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RESEARCH ARTICLE

# Human and Economic Resources Mapping Analysis to Evaluate the SDGs Accomplishment in South Kalimantan, Indonesia

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**Abstract** Natural resource abundance in South Kalimantan has been expected to optimize public services. The SDGs accomplishment requires an equitable implementation in economic, social, and environmental aspects. This research aimed to (1) discover the human and economic condition and (2) determine the development direction of South Kalimantan Province. It was based on institutional-secondary data that were processed in GIS software and analyzed with both qualitative and quantitative approaches. The results showed that: (1) the human resources in South Kalimantan could accelerate regional development—however, some of the qualitative indicators are associated with poverty complicated by gender disparity—, while the land resources became increasingly limited due to intensive agricultural practices that caused the rise of industrial and trade sectors; and (2) the development of South Kalimantan should improve people's perception of gender-related topics, recruit more medical workers, and reduce pressures on agricultural land by switching into stable industrial activities.



## 1. Introduction

Based on the Gross National Income (GNI), the economy of Indonesia, one of the developing countries in the world, is categorized as lower-middle income, i.e., between $1,036 and $4,085 (United Nations, 2014). A country's development is classified based on economic indicators, and it consequently leads the development planning to focus on increasing the rate of economic growth. However, a rise in the rate of capital formation in Indonesia is constrained by high poverty level (Wibowo, 2008). Poverty reduction requires comprehensive efforts to avoid depending solely on economic indicators instead of considering social, cultural, political, and other determinants that support the achievement of development goals.

As the continuation of Millennium Development Goals (MDGs), Sustainable Development Goals (SDGs) program established by the United Nations in 2005 has become a reference for any development progress of regions in the world. Aiming to balance the dimensions of economic, social, and environmental issues, SDGs offer five (5) fundamental principles known as the 5P, i.e., (1) People, (2) Planet (the Earth), (3) Prosperity, (4) Peace, and (5) Partnership. Expected to support better human life, these five basic principles introduce 17 goals and 169 targets that are interconnected and integrated (Panuluh and Fitri, 2016). The goals include comprehensive aspects of development compiled from the results of MDGs evaluation. There are 242 measurable indicators to assess the SDGs accomplishment. In Indonesia, this assessment is concentrated on understanding the dynamics and spatial development patterns in the entire region.

South Kalimantan Province had become the most prominent area on Borneo Island even before it became an official province on January 1, 1957 (Indonesian Ministry of Villages, Disadvantaged Regions, and Transmigration, 2016). The biggest contribution of South Kalimantan to the development of Indonesia comes from its mining sector, with coal and iron ore as the main commodities. The potential coal resources of this province spread throughout some of its regencies, such as Banjar, Tanah Laut, Tanah Bumbu, Central Hulu Sungai, North Hulu Sungai, South Hulu Sungai, Tapin, and Tabalong (Bank of Indonesia, 2007).

The natural resource abundance in South Kalimantan raises the expectation for optimal public services, considering how the bureaucracy has enough financial support from it (Suryani, 2011). This province has won several awards for its good public services, which are influenced by social and cultural dynamics. It has approximately 3 million inhabitants from seven

major ethnic groups, i.e., Banjarese, Dayak, Malay-Javanese, Buginese, Chinese, and Arab Descent. Banjarese people are dominant in this province. Their economic activity preferences are trading along the main river—which makes the province also well-known for its floating market—and farming in the middle part of watersheds (Suryani, 2011). Human resource dynamics in South Kalimantan becomes important to review because, according to the new development paradigm introduced by the United Nations Development Programme in 1980, human beings are positioned as the central component of development.

The accomplishment of sustainable development in South Kalimantan requires an equitable implementation in economic, social, and environmental aspects. A detail and comprehensive study on the social and economic situation is, thereby, necessary, particularly to determine the direction of the regional development that is parallel to the SDGs agenda. This research aimed to (1) discover the human and economic resource conditions and (2) determine the direction of the development in South Kalimantan Province. The results are expected to be able to illustrate the development of South Kalimantan Province from different points of view.

## 2. The Methods

Based on the scale, this research is categorized as a reconnaissance-level study. The analysis units are the land, human, and economic resources of South Kalimantan Province, Indonesia. The map of the research area is shown in Figure 1. The province consists of 11 regencies (Tanah Laut, Kotabaru, Banjar, Barito Kuala, Tapin, South Hulu Sungai, Central Hulu Sungai, North Hulu Sungai, Tabalong, Tanah Bumbu, and Balangan) and 2 cities (Banjarmasin and Banjarbaru). This research is mainly based on secondary data that have both spatial and temporal variations (cross sections and time series) obtained from institutional sources. The research used both qualitative and quantitative approach to analyze the research materials, i.e., regional data, in data-processing software (i.e., Ms. Excel) and GIS-based software (i.e., ArcMap) and comprehensively describe the regional development in South Kalimantan Province. The research method is depicted in a flowchart in Figure 2, while the system thinking diagram that underlies this research design is presented in Figure 3.

The primary indicators that can reflect the condition of land, human, and economic resources in a certain area are population pressures on land (i.e., land pressure) and land carrying capacity. In this regard, land specifically refers to the area used for agricultural activities. It is the only type of land use that produces natural resources. To calculate the pressures on land, this research used the following equation (1) (Soemarwoto, 1997):

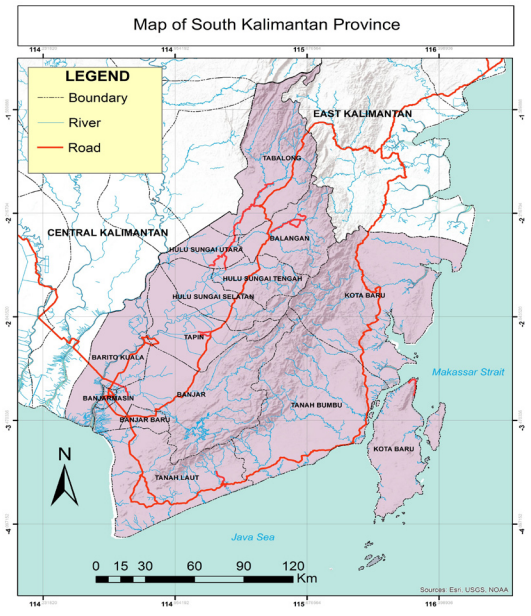



Figure 1. Map of South Kalimantan Province

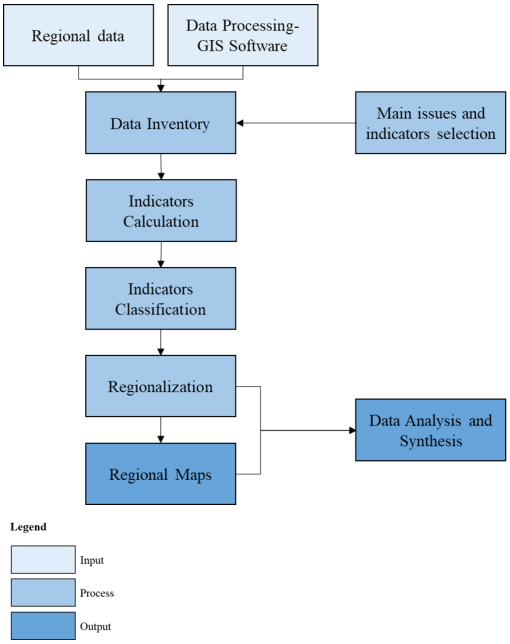



Figure 2. The Flowchart of the Research Method

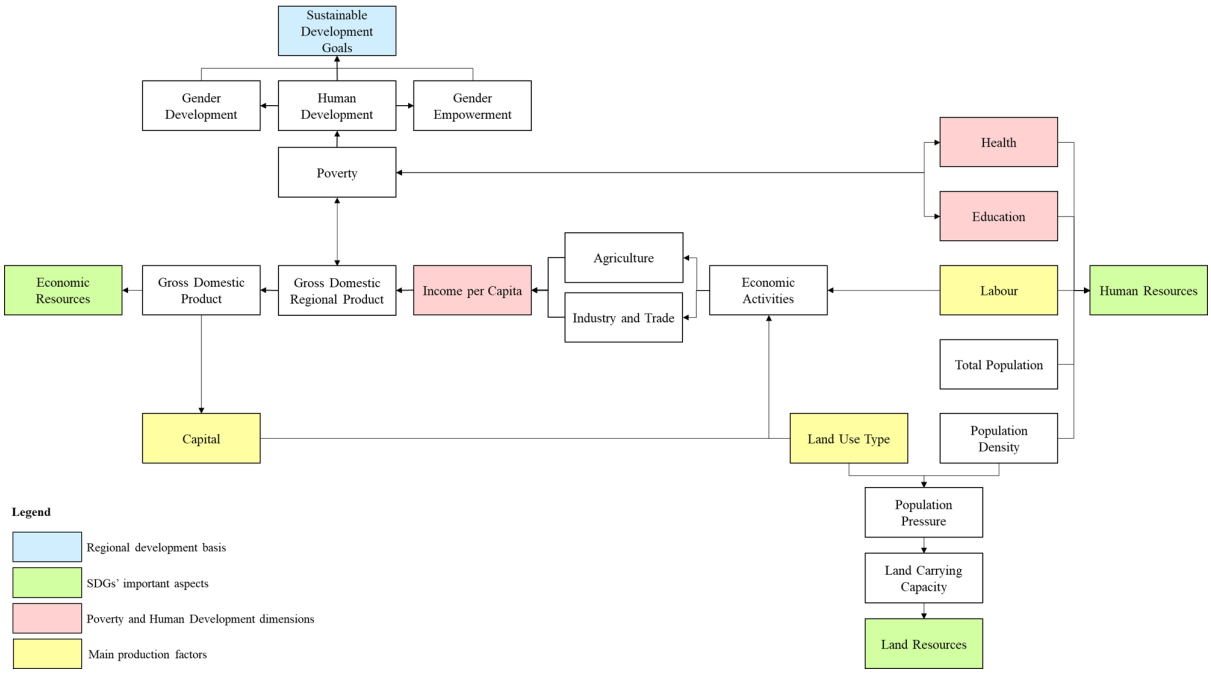



Figure 3. The System Thinking Diagram of the Research Design

where:

$T_P$ : Population pressures on land,

$Z_T$ : Minimum land area required to support human life,

ft : Farmer fraction (ratio of the total number of farmers to total population),

$P_0$ : Total population at the initial year,

i : Population growth,

t : Length of time (i.e., years), and

$L_t$ : Area of agricultural land

The minimum land area required for decent human life ($Z_T$ or Z) was calculated with the following equation (2):

where:

LSI2 : Area of rice fields that were irrigated more than 2 times in a year

LSI1 : Area of rice fields that were irrigated once in a year

LST : Area of rainfed rice fields

LLK : Area of dry agricultural land

Population pressures on land were then classified into three classes, namely:

TP >1 : Population pressure had exceeded the land carrying capacity

TP =1 : Agricultural land uses optimized land carrying capacity

TP <1 : Population pressure had not yet pushed land carrying capacity to the limit.

Since population pressures on land ($T_p$) are dependent on land carrying capacity (DDL), this research described their correlation with the following equation (Soemarwoto, 1997) (3):

## 3. Results and Discussion

### Population and Gender-Based Human Development

The development strategies applied in South Kalimantan Province remain unable to actualize every aspect that creates a supportive environment for people to enjoy a healthy, long, and productive life. The development programs are still realized mainly in priority regions, as written in the Government Regulation No. 47/1997, including Banjarmasin, Batulicin District of Kotabaru, and Kandangan District of South Hulu Sungai. Furthermore, during the implementation of the policy "Integrated Economic Development Area" in Batulicin District of Kotabaru Regency, the spatial disparity between urban and rural areas was inevitable (Figure 4) as priority regions would practically have the superior achievement of human development indicators. Consequently, the government is expected to achieve the development targets promptly that the gap between the urban and rural situations can be narrowed.

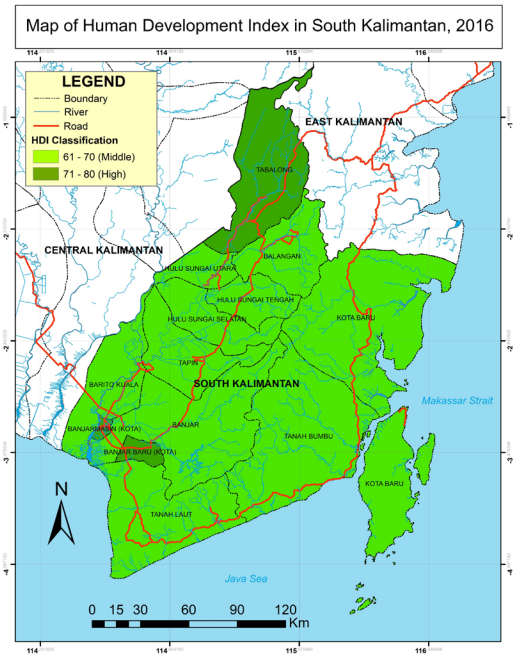



Figure 4. The Human Development Index (HDI) Distribution in South Kalimantan

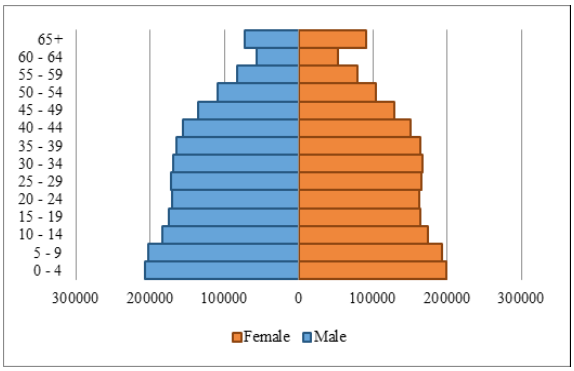



Figure 5. The Population Pyramid of South Kalimantan in 2016

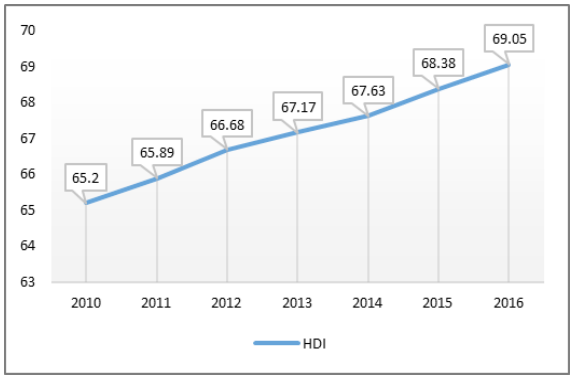



Figure 6. The Human Development Index (HDI) Trend of South Kalimantan in 2010-2016

In 2016, there were 4,067,102 people in South Kalimantan (BPS-Statistics South Kalimantan Province, 2017). Banjarmasin was the most populated region with 684,183 inhabitants. Having the least area among the other regions, this city also had the highest population density. The population had continuously grown each year before it decelerated, reflecting the accomplishment of Indonesia's Family Planning program. The population pyramid shown in Figure 5 illustrates the population composition of South Kalimantan. The median age of the population was 27 because the age groups of 20-24 and 25-29 dominated the age structure. The same case applied to people over 65 years old. The dependency ratio was 48%, while the sex ratio was 102.83%. Based on the population structure, quantitatively, South Kalimantan had qualified human capital to support the regional development. The Human Development Index (HDI) in South Kalimantan ranked 22$^{nd}$ of the 34 provinces in Indonesia. The temporal trend is shown in Figure 6.

The indicators highlighted in human development are from the dimensions of health, knowledge, and a decent standard of living. Covey (1986) explains that health is part of life whose quality must always be maintained and enhanced to support people's productive life. In 2016, the life expectancy of South Kalimantan was still below the national rate. There was a relatively wide gap between the life expectancies of regencies (rural) and cities (urban). Banjarbaru and Banjarmasin had the highest life expectancies in this year (Figure 7). Compared with rural population, people in urban areas tend to have better health as the advantage of easier access to many quality health facilities and services. The number of operating hospitals in South Kalimantan (i.e., 31 units) has already met the minimum standard for the current population (i.e., 17 units) (BPS-Statistics

South Kalimantan Province, 2012). A similar condition applies to community health centers. Each region in South Kalimantan has at least 1 unit hospital or community health center. However, the health service is constrained by the number of medical workers. In 2016, there were only 557 doctors in the province; this number was below the minimum standard of 811 doctors. The local governments were required to respond by creating a balance of the conditions of health facilities and workers. According to the Government Regulation of South Kalimantan Province No. 4/2009 on Organization and Administration, the provincial government has to allocate 15% of the total revenue and expenditure budget for health care.

Constraints in health service provision affect the low achievement of health indicators in South Kalimantan, resulting in higher rates of maternal, infant, and child mortality, as well as deaths by certain morbidities. In 2005, South Kalimantan had the fifth highest infant mortality rate in the country with a ratio of 41 deaths to 1,000 live births—which then increased to 44 deaths per 1,000 live births in 2012. Meanwhile, the maternal mortality rate in 2007 was 307 deaths per 100,000 live births, which exceeded the target in MDGs, i.e., 230 deaths per 100,000 live births (Department of Health of South Kalimantan Province, 2013), and it continued to increase and reached the highest rate during the years 2010-2012. The mortality rate was exacerbated by the increased number of Tuberculosis (TB) and Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) incidence as the major cause of death. In 2012, there were 76 people suffered from TB and 141 people contracting HIV/AIDS. The prevalence of HIV/AIDS cases already exceeded the maximum target by 5% in 2014, which categorized South Kalimantan as a province with a high risk of HIV/AIDS transmission (Nasrul, 2014). Based on these health-related indicators, South Kalimantan is still underdeveloped in health quality. The life expectancy, health care services, and mortality rates do not meet the targets in MDGs. In the meantime, the development orientation has moved on to SDGs.

Similar to the health-related measures, the education indicators show spatial disparity. In 2016, Banjarmasin and Banjarbaru were at the top ranks of average years of schooling. The regional rates of another indicator, i.e., the expected years of schooling, were still below the provincial and national rates, except for Banjarmasin, Banjarbaru, and North Hulu Sungai. Universitas Lambung Mangkurat, one of the big universities in Indonesia, is located in Banjarbaru and has become a point of interest for future college students and created an expectation for community welfare improvement. Therefore, the pressing issues are the identification and implementation of the education management strategies to increase the human quality in South Kalimantan (Ridhanie, 2012).

The gaps in the education quality in the regions of South Kalimantan are barely influenced by the availability of educational facilities but rather by the public perception of education. The ratio of students to teachers at schools are approximately 10:1 to 12:1; in other words, there were 10-12 students for one teacher. The ratio indicates the lack of interest in attending formal educational institutions for school-age children in this province. There is no common prevalence of public participation in formal education among the regions. Some of the regions have approximately 30 students in 1 classroom, while others have only 10 to 15 students. The spatial disparities between the public participation of education in the regions are essentially a great difference in mindset toward the urgency of education. The urban areas, as the center of multi-dimensional development, tend to have a better quality of human resources, as evidenced by the higher enrollment rates.

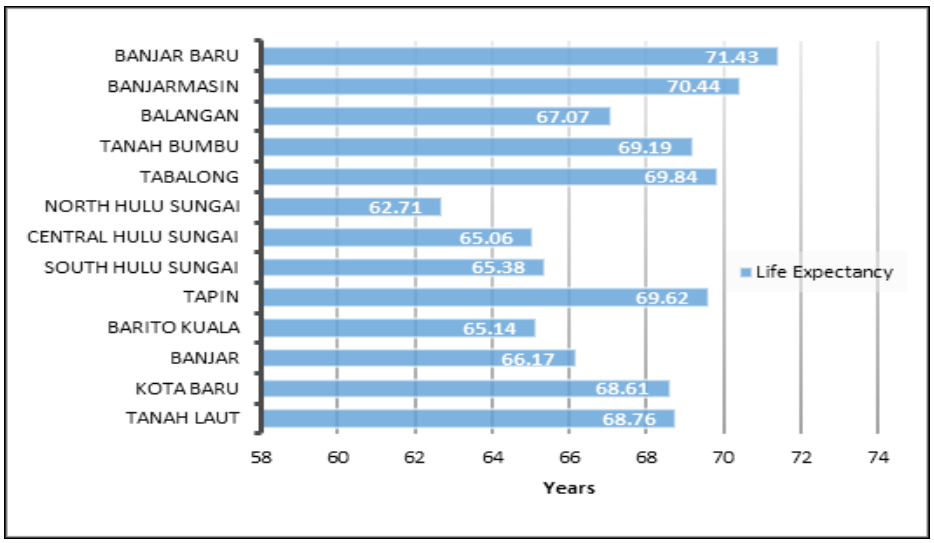



Figure 7. The Life Expectancy of South Kalimantan

As represented by the gross, school, and net enrollment rates, there are gaps in student participation in elementary, junior high, and senior high schools. In 2012, the gross enrollment rate was higher than 100% for elementary school level, indicating too many children older than the common school age, i.e., 7 years old, attending elementary schools. Meanwhile, the school enrollment rate for elementary school was 97.85%, which was higher than the same rate for both junior and senior high schools (Figure 8). Banjarbaru City had the highest rate for all school levels. The condition reveals that both horizontal (urban and rural areas) and vertical (school levels) disparities have become a serious topic in the development of South Kalimantan. Another indicator is the net enrollment rates in elementary, junior high, and senior high schools, which were 93.16%, 66.94%, and 49.39%, respectively. Even though the Indonesian government has established 12-year compulsory education since 2015, senior high schools still generally have the lowest number of school-age children among the school levels, implying people's low expectation from attending schools. Nevertheless, the net enrollment rates in South Kalimantan are relatively higher for elementary and junior high schools compared with the targets of MDGs (100%), and at least the 9-year compulsory education program is well implemented.

The economic perspective of human development asserts that the evaluation of people's decent standard of living, as indicated by expenditure per capita, is necessary. The expenditure per capita showed an increasing trend from 1999 to 2013 following a decline in the previous period (1996-1999) due to the global economic crisis (Figure 9). The expenditure per capita increased approximately from IDR 9,000 to 11,000 for each person in one year. Such a rise shows that the purchasing power of the people to fulfill their necessities becomes higher, and this situation can only happen if the income per capita increases as well. A higher income per capita reflects economic growth and, consequently, people's welfare. Economic growth induces the reduction of the unemployment rate, as shown in Banjar Regency, Banjarmasin City, and Banjarbaru City that experienced a decline in both economic growth and unemployment rate, which was even more significant than the provincial rates. Economic growth can essentially promote the expansion of employment opportunities by increasing the productivity and value added of the leading sectors, such as agriculture, marine, and fisheries (Indonesian Ministry of National Development Planning, 2015).

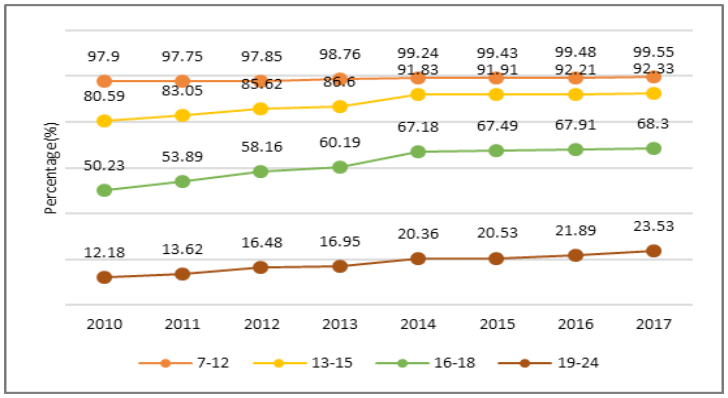



Figure 8. The School Enrollment Rates of South Kalimantan in 2012

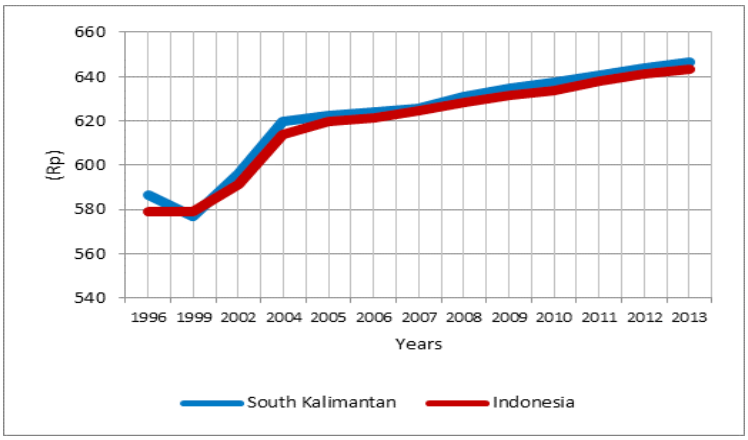



Figure 9. The Expenditure Per Capita of South Kalimantan in 1996-2013

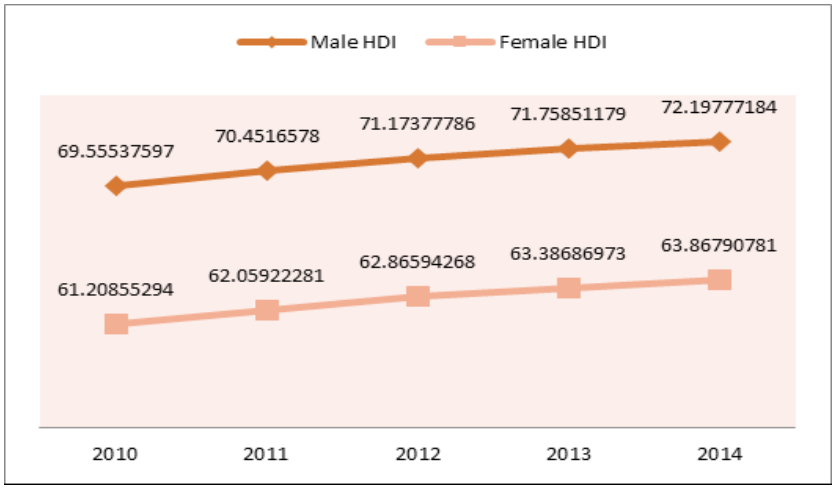



Figure. 10 The Male and Female HDI of South Kalimantan in 2010-2014

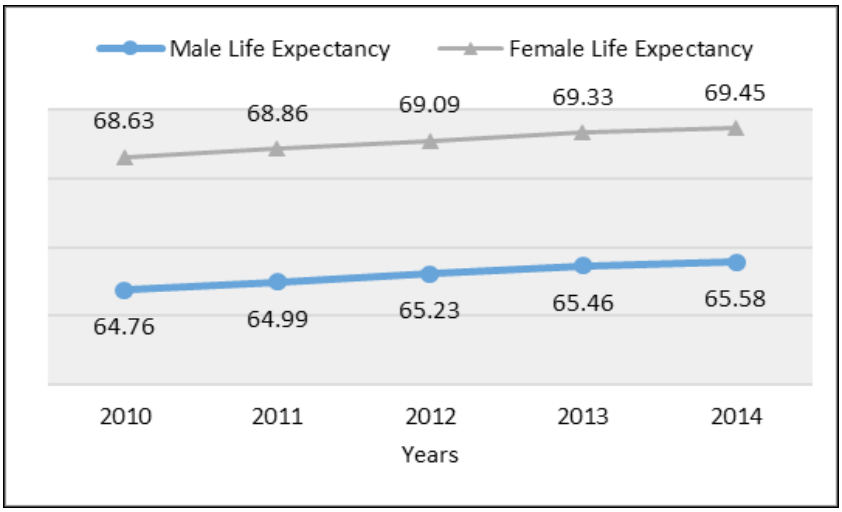



Fig. 11 The Life Expectancy of Men and Women in South Kalimantan in 2010-2014

According to the Indonesian Ministry of Women Empowerment and Child Protection (2013), 13.9% of the total households in Indonesia are female-headed. Ironically, gender inequality is also a serious problem in Indonesia and specifically in South Kalimantan. To support sustainable development in Indonesia, including South Kalimantan Province, the gender-based development needs to be considered as the main topic of social-economic studies. It is measurable with the same dimensions and indicators as HDI. In 2010-2014, the male HDI was consistently higher than the female's (Figure 10), which also influenced the gender development index (GDI).

Overall, the life expectancy of women in South Kalimantan tends to be higher than men (Figure 11), indicating higher risks of health problems in men. Pressures from family, occupation, the environment, and other factors can elevate men's proneness to health problems. Each district has a relatively wide gap between the average years of schooling in men and women. Moreover, the expected years of schooling in women are longer than men with an increasing trend from 2010 to 2014. As part of the cultural factor, community mindset that prefers men for performing more jobs reduces their chance to access formal education. Although it occurs in most parts of the province, there are still some regions with higher expected years of schooling in men, namely Banjarbaru, Barito Kuala, Tanah Bumbu, and Kotabaru. The gender disparity in the indicator 'the expected years of schooling' in South Kalimantan demands more inclusive efforts to achieve a better understanding of gender equality in a sociocultural system. The pattern of spatial disparity in gender issues is mainly consistent because the perception of gender in cultural values that have developed in a community is always difficult to change. The main programs organized by the Department of Women Empowerment, Protection, Population Control, and Family Planning are the protection of women's rights and women's life quality improvement.

The contribution of women's revenue showed an increasing trend in 2010-2013, whereas the men's

contribution decreased (Figure 12). The mean monthly wage for male workers was higher because of their higher education level and type and status of occupation. The expenditure per capita is in line with the income share. In 2015, there was huge segregation in the labor market, and the expenditures per capita in males and females were IDR 16,471 and IDR 8,170, respectively. BPS-Statistics South Kalimantan Province (2016) states that men contribute more intensively in mining, agriculture, and construction sectors, while women dominate the occupations in manufacturing industries, trade, and public services. The gender-based differentiation in occupation sector may create a stereotype in public. Another gender disparity was identified in the number of job seekers from each group of gender (Table 1). The number of female job seekers with a background of higher education, i.e., vocational high school, diploma/academy, and university, was higher than the ones with primary and secondary schools as their latest formal education The condition shows that educated female workers tend to be accepted in professional jobs slower than educated males, indicating gender discrimination in employment. Nevertheless, the percentage of women as professional workers increased during 2014-2015.

The time series data of Gender Empowerment Index (GEI) of South Kalimantan is depicted in Figure 13. Regarding political carrier, women's contribution in the parliament is relatively high (Figure 14). The basic law, namely Act No. 22/2003 on the Arrangement and Position of People's Enrollment in Parliament, holds an important role in political enrollments. The main idea of this regulation is to prevent or eradicate the discrimination of the political rights of women and men. The strong patriarchal culture of the Banjarese ethnical group influences the women's position in political institutions. Meanwhile, women involvement as professional workers shows positive developments in Tapin, South Hulu Sungai, Central Hulu Sungai, Tanah Bumbu, Balangan, Banjarmasin, and Banjarbaru. Women empowerment in politics and economy has not fully developed yet because of several constraints, such as the dichotomy of women's role in either public or private spaces that perceives women as seemingly less competitive and less powerful (UNDP, 2010 as quoted in the Indonesian Ministry of Women Empowerment and Child Protection, 2016). The government is expected to address gender issues through the development strategy in Gender-responsive Budget to support the implementation of appropriate programs.

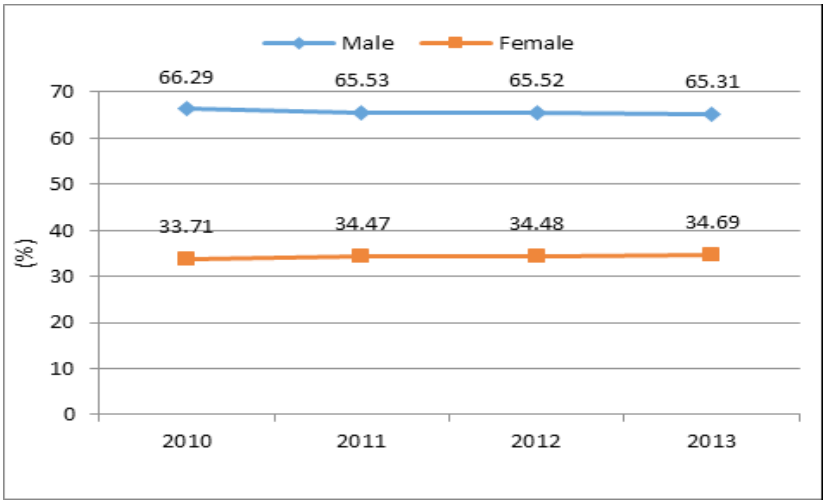



Figure. 12 The Revenue Contribution of Men and Women in South Kalimantan in 2010-2013

Table 1. The Total Male and Female Job Seekers by Education Levels in South Kalimantan in 2015

| Education Level | Male Job Seekers | Female Job Seekers | Total |
|---|---|---|---|
| Elementary School | 252 | 64 | 316 |
| Junior High School | 882 | 152 | 1,034 |
| Senior High School | 9,447 | 4,396 | 13,843 |
| Vocational High School | 1,138 | 2,217 | 3,355 |
| Diploma/Academy | 2,577 | 2,820 | 5,397 |
| University | 25 | 35 | 60 |
| Total | | | 24,005 |

Source: Secondary data processing

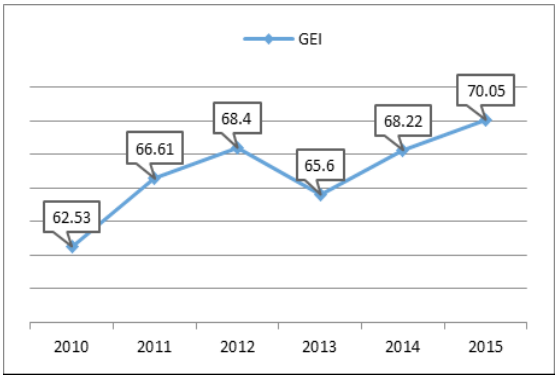



Figure 13. The GEI Trend of South Kalimantan in 2010-2015

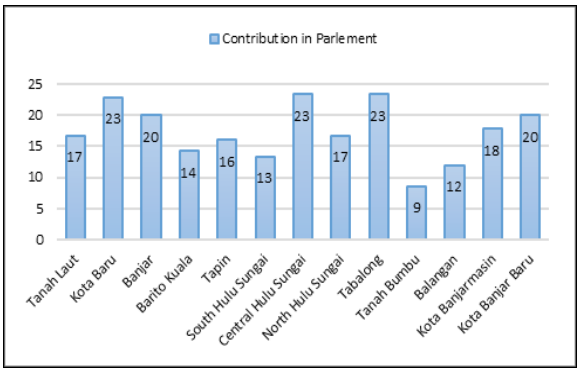



Figure 14. Women's Contribution in the Parliament in South Kalimantan

## Land Productivity after Land Use Change

South Kalimantan is known as one of the biggest producers of natural resources and, consequently, it always receives sufficient investments. However, over the last 30 years, the exploitation of natural resources has led to environmental damages. The resources are not managed properly due to disobedience of rules and policies. The carrying capacity of the environment is not used as the basis for making decisions in management (Prasetiaty, 2016).

From 2015 to 2016, there was a massive land use conversion, as shown in Table 2. The area of the following land uses expanded: homogeneous plantations (44%), heterogeneous plantations (114%), settlements (50%), and mining areas (22%). On the contrary, the area of rice fields (6%) and forests (19%) narrowed. The reduction of rice fields was influenced by the limited number of farmers and farm workers, low farmer income, and the lack of supporting irrigation infrastructures (Prasetiaty, 2016). Forests were mostly cleared for oil palm plantations by burning, especially in Kotabaru and Tanah Bumbu that had been designated as the national plantation areas for oil palm. Furthermore, the land conversions were caused by the expansion of coal mining areas. The Meratus Mountain Range is known as one of the largest coal reserves in Indonesia; hence, the massive development on it. Both oil palm and coal are high-valued commodities, and they have been the pulling factors for land clearance and conversion.

There is a link between development and environment that defines the changes that commonly bring negative impact to a region due to exceeded environmental carrying capacity (Muta'ali, 2011). Land carrying capacity is a major component of environmental carrying capacity. It is determined by population pressure (Table 3) or the number of people and activities that can be sustained while maintaining land productivity to ensure the fulfillment of people's needs. The population pressure in most regions in South Kalimantan was smaller than 1, meaning that human occupancy did not pressure productive land. However, the opposite was found in North Hulu Sungai and Banjarmasin. Banjarmasin had a high population pressure due to the lack of agricultural land that could provide for the large population.

Table 2. Land Use Changes in South Kalimantan in 2015-2016

| Land Use | 2015 (Ha) | 2016 (Ha) |
|---|---|---|
| Forest | 1,338,867.00 | 1,360,248.00 |
| Heterogenous Plantation | 270,428.10 | 367,970.80 |
| Homogenous Plantation | 531,947.70 | 636,512.50 |
| Rice Field | 401,217.30 | 400,235.30 |
| Settlement | 86,513.47 | 89,621.96 |
| Mining Area | 52,881.59 | 51,818.84 |
| Others | 1,052,760.00 | 827,120.30 |
| Total | 3,734,615.00 | 3,733,528.00 |

Source: Secondary data processing

Table 3. The Population Pressure and Land Carrying Capacity in South Kalimantan

| Regencies/Cities | Population Pressures | Classes | Land Carrying Capacities | Classes |
|---|---|---|---|---|
| Tanah Laut | 0.27 | Low | 3.69 | High |
| Kotabaru | 0.11 | Low | 8.88 | High |
| Banjar | 0.21 | Low | 4.71 | High |
| Barito Kuala | 0.51 | Low | 1.95 | Medium |
| Tapin | 0.33 | Low | 3.02 | High |
| South Hulu Sungai | 0.41 | Low | 2.44 | High |
| North Hulu Sungai | 1.44 | High | 0.69 | Low |
| Central Hulu Sungai | 0.34 | Low | 2.90 | High |
| Tabalong | 0.20 | Low | 5.07 | High |
| Tanah Bumbu | 0.94 | Low | 1.07 | Medium |
| Balangan | 0.15 | Low | 6.67 | High |
| Banjarbaru | 0.27 | Low | 3.72 | High |
| Banjarmasin | 7.01 | High | 0.14 | Low |

Source: Secondary data processing

The population size and population growth of certain regions are directly related to the provision of food. A large population demands a high amount of food and vast agricultural land, as well as wide areas of settlements, plantations, etc. Therefore, the land function is likely subjected to extensive conversion, which may lead to incongruity with its carrying capacity. A vast agricultural land use indicates a high carrying capacity of a region. If the land has enough carrying capacity to support the life on it, the productivity will be assured. Land conversion mainly causes a loss of opportunity to produce agricultural products, which are directly proportional to the land area (Harini et al., 2012).

The agricultural land in South Kalimantan produces rice, maize, soybeans, peanuts, green beans, cassava, and sweet potatoes. Meanwhile, the main plantation commodities are rubber, coconut, oil palm, coffee, pepper, and cocoa. Figure 15 shows that rice fields, oil palm, and rubber plantations have the largest area of harvest. However, the land cultivated for cassava and sweet potatoes has the highest productivity, followed by maize, rice, and oil palm (Figure 16). The sustainability of land production is physically affected by soil characteristics and non-physical factors in the form of technology involvement and positive response to food policies, e.g., food diversification policy. In South Kalimantan, cassava and sweet potatoes receive intensive attention driven by the primary food preference of tubers in most people since 1984 (Ariani and Saliem, 1992). Increased land productivity and product quality can provide the value-added of both the product and the labor involved (Galib, 2014) to support the whole system in regional development.

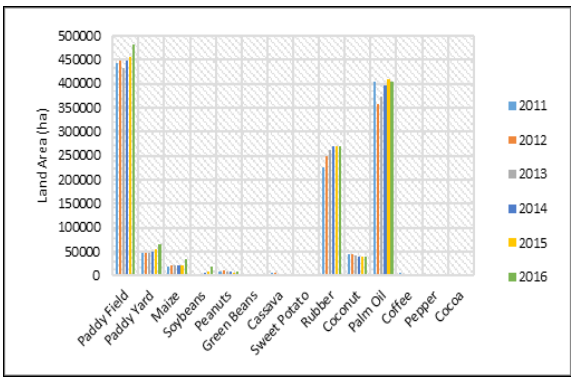



Figure 15. The Land Area of Agricultural Commodities in South Kalimantan

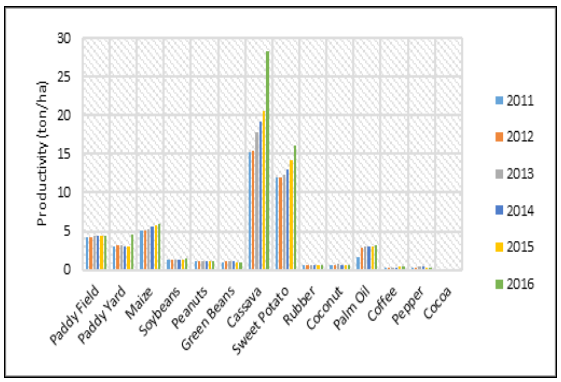



Figure 16. Land Productivity by Commodity in South Kalimantan

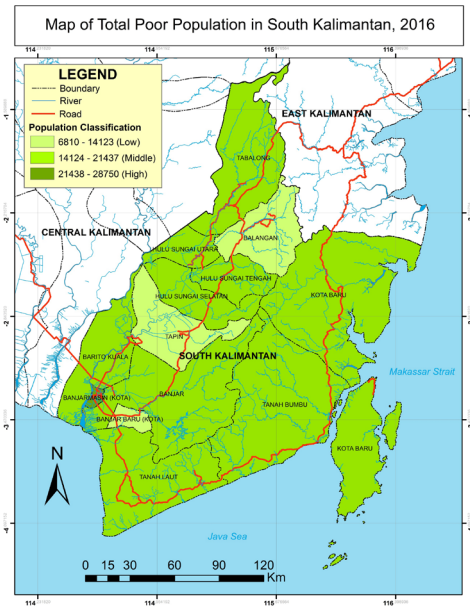



Figure 17. The Map of the Number of Economically Disadvantaged Population of South Kalimantan in 2016

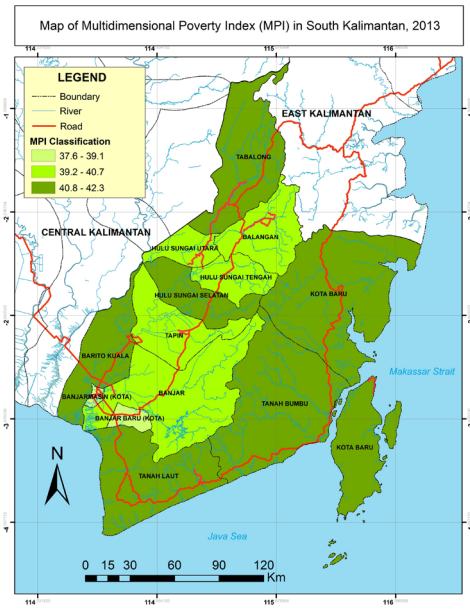



Figure 18. The Multidimensional Poverty Index (MPI) Map of South Kalimantan in 2016

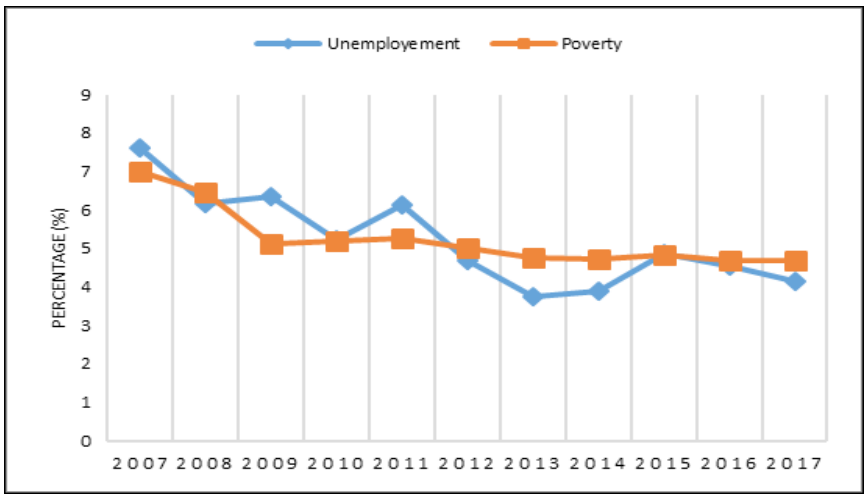



Figure 19. Poverty and Unemployment Rate in South Kalimantan in 2007-2017

## People's Welfare: Multidimensional Poverty and Food Sufficiency

Poverty and hunger are the major concerns of the first and second SDGs. During the last decade (2007-2017), the number of people in poverty in South Kalimantan ranked between 26$^{th}$ and 28$^{th}$ of the 34 provinces in Indonesia. The poverty in this province is likely influenced by demography, socio-cultural environment, education, employment, income, and health factor. This section emphasizes the socio-cultural aspect, employment, and income because the other factors have been described in the previous section about human development. Figures 17 and 18 show the poverty indicator maps in 2016.

North Hulu Sungai (in 2007) and Banjarmasin (from 2008 to 2017) have the highest number of underserved people. The influential socio-cultural aspect referred to in this study is the ethnic characteristics of the local community. Banjarmasin as the capital city of South Kalimantan has the major population and the highest disadvantaged people. The community is mostly from the Banjarese ethnic group, which is known as individual competitors who tend to be apathetic towards their social environment and prefers personal rather than family and community welfare (Barjie, 2016). This tendency took part in the persistent poverty in the region during 2008-2017. Meanwhile, Banjar had the lowest number of disadvantaged people and the third lowest poverty

rate nationally because its multisectoral development commitment was integrated with community-based agroindustry program, which focused on rubber, rice, and Pangas catfish production (Institution of Development Planning, Research, and Development of Banjar Regency, 2017). North Hulu Sungai was one of 183 disadvantaged regions in Indonesia (Muhiddin, 2011). Tabalong and Balangan Districts used to be parts of North Hulu Sungai. However, since they were officially admitted as regencies in 2007, the poverty level of North Hulu Sungai has constantly elevated due to the shifted political rights of natural resources.

As seen from the employment aspect, the poverty in South Kalimantan was mostly proportional to unemployment rate although the opposite condition occurred in some years (Figure 19). The same correlation applied to the national level. Octaviani (2001) confirms that increased unemployment contributes to poverty. Job opportunities that are not accompanied by economic growth can, ceteris paribus, increase poverty level (Syahrullah, 2014).

Economic development is measured with the growth of Gross Regional Domestic Product (GRDP) growth and specific attention to the income distribution. Decreased GRDP is caused by the lower quality and quantity of household consumption. If people's income is minimum, the economically disadvantaged households will be forced to reduce the number of goods and the price options. The main idea in response to the poverty problem is ensuring that GRDP growth can reduce poverty level effectively. It means that the benefits must spread throughout the community, including the disadvantaged people.

Meanwhile, the trend of food sufficiency in South Kalimantan, as presented in Figure 20, showed a surplus of rice in 2011-2016. In other words, the available food products, especially rice as a staple food, could cover the people's needs. In 2013, the rice sufficiency declined due to a decrease in its production as a result of the reduction of harvest by 0.69% and productivity by 3.30% (Rizal, 2014). Furthermore, there were several regions experiencing rice deficit in 2016, namely Kotabaru, Tanah Bumbu, Banjarmasin, and Banjarbaru (Figure 21), due to the development of manufacturing industry and service instead of the agricultural sector.

## Potential Economic Sectors

South Kalimantan has both primary and secondary production activities. As commonly occurs in Indonesia, agriculture is the major economic activity preferred by the people of South Kalimantan. However, the community currently needs to switch it to other sectors that provide a guarantee of long-term investment, namely the manufacturing industry and trade. This research describes the economic contribution of agriculture, industry, and trade sectors and compares the development of the three sectors.

*1) The Contribution of Agricultural Sector.* In 2014-2016, the Location Quotient (LQ) value of agriculture in most regions in South Kalimantan was greater than 1 (Table 4), representing agriculture as the basis sector. The leading subsectors of agriculture were of oil palm and rubber plantation, as well as forestry, which produced rattan commodity. Rice fields and fisheries also contributed to the GRDP of South Kalimantan. Meanwhile, there were only four regions where agriculture was a non-leading sector, i.e., Tabalong, Balangan, Banjarbaru, and Banjarmasin. Tabalong and Balangan relied on coal mining for their regional income, Banjarbaru had growing transport services due to the existence of Syamsuddin Noor Airport—the main airport in South Kalimantan, and Banjarmasin developed manufacturing industry as its basic economic activities.

The shift-share analysis of the agricultural share in GRDP supports the LQ values (Table 5). The positive value of the national share indicates an acceleration in economic growth, and vice versa (Sari and Pujiyono, 2013). Both of the total and sectoral GRDP had positive growth in the periods of 2014-2015 and 2015-2016. Meanwhile, the component of the proportional shift in 2014-2015 showed a negative value for the entire region of South Kalimantan, indicating slower growth in the agricultural sector compared with the provincial growth. The component of the differential shift represented the spatial variation of agriculture competitiveness in the form of either growth acceleration or deceleration. Land use change held an important role in agricultural growth. It mostly involved the conversion of agricultural land to mining areas, which, in turn, decreased the land productivity.

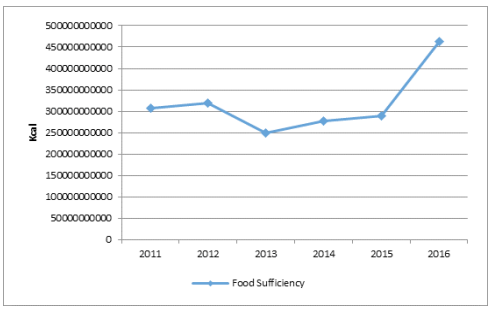



Figure 20. The Trend of Food Sufficiency in South Kalimantan in 2011-2016

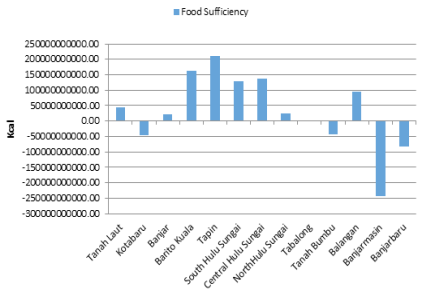



Figure 21. Food Sufficiency by Regency/City in South Kalimantan in 2016

Table 4. The Location Quotients (LQ) of Agriculture in South Kalimantan in 2014-2016

| Regencies/Cities | LQ Values | | | LQ Classes | | |
|---|---|---|---|---|---|---|
| | 2014 | 2015 | 2016 | 2014 | 2015 | 2016 |
| Tanah Laut | 1.26 | 1.26 | 1.26 | Basis | Basis | Basis |
| Kotabaru | 1.33 | 1.31 | 1.29 | Basis | Basis | Basis |
| Banjar | 1.24 | 1.21 | 1.22 | Basis | Basis | Basis |
| Barito Kuala | 2.02 | 1.96 | 1.93 | Basis | Basis | Basis |
| Tapin | 1.35 | 1.37 | 1.39 | Basis | Basis | Basis |
| South Hulu Sungai | 1.87 | 1.85 | 1.85 | Basis | Basis | Basis |
| North Hulu Sungai | 1.30 | 1.25 | 1.17 | Basis | Basis | Basis |
| Central Hulu Sungai | 1.82 | 1.80 | 1.79 | Basis | Basis | Basis |
| Tabalong | 0.69 | 0.69 | 0.70 | Non-basis | Non-basis | Non-basis |
| Tanah Bumbu | 1.08 | 1.11 | 1.11 | Non-basis | Non-basis | Non-basis |
| Balangan | 0.71 | 0.72 | 0.74 | Non-basis | Non-basis | Non-basis |
| Banjarbaru | 0.16 | 0.15 | 0.15 | Non-basis | Non-basis | Non-basis |
| Banjarmasin | 0.17 | 0.17 | 0.17 | Non-basis | Non-basis | Non-basis |

Source: Secondary data processing

Table 5. The Shift-Share Analysis of Agriculture in South Kalimantan in 2014-2016

| Regency/City | The Shift-Share Components in Regency/City | | | | National Share Components | | | |
|---|---|---|---|---|---|---|---|---|
| | *Gj* of GRDP per Regency/City | | *Gj* of GRDP of Agricultural Sector per Regency/City | | *Nj* of National Share | | *Nj* of National Share of Agricultural Sector | |
| | 2014-2015 | 2015-2016 | 2014-2015 | 2015-2016 | 2014-2015 | 2015-2016 | 2014-2015 | 2015-2016 |
| Tanah Laut | 247,028.45 | 288,573.91 | 35,201.13 | 62,261.82 | 347,945.72 | 393,306.97 | 50,734.95 | 66,523.14 |
| Kotabaru | 478,345.05 | 624,709.89 | 43,843.12 | 76,156.42 | 578,006.90 | 597,373.31 | 88,270.55 | 90,653.65 |
| Banjar | 419,805.17 | 467,228.51 | 30,230.11 | 86,973.53 | 385,863.49 | 402,859.83 | 55,127.51 | 57,849.09 |
| Barito Kuala | 236,927.40 | 243,758.30 | 28,461.30 | 46,380.10 | 182,153.41 | 191,745.72 | 42,345.97 | 43,797.30 |
| Tapin | 207,762.77 | 259,230.51 | 59,847.76 | 67,987.43 | 207,925.50 | 216,337.03 | 33,435.32 | 35,562.78 |
| South Hulu Sungai | 213,578.03 | 227,580.84 | 47,989.17 | 59,196.22 | 142,818.08 | 151,465.06 | 31,695.35 | 33,547.72 |
| North Hulu Sungai | 136,430.30 | 126,598.90 | 7,035.60 | -8,425.40 | 103,426.02 | 108,949.58 | 15,335.81 | 15,072.16 |
| Central Hulu Sungai | 227,935.00 | 245,054.00 | 48,645.00 | 59,735.00 | 150,572.68 | 159,800.91 | 32,380.92 | 34,250.15 |
| Tabalong | 297,866.00 | 394,830.00 | 25,289.00 | 52,861.00 | 510,985.35 | 523,044.83 | 40,708.96 | 42,363.09 |
| Tanah Bumbu | 383,263.00 | 419,802.00 | 105,125.00 | 65,120.00 | 530,119.61 | 545,636.49 | 68,117.59 | 70,155.33 |
| Balangan | 205,901.51 | 212,441.75 | 39,881.57 | 39,200.46 | 331,083.42 | 339,419.61 | 27,747.76 | 28,974.42 |
| Banjarbaru | 308,555.60 | 331,418.75 | 1,912.00 | 4,708.00 | 180,683.21 | 193,175.48 | 3,301.28 | 3,448.61 |
| Banjarmasin | 958,390.14 | 1,099,749.20 | 14,153.30 | 22,822.50 | 670,205.03 | 709,006.66 | 13,670.56 | 14,384.72 |

(continued to the next table)

| Regency/City | Proportional Shift Component | | | | Differential Shift Component | |
|---|---|---|---|---|---|---|
| | *(P+D)j* | | *Pj* | | *Dj* | |
| | 2014-2015 | 2015-2016 | 2014-2015 | 2015-2016 | 2014-2015 | 2015-2016 |
| Tanah Laut | -37,142,160,807,017.90 | -43,684,128,325,259.50 | -1650349.904 | -1693460.651 | -14,432.30 | -1,801.20 |
| Kotabaru | -61,700,500,852,212.20 | -72,903,903,486,121.60 | -2889446.52 | -2946346.586 | -43,055.49 | -35,302.80 |
| Banjar | -41,189,768,587,735.70 | -49,165,327,739,945.30 | -1801578.257 | -1840078.142 | -23,951.44 | 17,364.03 |
| Barito Kuala | -19,444,329,873,321.30 | -23,400,796,982,935.00 | -1378422.273 | -1413448.119 | -12,994.05 | -7,090.15 |
| Tapin | -22,195,422,244,906.50 | -26,401,940,186,353.20 | -1049478.876 | -1116023.027 | 28,285.20 | 25,768.66 |
| South Hulu Sungai | -15,245,401,341,871.10 | -18,484,913,788,215.80 | -1003962.18 | -1057945.244 | 17,795.51 | 19,174.51 |
| North Hulu Sungai | -11,040,417,262,122.10 | -13,296,291,100,237.90 | -502606.276 | -511886.7914 | -8,080.05 | -27,789.92 |
| Central Hulu Sungai | -16,073,180,974,724.10 | -19,502,227,929,288.50 | -1026075.541 | -1080828.611 | 17,786.29 | 18,847.62 |
| Tabalong | -54,546,151,731,012.90 | -63,832,798,851,148.30 | -1327291.113 | -1358806.997 | -14,628.61 | 1,457.80 |
| Tanah Bumbu | -56,588,675,919,969.50 | -66,589,902,716,460.80 | -2155581.651 | -2273668.91 | 40,296.99 | -20,892.08 |
| Balangan | -35,342,161,410,864.00 | -41,423,033,483,502.50 | -881137.6042 | -926180.2786 | 13,381.79 | 4,163.37 |
| Banjarbaru | -19,287,390,098,820.40 | -23,575,285,421,375.90 | -107779.8196 | -110191.16 | -1,329.45 | 539.47 |
| Banjarmasin | -71,542,373,363,719.70 | -86,527,725,084,523.20 | -439829.5776 | -456303.1258 | 925.63 | 5,560.69 |

Source: Secondary data processing

*2) The Contribution of Industrial Sector.* The industrial sector of South Kalimantan has not been optimally developed due to the challenges in the national level, namely the low competitiveness in the international market because of increased energy costs, high economic costs, and bureaucratic service insufficiency. These challenges are the consequence of economic dependency on primary sectors, i.e., agriculture, mining, and excavation (Indonesian Ministry of National Development Planning, 2015). The greatest contributions in 2017 were 20.75% from mining and excavation, 14.59% from agriculture, forestry, and fisheries, and 14.39% from the manufacturing industry.

The industrial development of South Kalimantan was reviewed from its share of GRDP, total units of company, labor, and labor wages. The GRDP of the industrial sector shows the total value added or the value of final goods and services resulted from units of the company of manufacturing industry. The trend of the industrial GRDP in South Kalimantan from 2007 to 2016 is shown in Figure 22. The industrial GRDP showed an increase in these years due to the GRDP growth of each type of manufacturing activity. The largest contribution to GRDP was from the food and beverage processing industry, which produced drinking water, frozen shrimp, biscuits, instant noodles, traditional medicines, coated beans, flour, and soy sauce. The other developing industries were furniture from corks, handicrafts from bamboo and rattan, rubber goods from rubber and plastics, and non-metallic resources industry. On the contrary, the type of industry that contributed the least was machinery and equipment industry (BPS-Statistics South Kalimantan Province, 2015). The development of non-oil and gas industry required further development to absorb more labor and to shift the labor pressure in agricultural and service sectors that were less productive. The growing industrial companies could raise the region's economy. The annual development of total company units in South Kalimantan is shown in Figure 23. In 2007, there were 50,154 companies; then this figure consistently increased until 2016. The small and medium-sized industries dominated the region with up to 3,846 units in 2016 and a growth rate of 5.21% from 2015 to 2016, which exceeded the targeted growth rate, i.e., 5% (Department of Industry and Trade of South Kalimantan Province, 2016). Small and medium-sized industries generally produced goods and services with a low income elasticity of demand. In other words, the mean income of people did not significantly affect the demand for goods and services. Therefore, there were only a few benefits that small industries could contribute to GRDP. Industry became an economically developing sector by labor absorption, and its development followed the current leading sectors in South Kalimantan, i.e., agriculture and mining. From 2007 to 2016, the total industrial labor showed an increasing trend (Figure 24). During this period, there was approximately 10.42% of workers in the industrial sector. The industrial labor productivity is the ratio of output (the amount of industrial GRDP) to input (the number of industrial labors). The increased number of workers followed the increasing trend of industrial GRDP in South Kalimantan in 2007-2016. Compared with the growth of the total workers, the GRDP growth was lower and, therefore, caused a decline in productivity during 2012-2013 and 2015-2016.

Based on the Efficiency Wage Theory stated by Katz (1986), worker's productivity is positively correlated with the earned wages, as long as the wages can fulfill the worker's needs and reach the expected amount. Productivity-based wage system for workers makes them feel more respected and productive as they receive highly valuable feedback (Utari et al., 2014). Meanwhile, from the company's perspective, this system can encourage product competitiveness that leads to financial benefits. The minimum wage of industrial labor in South Kalimantan Province showed an increase from 2007 to 2016, and such an increase was consistently above the national level (Figure 25). The largest increase of provincial wage happened in 2013-2014, i.e., 21%. On the other hand, increased wages can also decrease the absorption of labor because it may be the company's strategy to reduce production costs. If a company continues to raise its labor wage, the production cost will be higher as well. The further impact may involve mechanization, i.e., replacing human workers with machines, because it costs less. This situation may lead to a drop in labor productivity every year.

*3) The Contribution of Trade Sector*: The macroeconomic theory states that the correlation between export value and economic growth or national income is an identity equation because exports impact national income (Oiconita, 2006). The export commodities of South Kalimantan are mainly from the mining, agriculture, foresty, and plantation sectors, as shown in Table 6. This province has one of the three largest coal reserves in the country (Indonesia Investments, 2016). The main destinations for coal export are India, China, and Japan. Coal export to India and Japan contributes as much as 73% to the total exports (Kalimantan Post, 2018). Despite the rise in the production, the oil price in the world market plummeted and decreased the export value of coal in 2012-2016. As a result, the performance of coal mining companies in South Kalimantan became lower, specifically in 2015, and some companies even committed to reducing their production (Pro Kalimantan Selatan, 2016). The second biggest export commodity was oil palm although it had constantly declined since 2014. The oil palm export value showed a rise from 0.08% to 16.06% per year. Oil palm products are mostly exported to the entire continents of Asia, Africa, Australia, America, and Europe. The Asian countries are the main destination, i.e., India, Malaysia, and Singapore (BPS-Statistics South Kalimantan Province, 2015).

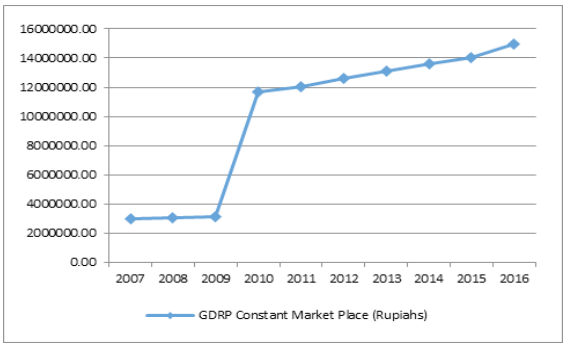



Figure 22. The Industrial GRDP Trend in South Kalimantan in 2007-2016

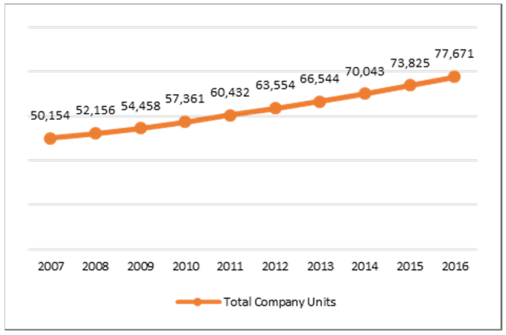



Figure 23. The Total Industrial Company Units in South Kalimantan in 2007-2016

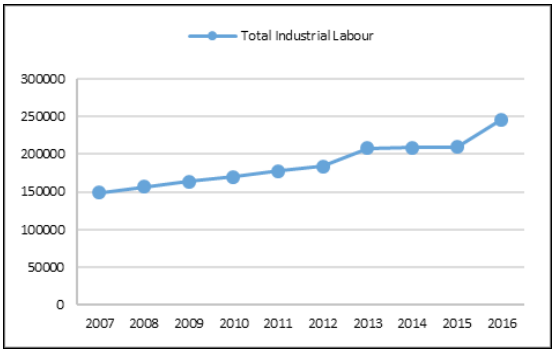



Figure 24. The Total Industrial Labor in South Kalimantan in 2007-2016

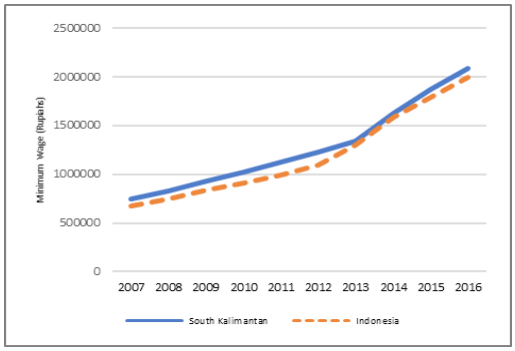



Figure 25. The Minimum Wage in South Kalimantan in 2007-2016

Table 6. The Value of the Main Export Commodities of South Kalimantan in 2015-2016

| Commodities | Value (000 US$) | |
|---|---|---|
| | 2015 | 2016 |
| Rubber | 137,870.80 | 129,531.00 |
| Palm Oil | 1,084,130.27 | 968,405.00 |
| Woods | 215,210.39 | 239,078.00 |
| Rattan | 764.83 | 821.00 |
| Fishery | 14,613.27 | 12,229.00 |
| Coal | 4,965,627.65 | 4,850,132.00 |
| Clinker | 2,003.29 | 6,652.00 |
| Hematite | 0.00 | 30,234.00 |
| Zircon Sand | 6,576.32 | 15,832.00 |

Source: Secondary data processing

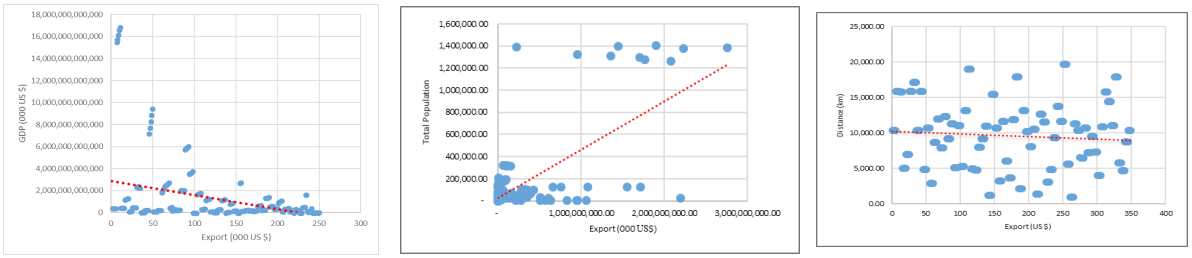
Economic dependency on raw materials, especially coal, makes a region vulnerable to price fluctuations on the international level. Therefore, the development of other potential sectors, i.e., agriculture, forestry, fishing, and manufacturing industry, is necessary. As for the industrial sectors, they require improvement in spatial parity, which is related to the absorption of the workforce, specifically in the manufacturing industries. The development has to be directed to the processing of potential natural resources to actualize the export-oriented industrial development. Such attempts can be conducted by improving infrastructures, marketing strategies, and labor training.

The Gravity Model applied in the trade analysis considers the regional income and total population as the inversely proportional variables to the distance between two regions (Tinbergen, 1962). Therefore, the analysis required the correlation between export value and the variables of Gross Domestic Product (GDP), total population, and the distance of each export destination (Figure 26). The export-import flows of international trade are represented by trade openness value, which reflects the proportion of trade volume in GDP. In 2011-2016, there were 64 export destination countries from South Kalimantan, as presented in Figure 27. The export value and GDP of each destination country during

2012-2016 showed an inversely proportional (negative) correlation, meaning that the high export values were owned by countries with relatively low GDP. According to Safriansyah (2010), the product diversification based on either market types or income groups is one of the indicators used in measuring export development. The trade partners of South Kalimantan include countries with lower-middle GDP, or also known as developing countries.

The major importer countries of South Kalimantan's products are distributed in Asia particularly because they have been experiencing industrialization, which leads to high economic growth, repeatedly over the past few decades (Suryadi, 1997). The development of manufacturing industries in Asian countries is highly dependent on natural resources, which are available in South Kalimantan.

The export value and the total population of each destination country during 2012-2016 showed a positive correlation, indicating that countries with large population had a high export value (e.g., China, USA, India). Salvatore (1997) states that the growing population may affect the country's trade through the export and import activities, which are attributable to demands. According to Lipsey et al. (1995), large population size will create a high demand for commodities. A higher export value likely reduces the export demand in the destination country (Chintia, 2008). The longer the distance between the two countries, the higher the cost needed for the goods transportation. Consequently, the trade intensity becomes lower. However, it does not apply to certain countries with strong interrelation. This special condition occurs in countries with high purchasing power—as represented by GDP—and a strong influence to raise import demands that transportation costs can be covered by a large volume of trade. Therefore, the variable of geographic distance should consider replacing GDP with economic distance in determining the amount of demand (Indonesian Ministry of Trade, 2015). According to Pigka-Balanika (2013), trade openness generally indicates the contributing sectors in a trade flow. In 2012-2016, the trade openness of South Kalimantan was approximately 24-times higher than Indonesia (Figure 28) because the measurement used a narrower analysis unit (at the provincial level) than the analysis of international trade, which commonly uses intercountry level. The decreasing trend of trade openness was influenced by the decline in the export and import values during 2012-2016, while GDP remained stable at 1 trillion US$ (Table 7). Trade openness had a positive correlation with the export and import values, and, consequently, the decreased import-export values would affect trade openness with a similar trend. The export values have decreased over the last five years due to the world economy and product competitiveness.




a b c

Figure 26. The Correlations between the Export Value of South Kalimantan and the Destination Countries' GDP (a), Total Population (b), and Distance (c)

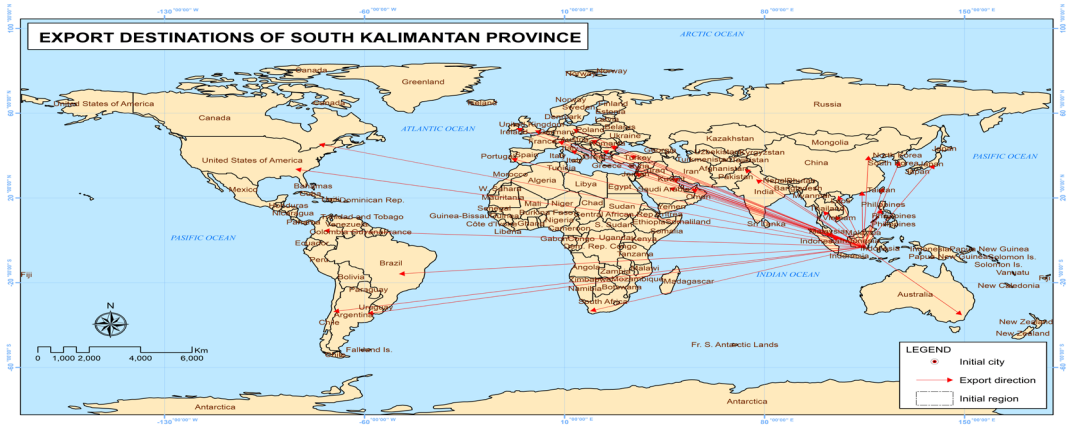



Figure 27. The Export Destination Map of South Kalimantan

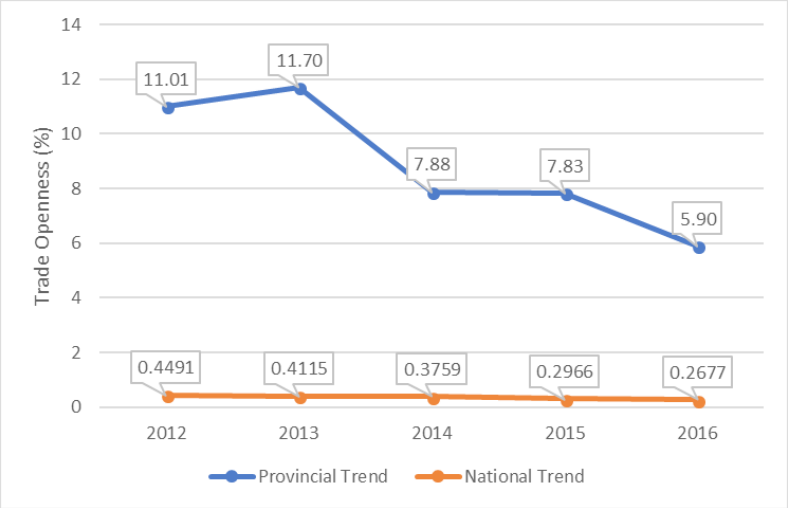



Figure 28. The Trade Openness Trends of South Kalimantan and Indonesia in 2012-2016

Table 7. The Trade Openness Value of South Kalimantan

| Year | Export Value (US$) | Import Value (US$) | GDRP (US$) | Trade Openness |
|---|---|---|---|---|
| 2012 | 10,881,224,989,500.00 | 3.509,808,828,000.00 | 1,307,321,613,000.00 | 11.01 |
| 2013 | 9,501,471,933,100.00 | 3.082,260,381,000.00 | 1,075,248,175,000.00 | 11.70 |
| 2014 | 6,107,534,912,040.00 | 2.495,287,354,000.00 | 1,091,366,559,000.00 | 7.88 |
| 2015 | 6,589,618,617,250.00 | 1.388,571,703,000.00 | 1,018,569,772,000.00 | 7.83 |
| 2016 | 6,281,777,100,000.00 | 163,209,025,780.00 | 1,091,502,738,000.00 | 5.90 |

Source: Secondary data processing

According to Sudarti (2016), the world economy is faced with a situation where the policies for defusing the crisis, reducing world oil prices, and rising the exchange rate of US$ to IDR are not established yet. This condition reduces the demand on the export products from Indonesia, including South Kalimantan. The unstable global economy is worsened by the low competitiveness of the export products of South Kalimantan, namely oil palm and rubber (Sudarti, 2016; Rahmadhani, 2016). South Kalimantan has been conducting international trades by resource-based manufacturing products. The export value to South Africa contributes the most to the GDP. The other high export values that have positively contributed to the GDP are the commodity exports to China, India, Japan, Singapore, Taiwan, United Kingdom, Philippines, Malaysia, Thailand, South Korea, and the USA. According to Ariyanti (2017), Indonesia and South Africa have an international trade agreement in the form of countertrade. The scheme involves the intergovernmental role in exchanging energy products, i.e., African oil and gas, with the Indonesian products. Specifically for South Kalimantan, the major commodity in the countertrade is oil palm. The agreement is politically appropriate because South Africa is a well-developed country in the African continent. Although the export value to South Africa is higher than to other destination countries, the trade openness between South Kalimantan and this country is the opposite, indicating that the implementation of related policies is not optimal yet. Nine countries consistently remained as the trade partners of South Kalimantan during 2012-2016, i.e., the USA, China, India, Japan, Germany, Republic of Korea, Singapore, Taiwan, and Thailand. The main factors affecting the cooperation in international trade between Indonesia—particularly South Kalimantan—and those countries were spatial interrelation and interdependency. Based on Figure 29, China and Singapore had the best trade relations with South Kalimantan in 2012-2016, followed by India, Japan, Republic of Korea, Taiwan, and Thailand. Meanwhile, the USA and Germany were at the lowest level. Countries with relatively high trade openness are geographically located in Asia. The shorter the distance, the better the spatial interdependency. Also, China, Japan, Republic of Korea, Singapore, Taiwan, and Thailand are members of the Asia Pacific Economic Cooperation (APEC) along with Indonesia. Consequently, these countries continuously supported a consistent trade openness in 2012-2016. The decline in trade openness between South Kalimantan and China, as well as Taiwan, in the middle of the period was influenced by the economic policies in their territories. Both China and Taiwan are the destinations of the largest export commodities from South Kalimantan. According to Sudarti (2016), China has devalued its currency, decreasing their export values from South Kalimantan.

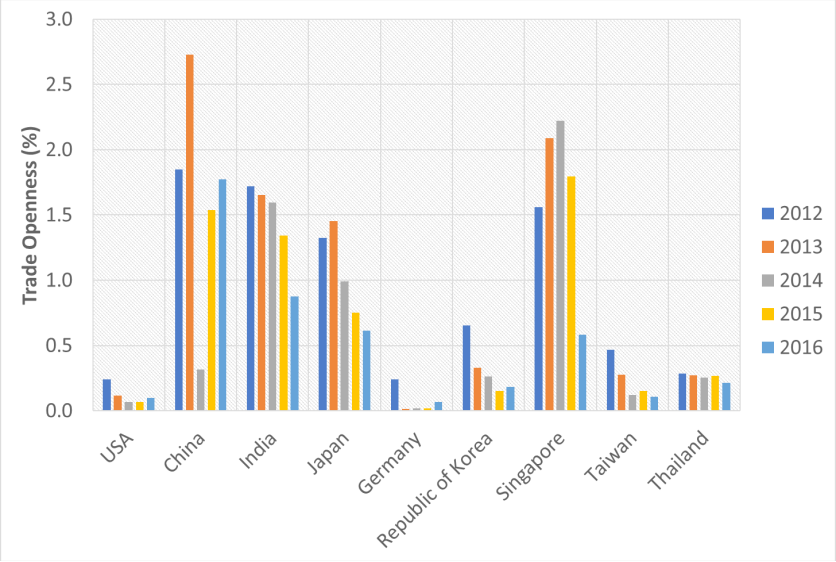



Figure 29. The Trade Openness between South Kalimantan and Export Destination Countries in 2012-2016

## The Sustainable Development in South Kalimantan

The development in South Kalimantan has focused on priority regions, inducing a spatial disparity between urban and rural areas in human development indicators. The implementation of development in the world is currently referring to the agenda of SDGs, which ensure a balance in economic, social, and environmental aspects. The accomplishment of the targets and indicators in SDGs becomes the basis for determining the direction of the development in South Kalimantan in the future.

The poverty in South Kalimantan is the least among the other provinces in Kalimantan. In 2015, around 4.99% of the population lived below the poverty line, but this percentage decreased to 4.85% in 2016 (BPS-Statistics Indonesia, 2017). Among the regencies and cities in South Kalimantan, Banjar Regency had the lowest poverty (Info Publik, 2016). However, the multidimensional approach showed that more than one-third of the people suffered deprivation (BPS-Statistics Indonesia, 2015).

South Kalimantan has abundant natural resources, but ironically it cannot meet the expectation for people's welfare. The electricity crisis was everywhere in South Kalimantan, as well as in Central Kalimantan until 2016 (Media Indonesia, 2016). This condition proves that the infrastructure problem remains unaddressed, or, in other words, the development goals do not apply a multidimensional approach. The spatial disparity shows that the number of economically disadvantaged people in rural areas is twice higher than in urban areas. South Kalimantan has great economic potential, as well as the finances of the community (BPS-Statistics Indonesia, 2015), which means that the infrastructure development programs only require optimization strategies with more appropriate targets. These programs also need to apply the basic principle proposed by Mantra (1991), which explains that the need for energy of particular resources must be proportional to its available supplies.

South Kalimantan has minimum food security problems due to the availability of food commodities in the form of rice, beans, cassava, and fruits (Jejak Rekam, 2018). Approximately 9.17% of the population had a minimum intake below 1,400 kcal/capita/day in 2015 (BPS-Statistics Indonesia, 2017). This number then decreased to 8.86% in 2016. In 2018, there was a rise in expenditure per capita for foods to IDR 1,743,326.49 in 2008. It was then consistently decreasing to IDR 916,708 in 2011. A regular decrease in food consumption since 2009 indicates a shift in goods/commodities purchased by the people, i.e., from food to non-food. This situation may be influenced by modernization where people change their lifestyle and needs that no longer focus on foods. The upgraded lifestyle is an implication of the rise in social welfare, reflecting the development progress in South Kalimantan.

Demographic issues are still an important target in the development in South Kalimantan. Health services, especially for mothers and children, and public perception of the access to health and education services require improvement. The accomplishment of Gender Development Index and Gender Empowerment Index (based on the latest data in 2015) in South Kalimantan has not met the Sustainable Development Goals yet.

According to Priyanto (2016), South Kalimantan produced the largest amount of rice during 1993-2015 among the other provinces in Kalimantan. The value-added agriculture in this province was IDR 30,038 per worker in 2015 then increased to IDR 30,791 IDR per worker in 2016 (BPS-Statistics Indonesia, 2017), indicating an improvement in the economic value of commodities after being processed, transported, or

stored during their productions. However, according to Act No. 22/2003, the productivity of rice fields in 2014-2015 showed a decrease despite their increased production. This condition hampers the achievement of the food self-sufficiency target because agricultural land resource is the main factor of production to meet people's needs for food. In other words, South Kalimantan has to deal with the threat of scarcity in productive land resources.

The environmental aspect of sustainable development consists of the adequacy of clean water and the feasibility of sanitation. Nearly half of the total households in South Kalimantan do not have access to decent sources of drinking water. Consequently, many regions contracted some diseases caused by bacteria. The number of households that used decent sanitation services increased from 60.13% of total households in 2015to 60.89% in 2016. However, these percentages were still below the national figure (62.14% of households in 2015 and 67.80% of households in 2016).

The economic growth of South Kalimantan at the second quarter of 2017 was somewhat restrained due to the adjustment of export demand from China, but it was soon increased at the last quarter, as evidenced by the rise in exports, specifically for coals (Bank of Indonesia, 2017). The economic growth of this province in the third quarter of 2017 was 5.60%, and it was projected to reach 5.37% in 2019. Table 8 shows that the mining and excavation sectors are the largest GRDP contributor in South Kalimantan, followed by agriculture, forestry, and fisheries, while the service sector and the procurement of electricity and gas were the smallest contributors.

Economic dependency on raw materials, especially coal, makes a region vulnerable to price fluctuations on the international level. Therefore, the development of other potential sectors, i.e., agriculture, forestry, fishing, and manufacturing industry, is necessary. As for the industrial sectors, they require improvement in spatial parity, which is related to the absorption of the workforce, specifically in the manufacturing industries. The development has to be directed to the processing of potential natural resources to actualize the export-oriented industrial development. Such attempts can be conducted by improving infrastructures, marketing strategies, and labor training.

The development in South Kalimantan should be based on a system thinking diagram (see Figure 3). Land, human, and economic resources must equally support the development to guarantee the accomplishment of the environmental, social, and economic targets in SDGs. The main concern in human resources in South Kalimantan is the gaps in health services and gender issues. The health services are not constrained by the availability of facilities but rather by the number of medical workers that is lower than the regional minimum standard. Meanwhile, the gender issues involve the difference in the opportunities of men and women to access education, employment, health, etc., revealing that the applied development is not yet based on the new paradigm.

Table 8. The Sectoral Contribution in GRDP of South Kalimantan in 2015-2017

| Sectors of GRDP | Contributions by Year (%) | | |
|---|---|---|---|
| | 2015 | 2016 | 2017 |
| Agriculture, Forestry, and Fishery | 15.00 | 14.92 | 14.59 |
| Mining and Excavation | 22.84 | 20.94 | 20.75 |
| Manufacturing | 13.57 | 14.17 | 14.39 |
| Electricity and Gas | 0.10 | 0.12 | 0.13 |
| Water Supply | 0.39 | 0.40 | 0.40 |
| Construction | 7.75 | 7.93 | 8.01 |
| Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles | 9.05 | 9.41 | 9.68 |
| Transportation and Storage | 6.24 | 6.42 | 6.48 |
| Accommodation and Food Service Activities | 1.93 | 1.96 | 1.97 |
| Information and Communication | 3.29 | 3.41 | 3.47 |
| Financial Activities | 3.44 | 3.56 | 3.60 |
| Real Estate Activities | 2.23 | 2.26 | 2.21 |
| Business Activities | 0.62 | 0.65 | 0.66 |
| Public Administration and Defense; Compulsory Social Security | 6.29 | 6.18 | 5.94 |
| Education | 4.27 | 4.53 | 4.58 |
| Human Health and Social Work Activities | 1.85 | 1.95 | 1.93 |
| Other Service Activities | 1.14 | 1.20 | 1.22 |

Source: Secondary data processing

Higher pressure on land requires an appropriate solution that must aim to reduce the intensity of agricultural activities and pay more attention to the developing sector, i.e., the manufacturing industry. Physically, the optimization of industrial sector can minimalize the load on agricultural land because the primary activity of taking raw materials directly from nature is replaced with a secondary one, namely processing raw materials into either half-finished or finished goods. From the economic perspective, the industrial sector can be more profitable for the region because it has been contributing to the GRDP. The optimization of the industrial sector is recommended due to its guarantee of financial security in international trade since it will not depend on oil price fluctuation in the world.

## 4. Conclusion

Quantitatively, the human resources in South Kalimantan Province are capable of supporting the acceleration of regional development. However, some indicators potentially move off-track and toward the ideal development qualitatively, such as the level of population density, early marriage, maternal and infant mortality, health services, education, and employment. These indicators, along with an internal factor (i.e., income per capita) and some external factors (i.e., political dynamics and individual characteristics of the local community) likely cause poverty. The human development still suffers gender disparity issue that can give disadvantages to either men or women on the following dimensions: health, knowledge, income, and employment. The utilization of land resources in South Kalimantan Province has become increasingly intensive that it leads to a minimum area of natural land. The economic resources of South Kalimantan Province mainly come from the contribution of the agricultural sector. As for the industry and trade, these sectors are economically potential based on the state of industrial labor, wage, and company units, which showed an increasing trend in 2007-2016.

The regional development of South Kalimantan should adopt the new development paradigm that is sensitive to gender and environmental issues and capable of reducing spatial disparities. Regional development needs to create a balance in the aspects of land, human, and economic resources to achieve sustainable development goals. The implementation must include an increase in the quantity and quality of the medical workers and people's perception of gender-related topics. At the same time, population pressures on land resources can be reduced by switching economic dependency from the agricultural sector to the manufacturing industry, particularly because the latter is more profitable and stable than the former.

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