

## Analysis of Economic Growth, Agglomeration and Poverty in Southern Sumatra

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**Abstrak:** This study aims to analyze the pattern of economic growth in the provinces of Southern Sumatra. The scope of the study is the provinces of South Sumatra, Bengkulu, Lampung, Riau, Riau Islands, Bangka Belitung Islands and Jambi. Klassen Typology analysis is used to achieve research objectives. Descriptive analysis was also carried out on agglomeration and poverty that occurred in southern Sumatra. The results of the Klassen typology show that 57.14 percent of the provinces in the southern part of Sumatra are included in the Klassen typology as a category of developed but depressed areas (South Sumatra, Bengkulu, Lampung and Jambi). South Sumatra province is the only region that has agglomeration >1. In terms of poverty, Bengkulu is the region with the highest poverty 17.16% in 2020. It is recommended to increase the role of the secondary and tertiary sectors in order to increase the role of industrial agglomeration

**Keywords:** Klassen Typology, Agglomeration, Poverty, Economic Growth

**JEL:** I3, O1, O4

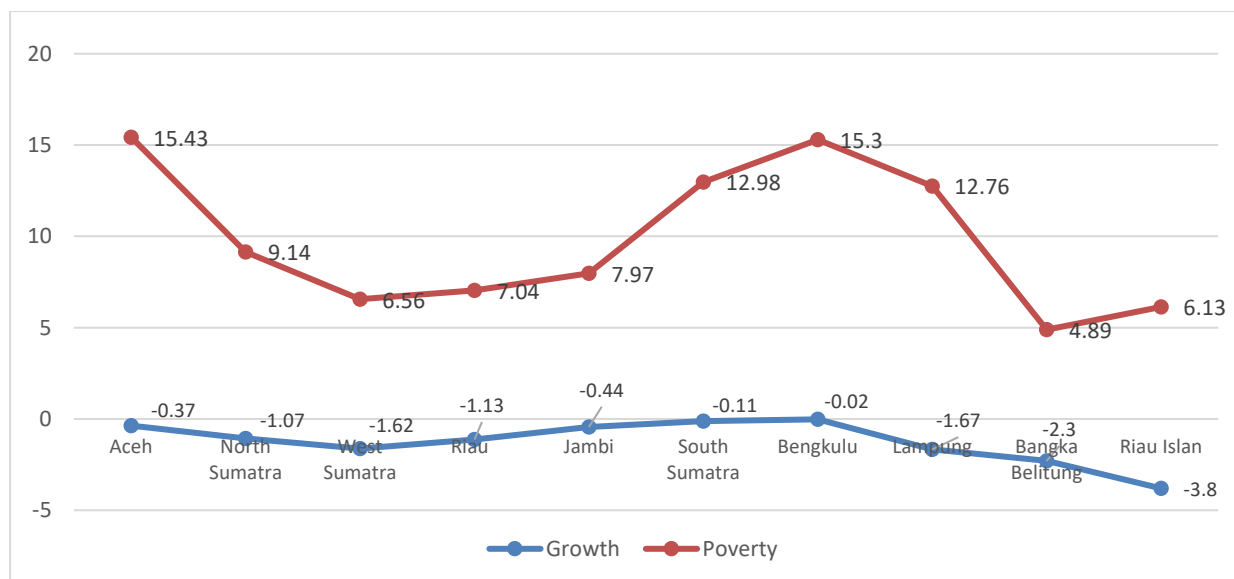
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### 1. INTRODUCTION

The process of economic development reflects the conditions in which the government and the community synergize in managing their resources. The government and the private sector conduct partnership activities to create jobs. This partnership activity is expected to absorb an increase in the number of people working and the welfare of the community can increase. In addition, the development of a region can be seen from the growth that can be achieved. Positive economic growth with equitable development results is the main target of economic development. However, in reality, any regions have high economic growth but do not necessarily have low poverty rates and is not unequal (Andhiani, Erfit, and Bhakti 2018). The global crisis and the Covid-19 pandemic have caused a decrease in the trend of economic growth both globally and nationally. Therefore, sustainable growth and effective economic development are one of the objectives of economic policy in every country (Wahyu Sandhika and Hendarto 2012)

The difference in economic growth in Sumatra causes differences in economic levels and gaps between provinces. The difference in economic growth that occurs between them is caused by differences in endowment from each region (Kusumasari and Kartiasih 2017). Research (Rusdi et al. 2018) shows that the Williamson index in Sumatra is less than 0.30 which occurs in 6 provinces.

The problem of poverty and inequality is still a concern in several countries including: (Freistein and Mahlert 2016); (Roy et al. 2018); (Breunig and Majeed 2020). The attention to poverty and inequality in developing countries, especially in Indonesia, is carried out by (Refqi 2019). Economic growth and poverty rates in Sumatra can be seen in figure 1.



**Figure 1.** Economic growth and poverty in Sumatra in 2020.

Source: Data processing.

In the graph above, it can be seen that in 2020 economic growth in Sumatra contracted or negative growth. Riau province experienced the highest contraction (-3.8%) and Bengkulu province experienced the lowest contraction (-0.02%). However, the poverty rate in Bengkulu province is the highest at 17.16%. Provinces in Southern Sumatra with high economic growth accompanied by low poverty rates are Jambi, Bangka Belitung District, and Riau District. Conversely, some provinces have high economic growth but high poverty rates (North Sumatra, South Sumatra, Bengkulu, Lampung).

Agglomeration is a pattern of concentration, namely the concentration of various industrial activities in a certain area which results in the emergence of new economic growth in the region (Pambudi and Miyasto 2013). (Prasetyo 2010) found that the concentration of industrial activities in Indonesia has a positive influence on economic growth in Indonesia. (Kusumasari and Kartiasih 2017) found that several subsectors have the highest agglomeration in West Java Province, namely the textile, food, and apparel subsectors.

As a form of professional community support for South Sumatra (Maspro South Sumatra) encourages the acceleration of development of the South Sumatra region to encourage national economic growth. Infrastructure development needs to be accelerated to form an economic agglomeration of South Sumatra (Republika, 2022).

(Mukhlis, Mukhlis et al. 2018) states that areas that do not agglomerate tend to have low economic growth when compared to regions that have agglomerations. The more the number of workers who can be absorbed in the agglomerated sector, the greater the per capita income generated and will trigger high economic growth.

A study on the relationship between agglomeration, economic growth, poverty, and economic growth patterns in Southern Sumatra is urgent. because the problem of poverty and growth is still a priority in the SDGs. Therefore, an analysis of agglomeration, poverty, and economic growth patterns in Southern Sumatra is needed. This study aims to analyze economic growth patterns in the provinces of Southern Sumatra.

## 2. LITERATURE REVIEW

### 2.1. Theoretical Review

The emergence of agglomeration comes from Marshall's thoughts related to saving

agglomeration (agglomeration economies) better known as localized industries. Montgomery (in Kuncoro, 2002) states agglomeration is a spatial concentration of economic activities in urban areas caused by savings as a result of proximity to location (economies of proximity). This activity can be seen from the clusters between companies, workers, and consumers. According to (Tarigan 2012), The dependence on various industries such as the availability of industrial facilities which include electricity, water, roads, services, camps, and skilled workers can cause agglomeration.

Perroux in Sjafrizal (2012) argues that agglomeration can be lost because of the area that is the center of growth. This results in growth that is only concentrated in a region and can even trigger inequality between regions. Nevertheless, the concentration of regional economic activities not only has an impact on increasing inequality but is also able to have a positive impact on the economy in general by increasing the efficiency of economic activities. Some industrial agglomeration measuring instruments include:

- a) By looking at the comparison of the number of urban population to the number of population in a region/province.
- b) Using Jaime Bonet's (2006) calculations that look at industrial agglomeration by calculating the proportion of district / city GDP to provincial GDP.
- c) The Glaeser Specialization Index (1992) measures the proportion of the number of industrial sector workers in districts / cities to the number of workers in the provincial industrial sector.

Kuncoro (2000) States that a person is unable to meet the minimum living needs indicating that the person is living in poor conditions. So it can be interpreted that people who cannot live properly in meeting basic needs and are unable to live decently are defined as conditions of poverty.

Sharp in (Kuncoro 2006) explains that poverty can be viewed from an economic point of view. The first cause is that differences in resource ownership will trigger an unequal distribution of income and lead to poverty. This means that people living in poor conditions have few resources of low quality. The second cause is the inequality in the quality of human resources, people who live with a quality of human resources that are not high will result in low productivity which can result in a minimal level of wages received. Limited education, differences or classes of heredity, and luck in life can cause the low quality of human resources. The third cause of poverty is that poverty can occur due to differences in obtaining capital.

Correspondingly, the World Bank (2004) as quoted Annur, (2013) states that the limited income and ownership of assets in meeting basic living needs include spending on food, fulfillment of decent clothing, housing, health and education that can be obtained (acceptable). In addition, limitations in obtaining jobs that can be obtained can lead to poverty. People living in poor conditions are generally unemployed with poor education and poor health conditions.

Economic growth is a condition in which an economy experiences changes and developments from economic activities that occur continuously and have implications for increasing real national income (Sukirno 2012), Kaldor (1963) in (Barro and Sala-I-Martin 2004) State several facts that indicate the occurrence of the process of economic growth:

1. There was an increase in per capita income that grew positively and did not contract.
2. There is an increase in the physical capital of the workforce from a continuous basis.
3. The payback ratio is constant.
4. The ratio of physical capital to output is almost constant.
5. The portion of labor and physical capital is almost constant.
6. there are differences in the level of growth and development of the output of each workforce between countries

## 2.2. Literatur research

(Fujita and Thisse 2003) (Fujita and Thisse 2003) Supporting the idea that economic growth driven by agglomerations can lead to optimal results when the economy moves from dispersed to agglomeration, it will be followed by the rapid development of innovation. This means that people who are in underdeveloped conditions will experience an increase as long as there is a growth effect triggered by a strong enough agglomeration.

As for the results of the study (Li and Li 2018) Showing that economic agglomeration can be indicated by potential markets, economic agglomeration has a strong effect on economic growth in

China. Economic agglomeration exacerbates regional economic inequality, but in conditions of regional inequality that are at controllable limits. Agglomeration has a positive influence on economic growth. Thus, it can be concluded that there has been a trade-off between economic growth and agglomeration.

Empirical studies (Gardiner, Martin, and Tyler 2011) have examined the relationship between national productivity growth and spatial agglomeration of economic activity in 15 EU countries for the period 1981–2007. The finding is that there is a trade-off between the economic growth rate and the agglomeration rate. The exact result obtained depends on the size of the agglomeration adopted and the spatial scale on which the analysis is carried out.

Research (mario andrias kiton 2019) aims to determine and analyze investment flows and balance funds, labor force, and agglomeration of inequality between districts/cities in North Sumatra. Using panel data, it was found that investment and labor force variables had a significant effect on inequality, but not equalization and agglomeration funds.

Results of panel data regression performed (Andhiani, Erfit, and Bhakti 2018); (Purba 2019) conducted a study aimed at knowing and analyzing the effect of economic agglomeration and labor productivity on income disparity between districts in the East Coast region of North Sumatra Indonesia. The results obtained show that labor productivity variables have a significant positive effect on income disparity; and economic agglomeration variables have a positive although not significant effect on income disparity in the East Coast Region of North Sumatra Province.

Sodik and Iskandar (2007) conducted a study aimed at determining the influence of agglomeration on regional economic growth in 26 provinces in Indonesia. Provincial pooling data for the period 1994–2003 were regressed using the generalized least square (GLS) method. Factors that affect economic growth include agglomeration, inflation rate, provincial openness, labor force, and human resources. The results showed the influence of three variables on regional economic growth: labor force, inflation rate, and provincial openness rate; While the remaining two (agglomeration and human capital) tend to have no effect.

Hardjoko et al. (2021) show that the combination of industrial agglomeration policies coupled with accelerated sectoral growth, hard infrastructure development, and soft infrastructure provides the best policy results, namely improving regional inequality and accelerating economic growth in East Java. Based on the analysis, we found that the characteristics of East Java's economic growth are convergent but relatively long. Therefore, East Java's economic development policy during 2010–2019 needs to be revisited due to the relatively long convergence period. Furthermore, the study also found that industrial agglomeration slowed down East Java's economic convergence and growth. In the future, it is necessary to deploy Industrial Development Centers (PPI) outside the eight existing districts/cities to accelerate its spread.

The results of studies related to the Klassen typology were among the conducted by (Ardila 2012); (Ciptawaty 2019) which found in 20 sub-districts in Banjarnegara regency in 2010 there were still more sub-districts that were relatively underdeveloped, nine sub-districts, five sub-districts included in fast-growing sub-districts, three districts developed and fast-growing regions and the rest developed but depressed areas.

### **3. METHOD**

#### **3.1. Data Types and Sources**

This study used secondary data that was not collected directly, but obtained from a second party (Riduwan 2004). Data source obtained from Central Bureau of Statistics (BPS).

#### **3.2. Research Object**

This research will be conducted in 7 provinces in Southern Sumatra, namely Bengkulu, Jambi, South Sumatra, Lampung, Bangka Belitung Islands, Riau, and Riau Islands. The variables used are the Williamson Index (Regional Inequality), Balassa Index (Industrial agglomeration), economic growth, poverty, and capital expenditure.

#### **3.3. Analysis Methods**

To determine the economic pattern of provinces in Southern Sumatra, a typological analysis of Klasen was carried out. Using the Klassen typology can be known the economic structure of the region. By using the average economic growth as the vertical axis and the average per capita income (GDP per capita) as the horizontal axis, the regions can be divided into four classifications as in the following matrix:

		GDP per capita	
		$y_i > y$	$y_i < y$
Growth	$r_i > r$	Income and high growth (fast-advancing and fast-growing regions)	Low income and high growth (fast developing area)
	$r_i < r$	High income and low growth (developed but depressed regions)	Low income and growth (relatively lagging areas)

Source : (Ciptawaty 2019)

Description:

$r$  : Average economic growth in South Sumatra.

$y$  : Average GDP per capita in Southern Sumatra.

$r_i$  : Observed provincial economic growth.

$y_i$  : Observed provincial GDP per capita

#### 4. RESULTS AND DISCUSSION

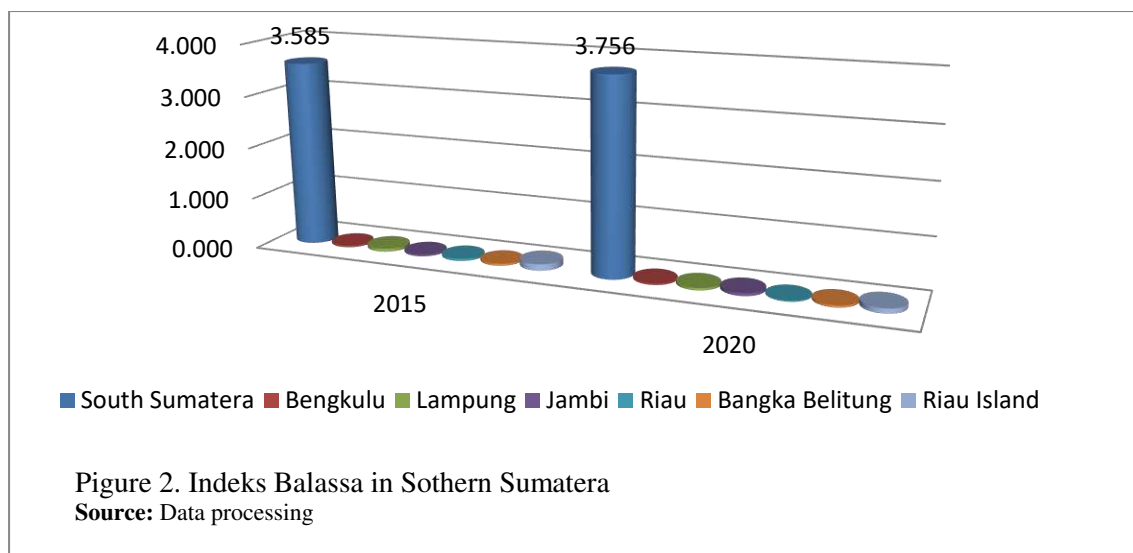
The highest industrial agglomeration in South Sumatra province is 3,585 and the lowest is Bengkulu province at only 0.033. In 2016 the highest agglomeration in Riau province was 2,641 and the lowest agglomeration was Bengkulu and Jambi provinces at only 0.019. Table 5.2 shows industrial agglomeration data in southern Sumatra from 2015 to 2020. The highest industrial agglomeration in South Sumatra province is 3,585 and the lowest is Bengkulu province at only 0.033. In 2016 the highest agglomeration in Riau province was 2,641 and the lowest agglomeration was Bengkulu and Jambi provinces at only 0.019. Table 1 shows industrial agglomeration data in southern Sumatra from 2015 to 2020.

Table 1. Industrial agglomeration in southern Sumatra

Provinces	2015	2016	2017	2018	2019	2020
South Sumatra	3.585	1.831	2.101	3.729	3.734	3.756
Bengkulu	0.033	0.019	0.021	0.030	0.034	0.031
Lampung	0.062	0.026	0.025	0.042	0.051	0.046
Jambi	0.032	0.019	0.017	0.034	0.039	0.055
Riau	0.045	2.641	2.261	0.038	0.040	0.022
Babel	0.041	0.022	0.021	0.029	0.076	0.040
Kepri	0.127	0.043	0.055	0.090	0.094	0.094

Source: Data processing.

In 2017 the lowest industrial agglomeration was in Jambi province with an index value of 0.017 and the highest in South Sumatra province with an index of 2.101. Similarly, in 2018 with an index of 3,729, Bangka Belitung province has an index of 0.029 and became the province with the lowest agglomeration in 2018. Furthermore, in 2020 the highest agglomeration in South Sumatra province was 3,756 and the lowest agglomeration in Riau province was only 0,022.



In 2018 the highest industry agglomeration was 3,729 and the southern low in 2017 was 2,101. in Bengkulu province, the highest industrial agglomeration in 2019 was 0.034 and the lowest industrial agglomeration in 2016 was 0.019. In Lampung Province, the highest industrial agglomeration in 2019 was 0.051 and the lowest industrial agglomeration in 2017 was 0.025. In Jambi Province, the highest industrial agglomeration in 2020 was 0.055 and the lowest industrial agglomeration in 2017 was 0.017. In Riau Province, the highest industrial agglomeration in 2016 was 2.641 and the lowest industrial agglomeration in 2020 was 0.022. In Bangka Belitung province, the highest industrial agglomeration in 2019 was 0.076 and the lowest industrial agglomeration in 2017 was 0.021. Province kep. Riau had the highest industrial agglomeration in 2015 at 0.127 and the lowest industrial agglomeration in 2016 at 0.043.

In terms of poverty, Bengkulu province has the highest percentage of poor people in the southern Sumatra region. While the island province of Bangka Belitung has the lowest percentage of poor people. (Nugraha 2020) stated that one of the causes of high poverty in Bengkulu province is the existence of people who do not work, besides that there is no guarantee that higher education will make poverty lower.

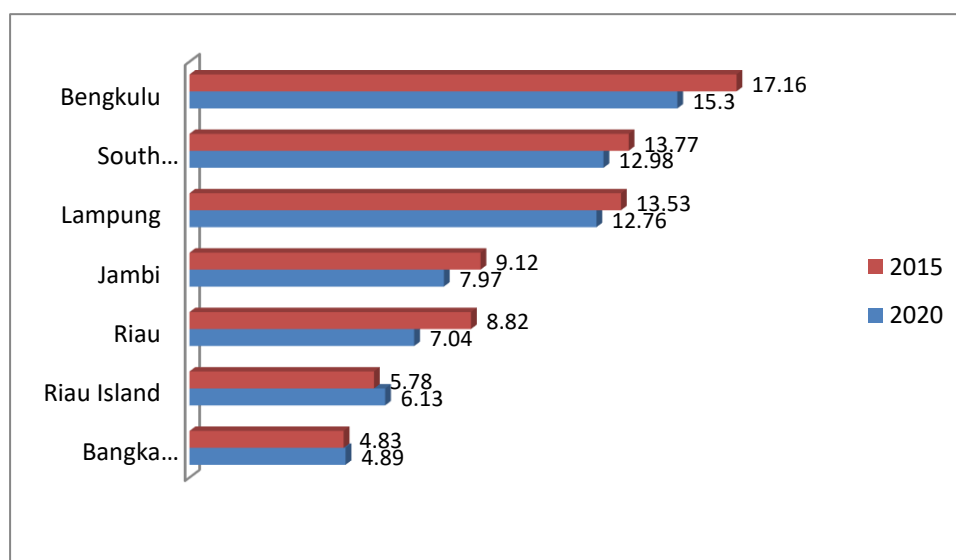
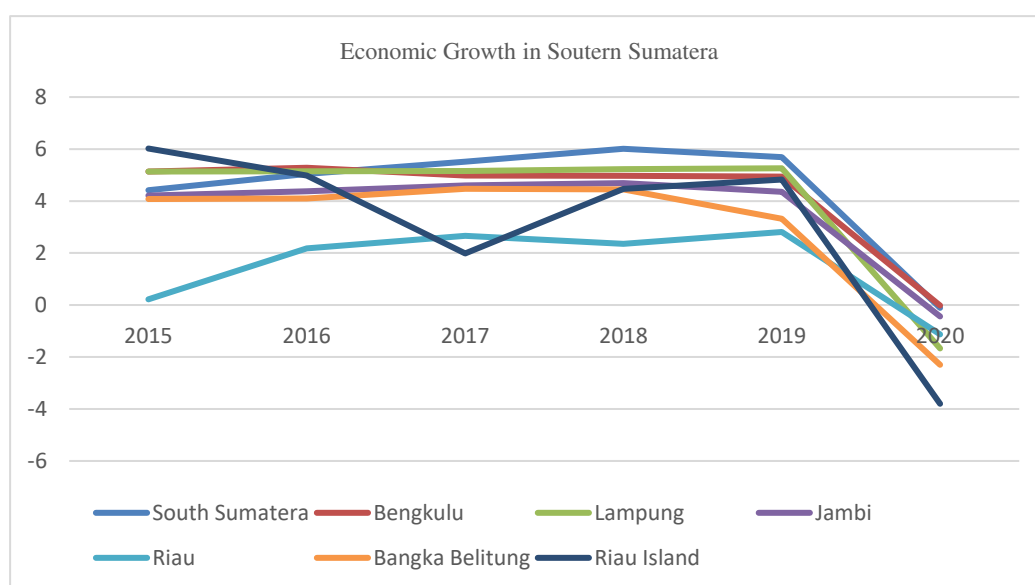


Figure 3. Percentage of poor people in southern Sumatra  
Source: Data processing.

Figure 3 can be seen economic growth in the provinces of southern Sumatra in 2015-2020.

In 2015 the highest economic growth was achieved by the province of Kep. Riau at 6.02 percent and the lowest in Riau province at only 0.22 percent. In 2016 the highest economic growth in Bengkulu province was 5.28% and the lowest economic growth in Riau province was only 2.18%. In 2017 the highest economic growth was 5.51%, and the province of Kep. Riau experienced the lowest growth of 1.98%. In 2018 the highest economic growth in South Sumatra province was 6.01% and the lowest in Riau province at 2.35%. The economy of South Sumatra remains the highest compared to other provinces (5.69%) and the lowest in Riau province (2.81%).

In 2020, the economic growth of all provinces in southern Sumatra contracted (negative growth). Judging from the economic growth per province, it is known that the province of South Sumatra has the highest economic growth in 2018 of 6.01 and the lowest economic growth in 2020 of only -0.11. In Bengkulu province, the highest economic growth in 2016 was 5.28% and the lowest in 2020 was -0.02%. Lampung Province experienced the highest economic growth in 2019 at 5.26%, Jambi Province in 2018 at 4.69%, and Riau Province in 2018 at 2.81%.



**Figure 4.** Economic Growth in southern Sumatra  
 Source: Data processing.

Klassen typology analysis is carried out to determine the pattern of economic development. Economic development is grouped into four quadrants consisting of developed and fast-growing regions, fast-developing regions, developing but depressed regions, and relatively underdeveloped areas. Areas included in the group of developed and fast-developing regions are provinces that have economic growth above the average growth of Southern Sumatra and have per capita income above the average per capita income in Southern Sumatra. Based on the results of the study, it was found that the Riau Islands province was included in the group of developed and fast-developing regions.

Riau Province is included in the group of fast-developing regions. Riau Province has a per capita income above the average per capita income but has economic growth that is lower than the average economic growth. The high per capita income in Riau province can cause the Riau province to develop quickly because, with high per capita income, people's welfare will also be higher.

The provinces included in the group of developed but depressed regions are the provinces of South Sumatra, Bengkulu, and Lampung. In these three provinces, economic growth is higher than the average economic growth, but per capita income in these three provinces is lower than the average per capita income. Despite having higher economic growth, low per capita income can result in high poverty. The provinces included in the group of developed but depressed regions are the provinces of South Sumatra, Bengkulu, and Lampung. In these three provinces, economic growth is higher than the average economic growth, but per capita income in these three provinces is lower than the average per capita income. Despite having higher economic growth, low per capita income can result in high poverty.

The Bangka Belitung island province in 2015-2020 is included in the group of underdeveloped regions because it has below-average economic growth and below-average per capita income. One of the causes of the contraction of high economic growth in the Bangka Belitung islands (-2.3) is as a result of the Covid-19 pandemic.

**Table 2.** Results of Klassen typology analysis

	$y_i > y$	$y_i < y$
$r_i > r$	Developed and fast growing regions Kepulauan Riau	Fast Growing Areas Riau
$r_i < r$	Developed but depressed areas Sumatera Selatan, Bengkulu, Lampung, Jambi	Less developed areas Kep. Bangka Belitung

Source: Data processing.

## 5. CONCLUSIONS

Based on the results of research and discussions that have been carried out, it can be concluded that 57.14 percent of provinces in the southern Sumatra region include the Klassen typology as a category of developed but depressed regions, namely South Sumatra, Bengkulu, Lampung, and Jambi. The suggestions that can be given related to the results of the study are: Industrial agglomeration that occurs in South Sumatra has not been evenly distributed, from seven provinces only South Sumatra province has a high agglomeration index. The government should be able to increase the role of the secondary and tertiary sectors to increase the role of industrial agglomeration.

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