South Sulawesi Province's economic growth in the last five years has continued to decline. The most significant decline in economic growth in South Sulawesi Province occurred in 2020, when economic growth was minus 0.70. It was the COVID-19 pandemic that caused many businesses to experience a decline in income or production. In contrast to the declining economic growth, population growth in South Sulawesi Province has continued to increase in the last five years. However, the population that continues to increase is not able to increase economic growth in South Sulawesi Province.

Inequality of income distribution in South Sulawesi Province has fluctuated in the last five years. Research conducted by (Sudarmin, 2018) found a relationship between economic growth and inequality in income distribution. The increase in economic growth should reduce the inequality of income distribution, but when economic growth increases, the inequality of income distribution that occurs also increases. The number of poor people in South Sulawesi Province also fluctuated. The increase in the number of poor people in 2020 was caused by the COVID-19 pandemic, which affected the community's economic situation. Research conducted by (Mahmud et al., 2020) shows that economic growth affects poverty because economic growth will affect job opportunities and wages so that it can improve people's welfare. Therefore, this research is essential because increasing the population's quality as a workforce is expected to increase South Sulawesi Province's economic growth. Thus, it can reduce the level of poverty and inequality in income distribution that occurs in South Sulawesi Province.

MATERIAL AND METHOD

The type of research used is quantitative research that uses secondary data from 2003 to 2020 obtained from the Badan Pusat Statistik and Bappenas. The data collection technique used is a library research technique. The data is

analyzed using the multiple linear regression analysis methods. It is written into the linear function formula will be as follows:

$$EcGrw_t = \beta_0 + \beta_1 PplGrw_t + \beta_2 IqID_t + \beta_3 Pvt_t + \mu_t \quad (1)$$

Where, $EcGrw$ is economic growth; β_0 is intercept; $\beta_1, \beta_2, \beta_3$ are regression coefficients of the independent variable; $PplGrw$ is population growth; $IqID$ is inequality of income distribution; Pvt is poverty; μ is error term; and *t* is *time series* (year = 1, 2, ..., n).

The Goodness of fit model was calculated by using $Adjusted\ R^2$. According to (Hastuti et al., 2021) formulated as follows:

$$Adjusted\ R^2 = 1 - (1 - R^2)\frac{(n-1)}{(k-1)} \quad (2)$$

Where, $Adjusted\ R^2$ adjusted determination coefficient, *k* is number of variables (not includes intercept), and *n* is sampling numbers. Testing the hypothesis of the regression coefficient is simultaneous with the F-test *and t-test* certain level of confidence, which, according to (Rahim et al., 2019) defined as follows:

$$F\ test = \frac{ESS/(k-1)}{RSS/(n-k)} \quad (3)$$

$$t\ test = \frac{\beta i}{S\beta i} \quad (4)$$

Where β_i is the regression coefficient of *i*. $S\beta_i$ is the standart errors of regression coefficient of *i.* Furthermore, classical assumption testing using multicollinearity test using *Variance Inflation Factor* (VIF) and Autocorrelation using Durbin Watson (DW) test. According to (Hastuti et al., 2021) the VIF method uses the following formula:

$$VIF = \frac{1}{1-R_j^2} \quad (5)$$

R^2_j was received from auxiliary regression between the independent variables and dependent variables, where if VIF < 10, it meant there was not Multicollinearity. In conducting the DW test, the following formula is used (Rahim et al., 2022):

$$\mathrm{DW} = \frac{\sum_{t=2}^{n} (\mu_t - \mu_{t-1})^2}{\sum_{t=2}^{n} \mu_t^2} \quad (6)$$

Where, μ_t is stochastic disturbance to-$_t$. μ_{t-1} is stochastic disturbance to $_{t-1}$. If DW>d_L, then there is no autocorrelation; If DW<d_L, then there is a positive

autocorrelation, if DW > 4 - d_L, then there is a negative autocorrelation; If d_L<DW<du, then it cannot be concluded; and If 4-d_u<DW<4-d_l, it cannot be concluded. Then the autocorrelation problem can also occur if R^2 is greater than the DW value.

RESULT AND DISCUSSION

The t-test or partial test is used to partially test the effect of each independent variable on the dependent variable. The t-test shows that the population growth variable has a t-count value of 1.907 while the t-table value is 2.145. In addition, the significance value of the population growth variable is 0.077, and the value is more significant than 0.05. Because t count < t table, and significance value > 0.05, partially population growth has no significant effect on economic growth. The income distribution inequality variable has a t-count value of 2.923 and a t-table value of 2.145. At the same time, the significance value of the income distribution inequality variable is 0.011, which is smaller than 0.05.

Because the value of t arithmetic > t table and significance value < 0.05. So partially, inequality of income distribution has a positive effect on economic growth. The poverty variable has a t-count value of 0.351, while the t-table value is 2.145 and has a significance value of 0.481. In contrast, the significance value of the poverty variable is 0.05 greater. So, with the value of t-count < t-table and the significance value > 0.05, poverty partially has no significant effect on economic growth. F test or simultaneous test is used to determine all the effects of independent variables on the dependent variable. Based on the results of the F test, the calculated F value is 3.479, while the F table value is 3.29. So, the calculated F value > F table. Thus, population growth, income distribution inequality, and poverty in South Sulawesi Province simultaneously (as a whole) significantly influence the economic growth of South Sulawesi Province.

The coefficient of determination adjusted R^2 is used to see the extent to which the model's ability to explain the dependent variable (Kuncoro, 2013). The adjusted R^2 value is 0.731. This value shows the percentage of the independent variable (population growth, income distribution inequality, and poverty) to the fluctuation of the dependent variable variation (economic growth). So that the percentage of independent variables is 73.1%, while the remaining 26.9% is a contribution from other variables that are not included in the model.

A multicollinearity test is a test that aims to see a strong correlation or relationship between two or more independent variables in a regression model. Suppose a relationship or correlation exists between two or more independent variables and the regression model experiences multicollinearity. The results of the multicollinearity test shown in the Variance Inflation Factor (VIF) value show no symptoms of multicollinearity in the variables of economic growth, income distribution inequality, and poverty because the VIF value of the three variables is smaller than 10.

Table 2. Regression result

Independent Variable	E.S.	β_i	t-test	Sig.	VIF
population growth	-	-3.629^{ns}	-1.907	0.077	5.765
inequality of income distribution	+	44.183**	2.923	0.011	1.733
poverty	-	-0.006^{ns}	-0.351	0.481	5.734
Intersect					24.338
Adjusted R^2					0.731
F-test					3.479
F-table					3.29
t-table					2.145
DW-test					1.677
N					18
Sig. (2-tailed)					1.000

Source: SPSS 23 output, data processed

Notes : ** is a level error significance of 5 % or confidence level 95 %; ^{ns} is not significant; ES is an expectation sign

The autocorrelation test is a classic assumption test used to determine the correlation between variables and changes in time. The autocorrelation test aims to test whether, in the linear regression model, there is a correlation of errors in period t with errors in period t-1 (previous). The autocorrelation test can be done using Durbin Watson (DW). If the Durbin Watson value lies between dL to 4-du, then there is no conclusion. **Table 2** shows that the value of DW = 1.677; dL value = 0.933 dU value = 1.696. Because the value of Durbin Watson (1.677) lies between the values of dL and dU, it can be concluded that the regression equation model 4.1 has no conclusion. Thus, a run test was carried out. Asymp results (2-tailed) shows a value of 1,000 > 0.05, it can be concluded that there is no autocorrelation symptom. Based on equation (1), the following equation is obtained:

$$\boldsymbol{EcGrw_t = 24.338 - 3.629PplGrw_t + 44.183IqID_t - 0.006Pvt_t + \mu_t} \quad (7)$$

The relationship between population growth and economic growth in South Sulawesi Province can be seen in the test results from 2003 to 2020. It shows that population growth did not affect economic growth in South Sulawesi Province and indicated by the significance value of the population growth variable coefficient of 0.077 > 0.05. In addition, the coefficient value of the population growth variable is -3.629, which means that for every 1% of the population, economic growth will decrease by 3.629. It is under the theory contained in the previous chapter, where David Ricardo argues that one-day economic growth will not grow. So, rapid economic growth will reduce economic growth.

The results of this study are also in line with research conducted by (Rini, 2016), which states that population growth negatively influences economic growth in Indonesia. Suppose a situation causes a shock to economic growth in the short term. In that case, it will take time to return to achieving balanced economic growth following events in the last three years where the COVID-19 caused economic growth in South Sulawesi Province to decline. Hence, it takes

time to increase economic growth in South Sulawesi Province again. The insignificance of population growth to economic growth can be caused by the population growth rate, which continues to increase rapidly. It is because the number of people in the labour force is smaller than that in the non-labour force.

The relationship between income distribution inequality and economic growth in South Sulawesi Province can be seen from the value of the income distribution inequality variable of 44,183, which means that a 1 percent increase in income distribution inequality means that economic growth will increase by 44,183. The coefficient value is positive, so it can be said that income distribution inequality has a positive effect on economic growth. In addition, the variable income distribution inequality is significant to economic growth because the significant value is 0.011 <0.05. The results of this study align with the view of (Todaro & Smith, 2006), which states that the more unequal the income distribution, the higher the rate of economic growth.

This study's results differ from research conducted by (Rahmadi & Parmadi, 2019), which states that income inequality had a negative effect on economic growth in all islands in Indonesia from 2015 to 2018. It can indeed increase economic growth but can also increase income distribution inequality. It can be caused because income inequality will reduce people's interest in buying goods and services. Thus, a decrease in people's purchasing power will cause a decrease in output production which causes the economic growth of an area to decline (Alesina & Rodrik, 1994). The significant inequality of income distribution on economic growth in South Sulawesi Province can be caused by the number of business units of large companies continuing to increase. Meanwhile, not everyone can work in these companies.

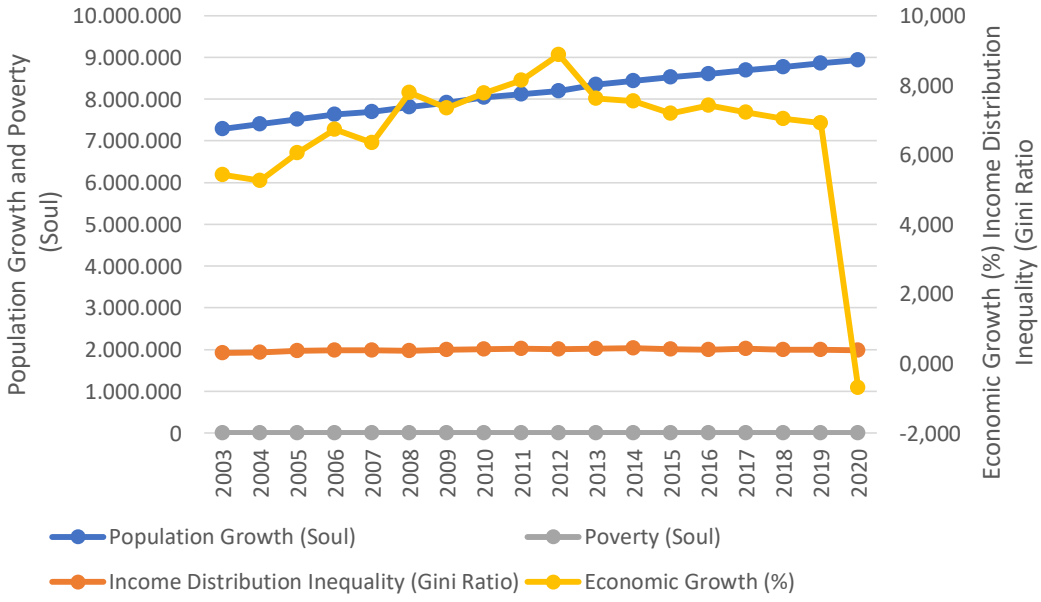

Figure 1. Population growth, inequality income, poverty, and economic growth in South Sulawesi Province

In addition, **Figure 1** shows that in 2007 to 2008 the inequality of income distribution decreased due to the increase in economic growth in the same year. It was repeated in 2011 to 2012. It follows the theory put forward by (Kuznets, 1955), which argues that the inequality of income distribution will worsen or continue to increase at the beginning. However, as economic growth increases, inequality in income distribution will decrease. So that economic growth reduces the amount of inequality in the distribution of income.

The relationship between poverty and economic growth in South Sulawesi Province can be seen from the significance value of the poverty variable of 0.481 > 0.05, which means that poverty is not significant to economic growth in South Sulawesi Province. The poverty variable value of 0.006 means that a 1 percent increase will reduce poverty—economic growth of 0.006. A negative coefficient value indicates that poverty has a negative effect on economic growth in South Sulawesi Province. This study's results align with (Pratama & Bagus, 2016), which stated that poverty negatively affects economic growth in Bali Province.

The insignificant of poverty to economic growth can be caused by economic growth that has not been able to improve the economic situation of the community evenly (Iskandar & Subekan, 2016). The insignificant of poverty to economic growth can be caused by economic growth that has experienced several shocks. For example, from 2007 to 2008, Indonesia experienced a global economic crisis caused by the US investment bank, which went bankrupt. It increased the number of poor people, especially the poor, in 2007. Then, in 2019-2020 the Indonesian economy again experienced shocks due to the COVID-19 that hit. It caused many businesses not to operate. It also caused the number of poor people and increased the population even though in large numbers. Whereas when economic growth improves, the poor cannot immediately decrease.

CONCLUTIONS

Population growth does not affect economic growth because the number of people in the labour force is less than the number of people who are not in the labour force. Poverty does not affect economic growth because if economic growth decreases, the number of poor people also increases. Meanwhile, the number of poor people cannot be significantly reduced when economic growth improves. Meanwhile, income distribution inequality significantly affects economic growth due to the increasing number of business units of large companies. Meanwhile, not everyone can work in these companies. It can indeed increase economic growth but can also increase the distribution inequality of income.

Based on the conclusions obtained, it is expected that the South Sulawesi provincial government can provide employment opportunities or further improve the population's quality. Such as workers through government programs, likely the pre-employment card program, *Kartu Indonesia Pintar* (KIP) or Smart Indonesia Card, reduce poverty and inequality. Further researchers are expected

to add other economic variables that better explain their influence on economic growth in South Sulawesi Province, such as unemployment, inflation, and others.

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