

## Analysis of Leading Food Crops and Horticulture Commodities to Increase Economic Growth in Binjai City Using the Location Quotient and Shift Share Approach

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### Abstract

Future agricultural development is based on the potential and superior commodities of the local area. Each region has its own superior commodities, depending on the resources they have. Food crops are strategic and attractive commodities in relation to the issue of increasing production and guaranteeing their availability. Food needs continue to increase in line with population growth. Determining superior commodities is one of the keys to success in developing the agricultural sector. For this reason, regional governments must prioritize developing commodities that have comparative advantages and competitive advantages. The sample in this research is data on the harvest area and production of food crops in Binjai City in the 2018-2022 period as well as the harvest area and production of horticultural crops in Binjai City in the 2018-2022 period. Analysis The data analysis used in this research is by using Location Quotient and Shift Share analysis. The results of the DLQ analysis for ten commodities in the food crops and horticulture sub-sector resulted in all commodities having a DLQ value greater than one. So that all these commodities will become the basis in the future

**Keywords:** Economic Growth, Leading Commodities, Food Crops, Horticulture

### Introduction

Indonesia is known as an agricultural country that relies on the agricultural sector to support development as well as a source of people's livelihood. The agricultural sector provides food for the majority of the population in developing countries, including Indonesia, as well as widely available employment opportunities for almost the entire workforce. The agricultural sector is also a provider of raw materials for the industrial sector which is currently developing rapidly and makes a large contribution to GRDP growth, so that this sector is considered to have a very dominant role in the Indonesian economy (Oktavia et al., 2015). This illustrates that the agricultural business sector is an important sector that plays a role in the regional economy.

Agriculture is the main livelihood in several regions in Indonesia, especially areas that have large areas of agricultural land. Agricultural products vary, so each agricultural commodity has a different quantity and quality in each region. Based on this, the role of each agricultural commodity, namely food crops and horticulture, is also different for each region. Determining superior commodities in a region is a necessity with the consideration that the commodities are able to compete sustainably with the same commodities in other regions with the consideration that the commodities being cultivated are technological and socio-economic and have comparative advantages. Apart from that, the ability of a region to produce and market commodities that suit the land and climate conditions in a

particular region is also very limited (Oktarina, 2014). Therefore, analysis of superior food crop and horticultural commodities is an urgency in this research.

Inequality in agricultural development in Indonesia does not only occur in a large scope, such as between islands, but also in a smaller scope. One way to overcome this inequality is by utilizing superior agricultural commodities in each sub-district to advance the regional economy. Superior commodities are expected to be able to compete with the same commodities in other regions in a sustainable manner both in local and global markets (Masniadi, 2012).

Leading commodities are the basis for planning agricultural development activities. Things that must be considered in determining superior commodities are the existence of natural resources and human resources in the area. The commodities chosen are commodities that have high production and have a positive impact on the community's economy (Syahroni, 2005). The slow rate of agricultural growth in Binjai City could be caused by farmers not knowing about commodities superiority that should be planted, farmers generally only plant a commodity based on generations of effort and farmers plant a commodity when the price of the commodity is expensive. The aim of this research is that it is hoped that these superior commodities will have high growth and competitiveness at the provincial level so that they can improve the economy and welfare of farmers in Binjai City.

This research uses Location Quotient (DLQ) Analysis to determine superior commodities. This technique compares how big the role of these sectors is in a region with the role at the national level. This technique is used to identify the internal potential of regions in the basic and non-basic sectors (Rasyi, 2016). Then proceed with Shift Share Analysis. Shift Share Analysis (SSA) is used to determine food crop sub-sector commodities that have competitive advantages, with positive SSA criteria (Mulyon, et al, 2016). Classically, shift share analysis has been used to describe regional and industrial economic growth based on rankings for structural effects and regional or industrial competitiveness and emphasizing changes over time (Abidin, 2015). So this research aims to analyze superior food crop and horticultural commodities using a dynamic location quotient and shift share approach.

## **Theoretical Study**

### **Economic growth**

Economic growth theory is usually applied to explain steady conditions or long-term growth as measured by the percentage increase in national income or several measures of living standards such as HDI (human development index) (Ade Irmayadi, et al, 2016). On the other hand, economic growth according to (Sukirno, 2017) is an increase in GDP (Gross Domestic Product), without taking into account population growth. Sukirno continued, usually the term economic growth is used by developed countries to explain an increase in GDP, while economic development is a term in developing countries to explain an increase in GDP. There are many indicators that can be used as benchmarks for a country's economic growth, such as state income, per capita income, number of workers and unemployment rate,

as well as a reduction in poverty levels in the country (Fair, 2017).

How to measure economic growth in a country is generally seen from Gross National Product (GNP) and Gross Domestic Product (GDP). GNP has the function of measuring the total national economic production expenditure of all citizens of both countries work domestically or abroad. Meanwhile, GDP functions as a benchmark for the rate of economic growth based on income originating from within the country or the results of all products produced domestically regardless of nationality (Adil, 2017). The way to calculate it is simple, Supriyanto (2016). ) explains that economic growth in countries can be measured by comparing, for example, in national terms, Gross National Product (GNP), of the current year with the previous year.

### **Featured Commodities**

According to Yulianti, superior commodities are mainstay commodities that have a very strategic position, both based on technical considerations (soil and climate conditions) and socio-economic and institutional (mastery of technology, human resource capabilities, infrastructure and local socio-cultural conditions), to be developed in a region. A product is said to be superior if it has competitiveness so that it is able to ward off competing products in the domestic market and/or penetrate the export market.

According to Nainggolan, several criteria that can explain the superiority of a commodity in a region are:

- a) Widely known by the local community, managed and developed widely by the local community.
- b) Has a significant contribution to the local economy, can compete with other business commodities.
- c) This commodity has agroecological suitability (environmental and socio-economic aspects of agricultural communities) especially regarding the development location.
- d) This commodity has potential and market orientation, both domestic and export.
- e) Receive government policy support, especially market support as well as supporting factors such as institutions, technology, capital, facilities and infrastructure and human resources.

### **Crops**

Food is something essential and it is the right of every citizen to obtain it. Food plants are plants that can be utilized and processed to meet human food needs and are capable of producing products containing the main carbohydrates and proteins as a staple food source for humans (Darmawan, 2016). This plant is a source of human energy because its carbohydrate content. Food crops are divided into two, namely secondary crops and main crops. The main crop usually planted by farmers in Indonesia is rice, with the second crop being corn, which is grown as the second crop after rice.

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## Horticulture

Horticulture is the science and art of growing plants (fruits, vegetables, flowers, and other cultivars). It also includes plant conservation, landscape restoration, soil management, landscape and garden design, construction, and maintenance, and arboriculture. Unlike agriculture, horticulture does not include large-scale crop production or animal husbandry. Commercial horticulture is divided into the nursery industry (production of fruit trees for fruit growers and ornamental plants for ornamental horticulture). The plant cultivation industry (providing annual, biennial and perennial plants for vegetables and flowers as well as ornamental horticulture) and the seed production industry (producing and supplying the seeds needed by vegetable and flower growers).

## Research Methods

The type of research used in this research is qualitative research. This type of research is descriptive with a qualitative approach, so this research will use numerical data and then process the data descriptively with the topic of analyzing superior commodities of food crops and horticulture using the location quotient and shift share approach. The type of data used in this research is secondary data. The source of data collected in this research comes from the Central Statistics Agency (BPS) of Binjai City, from books, journals, and previous research. The sample in this research is data on the harvest area and production of food crops in Binjai City in the 2018-2022 period as well as the harvest area and production of horticultural crops in Binjai City in the 2018-2022 period.

Analysis The data analysis used in this research is analysis using Location Quotient and Shift Share analysis. Location Quotient analysis is used to determine base and non-base commodities. However, some researchers also use this analysis to show commodities that have comparative advantages (Mulyono and Munibah, 2016). To sharpen and confirm the results of the LQ analysis in identifying leading sectors that have competitive advantages, a Shift-share analysis was carried out (Sunoto, 2014). According to Alatas (2020), a sector is said to have a competitive advantage if its growth at the regional level is better than growth at the upper regional level.

## Research Result

### 1. Location Quotient Analysis of Leading Agricultural Subsectors in Binjai City

Binjai City's economic activities are supported by 17 economic sectors, one of which is the agriculture, forestry and fisheries sectors. This sector is a strategic sector and plays a role as one of the contributors to decentralization in the formation of the regional economy of Binjai City. To determine which subsectors are included in the basic and non-basic sectors, the Location Dynamic Quotient analysis method can be used.

Table 1. LQ value of the Binjai City Economic sector

No	Business field	DLQ
1	Agriculture, Forestry and Fisheries	0.12
2	Mining and excavation	0.13
3	Processing industry	0.14
4	Procurement of Electricity and Gas	0.13
5	Water Supply, Waste, Waste and Recycling Management Repeat	0.04
6	Construction	174.1
7	Wholesale and Retail Trade, Car and Bicycle Repair Motorcycle	0.21
8	Financial Services and Insurance	1.01
9	Provision of accommodation and food and drink	0.14
10	Information and Communication	0.21
11	transportation and warehousing	0.06
12	Real Estate	0.53
13	Company Services	0.30
14	Government Administration, Defense and Social Security Must	0.56
15	Education Services	8.70
16	Health Services and Social Activities	0.20
17	Other Services	0.50
18	Agriculture, Forestry and Fisheries	0.23

Based on table 4.12, it is known that only a few will become leading sectors in the future, because the LQ value is  $< 1$ . So this shows that these sectors cannot yet be expected to become leading sectors in the future for the city of Binjai. The value of educational services, financial and insurance services and construction obtains an LQ value  $> 1$ , so that this sector can become a leading sector in the future for the economy of Binjai city

**a. Analysis of Location Quotient Value Results for Food Crop Commodities**

Table 2 Results of location quotient analysis calculations for food crops

No.	Commodity	Average results LQ analysis	Information
1	Paddy	3.52	Base
2	Corn	11.02	Base
3	Cassava	2.16	Base
4	Sweet potato	2.13	Base

From Table 2 and Table 3 we can see that the corn food crop sub-sector commodity is a commodity with a high average percentage level even reaching 11.02, while for the Potato

Horticulture Sub-sector commodity it is the commodity with the highest average percentage level reaching 7.56 This is a very good thing for Binjai City because the food crops and horticulture subsector can develop well, therefore the government must be able to pay more attention to the condition of the food crops and horticulture subsector.

### b. Analysis of LQ Value Results for Horticultural Commodities

Table 3 Calculation results of Horticultural location quotient analysis

No.	Commodity	Average results LQ analysis	Information
1	Red onion	6.96	Base
2	Chilli	6.94	Base
3	Potato	7.56	Base
4	Cabbage	6.83	Base
5	Petsai	7.30	Base
6	Tomato	6.89	Base

Meanwhile, the lowest average for the food crop sub-sector is the sweet potato commodity with an average of 2.13, while for the horticulture sub-sector, cabbage has the lowest average with a percentage of 6.83. This is a very good thing for the City of Binjai to in the future.

## 2. Analysis of Leading Agricultural Subsectors with Shift Share

### a. Horticultural Commodity Subsector

According to the results of Shift Share Analysis calculations, the growth value of the Horticultural Crops subsector in Binjai City was obtained. The results of the Shift Share analysis of the horticultural crop subsector showed positive values for regional growth, and negative values for proportional growth and regional share growth. The following is a description of the results of the Shift Share Analysis on the Horticultural Plants subsector in Binjai City.

Table 4 Results of Shift Share Analysis for the Horticulture Subsector in Binjai City 2020-2022

No	Growth Analysis	Results/Value	Information
1.	PR	359,646	Positive
2.	PP	-174,295	Not Experienced Growth
3.	PPW	-79,027	It is not competitive

Based on the table above, it can be seen that the regional growth component (PR) is positive with a value of 359.646, which means that the growth of the horticultural crop subsector is positively influenced by the economic growth of North Sumatra Province. Then the proportional growth (PP)

section has a negative sign with a value of -174.295, which means that the growth of the horticulture subsector is relatively slow compared to the growth of the agricultural sector in North Sumatra Province. In addition, the regional share growth (PPW) component has a negative value of -79,027.

This value shows that the horticulture subsector is not competitive with other regions in North Sumatra Province. Based on the previous description, it was found that the horticultural crops subsector is part of the basic agricultural subsector, however, according to the Shift Share analysis, it shows that the regional growth component and regional share are negative. This condition makes the Binjai City government need to develop the horticultural crop subsector even better because this can play an important role in encouraging economic growth in the Binjai City area.

**b. Food Crop Commodity Subsector**

Table 5. Results of Shift Share Analysis for Food Crops Subsector in Binjai City 2020-2022

No	Analysis Growth	Results/Value	Information
1.	PR	540,129	Positive
2.	PP	-497,111	Not experiencing growth
3.	PPW	-174,536	It is not competitive

It can be seen that the results of the Shift Share Analysis show that the regional growth component (PR) of the food crop subsector has a positive value of 540.129, which can be concluded that the growth of the food crop subsector in Binjai City is positively influenced by the economic growth of North Sumatra. Apart from that, the proportional growth (PP) of the food crop subsector in Binjai City has a negative value, namely -497,111, where during the 2011-2020 period this subsector had slow growth compared to the growth of the food crop subsector in North Sumatra Province in the same period. Then there is the regional share growth (PPW) component with the resulting value of -174,536. This negative value shows that the food crop subsector in Binjai City does not have competitiveness compared to other regions in North Sumatra Province.

**Conclusion**

The results of the DLQ analysis for ten commodities in the food crops and horticulture subsector resulted in all commodities having a DLQ value greater than one. So that all these commodities will become the basis in the future. So government steps and programs are needed to further increase commodities from food crops and horticulture. The food crops cultivated in Binjai City in 2019 were only 7 (seven) main types of crops, namely: rice, corn, soybeans, peanuts, green beans, cassava and sweet potatoes. Of the 7 types of plants, rice dominates food crop production in Binjai City at 17,415 tons.

The value of educational services, financial services and insurance and construction obtained a DLQ value  $> 1$ , so that this sector can become a leading sector in the future for Binjai city economy. The regional growth component (PR) is positive with a value of 359.646, which means that the growth of the horticultural crop subsector is positively influenced by the economic growth of North Sumatra Province. Then the proportional growth (PP) section has a negative sign with a value of -174.295, which means that the growth of the horticulture subsector is relatively slow compared to the growth of the agricultural sector in North Sumatra Province.

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positively influenced by the economic growth of North Sumatra. Apart from that, the proportional growth component (PP) of the food crop subsector in Binjai City has a negative value, namely - 497,111, which during the 2011-2020 period this subsector had slow growth compared to the growth of the food crop subsector in North Sumatra Province in the same period.

### **Suggestion**

In efforts to develop the pagan and horticultural crop subsector, the government's role is expected to be able to assist in the agricultural sector so that farmers can develop food and horticultural crop commodities which are based in Binjai City, and those which are not on a non-command basis must pay special attention so that yields can be increased. the production. The regional government needs to issue policies relating to agriculture, especially food crops and horticulture and create programs for the agricultural sector so that farming in Binjai City is more advanced and in general the people of Binjai City depend on the agricultural sector, which is why the government needs a special role and attention to the agricultural sector. in Binjai City.

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