



## Analysis Of Base Subsectors And Leading Agricultural Commodities In Sekadau Regency, West Kalimantan Province

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### Abstract

The contribution of agriculture which has increased each year has been encouraged to be a strategic area for the economic development of Sekadau Regency. However, weakness of planning policy, insufficient quantity, and quality of infrastructure are obstacles to developing strategic areas. This study aims to analyze the basis of sub-sectors and leading commodities of agriculture in Sekadau Regency. The research approach used an exploratory qualitative with descriptive analysis methods to get an overview of agricultural productivity and Location Quotient Analysis, Shift-Share Analysis, and Klassen Typology to get the leading commodities of agriculture. The results of the study show that the productivity level of the agricultural sub-sector in Sekadau Regency is quite diverse. The agricultural and progressive sub-sector in Sekadau Regency is owned by food crops and plantations. Furthermore, the leading commodities of the food crop sub-sector in Sekadau Regency are corn, rice, and sweet potatoes. The main commodities of plantation sub-sectors in Sekadau Regency are pepper, rubber, and oil palm.

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### 1. Introduction

The challenges of economic development in the decentralization era require each region to be able to have high competitiveness, inside and outside the region. This encourages each region to accelerate economic development in a focused manner through the development of priority products to be able to compete in the free market, especially in its region (Directorate of Special and Disadvantaged Zone Development, 2003). The agricultural sector in regional economic development is one of the important sectors to prosper the community (Jhingan M.L. 2012). Development policies are directed so that agriculture can become a resilient sector, in the short term able to face economic crises, and in the long run able to face globalization with a sustainable agricultural system, a democratic economic system, and a decentralized government (Sumodiningrat, G. 2000).

There are 6 (six) key factors in determining a superior commodity for an area, including the amount of added value of output, the high content of domestic inputs, export specialization, the amount of output investment, distribution, sensitivity, and high contribution of GDP (Ningsih, E. S. M. 2010).

Based on previous research, the economic sector of Sekadau Regency that is growing rapidly and can be prioritized for development is the agricultural sector. The development of the agricultural sector is expected to absorb a very large workforce so that it can reduce the unemployment rate (Harsono, Bayu D., 2012). Sekadau urban areas, especially Sekadau Hilir District

tend to advance faster than other sub-districts. The limitations of the infrastructure of the northern region of Sekadau, especially land transportation facilities and infrastructure, can increase the prices of superior commodities from the region so that it can less compete in the market. In addition, the vast area of water supported by the Sekadau Rivers and Belitang Rivers makes some areas vulnerable to standing water and flooding. Tidal conditions of rivers can affect agricultural productivity, making it difficult for residents to move.

The above problems are a challenge in developing agricultural superior commodities in Sekadau Regency. Thus, there is a need for research related to the analysis of base subsectors and agricultural superior commodities in Sekadau Regency. Thus, local governments can formulate focused and integrated development concepts, specially oriented to local characteristics and regional development capabilities.

### 2. Materials and Methods

#### 2.1 Research Significance

This research aims to analyze the subsectors of agricultural bases and commodities in Sekadau Regency. This can be achieved by identifying the agricultural productivity of Sekadau Regency and analyzing the opportunities of the superior agricultural commodities of Sekadau Regency to the regional region, namely West Kalimantan Province. Thus, the research output is expected to provide recommendations for the regional government in

preparing agricultural development policies and improving the economy of the Sekadau Regency area.

## 2.2 Study Area

Sekadau Regency is one of the districts in West Kalimantan Province which has an area of 5,444.30 km<sup>2</sup> and consists of 7 sub-districts and 87 villages. Administratively the boundaries of Sekadau Regency are as follows:

- The North is bordered by Sintang Regency;
- The Southside is bordered by Ketapang Regency;
- The Eastside is bordered by Sintang Regency;

The Westside is bordered by Sanggau Regency

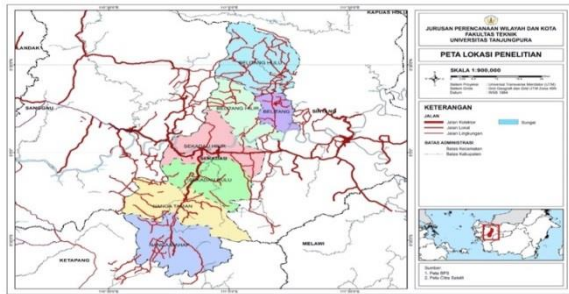


Fig.1 Map of Sekadau Regency

## 2.3 Data

The form of data in this study consists of primary and secondary data. Primary data collection is obtained by making direct observations of several agricultural mainstay areas in Sekadau Regency. In addition, data collection was also obtained through interviews with key informants, namely farmers and representatives of the Agriculture Office and BAPPEDA sekadau regency to get in-depth information. As for the collection of secondary data obtained from literature studies, some previous research, and agricultural development policies of Sekadau Regency.

## 2.4 Analysis Method

Analytical techniques applied to determine the superior commodities in Sekadau Regency are Location Quotient (LQ), Shift-share, and Klassen Typology. The Location Quotient (LQ) Method is an index to compare the share of a region or the aggregate phenomenon of LQ can be used to determine the concentration and or spread of production activities in one region (Putri, et al., 2020). LQ is used to describe the comparative advantages of the production of a commodity in a given region (Rudianto, S. J., 2012.)

$$LQ = \frac{Ri/Rt}{Ni/Nt} \dots\dots\dots(1)$$

Ri = Production of subsectors/commodities i of Sekadau Regency

Rt = Production of subsectors / total commodities of Sekadau Regency

Ni = Production of subsectors /commodities i of West Kalimantan Province

Nt = Total subsector/commodity production of West Kalimantan Province

The LQ value used in this study is as follows:

- LQ value > 1, commodities are base commodities in Sekadau Regency and can be further developed.
- LQ value < 1, commodities are non-base commodities in Sekadau Regency and are not progressive to be further developed.
- Value LQ = 1, commodities are commodities in Sekadau Regency that have the same growth rate as West Kalimantan Province.

Furthermore, calculations are carried out using Shift Share Analysis (SSA) which is an analytical technique to see the economic structure of a sector share of a region or location concerning the wider region. This technique is very useful for analyzing changes in the structure of the local economy and its relation to regional economies (Ryolla, Z. Q et al., 2018)

$$PPW = ri(ri'/nt - nt'/nt)$$

$$PP = nt(nt'/nt - Nt/nt) \dots\dots\dots(2)$$

$$PB = PPW + PP$$

PPW = Region Share Growth

PP = Proportional Growth

PB = Net Growth

ri = Commodity production i of Sekadau Regency early years

ri' = Commodity production i of Sekadau Regency final year

nt = Commodity production i of West Kalimantan Province early years

nt' = Commodity production i of West Kalimantan Province final year

NT = Total production of West Kalimantan Province in the early years

NT' = Total production of West Kalimantan Province for the final year

Result description:

PP > 0 Commodities i have rapid growth

PP < 0 Commodities i have slow growth

PPW > 0 Commodities i have good competitiveness

PPW < 0 Commodities i have less good competitiveness

PB ≥ 0 Commodity growth i including progressive group (advanced)

PB < 0 Commodity growth i including sluggish group

Next, Klassen Typology is a regional economic analysis tool that can be used to determine the classification of regional economic sectors. The determination of commodity quadrants is adjusted to the results of LQ and Shift-share analysis calculations. The value of LQ and Net Growth (PB) in each commodity is used as a determinant of the commodity

class. Klassen typology analysis produces four classifications of sectors with different characteristics (Sjafrizal, 2008).

<b>Quadrant I</b> Commodities that are developed and growing rapidly (developed commodity) $LQ \geq 1, PB \geq 0$	<b>Quadrant II</b> Commodity advanced but depressed (stagnant commodity) $LQ < 1, PB \geq 0$
<b>Quadrant III</b> Potential commodity or still developing (developing commodity) $LQ \geq 1, PB < 0$	<b>Quadrant IV</b> Commodities are relatively lagging (underdeveloped commodity) $LQ < 1, PB < 0$

**Fig.2** Matrix of Klassen Typology

### 3. Result and Discussion

The contribution of the economic sector to the Gross Regional Domestic Product (GRDP) of Sekadau Regency from 2016 to 2020 was dominated by the agricultural sector. The largest role in the economic structure of Sekadau Regency in 2020 was produced by the Agriculture, Forestry, and Fisheries business field, which was 39.77 percent where this figure increased from 37.98 percent in 2016 (Central Statistics Agency, 2021). Before analyzing the superior agricultural commodities of Sekadau Regency, first, analyze the basic agricultural subsector that has the opportunity to be developed using Location Quotient (LQ) analysis techniques. This analysis uses a comparison of the number of agricultural subsector productions of West Kalimantan Province and the amount of production of the agricultural subsector of Sekadau Regency in 2016 - 2020. Agricultural production in West Kalimantan Province grew from 2016 to 2019 but declined in 2020. The livestock subsector has the largest amount of production in West Kalimantan province and varied growth rates.

Agricultural production in Sekadau Regency has experienced mixed growth over the past 5 years. From 2016 - to 2020, the livestock subsector has a relatively increasing production rate every year. 2017 recorded the highest production figure of 1,484,269 heads, an increase from 2016 of 1,300,950 heads. The agricultural subsector of Sekadau Regency's food crops has an increasing amount of production every year. But it occupies the second-lowest production figure after the fisheries subsector of 5 agricultural subsectors in Sekadau Regency. The plantation subsector also has a variety of production numbers, an increase began to be seen from 2016 of 199,443.10 tons until 2019 of 323,135,756 tons but decreased in 2020 to 262,769 tons. The horticulture subsector also has a varied amount of production, an increase began to be seen from 2016 of 97,032.86 tons until 2019 of 413,255.43 tons but decreased in 2020 to 11,726.45 tons.

**Table 1.** Results of Location Quotient (LQ) Analysis of Sekadau Regency Agricultural Subsector, 2016 – 2020

Agricultural Subsector	Year					Average	Results
	2016	2017	2018	2019	2020		
Food Crops	0,84	0,8	1,45	1,5	1,59	1,31	Base
Horticulture	1,95	2,31	5,96	5,12	0,15	3,2	Base
Plantation	3,55	3,13	2,53	2,61	2,1	2,68	Base
Farm	0,88	0,87	0,75	0,71	0,94	0,82	Non-Base
Fishing	0,21	0,43	0,78	0,75	0,33	0,53	Non-Base

Based on the results of the analysis, the base subsector with an LQ value of  $> 1$  in Sekadau Regency is owned by the horticulture subsector, the plantation subsector, and the agricultural subsector of food crops. These three base subsectors have the opportunity to export their sales and are quite contributing to the growth of agricultural production in the West Kalimantan Province region. The horticulture agriculture subsector became the basis from 2016 to 2019 with the highest average LQ value of the other subsectors, which was 3.20. The plantation subsector showed a consistent  $LQ > 1$  value from 2016 to 2020 with an average LQ value of 2.68. The food crop subsector has an LQ value of  $> 1$  from 2018 to 2020 with an average LQ value of 1.31. The livestock and fisheries subsector over the past 5 years showed that the LQ value  $< 1$  so these two subsectors did not qualify as base agricultural subsectors in Sekadau Regency.

**Table 2.** Results of Shift-Share Analysis (SSA) of Sekadau Regency Agricultural Subsector, 2016 - 2020

Agricultural Subsector	Proportional Growth (PP)	Region Share Growth (PPW)	Net Growth (PB)	Shift-Share Analysis
Food Crops	-0,24	0,77	0,53	Progressive
Horticulture	0,47	-1,25	-0,77	Sluggish
Plantation	1,06	-0,63	0,42	Progressive
Farm	-0,05	0,19	0,14	Progressive
Fishing	-0,09	0,67	0,58	Progressive

Based on the results of shift-share analysis, there are 4 agricultural subsectors of Sekadau Regency that have a PB value of  $> 0$  and belong to progressive groups, namely subsectors of food crops, plantations, livestock, and fisheries. The subsector of food crops, livestock, and fisheries of Sekadau Regency have a PP value of  $< 0$  which indicates slow growth, but the value of  $PPW > 0$  is well competitive and the Net Growth (PB) value  $> 0$  including progressive groups. The plantation subsector has a PP value of  $> 0$  for rapid growth, but the value of  $PPW < 0$  has poor competitiveness, and the PB value  $> 0$  includes progressive groups. Horticulture subsector, PP value  $> 0$  indicates rapid growth, PPW value  $< 0$  has poor competitiveness and Net Growth (PB) value  $< 0$  including sluggish group.

The results of the Location Quotient (LQ) analysis of the base subsector with an LQ value of  $> 1$  in Sekadau Regency are owned by 3 subsectors, namely horticulture, plantations, and food crops. The results of Shift-Share Analysis, there are 4 agricultural subsectors of Sekadau Regency that have a PB value

of  $> 0$  and belong to a progressive group, namely the subsector of food crops, plantations, livestock, and fisheries. Based on the results of both analyses that have been carried out, the basic and progressive agricultural subsectors in Sekadau Regency are owned by food crops and plantations.

After analyzing the base agricultural subsector in Sekadau Regency, the next step is to analyze the superior commodities in the two base subsectors in Sekadau Regency. This analysis uses three analytical techniques, namely Location Quotient (LQ), Shift-Share Analysis (SSA), and Klassen typology. First, the Location Quotient (LQ) analysis was carried out by comparing the total production of food crops and plantations in Sekadau Regency and West Kalimantan Province. The data used is in the form of data on the production of the harvest of the two subsectors (tons) in Sekadau Regency and West Kalimantan Province from 2016 to 2020. Each amount of subsector production in the district is compared to the total production in the district, as well as the amount of production at the provincial level. The result will determine the base value of each commodity subsector of food crops and plantations.

**Table 3.** Results of Location Quotient (LQ) Analysis of Food Crops and Plantation Commodities of Sekadau Regency, 2016 - 2020

Agricultural Commodities	Year					Average	Results
	2016	2017	2018	2019	2020		
Food Crops							
Rice	0,86	1,04	1,02	0,94	0,83	0,9	Non-Base
Corn	0,26	0,47	1,17	2,55	3,38	1,6	Base
Yam	2,6	1,18	0,71	0,33	0,36	1	Base
Plantation							
Deep Coconut	0	0	0	0	0	0	Non-Base
Cacao	0,12	0,22	0,36	0,35	0,52	0,3	Non-Base
Pepper	0,02	0,15	0,18	0,17	0,17	0,1	Non-Base
Coffee	0	0	0	0	0	0	Non-Base
Rubber	1,02	1,01	1,28	1,2	1,5	1,2	Base
Oil palm	1	1	0,98	0,99	0,99	1	Base

The basic commodities of the food crop subsector in Sekadau Regency are corn and sweet potatoes. Corn commodities have an LQ value of  $> 1$  as a food crop base commodity with an average LQ value of 1.6. Corn became a base commodity in Sekadau Regency starting in 2018 with an LQ value of 1.17 and increasing to 3.38 in 2020. The yam commodity also has a fairly high production and becomes a second base commodity by showing an average LQ value of 1.0. Ubi has an LQ value of  $> 1$  as a base commodity in 2016 of 2.6 and 2017 of 1.18. However, the LQ value has decreased to non-base starting in 2018 with a value of 0.98 to 0.99 in 2020. Based on these values, it can be seen that the production of sweet potatoes is promising enough to be developed as well as a commodity for the agricultural base of food crops. Rice became a base commodity in 2017 and 2018 with LQ values of 1.04 and 1.02, respectively. However, the LQ value decreased to non-base from 2019 by 0.94 and in 2020 by 0.83. Judging from the average value, rice shows an LQ value of 0.9 to be a non-base commodity in Sekadau Regency.

Second, Shift-share Analysis is carried out to show proportional growth, growth of regional share, and net

growth of each food crop commodity and plantation. The data used is data on the amount of agricultural commodity production of food crops in Sekadau Regency and data on the total production of commodities of the two base subsectors in Sekadau Regency (tons) in the initial year (2016) and the final year (2020).

**Table 4.** Results of Shift-Share Analysis (SSA) of Food Crop Commodities and Plantations of Sekadau Regency, 2016 - 2020

Agricultural Commodities	Proportional Growth (PP)	Region Share Growth (PPW)	Net Growth (PB)	Shift-Share Analysis
<b>Food Crops</b>				
Rice	-0,05	0,67	0,62	Progressive
Corn	0,23	23,71	23,94	Progressive
Yam	0,23	-0,62	-0,39	Sluggish
<b>Plantation</b>				
Deep Coconut	-0,87	-0,08	-0,95	Sluggish
Cacao	-1,4	1,1	-0,31	Sluggish
Pepper	-0,38	8,28	7,91	Progressive
Coffee	-0,95	0	-0,95	Sluggish
Rubber	-0,93	-0,01	-0,94	Sluggish
Oil palm	0,08	-0,68	-0,59	Sluggish

Based on shift-share analysis, the progressive commodities of the food crop subsector are Rice and Corn with a Net Growth Value (PB) of  $\geq 0$ . Rice has a PB value of 0.62 and corn has a PB value of 23.64. This shows that corn and rice in Sekadau Regency are classified as progressive commodities. In addition, this analysis also shows Proportional Growth (PP) which represents the sooner or slow growth in each subsector. As a result, two food crop commodities grow quickly, where pp results are positive, namely corn and sweet potatoes. Conversely, rice has a negative PP value which means that growth in these commodities is relatively slow. The Regional Share Growth Value (PPW) shows that rice and corn commodities equally have positive values in Sekadau Regency. That is, corn and rice have good competitiveness in Sekadau Regency. It can be seen that corn commodities have positive PP, PPW, and PB values in Sekadau Regency. While the yam commodity has a positive PP value and a negative PP value and PB value which indicates that growth is quite fast, but has poor competitiveness and is classified as a sluggish commodity.

Plantation subsector commodities that are classified as progressive with a PB value of  $\geq 0$  are only owned by pepper commodities, for other plantation commodities have a PB value of  $< 0$  classified as sluggish commodities. Lada has a positive Regional Share Growth (PPW) value which indicates that the competitiveness of pepper is quite good in Sekadau Regency, but the proportional growth value (PP) is negative with slow growth. Cocoa and rubber have a negative PP and PB value, meaning that these two commodities show growth and belong to the slow group, but have a positive PPW value with fairly good competitiveness. Oil palm has a positive PP value with rapid growth, but the value of PPW and PB is negative which shows that oil palm in Sekadau belongs to the sluggish group and is less competitive. Deep coconut and rubber have all the values of PP,



PPW, and  $PB < 0$ , meaning slow growth, poor competitiveness, and classified as a sluggish group.

Third, Klassen Typology will show the position of sekadau regency's superior commodities by paying attention to West Kalimantan Province as its reference area. This analysis technique combines the results of LQ and Shift-Share analyses that have been done before to determine the region's superior commodities. The LQ value and Net Growth (PB) value in the SSA in each commodity subsector of food crops and plantations studied will be the quadrant determinants for these commodities.

**Table 5.** Results of Analysis of Superior Commodities of Food Crops and Plantations of Sekadau Regency

Agricultural Commodities	Value LQ	Value SSA	Klassen Typology
<b>Food Crops</b>			
Rice	Non-Base ( $LQ < 1$ )	Progressive ( $PB \geq 0$ )	II
Corn	Base ( $LQ > 1$ )	Progressive ( $PB \geq 0$ )	I
Yam	Base ( $LQ > 1$ )	Sluggish ( $PB < 0$ )	III
<b>Plantation</b>			
Deep Coconut	Non-Base ( $LQ < 1$ )	Sluggish ( $PB < 0$ )	IV
Cacao	Non-Base ( $LQ < 1$ )	Sluggish ( $PB < 0$ )	IV
Pepper	Non-Base ( $LQ < 1$ )	Progressive ( $PB \geq 0$ )	II
Coffee	Non-Base ( $LQ < 1$ )	Sluggish ( $PB < 0$ )	IV
Rubber	Base ( $LQ > 1$ )	Sluggish ( $PB < 0$ )	III
Oil palm	Base ( $LQ > 1$ )	Sluggish ( $PB < 0$ )	III

According to the table above, it can be seen that the commodities subsector of food crops of Sekadau Regency consists of three quadrants. Corn occupies quadrant I which means a commodity that is developed and growing rapidly (developed commodity) with an LQ value of  $> 1$  and a Net Growth value (PB) of  $\geq 0$ . Rice occupies quadrant II which means a developed but depressed commodity (stagnant commodity) with an LQ value of  $< 1$  and a Net Growth value (PB) of  $\geq 0$ . Ubi occupies quadrant III which means a potential commodity (developing commodity) with an LQ value of  $\geq 1$  and a PB value of  $< 0$ .

<b>Quadrant I</b> Developed Commodity <b>Corn</b>	<b>Quadrant II</b> Stagnan Commodity <b>Rice</b>
<b>Quadrant III</b> Developing Commodity <b>Yam</b>	<b>Quadrant IV</b> Underdeveloped Commodity -

**Fig.3** Matrix of Klassen Typology For Food Crop Commodities

The plantation subsector in Sekadau Regency also has three quadrants. Lada belongs to quadrant II as an advanced but depressed commodity (stagnant commodity) with a non-base LQ value and a progressive PB value. Rubber and palm oil including quadrant III become potential commodities (developing commodities) with base LQ value and sluggish PB value. Deep coconut, cocoa, and coffee are included in quadrant IV as relatively undeveloped commodities in Sekadau Regency with non-base LQ

values and sluggish PB values.

<b>Quadrant I</b> Developed Commodity -	<b>Quadrant II</b> Stagnan Commodity <b>Pepper</b>
<b>Quadrant III</b> Developing Commodity <b>Rubber and Oil Palm</b>	<b>Quadrant IV</b> Underdeveloped Commodity <b>Deep Coconut, Cacao and Coffee</b>

**Fig.4** Matrix of Klassen Typology For Plantation Commodities

#### 4. Conclusion

Agricultural productivity in Sekadau Regency throughout 2016 - 2020 experienced mixed growth. Based on the results of the analysis, the basic and progressive agricultural subsectors in Sekadau Regency are owned by food crops and plantations. Furthermore, the superior commodities of the food crop subsector of Sekadau Regency consist of corn, rice, and sweet potatoes. Corn is an advanced and rapidly growing commodity (developed commodity). Rice is an advanced but depressed commodity (stagnant commodity). Sweet potatoes as a potential commodity (developing commodity). The superior commodities of plantation subsectors in Sekadau Regency consist of pepper, rubber, and oil palm. Pepper is an advanced commodity but depressed (stagnant commodity). Rubber and palm oil as potential commodities (developing commodities).

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To the best of the author's knowledge, no work or opinion has ever been written or published by anyone else, except those in writing referenced in this manuscript and mentioned in the Bibliography.

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