Association of Development Disparity, Economic Growth on Poverty in South Sulawesi Province

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Abstract

The problem of regional development disparity, economic growth, and poverty has always been a strategic issue in regional development. Although the direction of the association differs in each region depending on trends in regional development disparity, economic growth, and poverty. The purpose of this research is to analyze the association of development disparity between regions, and the rate of economic growth to poverty in South Sulawesi Province, in the period 2004 – 2019. This study used simple linear regression analysis. The resulting study is the level of regional development disparity is significant and positively associated with the poverty rate in South Sulawesi. The rate of economic growth has a significant negative association with the poverty rate in South Sulawesi. The variable that has the greatest association with the poverty rate in South Sulawesi Province is the variable of development disparity.

Keywords: Regional development disparity, Economic growth, Williamson index
1. Introduction

Economic development is a process of improving the quality of life to raise the level of life, self-esteem, and freedom (Sumiyarti, 2019). The economic development strategy that is considered the most appropriate is the acceleration of economic growth (Kuncoro, 2010). Most developing countries can achieve high economic growth but are accompanied by the emergence of problems of poverty and development disparity. This is what underlies the idea that economic growth is believed to be a necessary condition, but not sufficient for the development process. Therefore, the focus of development is not only on economic growth, the government must also focus on the problem of poverty and development disparity between regions.

Growth, disparity, and poverty are challenges in the economic development of a region. Economic development is said to be successful if there is an acceleration of economic growth, small inter-regional disparity, and low poverty rates (Todaro & Smith, 2012). These three challenges are goals in the National and Regional Development Plans in Indonesia, as well as sustainable development goals at the international level (Kuncoro, 2010). Regional development disparity is a condition of uneven development process caused by differences in the resources owned by each region, reach to developed regions and relatively underdeveloped regions. Or it can be said that the results of development are not to distribute to all groups. In Indonesia, the problem of development disparity between regions continues to this day.

In addition to the disparity between provinces and islands in Indonesia, regional disparities also occur between districts/cities within one province. In South Sulawesi Province, there is a disparity between Makassar City and regencies/cities outside Makassar City, and this tends to widen every year.

Table 1: Data on the contribution of district/city GRDP to the total GRDP of South Sulawesi

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Makassar City</td>
<td>34,06%</td>
<td>35,25%</td>
</tr>
<tr>
<td>Outside Makassar City</td>
<td>65,94%</td>
<td>64,77%</td>
</tr>
</tbody>
</table>

Source: Central Statistics Agency (2020)

The province of South Sulawesi is interesting to object to the research because from 2012 to 2020, South Sulawesi's economic growth rate has always been above the national economic growth rate. In 2012 the South Sulawesi economy grew by 8.87% while the national economic growth was only 6.03%. In 2020, economic growth experienced a very significant decline due to the COVID-19 pandemic. South Sulawesi's economic growth of -1.08% is still above the average national economic growth of -3.49%. And the percentage of poor people in South Sulawesi is always below the National and experiencing a downward trend. In 2012 the percentage of poor people in South Sulawesi was 10.11% while the percentage of poor people in the National was 11.96%. In 2020, the percentage of poor people in South Sulawesi decreased to 8.72%, while the percentage of the nation's poor is in the range of 9.78%. On the other hand, in the period 2002 – 2016 the level of disparity in South Sulawesi as measured by the Williamson Index has increased. The Williamson South Sulawesi index in 2002 was 0.53 and then rose to 0.68 in 2016 (Aswar, 2018). This condition becomes an irony at a time when economic growth and poverty in South Sulawesi continue to improve but regional development disparity does not improve.

The relationship between economic growth and progress among the poor does not necessarily indicate a causal relationship. Part of that progress may come from increasing incomes, education, and health of the poor, accelerating overall growth. Poverty reduction can be done without rapid economic growth. Regardless of the causal relationship, increasing economic growth and reducing poverty are goals that are in line (Todaro & Smith, 2012). The extent to which economic growth can reduce poverty depends on the distribution of income (Nguyen & Pham, 2018). Poverty reduction will be more effective if the resulting growth is balanced with a more equitable distribution of income. The problem that occurs is not only how to grow the economy, but also how to maximize the quality of the resulting growth.
(Bourguignon, 2004). This is in line with the findings (Škare & Družeta, 2016) that income growth is one of the main drivers for reducing poverty in a region.

Research related to regional development disparity, economic growth and poverty has been carried out by many previous researchers, however there are some differences and similarities between the previous research and this research. Research conducted by (Sumarto & de Silva, 2014) entitled Poverty Growth Inequality Triangle: The case of Indonesia 2002-2012 found that there is a trickle-down effect in which the poor receive proportionally less benefits from growth than the rich. All pro-poor measures show that economic growth in Indonesia is especially beneficial for people with above-average incomes. The panel regression results show that the variation in spending according to educational characteristics persists after being influenced by other factors, accounting for about two-fifths of the total household expenditure inequality in Indonesia. If poverty alleviation is one of the main goals of the Indonesian government, it is important that policies designed to spur growth also take into account the possible impact of growth on inequality. This finding demonstrates the importance of a set of policies that are strongly pro-poor. Namely, policies that increase school participation and achievement, the effectiveness of family planning programs to reduce birth rates and the burden of dependence on poor households, facilitate urban-rural migration and labor mobility, connect leading and disadvantaged areas, and give priority to certain groups (such as children), elderly, illiterate, informal workers and agricultural households) in targeted interventions that will serve to simultaneously stem rising inequality and accelerate the pace of economic growth and poverty reduction.

Economic growth and regional development disparity have a close relationship with the national development goal, namely improving people’s welfare. The generally accepted hypothesis is that the higher the economic growth and the more equitable the regional development, the more prosperous the community will be. Increased welfare can be interpreted as reducing poverty.

Based on the description above, the problem of regional development disparity, economic growth, and poverty has always been a strategic issue in regional development. And regional development disparity, economic growth, and poverty always have an association with each other based on the results of the prior research. Although the direction of the association differs in each region depending on trends in regional development disparity, economic growth, and poverty. Therefore, the author examines the association of these three problems in South Sulawesi Province with different analysis method.

2. Methodology

This is a quantitative study, applying secondary data analysis using data published by BPS-Statistics of Sulawesi Selatan Province. The method of analysis was using the Linear Regression. The variables used in this study are the rate of economic growth, regional development disparity and poverty in South Sulawesi 2004 – 2019.

The data used starts from 2004 because starting in 2004 the GDP and economic growth data in South Sulawesi, complete with a fixed number of regencies/cities until 2019. Meanwhile, only until 2019 because 2020 was hit by the COVID-19 pandemic so that economic growth, poverty and development disparity experienced shocks.

2.1 Analysis

The data analysis technique used is the Williamson Index using Microsoft Excel to calculate regional development disparity, then Simple Linear Regression analysis using the OLS method using the help of E-views 10 software.

1. Williamson Index

The measure of regional development disparity which was first discovered was the Williamson Index used in his study in 1966. In statistical science, this index is actually a coefficient of variation which is commonly used to measure a difference. Although this index has several weaknesses, namely it is sensitive to the definition of the area used in the calculation, however, this index is quite commonly used in measuring regional development disparity.
In contrast to the Gini Ratio which is commonly used to measure income distribution, the Williamson Index uses the Gross Regional Domestic Product (GRDP) per capita as the basic data. The reason is clear because what is being compared is the level of development between regions and not the level of prosperity between groups. The Williamson Index formulation is as follows (Sjafrizal, 2008).

\[ V_w = \sqrt{\frac{\sum_{i=1}^{n} (y_i - \bar{y})^2 (f_i/n)}{\bar{y}}} \], \quad 0 < V_w < 1

where \( y_i \) = Regional GDP per capita of the area i
\( \bar{y} \) = GRDP per capita on average for all regions
\( f_i \) = total population of the area i
\( n \) = total population of the whole area

If \( V_w \) is close to 1, it means that it is very unequal and if \( V_w \) is close to zero, it means that it is very even.

To answer the research objectives of the association of development inequality, economic growth and poverty rates in South Sulawesi, the following data analysis techniques were used.

2. Simple Linear Regression

Regression analysis can use to see the association between the variable not only to see the influence of the independent variable on the dependent variable. Analysis using regression must have a strong theoretical basis considering that the construction of the model made will have meaning if it has an economic understanding (Ekananda, 2015).

The simple regression model is as follows (Gujarati, 2004):

\[ Y = \beta_0 + \beta_1 X_1 + \varepsilon \]

\( Y \) = dependent variable
\( X_1 \) = Independent variable
\( \beta_0, \beta_1 \) = parameter or regression coefficient
\( \varepsilon \) = error

Estimation in regression analysis means to estimate the population regression function based on the sample regression function as accurately as possible. In an effort to obtain the most suitable regression function, parameters are needed that can map the association between the independent variable and the dependent variable in such a way that the error or deviation is the smallest. For this reason, a good estimation method is needed to minimize errors, one of which is most often used is the Ordinary Least Square (OLS) or Least Square Method. This study using simple linear regression because only this method can analyze 3 hypothesis model the association of Regional Development Disparity on Poverty Rates. This paper only using one dependent variable and one independent variable.

In this study, using 3 simple linear regression models with research variables as follows:

1. The Association of Regional Development Disparity on Poverty Rates, the research variables are
   - Dependent variable (Y) = Percentage of poor population (\( P_0 \)) representing poverty rate
   - The independent variable (X) = Williamson index represents the level of regional development disparity

2. The Association of Economic Growth on Poverty Rates the research variables are
   - Dependent variable (Y) = Percentage of poor population (\( P_0 \)) representing Poverty Rate
   - Independent variable (X) = Economic Growth Rate represents economic growth
3. The Association of Economic Growth Rate on Regional Development Disparity, the research variables are
   - The dependent variable (Y) = Williamson index represents the level of regional development disparity
   - Independent variable (X) = Economic Growth Rate represents economic growth

3. Results and Discussions

By using the Williamson Index method, the regional development disparity in South Sulawesi Province from 2004 to 2019, is as follows:

![Williamson Index of South Sulawesi 2004 – 2019](source: Processed data (2021))

In 2011 – 2012 disparity increased then in 2012 to 2016 the disparity showed a significant decrease. However, the trend of disparity increased again in 2016 to 2019. Even though it had decreased and then increased again, the development disparity between districts/cities in South Sulawesi Province was large (IW > 0.50). This finding is in line with the explanations (Agussalim, 2020) and (A. Yumna, 2020) that from 2016 to 2018 there has been an increase in development disparity in South Sulawesi.

As explained in Barro (2000), Kuznets’ ideas are based on the idea of the movement of workers, from the agricultural sector to the industrial sector. In this model, the agricultural and rural sectors initially make up the bulk of all economic activity. This sector is characterized by low per capita incomes with only a few disparities within the sector. Meanwhile, the industrial sector and the urban sector started from a small sector, had a high per capita income, with high inequality within the sector. Economic growth resulted in the shift of workers and resources from the agricultural sector to the industrial sector. Migrant workers experience an increase in per capita income, and this change increases inequality in the economy in general. As a consequence, in the early stages of growth, the relationship between per capita income and inequality tends to be positive (Athia Yumna et al., 2014).

Association of Regional Development Disparity, Economic Growth Rate and Poverty Rate in South Sulawesi

The results of simple linear regression analysis using E-views 10 software obtained the associations between variables as follows:
Table 2: Association of Development Inequality, Economic Growth Rate and Poverty Rate in South Sulawesi Province

<table>
<thead>
<tr>
<th>Linear regression model</th>
<th>Association of Regional Development Disparity on Poverty Rate</th>
<th>Association of Economic Growth Rate on Poverty Rate</th>
<th>Association of Economic Growth Rate on Regional Development Disparity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y = −31.21 + 65.53X + ε</td>
<td>where, Y = Poverty Rate X = Regional development disparity</td>
<td>Y = 22.2 − 1.53X + ε</td>
<td>Y = 0.732 − 0.012X + ε</td>
</tr>
<tr>
<td>Hypothesis</td>
<td>Hypothesis</td>
<td>Hypothesis</td>
<td></td>
</tr>
<tr>
<td>H0: β1 = 0 (Level of regional development disparity has not significant association with the rate of poverty)</td>
<td>H0: β1 = 0 (Economic growth has not significant association with the rate of poverty)</td>
<td>H0: β1 = 0 (Economic growth has not significant association with the level of regional development disparity)</td>
<td></td>
</tr>
<tr>
<td>H1: β1 ≠ 0 (Level of regional development disparity has a significant association with the rate of poverty)</td>
<td>H1: β1 ≠ 0 (Economic growth has a significant association with the rate of poverty)</td>
<td>H1: β1 ≠ 0 (Economic growth has a significant association with the level of regional development disparity)</td>
<td></td>
</tr>
<tr>
<td>H0 is rejected because the value of Prob = 0.0001 &lt; α. Thus, it can be concluded that the level of regional development disparity has a significant association with the rate of poverty.</td>
<td>H0 is rejected because the value of Prob = 0.0181 &lt; α. Thus it can be concluded that the rate of economic growth has a significant association with the rate of poverty.</td>
<td>H0 is not rejected because the value of Prob = 0.1760 &gt; α = 0.05. Thus, it can be concluded that the rate of economic growth has not association on the level of regional development disparity.</td>
<td></td>
</tr>
</tbody>
</table>

R-Squared Value: 0.664 0.338 0.127

Source: Processed data (2021)

The trend of poverty rates and the rate of economic growth in South Sulawesi Province since 2004 – 2019, continues to improve. However, this is different from the trend in the level of development disparity which has been increase (see Graph 2). In 2012 – 2014, the relationship between the poverty rate and the rate of economic growth is in accordance with the existing theory, when the poverty rate decreases, the rate of economic growth increases. But in 2015 – 2019, there was a change in trend, when the poverty rate decreased, the trend of the economic growth rate also decreased. This shows that since 2015 – 2019 the rate of economic growth is no longer the main factor in reducing poverty in South Sulawesi Province.

In 2011 – 2016 the trend of regional development disparity in South Sulawesi Province is in line with the Kuznets U-inverted hypothesis, with economic growth continuing to increase and development disparity slowly shrinking (see Graph 2). This shows that the Kuznets hypothesis is almost valid in South Sulawesi Province in line with research conducted by (Iskandar & Saragih, 2018) which states that the inverted "U" hypothesis of Kuznets tends to apply to districts/cities in South Sulawesi Province in 2011 – 2016. The main factor that reason behind the tendency of the Kuznet Hypothesis to apply is that economic growth tends to increase in the following years, accompanied by the level of disparity which also tends to decrease. However, there has been a change in the trend of regional development disparity in South Sulawesi Province from 2012 – 2019 which contradicts the Kuznets hypothesis. This shows that the Kuznets hypothesis does not happen in South Sulawesi Province in line with research conducted by (Syamsir & Rahman, 2018) and (Parkissing et al., 2020) which states that the results of the calculation of the Williamson Index and Theil Entropy Index with the GRDP growth of South Sulawesi Province then The results show that the Kuznet Hypothesis does not happen in South Sulawesi Province in the 2015–2019 period.

Miranti (2010) conducted research on Poverty in Indonesia 1984–2002: the impact of growth and changes in inequality. The results show that reducing inequality has a significant impact on growth. Changes in economic growth had an impact on poverty only during the first liberalization period (1984–1990). In the next two periods (1990–2002), the increasingly severe inequality tends to offset the decline in poverty due to growth (Miranti, 2010)

The World Bank (2018) conducted research on the relationship between growth, inequality and poverty. The findings of this study indicate that the correlation between growth and poverty is always negative by assuming constant inequality. On the other hand, if the poverty trend is constant, the correlation between growth and inequality can be positive or negative depending on the empirical model.
and the econometric approach that is built. Another finding is that poverty tends to hamper growth and widen inequality within a region (Marrero & Serven, 2018).

The results of the study (Khemili & Belloumi, 2018) support the hypothesis proposed by (Bourguignon, 2004) regarding the growth-inequality-poverty triangle. There is a causal relationship between economic growth and inequality, while poverty reduction depends on strong economic growth. Inequality that continues to increase in an area results in increased poverty as well. The impact of economic growth and income inequality on poverty shows that increasing inequality will increase poverty while high economic growth will reduce poverty (McKnight, 2019).

Based on the results of the regression analysis (Table 1), it is obtained as follows:

1. Based on the regression model in table 1, it shows that for every 1 percent increase in regional development disparity, the poverty rate in South Sulawesi Province will increase by 65.53%. The R-squared value of the regression model of regional development disparity and poverty is 0.663714, which means that the poverty rate in South Sulawesi Province is influenced by the level of regional development disparity of 66.4%. While the rest is influenced by other factors that have not been included in the model.

The level of regional development disparity is significantly positively associated with the poverty rate in South Sulawesi Province. This shows that when disparity increases, the poverty rate in South Sulawesi Province also increases. Vice versa, when regional development disparity decreases, the poverty rate in the province of South Sulawesi will also decrease. The results of this study are in line with previous research conducted by (Ginting, 2015) with a research scope of 33 provinces in Indonesia in 2004 – 2013, it was found that the decline in the poverty rate in Indonesia was in line with the decrease in regional development disparity. In the same period from 2004 to 2013 there was a decrease in regional development disparity for both western and eastern Indonesia. This is also in line with the results of a review from sources (McKnight, 2019) which found an increase in the number of disparity, it will also increase the poverty rate in a region.

2. Based on the regression model in table 1, it shows that for every 1 percent increase in the rate of economic growth, the poverty rate in the region will decrease by 1.53%. The rate of economic growth has a significant negative association with the poverty rate in South Sulawesi Province. This means that if the rate of economic growth increases, the poverty rate in South Sulawesi Province will decrease. On the other hand, if the rate of economic growth decreases, the poverty
rate in South Sulawesi Province will increase. The R-squared value of the regression model between economic growth and poverty is 0.338439, which means that the poverty rate in South Sulawesi Province is influenced by the economic growth rate of 33.8%. While the rest is influenced by other factors that have not been included in the model. This shows that the reduction in poverty in South Sulawesi Province is not only influenced by economic growth factors, as stated by (Škare & Družeta, 2016) that the association of economic growth and poverty may be different in some regions. Differences in poverty rates support the view that growth may be necessary but not sufficient for maximum poverty reduction.

The results of this regression analysis, in line with what was stated by (Todaro & Smith, 2012), high economic growth will reduce poverty in a region. The fact is that poverty in Indonesia decreased rapidly between 1999 and 2002 because Indonesia's economic growth increased by 3.66% (Suryadarma, 2005).

3. Based on the regression model in table 1, the rate of economic growth is negatively associated with development disparity between regions. According to the statistical model, the rate of economic growth is not significantly associated with development disparity between regions in South Sulawesi Province. The meaning of the negative association between the rate of economic growth and development disparity between regions is that if the rate of economic growth increases, the level of disparity between regions in South Sulawesi Province will be decrease. Otherwise, if the rate of economic growth decreases, the development gap between regions in South Sulawesi Province will increase. There is no significant effect between the rate of economic growth on regional development disparity because the rate of economic growth is measured in the aggregate within the province, while the regional development disparity calculated by the Williamson Index is measured by considering the development between districts and cities within the province. It can be said that a high rate of economic growth at the provincial level is not always associated with a low level of disparity in each district and city in South Sulawesi Province.

The R-squared value is 0.126696, meaning that the level of regional development disparity in South Sulawesi Province is influenced by the economic growth rate of 12.67%. While the rest is influenced by other factors that have not been included in the model.

This finding is in line with Kuznet's hypothesis, as development progresses, economic growth will increase then development inequality between regions will decrease (McKnight, 2019). According to this hypothesis, the shift of labor and resources from agriculture to manufacturing during the early stages of economic development creates inequality between urban manufacturing and the rural agricultural sector. After this initial increase in inequality, it is hypothesized that inequality will decrease as the economy grows along the development path. In line with the findings (Sumiyarti, 2019) in Banten Province, the rate of economic growth has a negative effect on development inequality between regions.

However, the results of this regression analysis contradict the findings (Nugroho, 2014) in Banyumas Regency, where economic growth and development inequality have a positive relationship. Where when economic growth in Banyumas increases, development inequality will also increase, and vice versa.

Based on the results of the analysis of the three regression models, it was found that the variable of development inequality has the greatest influence on the level of poverty in South Sulawesi Province. This shows that if the government wants to solve the problem of poverty in South Sulawesi, then the development problem that must be resolved first is the problem of development inequality or the distribution of development throughout the South Sulawesi region.

Conclusions

The problem of regional development disparity, economic growth, and poverty has always been a strategic issue in regional development. Although the direction of the association differs in each region depending on trends in regional development disparity, economic growth, and poverty. The purpose of this research is to analyze the association of development disparity between regions, and the rate of economic growth to poverty in South Sulawesi Province, in the period 2004 – 2019. This study used simple linear regression analysis. The result of the study shows that the level of regional development disparity
is significantly positively associated with the poverty rate in South Sulawesi Province. The rate of economic growth has a significant negative association with the poverty rate in South Sulawesi Province. The rate of economic growth has a negative association with development disparity between regions. According to the statistical model, the rate of economic growth is not significantly associated with development disparity between regions in South Sulawesi. The variable that has the greatest association with the poverty rate in South Sulawesi Province is the variable of development inequality. To alleviate the problem of poverty in South Sulawesi Province, the local government needs to equalize the distribution of development to all districts/cities in South Sulawesi Province so that the development disparity will be smaller. and the government needs to encourage the economic structure in some areas to move to a secondary economic structure so that the center of economic growth is not concentrated in certain areas. For future researchers, it is suggested to add other variables in analyzing the factors that cause inequality of development and poverty in South Sulawesi.

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