Convergence Analysis of Economic Growth in South Kalimantan Province 2011-2019

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Abstract

This study aims to analyze the convergence of economic growth in South Kalimantan Province in 2011-2019 based on the level of income per capita. The population of this research is the districts in South Kalimantan Province. Subjects take in the form of levels of income per capita with secondary data sourced from BPS. The analytical tools used are economic growth, Theil index, Williamson index, and Klassen typology model. This study also analyzes the relationship between economic growth and income inequality using Pearson correlation analysis. The results of this study indicate that there is a convergence of inequality in South Kalimantan Province in 2011-2019 with an average Williamson Index value at 0.496 and Theil index at 17.928. Based on the Klassen typology classification, only Tapin District is in the category of high developed and fast growing region. The output on the Pearson analysis correlation shows that there is a non-significant positive correlation between economic growth and income inequality. Furthermore, South Kalimantan Province does not support on the Kuznets hypothesis for the period 2011-2019.
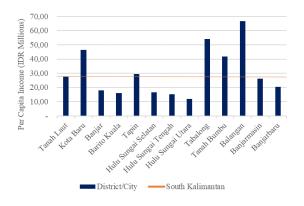
 Key words : Economic Growth, Income Inequality, South Kalimantan

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INTRODUCTION

Elimination of widespread poverty and inequality in income growth are two major development problems and should be the main objective of development policies. Solow's (1956) growth model requires that in order to drive the growth of the output level, a certain amount of investment is required. The assumption is that at the diminishing return to capital, poor regions with low capital will grow faster than rich regions with high capital. Therefore, in the long run, the conditions of per capita income between regions will be the same.

Since the enactment of the regional autonomy policy regulated in Law No. 32 of 2004 concerning Regional Government, this is an opportunity for local identity for regional development without central control to regulate government affairs, including South Kalimantan. The decentralization policy according to the libertarian view is development which is the main step in welfare without government intervention. However, in reality, economic growth-oriented development cannot be separated from the problem of distribution of growth.

Source: Statistics Indonesia 2020 (processed)
Figure 1. Average per Capita Income at Constant Price in the Regions of South Kalimantan in 2011-2019

Based on the figure above, it can be seen that there are variations in per capita income between 13 districts/c ities in South Kalimantan Province in 2011-2019. If using the average value for South Kalimantan, which is IDR 27.96 million, the districts in South Kalimantan can be grouped into two parts. First, there are 5 regions that have per capita income above the average. namely Kotabaru Regency, Tapin Regency, Tabalong Regency, Tanah Bumbu Regency, and Balangan Regency. The high per capita income in these areas is mainly due to the potential of mining, especially coal, which increases the contribution of the mining sector to the economy. Second, there are 8 regions that have per capita income below the average of South Kalimantan, namely Tanah Laut Regency, Banjar Regency, Barito Kuala Regency, Hulu Sungai Selatan Regency, Hulu Sungai Tengah Regency, Hulu Sungai Utara Regency, Banjarmasin City, and Banjarbaru City.

Specifically, Balangan Regency is an area that has the highest average per capita income of IDR 66.58 million, while the region with the lowest average per capita income was Hulu Sungai Utara Regency at IDR 11.98 million. The existence of high disparities between the richest and poorest regions indicates a disparity in income in South Kalimantan Province. Thus, the issue that arises with the inequality of per capita income in each district and city of South Kalimantan Province is to accelerate the growth of underdeveloped areas and catch up from developed regions.

The convergence meant in this study can be understood as a process of reducing the income gap between regions so that it can also be understood as a process of catching up with low-income regions against high-income regions. The income gap that is attempted to be reduced through the convergence process is calculated based on real per capita income. According to Barro & Sala-i-Martin (1992), basically, convergence is a tendency for poor or underdeveloped areas to catch up from richer or

more developed regions. Convergence occurs when regions with underdeveloped economies tend to grow faster than regions with developed economies. Therefore, underdeveloped regions have the tendency to be able to catch up with advanced regions on the level of per capita income so that the goals of regional development are achieved (Aulia & Santoso, 2017).

In general, economic growth is an increase in the ability of an economy to produce goods and services. Economic growth is an important indicator in analyzing the economic development that occurs in a country. Economic growth will show the additional income of the people in a certain period. Income is obtained through the process of using production factors to produce goods and services, resulting in a flow of remuneration for production factors owned by the community. With the existence of economic growth, it is expected that people's income as the owner of production factors will also increase. Economic growth is usually measured using Gross Domestic Product data (Sukirno, 2006).

According to Kuznets (1971), economic growth is an increase in the long-term capacity of the country concerned to provide various economic goods to its residents. The increase in the capacity itself is determined or made possible by technological, institutional, and ideological advances or adjustments to the various demands of the existing circumstances. Kuznets proposes a hypothesis regarding the relationship between the economic growth of a country and the inequality of income distribution among its residents in the form of an inverted U. This suggests that at the beginning of growth (as measured by Gross National Product per capita), the income distribution gap is getting higher. However, at a certain

stage, the income distribution gap will decrease.

Source: Hamid, 2017

Figure 2. Kuznets inverted U-curve hypothesis

According to Gasparini & Lustig (2011) in their research entitled "*The rise and fall of income inequality in Latin America*" prove that countries in Latin America have high economic income accompanied by high economic growth as well, but this does not trigger equity in the region so that the issue of inequality that occurs is economic instability, recurring crises, and socio-political instability. The phenomenon of economic growth that occurs is the result of economic growth that can only be felt by some people who have easy access to economic factors and in the end, this will lead to individual income inequality or development inequality that occurs in the region.

Todaro & Smith (2003) provide a similar description which states that a fast rate of economic growth does not in itself improve the distribution of profits for the entire population. Kuznets (1955) argued that income distribution tends to worsen in the early stages of growth, but will improve in later stages. This indicates the need for a long time dimension to see the positive effect of development on growth. According to him, at the beginning of the development process, inequality in income distribution increases due to the urbanization and industrialization processes, at the end of the development process, income inequality has decreased, that is when economic sectors in

urban areas are able to absorb most of the workforce from rural areas.

Previous research results that are relevant to this study include Caska & Riadi (2008) conducting a study to see the convergence of 11 districts in Riau Province. The model used is based on neoclassical growth through the Kuznets inverted U curve hypothesis. The results showed that there was a decrease in inequality from 2003-2005 based on an average Theil index and Williamson index. The proving of the Kuznets hypothesis showed that the neoclassical growth theory in Riau Province during 2003-2005 was invalid and insignificant.

Another study was conducted by Irkham (2019) regarding inequality in Banten Province using the Theil entropy index and Williamson index measuring instruments with the Klassen typology classification model. The results of the analysis show that high income and high growth regions and high income but low growth regions have high levels of inequality. Meanwhile, high growth and relatively underdeveloped regions have small levels of inequality.

As income further increases to the higher level of income, Ota confirmed that the survey indicates the levels of income inequality do not seem to decline monotonically to the lowest level, contrary to the Kuznets hypothesized Inverted U-curve (Ota, 2017).

Sutrano & Kuncoro (2003) in their research on the neoclassical economic growth theory model, the inverted U curve hypothesis applies in Banyumas Regency, this is evident from the results of trend analysis and Pearson correlation. However, the correlation analysis between GRDP growth with Williamson index and Theil entropy index was not significant.

Under these conditions, the study of the economic gap on inequality will be interesting and strategic to investigate, as this will assist policymakers in formulating strategic steps to accelerate the closing of the development gap between regions in an effort to achieve justice and equitable development for South Kalimantan.

Unlike previous empirical studies, this study focuses on economic inequality by mapping the regions into four dimensions of Klassen typology based on the category of per capita income and the rate of economic growth. This will give the author a visual picture of which areas are included in the dimensions, which will help with modeling. In addition, by using Pearson correlation analysis, this study will examine if there is a significant relationship between per capita income and the rate of economic growth. Therefore, the results of this study are expected to complement studies on the convergence of economic inequality in South Kalimantan Province.

METHOD

The entire data obtained is quantitative data and the data source used is secondary data. Time series data from 2011-2019 consist of 13 regencies/ cities in South Kalimantan Province. The data source comes from the BPS website. As in developing countries in general, obtaining valid and reliable regional data in Indonesia is not easy. There are various reasons, ranging from measurement error to error in reporting. Weaknesses in institutions and human resources are also thought to have contributed significantly to the low quality of regional data in Indonesia.

All regional per capita income data are expressed at 2010 constant prices. This is the author's consideration so that data with constant prices do not deflate too much. Regional population data are obtained from census results and projections. These two variables will be used for static analysis. The data collection technique used is through library research, by studying the literature related to the field of study and the

problems being studied and then connected to each other so that results can be obtained that can help in answering existing problems

This study uses descriptive analysis to provide an initial picture of regional economic growth and per capita income. In measuring the rate of growth and income per capita, the following formula can be used:

$$Economic\ Growth = \frac{(GRDP_t - GRDP_{t-1})}{GRDP_{t-1} \times 100\%} \qquad (1)$$

$$Income\ per\ Capita = \frac{GRDP}{Population} \qquad (2)$$

Where $GRDP_t$ is Gross Regional Domestic Product at year t and $GRDP_{t-1}$ is Gross Regional Domestic Product one year before year t. The economic growth used in this analysis is growth over constant prices. This economic growth provides a real picture of output growth because it does not include inflation.

The author used Williamson Index to measure regional inequality based on per capita income and the proportion of the population within the province of South Kalimantan. According to Williamson (Gluschenko, 2018), to measure the Williamson index the following formula can be used:

$$WI = \frac{\sqrt{\sum(Y_i - \bar{Y})^2 n_i}}{\bar{Y}} \qquad (3)$$

Where WI is Williamson Index; Y_i is Per Capita Income in District/City i; $\bar{Y}$ is South Kalimantan per Capita Income; and n_i is Population distribution.

Region's share in the national population Testing Criteria: a) If WI is getting smaller or closer to zero, it shows that the inequality is getting smaller/ more evenly distributed; and b) If WI is further away from zero, it shows that inequality is widening.

To measure the income inequality of a region, the author used Theil's entropy index. The Theil index has several advantages over the Williamson index. According to Canon (2012), this index can measure the gap in income between sub-regions within a region, the income gap between regions, and the contribution of each region/ sub-region to the overall regional income gap. However, specifically for this study, the author only focuses on the inequality within the Province of South Kalimantan. To calculate Theil Index, Kuncoro (2004) formulated it as follows:

$$I(y) = \sum(y_i/Y) \times log[(y_i/Y)/(x_i/X)] \qquad (4)$$

Where I(y) is Theil Entropy Index; Yi is Per Capita Income in District/ City i; Y is South Kalimantan per Capita Income; x_i is Population in District/ City i; and X is Population in South Kalimantan.

Klassen typology can be used as an analysis method to have a better understanding of the patterns and structures of regional economic growth. According to Kuncoro (2013), Klassen typology divides areas into four quadrants based on two economic indicators: GRDP per capita and economic growth rate. As stated in Table 1, there are four quadrants.

Table 1. Klassen Typology Classification

GRDP Per Capita (y)\ Economic Growth rate (r)	$Y_i > y$	$Y_i < y$
$R_i > r$	Developed and fast growing region	Fast growing region
$R_i < r$	Developed but depressed region	Relatively backward region

Source: Kuncoro, 2013

Where Yi is Per Capita Income in District/ City i; y is average per capita income; Ri is GRDP growth rate in District/ City I; and r is average GRDP growth rate.
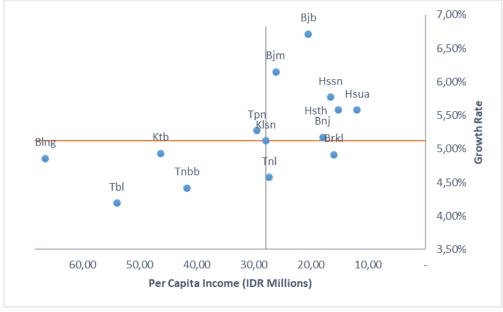
RESULTS AND DISCUSSION

The author classifies the regions within South Kalimantan Province into the Klassen Typology model according to the rate of economic growth and per capita income. The following is the data used from the calculation results using the analysis tools as described above.

Table 2. Average per Capita Income and Economic Growth in South Kalimantan, 2011-2019

Code	District/City	Per Capita Income	Economic Growth Rate (%)
Tnl	Tanah Laut	27,422,508.03	4.57
Ktb	Kotabaru	46,351,032.32	4.94
Bnj	Banjar	18,022,088.94	5.17
Brkl	Barito Kuala	16,070,614.82	4.91
Tpn	Tapin	29,550,360.33	5.28
Hssn	Hulu Sungai Selatan	16,632,616.46	5.77
Hsth	Hulu Sungai Tengah	15,265,611.45	5.58
Hsua	Hulu Sungai Utara	11,980,084.28	5.58
Tbl	Tabalong	54,073,412.66	4.19
Tnbb	Tanah Bumbu	41,761,010.00	4.41
Blng	Balangan	66,576,886.90	4.86
Bjm	Banjarmasin City	26,221,416.13	6.15
Bjb	Banjarbaru City	20,521,094.77	6.72
Klsn	South Kalimantan	27,963,545.83	5.12

Source: processed data

Source: processed data

Figure 3. Pattern and Economic Structure of South Kalimantan Province According to Klassen Typology, 2011-2019
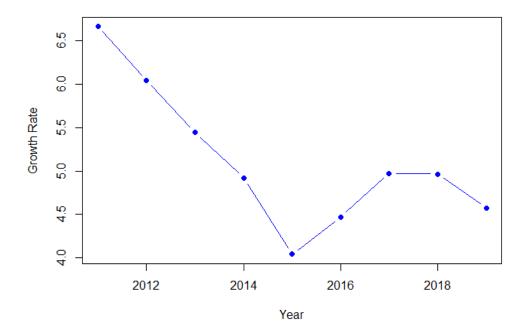
Based on the typology map above (figure 3), it can be seen that only Tapin Regency is in quadrant IV so that it is classified as a developed and fast growing region with per capita income and growth rates exceeding the average in South Kalimantan Province. On the other hand, areas in quadrant I with the classification of fast growing regions are Banjarbaru, Banjarmasin, Hulu Sungai Selatan, Hulu Sungai Tengah, Hulu Sungai Utara, and Banjar Regency.

Meanwhile, Balangan, Tabalong, Kotabaru, and Tanah Bumbu are in quadrant III and are classified into developed but depressed areas. Two other districts in quadrant II, namely Tanah Laut and Barito Kuala districts, are classified as relatively backward regions.

Table 3. Economic Growth, Williamson Index, and Theil Entropy Index of South Kalimantan, 2011-2019
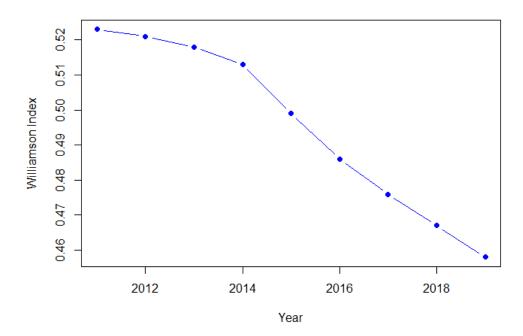
Year	Growth (%)	WI	TI
2011	6.66	0.523	18.200
2012	6.04	0.521	18.158
2013	5.44	0.518	18.182
2014	4.92	0.513	18.156
2015	4.04	0.499	18.005
2016	4.47	0.486	17.855
2017	4.97	0.476	17.722
2018	4.96	0.467	17.591
2019	4.57	0.458	17.478
Average	5.12	0.496	17.928

Source: processed data

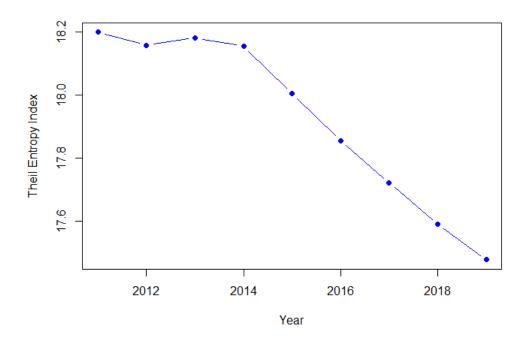*Source*: processed data

Figure 4. Economic Growth Graph of South Kalimantan Province, 2011-2019

Figure 5. Williamson Index Graph of South Kalimantan Province, 2011-2019

Figure 6. Theil Entropy Index Graph of South Kalimantan Province, 2011-2019

Economic growth inequality between regions in South Kalimantan Province can be analyzed using the Williamson Index. Table 3 shows that the index of per capita income inequality between districts/ cities in South Kalimantan Province during the period of 2011-2019 is the Williamson index at 0.496 and the Entropy Theil index at 17.928. This value shows that in South Kalimantan Province, the distribution of income is relatively uneven, in other words experiencing high income inequality, Inequality between districts/ cities

in South Kalimantan Province from 2011-2019 experienced a downward trend, both in terms of the inequality of the Williamson index and Theil entropy index.

Figures 5 and 6 shows that inequality of economic growth in South Kalimantan decreased in 2011-2019. The inequality level based on Williamson Index fell from 0.523 to 0.458, Meanwhile, the inequality level based on Theil index fell from 18.200 to 17.478. This condition indicates an improvement in the distribution of economic growth at the district level in the Province of South Kalimantan.

Table 4. Pearson Correlation between Economic Growth and Williamson Index and Theil Index

Correlation	r	p-value
Growth-WI	0.617	0.077
Growth-TI	0.532	0.140

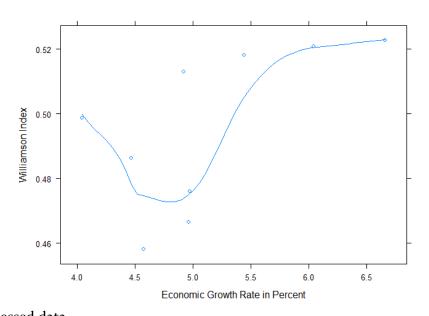Note: r   = Pearson correlation coefficient
           WI = Williamson index
           TI = Theil Entropy Index

Sourced: processed data

The results of the Pearson correlation in Table 4 represent the level of the relationship between the rate of economic growth with the Williamson index and Theil index. Based on the output, there is a non-significant medium positive relationship between economic growth and Williamson index (r=0.617, p-value=0.077). Meanwhile, the relationship between economic growth and Theil index is classified as medium positive and it is not significant (r=0.532, p-value=0.140).
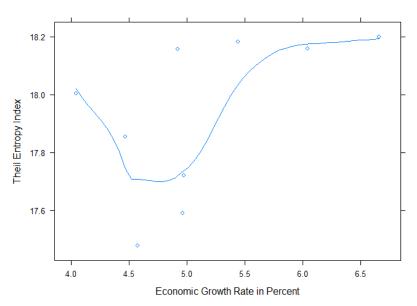
The results of the correlation analysis above are not in line with the Kuznets hypothesis on neoclassical growth as seen in Figures 7 and 8. The relationship curve formed in Figures 7 and 8 does not show an inverted U-curve pattern (it shows the U-curve instead), so it can be said that the neoclassical growth model on the Kuznets inverted U curve hypothesis does not apply in South Kalimantan Province in 2011-2019.

Source: processed data
Figure 7. South Kalimantan Province GRDP Growth relationship curve and Williamson Index, 2011-2019

Figure 8. South Kalimantan Province GRDP Growth relationship curve and Theil Entropy Index, 2011-2019

CONCLUSION

First, the analysis of the Klassen typology model from the average economic growth and the average per capita income of each city district in South Kalimantan Province, it can be seen that there is only one region that is included in the category of the developed and fast growing region namely Tapin Regency. On the other hand, the regions that are in the category of fast growing regions are Banjarbaru City, Banjarmasin City, Hulu Sungai Selatan Regency, Hulu Sungai Tengah Regency. Hulu Sungai Utara Regency, and Banjar Regency. The next category is developed but depressed regions with four regencies that fall into this category, namely Balangan, Tabalong, Kotabaru, and Tanah Bumbu Regencies. Two other districts are in the relatively backward category, namely Tanah Laut and Barito Kuala Regencies.

Second, the results of Williamson's inequality index calculation show that the average per capita income inequality between regencies and cities in South Kalimantan Province during 2011-2019 reached a value of 0.496. In general, the Williamson index value

in South Kalimantan Province tends to decline, but it seemed relatively slow. Meanwhile, the results of the calculation of theil index obtained an average index value in the years 2011-2019 of 17.928. In general, the calculation results on the inequality value of the Theil index experienced a downward trend although it seemed relatively slow.

Third, the output of the Pearson correlation analysis on the relationship between the rate of economic growth with the Williamson index and Theil index obtained correlation value on economic growth with the Williamson index of 0.617 and between economic growth with the Theil index of 0.532. In addition, the results of this correlation are not statistically strong because they are not significant at = 5%. The results of the correlation analysis are not in line with the Kuznets hypothesis on neoclassical growth which is indicated by the trend line and scatterplot pattern that does not show a inverted U-curve on the relationship curve of economic growth rate with Williamson inequality index and Theil index. Thus, it can be said that the neoclassical growth model on

the Kuznets inverted U curve hypothesis does not apply in South Kalimantan Province during 2011-2019,

In overcoming the problem of widening inequality, policies that can be taken by the government must be able to balance the acceleration of the economic growth rate with equal distribution between districts and cities in South Kalimantan Province. One policy that can be made is that development planning is prioritized in relatively underdeveloped areas. To increase the capacity of regions that are still underdeveloped, the government of South Kalimantan Province can empower human resources by managing the existing regional potentials.

When the findings of this study are compared to other socio-economic issues such as education, health, labor force, and others, they become more important. As a result, the author recommends additional future research, which should be able to examine diverse concerns in greater depth and breadth. The author advises a broader and more complete study on regional features that may generate regional differences because this study does not cover the components that drive regional disparities.

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