

Research article

What are the Leading Sectors Expected to Reduce Inequality in South Sumatra Province?

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Abstract: This study aims to find out the leading sectors and to analyze income inequality in South Sumatra Province, which the result is very important since no recent research has been done in this field for the study area. The data used in this study are secondary data from 2011-2020 which are sourced from the publications of the BPS-Statistic of South Sumatra Province. To find out inequality and investigate its causes, Klassen typological analysis, Williamson index, and Theil's entropy index are used. Meanwhile, to analyze the potential leading sectors, a combination of Location Quotient analysis, Shift Share Analysis, and sectoral typology is used. The results of this study suggest that local governments develop the agricultural sector because it is proven to have excellent potential as a leading sector. In addition, the trade, hotel, and restaurant sector is a special sector and good to be developed because eleven regencies/cities have high potency for this sector. The results of the study also show that the regencies/cities in South Sumatra Province are grouped in quadrant III of Klassen's, which is a relatively underdeveloped area. Income inequality in South Sumatra Province is categorized high with a Williamson index of 0.71, with the cause of the inequality being the inequality between groups of regencies/cities producing oil and gas.

Keywords: inequality income; Theil entropy index; sectoral typology

JEL Classification: R11, R12, R13

Abstrak: Penelitian ini bertujuan untuk menemukan sektor unggulan dan menganalisis ketimpangan pendapatan di Provinsi Sumatera Selatan, dimana hasilnya sangat penting karena tidak ada penelitian mutakhir pada bidang ini di lokasi penelitian. Data yang digunakan dalam penelitian merupakan data sekunder tahun 2011-2020 yang bersumber dari publikasi Badan Pusat Statistik (BPS) Provinsi Sumatera Selatan. Untuk mengetahui ketimpangan dan menyelidiki penyebabnya digunakan analisis tipologi Klassen, indeks Williamson, dan indeks entropi Theil. Sedangkan untuk menganalisis sektor unggulan yang potensial untuk dikembangkan digunakan kombinasi analisis Location Quotient, Shift Share Analysis, dan tipologi sektoral. Hasil penelitian ini menyarankan pemerintah daerah untuk mengembangkan sektor pertanian karena terbukti memiliki potensi yang baik sekali sebagai sektor unggulan. Selain itu, sektor perdagangan, hotel, dan restoran merupakan sektor yang istimewa dan baik untuk dikembangkan karena terdapat sebelas kabupaten/kota yang potensial terhadap sektor tersebut. Hasil penelitian memperlihatkan bahwa kabupaten/kota di Provinsi Sumatera Selatan mengelompok pada kuadran III dari Klassen, yaitu daerah relatif tertinggal. Ketimpangan pendapatan di Provinsi Sumatera Selatan tergolong tinggi dengan indeks Williamson sebesar 0,71 dengan penyebab ketimpangannya adalah ketimpangan antar kelompok (between) kabupaten/kota penghasil migas.

Kata Kunci: Ketimpangan pendapatan; indeks entropi Theil; tipologi sektoral

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1. INTRODUCTION

One of the criteria for the success of a region's development is the rate of economic growth. However, high and continuously increasing economic growth does not automatically eliminate inequality in development. BPS-Statistic Indonesia released the Gini ratio figure national level of 0.385 as of September 2020. That figure shows an increase compared to that of March 2020, which was recorded at 0.381. Even though, from September 2014 to September 2019 the trend of Gini ratio had been decreasing. Several studies on inequality income have been conducted in various regions in Indonesia, either at district, regency/city, provincial, or national levels. At the district level, the findings (Mauliddiyah, 2014) show that the result of the Williamson index among districts in Batu City has a pattern of inequality that tends to be widened. Furthermore, income inequality in Wonogiri Regency tends to fluctuate, with Wonogiri District being the area where the largest inequality takes place, based on the Theil entropy index analysis (Pamrihnan & Cahyadin, 2016). The calculation results with Theil entropy index in Riau Province show for 2012–2016 period is decreased with the source of inequality comes from within the development area with the percentage of 58-68% of total inequality (Hidayat et al., 2018). At the regency/city level, inequality among regency/cities in Gorontalo shows an increasing trend with the Williamson index value of 0.36 (Mopangga, 2011). Likewise, the income inequality between regencies/cities in Central Java in the period 2000-2014 is very high (Soebagyo et al. 2019). The results of research in Banten Province show that income inequality is very high and tends to increase (Irkham, 2019). Likewise, with the results of a study in East Kalimantan Province, Williamson index analysis shows an increasing trend (Yuliani, 2015). On the contrary, the results of the analysis of inequality in South Sulawesi Province concluded that there was a decrease in the Williamson index value of 0.64 (Iskandar & Saragih, 2018). In line with this, inequality in South Kalimantan Province also shows a decline, but development inequality is still worrying (Maulana, 2019).

At the national level, the calculation of the Williamson index among provinces in Indonesia for the 2006-2011 period reached a value of 0.796 with an increasing trend (Mahardiki & Santoso, 2013). This means that level of inequality is quite high and escalating. In line with this research, Sukwika (2018) concludes that there is an economic gap (GDP per capita) among provinces in Indonesia during the period 2011-2015 with a Williamson index value of 0.7. However, the study of Andhiani et al. (2018) found that inequality among provinces in the Sumatra region for the 2011-2015 period was low with a Williamson index value of 0.4. However, in contrast to other provinces in the Sumatra region, the Williamson index calculation for South Sumatra Province in this study resulted in a value of 0.768. This means that inequality in South Sumatra Province is categorized high, meanwhile, other studies show that inequality in South Sumatra for the 2004-2014 period is categorized low (Mukhlis, 2020).

Data released by BPS (BPS-Statistic of South Sumatra Province, 2021) shows that the Gini ratio of South Sumatra as of March 2021 shows an increase of 0.009 points compared to that of September 2020. South Sumatra's economic growth in 2020 also contracted by 0.11 percent compared to the previous year's figure. Based on 2010 constant prices, the Gross Domestic Regional Product (GRDP) figure decreased by 330 billion rupiahs compared to that of 2019. The slowdown in economic growth was due to the economic recession as the impact of the Covid-19 pandemic. It has been admitted that the Covid-19 pandemic has a direct impact on increasing inequality of distribution income (Suparmono & Partina, 2021). Based on the above background, we are interested in dissecting more deeply the inequality in South Sumatra Province. Although there have been previous studies showing the level of inequality in the study area, however, there is no recent study that discusses inequality among regencies/cities in the study area. Hence, the purpose of this study is to investigate the potential sectors that can be developed to reduce inequality among these regions and to study the level of inequality in regencies/cities in South Sumatra and its causes, using the latest data. Thus, this study is expected to complement the results of previous studies and be used as a reference for the government in determining future policies.

2. RESEARCH METHODS

2.1. Data

The data used in this study sourced from data released by the BPS of South Sumatera Province for the 2011-2020 period, which includes data on Gross Regional Domestic Product (PDRB) at Current Prices (ADHB), GRDP at Constant Prices (ADHK), GRDP per capita, economic growth rate, as well as the total population of all regencies/cities in South Sumatera Province.

This research uses a quantitative approach. To analyze the inequality among regencies/cities and their causes, Klassen Typology, Williamson Index, Theil's Entropy Index, and Kuznets Hypothesis are used. This analysis is relevant to be used to analyze inequality in South Sumatera Province because from Klassen's typology the description of the classification regencies/cities in South Sumatera are obtained (Saputri & Boedi, 2018), then from the Williamson index it can be known the value of the inequality that occurs (Andhiani et al., 2018), then from Theil's entropy index, it can be seen the cause of the inequality (Tabetando, 2014), while from the Kuznets hypothesis it will be proven whether this hypothesis also applies in South Sumatera (Tadjoeddin, 2013). Meanwhile, to identify potential economic sectors in South Sumatera Province, Location Quotient analysis, Shift-Share analysis, and sectoral typology are used.

2.2. Klassen Typology

Klassen Typology Analysis in this study is used to determine the characteristics of each regency/city in South Sumatera Province. According to Kuncoro (2013), Klassen's typology divides regions based on two economic indicators, namely the rate of economic growth and GRDP per capita. Regional classification based on Klassen typology is divided into four classifications as follows: Presents analysis methods in subtitles, such as presenting a model in the form of a function with equation tools in Microsoft Word, and each equation is numbered. Example:

Table 1. Classification of Regions according to Klassen Typology

GRDP Per Capita (y)		$y_j \geq y$		$y_j < y$	
		$r_j \geq r$		$r_j < r$	
		Fast developing and fast growing (High growth and high income) Quadrant I		Fast developing (High growth but low income) Quadrant II	
		Developed but depressed (High income but low growth) Quadrant IV		Relatively underdeveloped (Low growth and low income) Quadrant III	

Source: Kuncoro, 2013

where: r_j is regency/city economic growth rate j ; r is the rate of economic growth of South Sumatera Province; y_j is GRDP per capita regency/city j ; y is GRDP per capita of South Sumatera Province.

2.3. Williamson Index (WI)

The easiest analytical method to use to measure inequality among regions is the Williamson Index because this index is a modification of the variance formula with certain weights (Irkham, 2019). According to Kuncoro (2004), the Williamson Index formula is as follows:

$$WI = \frac{\sqrt{\sum (y_j - y)^2 (x_j / n)}}{y} \tag{1}$$

where: WI is Williamson Index; y_j is GRDP per capita region j ; y is GRDP per capita of South Sumatera Province; x_j is the total population of area j ; and the notation n is the total population of South Sumatera Province

The Williamson Index value is in the range from 0 to 1. If the value is close to zero, it means that development among regions is more evenly distributed. However, if the value is further from zero or closer to one, it means that the inequality is widening. The level of inequality is divided into three levels, namely low, medium, and high levels. It is categorized as low if the Williamson index is smaller than 0.3; medium-level if the Williamson index is between 0.3 – 0.5 and high level if the Williamson index value is greater than 0.5 (Syafrizal, 2008).

2.4. Theil's Entropy Index (TEI)

According to Kuncoro (2002), Theil's Entropy Index (TEI) is to provides a sharp view of regional per capita income and income inequality. The advantage of Theil's entropy index compared to other indices is its ability to see inequality within regions and inequality between regions. In this study, income inequality is divided into two groups of analysis, i.e., the group of oil and gas producing regencies/cities and non-oil and gas-producing regencies/cities. To calculate regency/city inequality, Theil Entropy Index (TEI) is used with the following formulation (Kuncoro, 2004):

$$TEI = \sum \left(\frac{y_j}{y} \log \left[\frac{\left(\frac{y_j}{y} \right)}{\left(\frac{x_j}{x} \right)} \right] \right) \quad (2)$$

where: *TEI* is Theil Entropy Index; y_j is GRDP per capita regency/city j ; y is GRDP per capita South Sumatera Province; x_j is total population regency/city j ; x is total population South Sumatera Province.

Theil Entropy Index value does not have a maximum or minimum limit. The larger the value means the greater the inequality that occurs. On the contrary, if the index value is smaller, it means that there is an even distribution. Furthermore, to calculate inequality within groups and among groups, the following formula is used (Tadjoeddin, 2003):

$$T = Tw + Ta \quad (3)$$

$$T = \sum_i \left(\frac{Y_i}{Y} \right) T_i + \sum_i \left(\frac{Y_i}{Y} \right) \ln \left(\frac{Y_i}{Y} \right) \quad (4)$$

$$T_i = \sum_j \left(\frac{Y_{ij}}{Y_i} \right) \ln \left(\frac{Y_{ij}}{Y_i} \right) \quad (5)$$

where: T is Theil Index; Y_{ij} is GRDP of regency/city i group j ; Y is GRDP of South Sumatera Province; \bar{Y}_{ij} is GRDP per capita regency/city i group j ; \bar{Y} is the GRDP per capita of South Sumatra Province; Tw is inequality within the group (within-region inequality); Ta is inequality among groups (among-region inequality).

2.5. Kuznets Hypothesis and Pearson Correlation

The Kuznets hypothesis is better known as the inverted U-curve. Proof of the hypothesis is done by making a graph between economic growth and the Williamson Index (Hariani & Silvia, 2014). In addition, according to Yuliani (2015), the proof of the Kuznets hypothesis can be done by looking at the relationship between economic growth and the Williamson Index. The conditions that must be met so that the relationship between the two has the shape of an inverted U-curve, is β_2 with a negative value. The regression equation was obtained by quadratic regression analysis.

Apart from proving the Kuznets Curve, Pearson Correlation analysis is also conducted to see the relationship between economic growth variables and the Williamson Index as a representation of regional inequality. The formula used to calculate the Pearson Correlation is as follows (Subagy & Djarwanto, 2005):

$$r_{xy} = \frac{n \sum_{j=1}^n x_j y_j - (\sum_{j=1}^n x_j)(\sum_{j=1}^n y_j)}{\sqrt{[n \sum_{j=1}^n x_j^2 - (\sum_{j=1}^n x_j)^2]} \sqrt{[n \sum_{j=1}^n y_j^2 - (\sum_{j=1}^n y_j)^2]}} \quad (6)$$

where: r_{xy} is correlation coefficient; x_j is economic growth; y_j is Williamson Index; n is several observations.

The value of r ranges from -1 to 1. If the value of r is close to or equal to zero, meaning that the relationship between the two variables is very weak or there is no relationship at all. However, if the value of $r = 1$ or close to 1, the relationship between the two variables is considered to be positive or very strong. A positive r value indicates a unidirectional relationship, while a negative r value indicates an opposite relationship.

2.6. Location Quotient (LQ) Analysis

After the level of inequality and its causes are analyzed, then the identification of the base sector or leading sector of each regency/city in South Sumatera Province is carried out. The analytical technique used in this research is Location Quotient (LQ). This analytical technique is an initial way to identify the ability of a region in certain sector activities, formulated as follows (Iswanto, 2015):

$$LQ = \frac{\frac{S_j}{N_j}}{\frac{S}{N}} \quad (7)$$

where: LQ is Location Quotient; S_j is the value-added sector at regency/city level; S is GRDP in regency/city i ; N_j is the value-added sector at the provincial level; N is GRDP at the provincial level.

2.7. Shift Share Analysis

To determine the economic performance of regencies/cities compared to South Sumatera Province, Shift Share Analysis (SSA) is used. SSA is considered capable to see the economic structure more sharply (Tarigan, 2007). Shift Share Analysis is formulated as follows (Blair, 1991):

$$\Delta X_i = a + P_j + D_j \quad (8)$$

$$\text{With: } a = X_{ij(t_0)} \left(\frac{X_{\dots t_1}}{X_{\dots t_0}} - 1 \right) P_j = X_{ij(t_0)} \left(\frac{X_{i(t_1)}}{X_{i(t_0)}} - \frac{X_{\dots(t_1)}}{X_{\dots(t_0)}} \right) D_j = X_{ij(t_0)} \left(\frac{X_{i(t_1)}}{X_{i(t_0)}} - \frac{X_{i(t_1)}}{X_{i(t_0)}} \right)$$

where: a is component regional share; P_j is component proportionality shift; D_j is a component differential shift; ΔX_i is the change in the value of the activity of a particular sector; X_n is total activity value in the total area; X_i is the total value of certain activities in the total area; X_{ij} is the value of certain sector activities in certain sub-regions; t_1 is the end of year point; t_0 is starting year point.

2.8. Sectoral Typology

By combining the calculation results of the LQ index with the components of Differential Shift (D_j) and Proportionality Shift (P_j) in SSA, the sectoral typology can be determined. Thus, it can be seen the potential level of an economic sector that can be developed (Iswanto, 2015). The classification of sectoral typologies in Table 2.

Table 2. Sectoral Typology

Typology	Average LQ	Average Dj	Pj Average	Potential Level
I	$LQ > 1$	$D_j > 0$	$P_j > 0$	Special
II	$LQ > 1$	$D_j > 0$	$P_j < 0$	Excellent
III	$LQ > 1$	$D_j < 0$	$P_j > 0$	Good
IV	$LQ > 1$	$D_j < 0$	$P_j < 0$	More than enough
V	$LQ < 1$	$D_j > 0$	$P_j > 0$	Adequate
VI	$LQ < 1$	$D_j > 0$	$P_j < 0$	Almost than enough
VII	$LQ < 1$	$D_j < 0$	$P_j > 0$	Not enough
VIII	$LQ < 1$	$D_j < 0$	$P_j < 0$	Not much

Source: Iswanto (2015)

3. RESULTS AND DISCUSSION

The value of the contribution of each business field in producing goods and services determines the economic structure of a region. In the 2016-2020 period, the economic structure of South Sumatera Province is dominated by five business sectors, i.e mining and quarrying; manufacturing; agriculture, forestry, and fishing; wholesale and retail trade, repair of cars and motorcycles; and construction (BPS Province of South Sumatera, 2021). If grouped into nine main business sectors, the economic structure of South Sumatera Province is as shown in Figure 1.

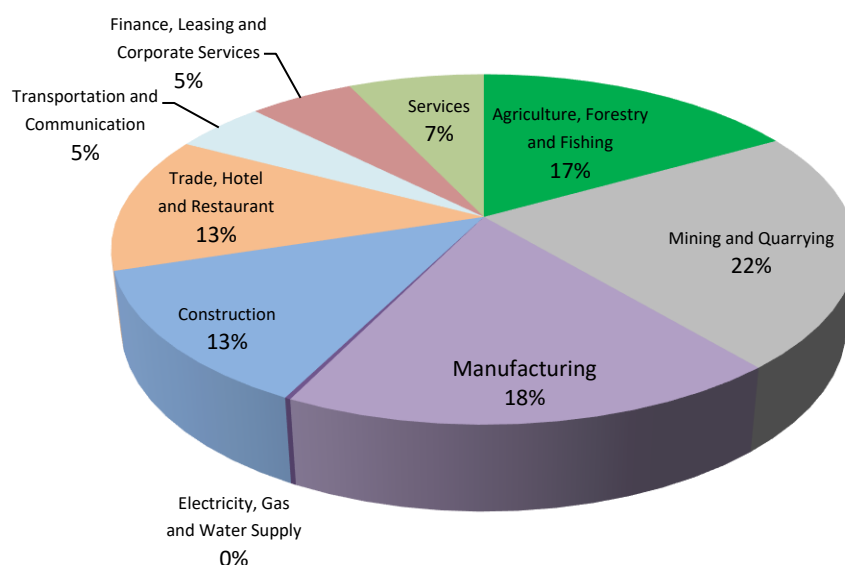


Figure 1. Economic Structure of South Sumatera Province for the Period 2011-2020

Source: BPS, Statistic of South Sumatera Province, processed

Figure 1 reports that the economy of South Sumatera is supported by five main sectors, if these sectors are shaken due to economic crises for example, then the economy of South Sumatera will be significantly affected. In the 2011-2020 period, the five main sectors experienced a slowdown in growth, which greatly impact the economic growth of South Sumatera (BPS South Sumatera Province, 2021). The slowing economy of South Sumatera is certainly related to the economic conditions of the 17 regencies/cities under its administration (Figure 2). The direction of economic growth of regencies/cities in the South Sumatera Province as shown in Figure 2 tends to be the same every year. From Figure 2, it can also be seen that economic growth in the 2011-2019 period fluctuated and then fell into a free fall in 2020. The contraction in economic growth in 2020 was the impact of the Covid-19 pandemic which had caused an economic recession (BPS Province of South Sumatera, 2021).

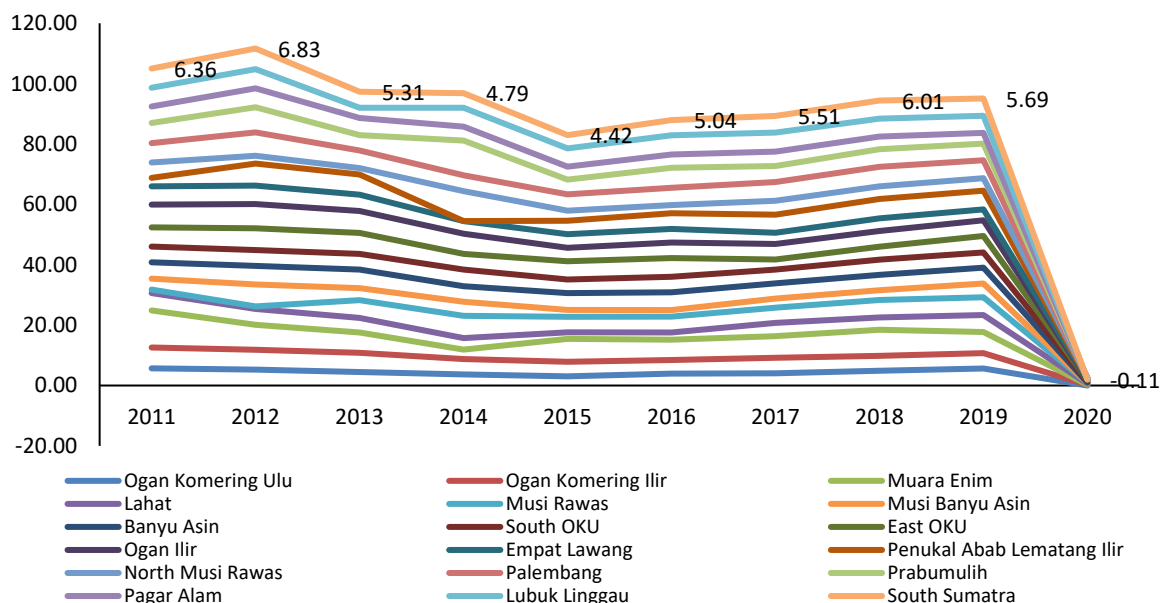


Figure 2. Regency/Municipality Economic Growth in South Sumatera Province, 2011-2020

Source: BPS, Statistic of South Sumatera Province, processed

Although the rate of economic growth of the South Sumatera and its regencies/cities, during the 2011-2020 period tends to fluctuate, however, the value of GRDP per capita tends to increase every year. This can be seen more clearly in Figure 3.

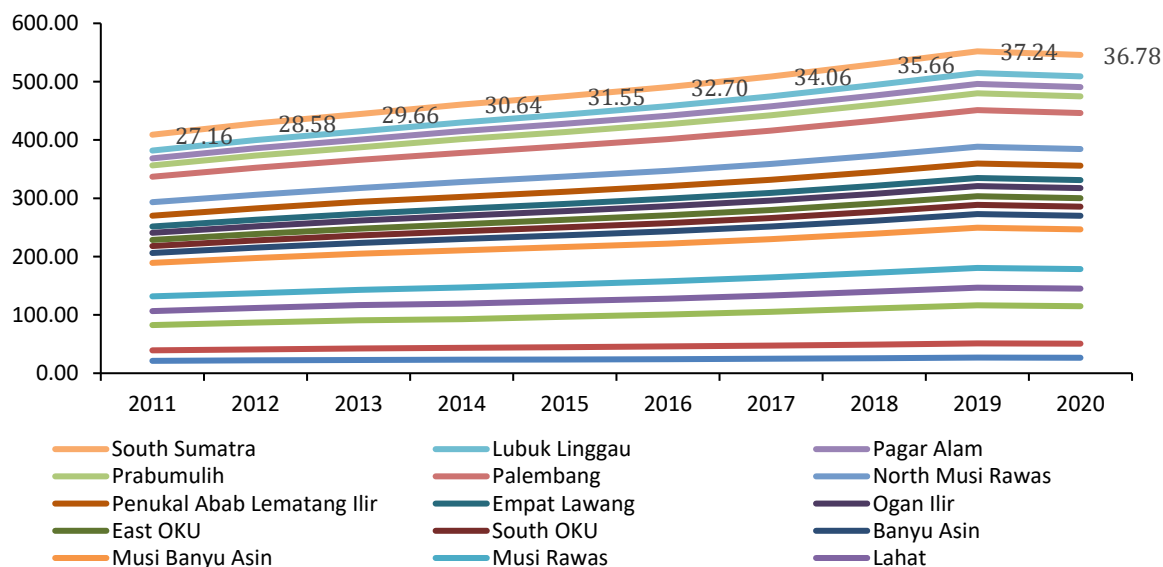


Figure 3. GRDP per Capita of South Sumatera Province, 2011-2020

Source: BPS, Statistic of South Sumatera Province, processed

The GRDP per capita of South Sumatera Province during the 2011-2020 period has increased by 35.44 percent. The highest increase was experienced by Muara Enim regency at 48.75 percent, followed by Prabumulih city and Palembang city at 46.57 percent and 41.79 percent, respectively. When examined deeper, there is a significant income inequality among regencies/cities. Muara Enim Regency has the highest average income of 54.32 million rupiahs per capita per year. While Empat Lawang Regency has an average income of 12.55 million rupiahs per capita per year, there is a relatively wide gap between the two.

Table 3. Average GRDP per capita and average Economic Growth of South Sumatera, 2011-2020

No	Regency/City	Average GRDP Per Capita (Million Rupiah)	Average Growth Rate (%)
1.	Ogan Komering Ulu	24.06	4.07
2.	Ogan Komering Ilir	21.46	4.95
3.	Muara Enim	54.32	6.77
4.	Lahat	27.25	3.87
5.	Musi Rawas	29.38	4.26
6.	Musi Banyuasin	64.21	3.47
7.	Banyu Asin	20.41	4.98
8.	South OKU	13.95	4.59
9.	East OKU	12.90	5.15
10.	Ogan Ilir	15.15	5.47
11.	Empat Lawang	12.55	4.25
12.	PALI	21.67	4.52
13.	North Musi Rawas	26.10	3.91
14.	Palembang	53.63	5.48
15.	Prabumulih	24.61	5.95
16.	Pagar Alam	14.32	4.32
17.	Lubuklinggau	16.09	5.24
South Sumatera		32.40	4.99

Source: BPS, Statistic of South Sumatera Province, processed

Sarnowo (2017) in his research concludes that South Sumatera Province according to Klassen's typology is included in the classification of high growth but low-income areas (quadrant II). Based on the indicators of the average GRDP per capita and the average rate of economic growth during the 2011-2020 period above, the regencies/cities in the South Sumatera can be classified into four quadrants using Klassen typology analysis

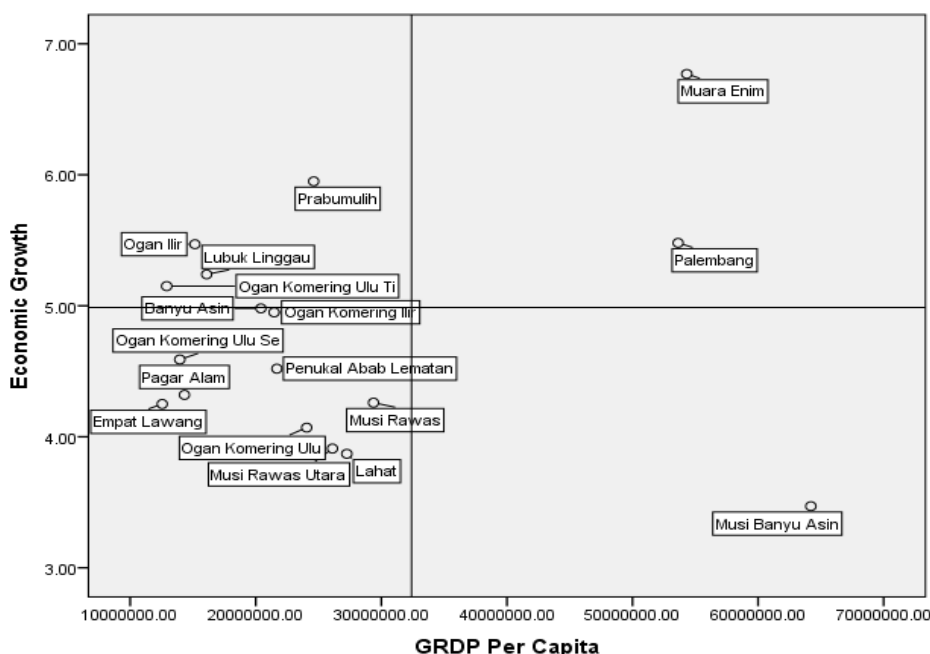


Figure 4. Typology Klassen of Regency/City in South Sumatera Province, 2011-2020

Source: BPS, Statistic of South Sumatera Province, processed

Figure 4 reports Klassen's typology of regencies/cities in South Sumatera Province shows that most regencies/cities fall into the classification of low relatively underdeveloped regions (quadrant III). The regencies/cities in quadrant III are regions that have GRDP per capita and economic growth

lower than the GRDP per capita and economic growth of the South Sumatra Province. Muara Enim Regency and Palembang City are classified as fast-developing and fast-growing regions (quadrant I) because they have GRDP per capita, and economic growth higher than the GRDP per capita and economic growth of South Sumatra Province. Musi Banyu Asin Regency is classified as a developed but depressed region (quadrant IV) because it has GRDP per capita higher than the GRDP per capita of the South Sumatera, but its economic growth is lower than South Sumatera Province's. While those classified into quadrant II, which is a fast-developing area, are East Ogan Komering Ulu Regency, Ogan Ilir Regency, Prabumulih City, and Lubuklinggau City. The regencies/cities in quadrant II are regions with higher economic growth than the South Sumatera Province's economic growth but have lower GRDP per capita than South Sumatera's GRDP per capita

The amount of GRDP per capita of a region is an illustration of the level of welfare of its people from the economic side. GRDP per capita of a region is a general description of the region's income. The various characteristics among regions cause income inequality among regions and economic sectors in a region. Income inequality among regencies/cities in South Sumatera illustrates the condition of economic development in the province. This can be seen from the distribution of GRDP per capita among regencies/cities analyzed using the Williamson index.

Analysis of Williamson index on GRDP per capita among regencies/cities in South Sumatera in the 2011-2020 period resulted in an average figure of 0.71. This figure shows that the level of income inequality among regions is at a high level. This result is in line with the findings of Andhiani et al. (2018), that inequality in South Sumatera for the 2011-2015 period reached 0.768. The Williamson index graph (Figure 5) shows that inequality among regencies/cities in South Sumatera has a fluctuating trend. However, during the research period, the resulting figures showed an increase from 0.70 in 2011 to 0.72 in 2020. This is quite worrying, but still better if compared to inequality in Banten Province. On the contrary, the inequality rate in South Kalimantan Province is even lower. The high inequality in South Sumatera occurs because the difference in GRDP per capita among regions is uneven, this is partly due to the presence of the oil and gas sector in some areas.

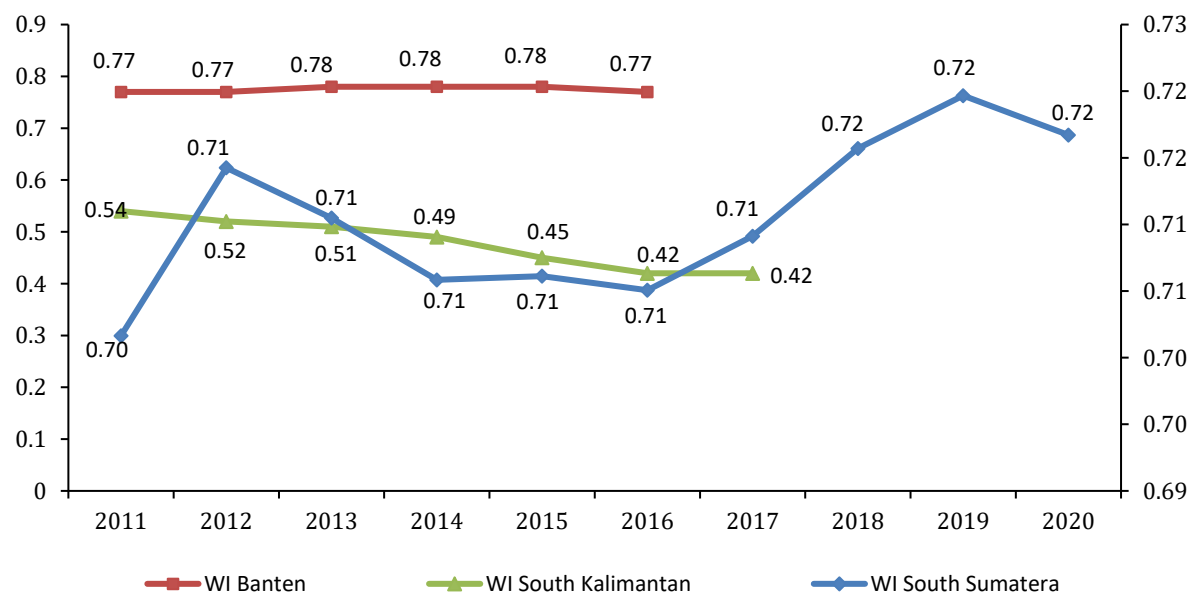


Figure 5. Williamson Index for the South Sumatera (2011-2020), South Kalimantan Province (2011-2017), and Banten (2011-2016).

Source: Source: BPS-Statistic of South Sumatera Province (processed), Irkham (2019), and Maulana (2019)

The natural resource wealth, such as oil and gas, in each different region, causes income inequality from which each region generates enormous income for the area. Some regencies/cities in South Sumatera have an abundance amount of oil and gas and non-oil and gas resources such as coal, besides agricultural sector which altogether are the mainstay sectors generating high value-added in GRDP. Muara Enim Regency and Palembang city have the highest per capita income even

without including the oil and gas sector. The existence of large companies in that regions contributes greatly to the regional economy; in the meantime, the oil and gas sector is still believed of being the trigger for increasing inequality among regions. The level of inequality among regencies/cities in South Sumatera, when viewed from the Theil T index, shows low inequality, although, during the research period, the value has increased from 0.092 in 2011 to 0.096 in 2020. The Theil T index decomposition is used to see the inequality between the regional group and inequality within the observed regional group. The South Sumatera region is grouped into groups of oil and gas producing regencies/cities and non-oil and gas-producing regencies/cities.

Table 4. Decomposition of Theil T Index of South Sumatera Province in 2011-2020

Year	Theil T Index	Between (Tb)		Within (Tw)	
		Index	Contribution	Index	Contribution
2011	0.09249	0.0637	68.89	0.0288	31.11
2012	0.09475	0.0651	68.67	0.0297	31.33
2013	0.09542	0.0655	68.66	0.0299	31.34
2014	0.09566	0.0656	68.61	0.0300	31.39
2015	0.09805	0.0673	68.68	0.0307	31.32
2016	0.09718	0.0664	68.28	0.0308	31.72
2017	0.09681	0.0657	67.89	0.0311	32.11
2018	0.09635	0.0651	67.53	0.0313	32.47
2019	0.09666	0.0652	67.44	0.0315	32.56
2020	0.09658	0.0652	67.53	0.0314	32.47

Source: BPS-Statistic of South Sumatera Province, processed

Table 4 reports that inequality between groups is greater in contribution than inequality within groups. The contribution of inequality between groups is 68.22 percent of the total inequality in South Sumatera Province. This proves that the existence of the oil and gas sector in certain regencies/cities in South Sumatera is the cause of inequality to other regions that do not have oil and gas resources.

Table 5. Theil Entropy Index (TEI) of Regencies/Cities in South Sumatera Province, 2011-2020

No	Regency/City	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average
1	Ogan Komering Ulu	0.98	0.96	0.94	0.92	0.90	0.89	0.86	0.85	0.84	0.84	0.90
2	Ogan Komering Ilir	0.55	0.54	0.55	0.55	0.54	0.54	0.53	0.52	0.51	0.51	0.53
3	Muara Enim	2.13	2.15	2.17	2.11	2.18	2.21	2.24	2.29	2.32	2.30	2.21
4	Lahat	1.11	1.08	1.08	1.06	1.03	1.00	0.98	0.96	0.96	0.96	1.02
5	Musi Rawas	1.20	1.11	1.11	1.14	1.14	1.14	1.13	1.12	1.12	1.12	1.13
6	Musi Banyu Asin	3.06	3.05	2.98	2.96	2.86	2.74	2.63	2.53	2.48	2.46	2.77
7	Banyu Asin	0.50	0.49	0.49	0.49	0.49	0.49	0.49	0.48	0.47	0.47	0.48
8	South OKU	0.44	0.43	0.43	0.43	0.43	0.42	0.42	0.41	0.40	0.41	0.42
9	East OKU	0.26	0.26	0.27	0.27	0.27	0.28	0.27	0.26	0.26	0.26	0.27
10	Ogan Ilir	0.43	0.43	0.44	0.45	0.45	0.45	0.44	0.43	0.43	0.43	0.44
11	Empat Lawang	0.45	0.44	0.44	0.44	0.43	0.43	0.42	0.41	0.39	0.39	0.42
12	PALI	1.01	1.01	1.03	0.96	0.95	0.95	0.95	0.95	0.95	0.95	0.97
13	North Musi RAwas	1.34	1.27	1.22	1.29	1.27	1.23	1.21	1.18	1.15	1.16	1.23
14	Palembang	1.47	1.48	1.48	1.47	1.49	1.49	1.50	1.50	1.49	1.48	1.48
15	Prabumulih	1.08	1.09	1.08	1.17	1.17	1.18	1.17	1.17	1.16	1.15	1.14
16	Pagar Alam	0.63	0.63	0.63	0.63	0.63	0.62	0.62	0.61	0.59	0.59	0.62
17	Lubuklinggau	0.62	0.61	0.59	0.60	0.61	0.62	0.62	0.61	0.61	0.61	0.61

Source: BPS-Statistic of South Sumatera Province (processed)

Based on the economic structure of South Sumatera (Figure 1), it can be seen that the oil and gas sector provides the largest contribution so that oil and gas producing regencies/cities will have higher incomes than that non-oil and gas-producing. In contrast to the findings of Kartiasih (2019) in East Kalimantan Province, the inequality that occurs is due to inequality within groups of oil and gas producing regencies/cities. This may be since regencies/cities in East Kalimantan as a whole have equal oil and gas potential so that inequality within groups contributed greater.

Regional grouping by combining Klassen typology and Theil Entropy Index (TEI), has obtained the Klassen typology classification according to TEI (Table 5). From Table 5, it can be concluded that the fast-developing and fast-growing regions, i.e Muara Enim Regency and Palembang City have a high level of inequality with a TEI value >1. Likewise, Musi Banyu Asin Regency (developed but depressed area) and Prabumulih City (fast developing area) have a high level of inequality (TEI >1). Meanwhile, for areas classified as relatively underdeveloped, high inequality (IET > 1) was also found, i.e., Lahat, Musi Rawas, and Musi Rawas Utara Regencies. If we look closely at the regencies/cities with TEI > 1, almost all of them are oil and gas producing areas.

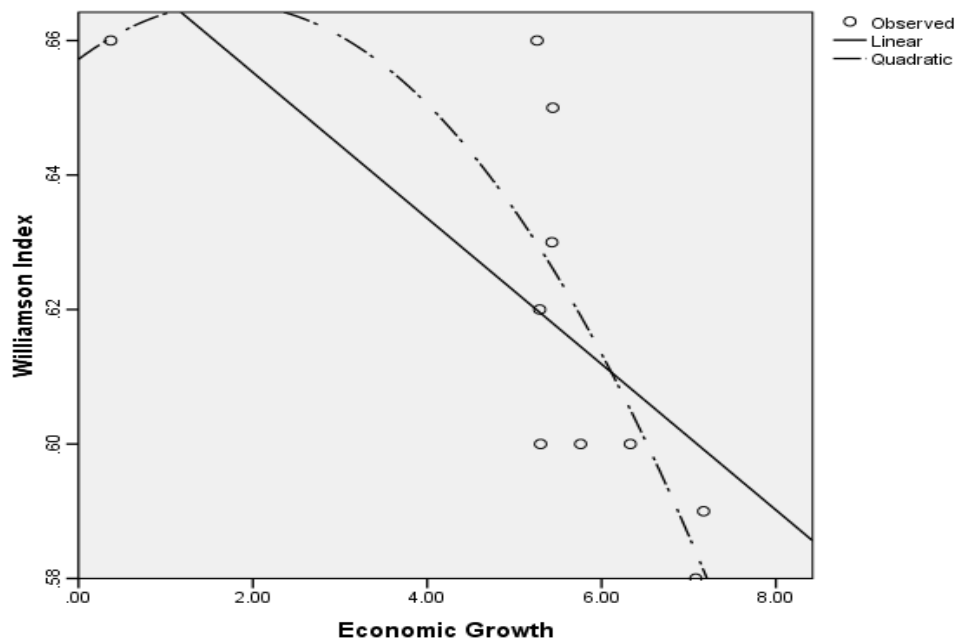


Figure 6. The Curve of the Relationship between Economic Growth and the Williamson Index

Source: BPS-Statistic of South Sumatera Province, processed

The Kuznets hypothesis predicts that in the early stages of growth, income distribution tends to worsen and inequality will increase. In the next stage, the inequality will decrease and an even distribution of GRDP per capita will be achieved (Todaro, 2004). To prove whether the Kuznets hypothesis is valid in South Sumatera, a plot of economic growth and the Williamson index was carried out, using economic growth as the independent variable and the Williamson index as the dependent variable. Figure 6 shows that the curve formed is an inverted U-curve. This is in line with the research conducted by Nurhuda (2013).

Table 6. Pearson Correlation between Economic Growth and Williamson Index

		Williamson Index	Economic Growth
Williamson Index	Pearson Correlation	1	-0.694*
	Sig. (1-tailed)		0.013
	N	10	10
Economic Growth	Pearson Correlation	-0.694*	1
	Sig. (1-tailed)	0.013	
	N	10	10

Source: BPS-Statistic of South Sumatera Province, processed

The results of the Pearson correlation calculation show that the relationship between economic growth and the Williamson index is negatively correlated, which means that if economic growth increases, the level of inequality will decrease. These results are consistent with research conducted by Yuliani (2015); Iskandar & Saragih (2018); and Kartiasih (2019). The several analysis that has been carried out previously narrowed to several conclusions that inequality calculated by the Williamson

index showed a high level of inequality, and during the research period the trend fluctuated. Based on the Theil index, it is known that the cause of inequality among regencies/cities in South Sumatera is inequality among groups of regencies/cities producing oil and gas, meanwhile among groups of non-oil and gas regencies/cities tends to occur evenly. Based on this result, the research is continued to identify the basic sectors or leading sectors using LQ analysis.

The normative standard to be defined as the base sector or the leading sector is the one with an LQ value > 1. Thus, these sectors have the potential to be developed so that the regency/city economic growth rate increases. If an area has many sectors that produce an LQ value > 1, but only one is the focus, then the sector with the largest LQ value should be chosen Iswanto (2015).

Table 7. Results of LQ Analysis of South Sumatera Province for the Period 2011-2020

Regency/City	Economic Sector								
	S1	S2	S3	S4	S5	S6	S7	S8	S9
Ogan Komering Ulu	1.32	0.74	0.86	0.93	0.95	1.32	0.53	1.27	0.94
Ogan Komering Ilir	3.58	0.05	0.34	0.29	0.92	0.77	0.23	0.51	0.98
Muara Enim	0.67	2.56	0.73	0.60	0.44	0.54	0.40	0.29	0.48
Lahat	1.21	1.73	0.24	1.81	0.70	1.01	0.38	0.74	1.32
Musi Rawas	1.90	1.54	0.65	0.14	0.44	0.59	0.15	0.35	0.95
Musi Banyu Asin	0.73	2.74	0.40	0.21	0.56	0.30	0.09	0.60	0.79
Banyu Asin	2.08	0.32	1.34	0.49	1.00	0.93	0.53	0.15	0.83
South OKU	2.07	0.08	0.40	0.47	1.32	1.63	0.29	1.01	1.69
East OKU	2.28	0.12	0.44	0.29	1.43	1.30	0.44	0.65	1.48
Ogan Ilir	1.44	0.38	0.61	0.36	1.31	1.59	0.32	0.81	1.94
Empat Lawang	2.28	0.17	0.53	0.51	0.91	1.47	0.53	1.27	1.20
PALI	1.04	2.09	0.11	0.37	1.05	1.04	0.18	0.65	0.50
North Musi RAwas	2.85	1.14	0.32	0.15	0.41	0.50	0.27	0.40	0.93
Palembang	0.03	0.00	1.86	2.09	1.44	1.42	2.43	1.78	1.13
Prabumulih	0.46	0.50	0.47	0.79	1.49	2.07	0.75	2.49	1.53
Pagar Alam	1.43	0.12	0.08	0.47	1.38	1.84	0.97	1.84	2.43
Lubuklinggau	0.35	0.08	0.36	1.47	1.96	1.82	1.53	2.82	2.22

Note: S1 is agriculture, forestry, and fishing sector; S2 is the mining and quarrying; S3 is the manufacturing sector; S4 is electricity, gas, and supply water sector; S5 is the construction sector; S6 is the trade, hotel, and restaurant sector; S7 is transportation and communication sector; S8 is finance, leasing, and corporate services; and S9 is services Sector.

Source: BPS-Statistic of South Sumatera Province, processed

LQ analysis of regencies/cities in South Sumatera for the period of 2011-2020 shows eight regencies/cities wherein the agricultural sector is chosen as the leading sector in boosting their economic growth. Those eight regencies are Ogan Komering Ulu, Ogan Komering Ilir, Musi Rawas, Banyuasin, South OKU, East OKU, Empat Lawang, and North Musi Rawas. During this period, the regency with the highest LQ value in the agricultural sector was Ogan Komering Ilir.

Table 8. Typology of Sectoral Regencies/Cities in South Sumatera Province, 2011-2020

Sector	The number of regencies/cities in each sectoral typology							
	I	II	III	IV	V	VI	VII	VIII
S1	0	4	1	7	0	3	0	2
S2	0	2	0	4	0	10	0	1
S3	0	0	2	0	14	0	1	0
S4	1	0	2	0	9	0	5	0
S5	3	0	6	0	4	0	4	0
S6	5	0	6	0	3	0	3	0
S7	0	0	2	0	9	0	6	0
S8	1	0	6	0	4	0	6	0
S9	0	2	0	7	0	4	0	4

Source: BPS-Statistic of South Sumatera Province, processed

The second leading sector is mining sector, from which three regencies i.e Muara Enim, Musi Banyu Asin, and Penukal Abab Lematang Ilir (PALI) get benefit. The financial sector and services are

also chosen as the leading sectors in several regencies/cities. Based on the LQ analysis, it is also known that none of the regencies/cities have made the construction sector their leading sector, neither trade, hotel, and restaurant sectors. The sectoral typology analysis which is a combination of LQ and SSA shows that only a few regencies/cities have sectors that fall within a special category (type I), other sectors fall within the good category (type III). The rest of the main economic sectors, according to business fields in 17 regencies/cities in South Sumatera, generally only falls within the adequate category (type V).

Table 8 reports that the sector which has an excellent potency to be more developed in the region is the agricultural sector because this sector is growing in the four regencies/cities. Trade, hotel, and restaurant sector is categorized as the special and good sector to be more developed because this sector is currently well growing in 11 regencies/cities. Meanwhile, the manufacturing sector is a sector that is quite good to be developed, because there are 14 regencies/cities, wherein this sector is currently growing. In general, sectors that are potential to be developed in South Sumatera are sectors categorized as types I and III. However, there are also several sectors falling within types VI-VIII, which have no potential to be developed.

4. CONCLUSIONS

The economic structure of South Sumatera Province still relies on the primary sector, especially the mining and quarrying sector, meaning that in the 2011-2020 period there has not been a transformation of the economic structure. The Covid-19 pandemic, which is considered an extraordinary event, was able to bring down South Sumatera's economic growth in 2020 to -0.11 percent. This is the worst history in the last decade. However, the trend created for GRDP per capita tends to increase. In addition, the difference in natural wealth among regencies/cities in South Sumatera has triggered income inequality among regencies/cities. Based on Klassen's typology analysis, it can be concluded that regencies/cities are grouped in quadrant III, falling within the relatively underdeveloped regional classification. This should be the main concern of the regional government of South Sumatra. If measured by the Williamson index, the inequality that occurs among regencies/cities is high, but when compared with the results of previous studies, there are already signs of improvement. Furthermore, the Theil T index can identify the causes of inequality among regencies/cities in South Sumatera, due to the oil and gas producing regencies/cities. The Kuznets hypothesis also applies to South Sumatera in the 2011-2020 period. Based on LQ and SSA, which is used to classify economic sectors into eight sectoral typological classifications, the result of the study shows that the agricultural sector is the excellent sector, while the trade, hotel, and restaurant sector is a special and good sector to be developed, due to fact that there are 11 regencies/cities, where in this sector is currently growing. Nevertheless, the regional government of South Sumatera Province should also put their attention on the sectors which are currently not growing or developing very well.

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