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# Analysis Of Leading Commodities In The Agricultural Sector In Humbang Hasundutan District

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**Abstract**

This research aims to determine what are the leading commodities in the agricultural sector in Humbang Hasundutan Regency as information and consideration in determining the direction of regional economic development policies. This research used secondary time series data, namely agricultural commodities based on their subsectors in the publication of Humbang Hasundutan Regency Figures 2018-2022. The analytical tools used in this study are Location Quotient analysis, Shift Share analysis, and a combined analysis of both. Location Quotient analysis results show the following results: (a) the food crop subsector which is a leading commodity is corn, peanuts, and sweet potatoes. (b) the horticultural crops subsector, whose leading commodities include shallots, leeks, potatoes, cabbage, cayenne pepper, tomatoes, durian, salak, avocado, jengkol, petai, galangal and also ginger. (c) the plantation crops subsector, whose leading commodities are rubber, coconut, coffee, incense, and tobacco. Shift Share analysis shows that the leading commodities that are progressive are corn, peanuts, shallots, durian, salak, avocado, jengkol, and petai. The leading commodities that are the first priority for development are corn, durian and avocado. The second priority commodities for development are peanuts, sweet potatoes, shallots, leeks, potatoes, cabbage, cayenne pepper, tomatoes, salak, avocado, petai, rubber, coffee, and incense. Leading commodities that are the third priority for development are galangal, ginger, coconut, and tobacco.

**Keywords**: Leading Commodities; Location Quotient; Shift Share

## 1. Introduction

Humbang Hasundutan Regency is a regency in North Sumatra consisting of 10 sub-districts. Humbang Hasundutan Regency has a population of 202.299 people, where almost 90% of the population works in the agricultural sector. The availability of fertile and vast land, as well as the diverse types of crop commodities that can grow in the Humbang Hasundutan area make the agricultural sector in Humbang Hasundutan Regency still the main driver of the regional economy. This can be seen in the contribution of the agricultural sector to the Gross Regional Domestic Product (GRDP) which is very large and leads far from other sectors. However, it turns out that GRDP growth in the agricultural sector in Humbang Hasundutan Regency tends to decline. Considering that Humbang Hasundutan Regency is a food estate planting area, this is certainly a problem that needs attention. The slow growth rate of the agricultural sector can be attributed to farmers not knowing which commodities to plant. In general, farmers plant commodities based on businesses that have been passed down from generation to generation and farmers will choose to plant a commodity when the price of the commodity increases. In addition, the state of population growth that increases every year can lead to the conversion of agricultural land into residential areas. The introduction of leadingcommodities in the region is a step in developing the regional economy, especially in the agricultural sector in Humbang Hasundutan Regency. Superior commodities have a large value of marketing opportunities that provide benefits to the community and add value to the regional economy. Determination of superior commodities in the region is a step in implementing policies taken by the region so that regional development can be more advanced.


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Table 1. Growth rate of GRDP in agriculture sector of Humbang Hasundutan Regency 2018-2022

| Year | GRDP (Million Rupiah) | Growth rate of GRDP (Percent) |
|---|---|---|
| 2018 | 2.433.064,63 | 6,71 |
| 2019 | 2.583.321,63 | 6,18 |
| 2020 | 2.674.111,22 | 3,51 |
| 2021 | 2.757.290,60 | 3,11 |
| 2022 | 3.007.693,01 | 9,08 |

Source: Humbang Hasundutan District in Figures 2024

## 2. Literature Review

### *2.1. Leading Commodities*

Leading commodities are commodities that have potential and are considered to be able to compete with the same products in other regions, because they have Comparative Advantage and high business efficiency. The characteristics of superior commodities [1] have a high level of competitiveness, utilize the potential of existing resources in the region and are able to be developed, has a large added value, has benefits for the economy and is able to increase income and the ability of its human resources and worthy to be developed and given capital assistance. Knowledge of commodity superiority can be done with the basic sector approach. The introduction of superior commodities in a region will increase the ability of the regional economy.

### *2.2. Agricultural Sector*

Agriculture is an activity of utilizing natural resources carried out by humans which will produce food, industrial raw materials, energy sources, and to manage the environment. The agricultural sector is a strategic sector and has an important role in the national economy and the survival of the community, especially its contribution to Gross Domestic Product (GDP), providing employment and food in the country [2]. The agricultural sector is the most basic sector in the economy, supporting the production of other sectors.

In Indonesia, there are 5 agricultural subsectors [3], but they are recorded as 6 subsectors which include food crop subsectors, horticultural crop subsectors, plantation crop subsectors, livestock, fisheries and forestry.

### *2.3. Regional Development*

The concept of sustainable development is based on three dimensions mentioned above. Regions 'development is usually defined as the integral community development (social, economic, environmental and healthcare, technological, cultural and recreational) on community between regions, so that the establishment of regional development policies must be adjusted to the conditions, potentials and problems in the region concerned. Thus regional development can be said as a process intended to make changes towards a better development of society, by utilizing various resources such as the agricultural sector.

## 3. Research Methods

The type of research used in this research is quantitative descriptive research. The quantitative approach is more inclined to the issue of design, measuring and sampling because the orientation is a deductive thinking pattern where data is prioritized to make measurements and analysis [4].

The data collection technique in this research is a document study. The data that will be used in this research comes from the publication of the Central Bureau of Statistics (BPS) of Humbang Hasundutan Regency, and the publication of the Central Bureau of Statistics of North Sumatra.

The data analysis methods that will be used in this study are:

### *3.1. Location Quotient Analysis*

Location Quotient analysis is an analytical tool used to show the economic base of a region. The variable used in the calculation of Location Quotient in this study is the volume of commodity production. According to [5] the Location Quotient calculation can be formulated as follows:

$$LQ = vi/vtVi/Vt$$

Where:
LQ = Location Quotient
vi = Commodity production i Humbang Hasundutan Regency
Vi = Commodity production i North Sumatra Province
vt = Total production of Humbang Hasundutan Regency

Vt = Total production of North Sumatra Province

If LQ > 1, it means that commodities in the region are more prominent than the role of these commodities nationally. If LQ < 1, it means that the role of commodities in the region is smaller than the role of these commodities nationally.

### *3.2. Shift Share Analysis*

Shift Share analysis also compares the difference in the growth rate of regional commodities with the national region. The formula or formula for calculating Shift Share analysis is:

1. Provincial Share (Nij)

$$Nij = Eij \times rn$$

2. Proportional Shift (Mij)

$$Mij = Eij\ (rin\text{-}rn)$$

3. Differential Shift

$$Cij = Eij\ (rij\text{-}rin)$$

Where rij, rin, and rn represent the growth rate in Humbang Hasundutan Regency and the growth rate in North Sumatra Province.

### *3.3. Combined Analysis*

Combined analysis is the combination of the results of Location Quotient analysis and Shift Share analysis. This analysis will determine the priority of superior commodity development. The criteria for determining the priority of superior commodity development are:

Table 2. Criteria for Determining the Development of Leading Commodities

| | LQ | Proportional Shift | Differential Shift | Description |
|---|---|---|---|---|
| Priority I | ≥1 | + | + | Leading, fast-growing, competitive |
| Priority II | ≥1 | + | - | Leading, fast-growing, not competitive |
| | ≥1 | - | + | Leading, slow-growing, competitive |
| Priority III | ≥1 | - | - | Leading, slow-growing, uncompetitive |

Source: Puspita Dewi dan Eko Budi in Mujiburrahmad (2021)

## 4. Results and Discussion

### *4.1. Location Quotient Analysis*

Table 3. Location Quotient Analysis Results

| Commodities | Average Production at District Level | Average Production at Provincial Level | LQ | Description |
|---|---|---|---|---|
| **A. Food Crop Subsector** | | | | |
| Rice | 2.072,70 | 65,52 | 0,93 | NON BASIS |
| Corn | 1.833,52 | 92,34 | 1,48 | BASIS |
| Peanut | 5,22 | 0,31 | 1,76 | BASIS |
| Cassava | 1.069,73 | 8,18 | 0,22 | NON BASIS |
| Sweet Potato | 85,25 | 6,20 | 2,14 | BASIS |
| **B. Horticultural Crops Subsector** | | | | |
| Onions | 363.757 | 67.077 | 5,45 | BASIS |
| Leeks | 141.887 | 10.890 | 2,27 | BASIS |
| Potatoes | 1.316.776 | 65.103 | 1,46 | BASIS |

| Commodities | Average Production at District Level | Average Production at Provincial Level | LQ | Description |
|---|---|---|---|---|
| Cabbage | 2.127.133 | 73.960 | 1,03 | BASIS |
| Cauliflower | 534.854 | 11.156 | 0,62 | NON BASIS |
| Petsai | 731.655 | 17.778 | 0,72 | NON BASIS |
| Carrots | 1.089.579 | 19.535 | 0,53 | NON BASIS |
| Long Beans | 294.359 | 2.247 | 0,23 | NON BASIS |
| Cayenne Pepper | 627.139 | 21.618 | 1,02 | BASIS |
| Chili | 1.812.622 | 46.002 | 0,75 | NON BASIS |
| Tomato | 1.539.214 | 62.607 | 1,2 | BASIS |
| Durian | 95.404,50 | 4.410,54 | 1,45 | BASIS |
| Orange | 378.413,40 | 8.935,82 | 0,74 | NON BASIS |
| Mango | 36.585,88 | 476,08 | 0,41 | NON BASIS |
| Pineapple | 154.448,86 | 1.594,98 | 0,32 | NON BASIS |
| Salak | 264.153,24 | 18.649,42 | 2,21 | BASIS |
| Avocado | 30.566,58 | 1.071,80 | 1,1 | BASIS |
| Duku | 18.089,22 | 456,12 | 0,79 | NON BASIS |
| Guava | 12.172,96 | 167,7 | 0,43 | NON BASIS |
| Water Guava | 16.243,72 | 124,6 | 0,24 | NON BASIS |
| Jengkol | 6.408,18 | 527,52 | 2,58 | BASIS |
| Petai | 18.834,16 | 695,48 | 1,16 | BASIS |
| Ginger | 19.790.757 | 223.932 | 1,07 | BASIS |
| Galangal | 809.181 | 35.340 | 4,11 | BASIS |
| Turkey | 604.186 | 1.299 | 0,2 | NON BASIS |
| **C. Plantation Crops Subsector** | | | | |
| Rubber | 309.957,42 | 4.023,00 | 4,96 | BASIS |
| Coconut | 99.626,69 | 279,3 | 1,07 | BASIS |
| Oil Palm | 7.249.497,87 | 2.528,60 | 0,13 | NON BASIS |
| Coffee | 69.166,39 | 9.870,80 | 54,54 | BASIS |
| Frankincense | 8.621,56 | 3.433,30 | 152,2 | BASIS |
| Tobacco | 1.609,80 | 112,9 | 26,8 | BASIS |

Source: Researcher Processed Data

Based on location quotient analysis, overall there are 21 agricultural sector commodities that are superior commodities in Humbang Hasundutan district. There are 3 commodities in the food crop subsector which include corn, peanuts, and sweet potatoes, then there are 13 commodities in the horticultural crop subsector which include shallots, leaf onions, potatoes, cabbage, cayenne pepper, tomatoes, durian, salak, avocado, longan, petai, galangal, and ginger. As well as 5 commodities in the plantation crop subsector, namely rubber, coconut, coffee, frankincense, and tobacco. Frankincense is a leading commodity with the highest LQ value of 152,80.

### *4.2. Shift Share Analysis*

Based on the results of the Shift Share analysis, leading commodities that have a progressive or forward shift include corn, peanuts, shallots, durian, salak, avocado, jengkol, and petai.

Table 4. Shift Share Analysis Results

| Commoditie | Nij | Mij | Cij | Dij | Pbij |
|---|---|---|---|---|---|
| Corn | -0,1173898 | 1,0481515 | 17,195038 | 18,1258 | 18,24319 |
| Peanut | -0,0358525 | 0,0489578 | -0,0307053 | -0,0176 | 0,0182525 |
| Sweet potato | -0,4721751 | 0,3300429 | -0,4858678 | -0,628 | -0,1558249 |
| Onions | 19107,889 | -2533,4512 | 4212,7627 | 20787,2 | 1679,3115 |
| Leeks | 14527,843 | 2381,3383 | -17048,181 | -139 | -14666,843 |
| Potatoes | 30392,728 | -26543,973 | 10630,444 | 14479,2 | -15913,528 |
| Cabbage | 66885,664 | 206816,76 | -267175,03 | 6527,4 | -60358,264 |
| Cayenne pepper | 25877,93 | 86387,06 | -110770,99 | 1494 | -24383,93 |
| Tomato | 49695,34 | 138682,99 | -182658,13 | 5720,2 | -43975,14 |
| Ginger | 624114,91 | -141029,09 | -664843,2 | 100300,8 | -523814,11 |
| Galangal | 524441,35 | -442424,22 | -71018,723 | 10998,4 | -513442,95 |
| Durian | 241,82967 | 128,75487 | 393,03547 | 763,62 | 521,79034 |
| Salak | 846,58337 | 1580,4538 | -971,13713 | 1455,9 | 609,31663 |
| Avocado | 46,172575 | 227,02745 | 6,9999705 | 280,2 | 234,02742 |
| Jengkol | 33,614836 | 61,618723 | -9,3135587 | 85,92 | 52,305164 |
| Petai | 37,598351 | 216,63599 | -195,79434 | 58,44 | 20,841649 |
| Rubber | 1238,1507 | -1239,503 | 326,9503 | 325,6 | -912,55275 |
| Coconut | 266,89505 | -262,48601 | -65,852213 | -61,44 | -328,33823 |
| Coffee | 3573,3737 | -3070,6495 | 221,25712 | 723,98 | -2849,3924 |
| Frankincense | 657,6221 | -532,25064 | 329,93197 | 455,3 | -202,31867 |
| Tobacco | 60,088139 | -50,879067 | -8,0810719 | 1,13 | -58,960139 |

Source: Researcher Processed Data

### *4.3. Combined Analysis*

The results of the analysis show that there are 3 leading commodities that are the top priority to be developed, namely corn, durian, and avocado. Then the leading commodities in the second priority are 14 commodities in total, namely shallots, leeks, potatoes, cabbage, cayenne pepper, tomatoes, peanuts, sweet potatoes, salak, jengkol, petai, rubber, coffee, and frankincense. Meanwhile, commodities classified as third priority for development include galangal, ginger, coconut, and tobacco.

Table 5. Combined Analysis Results

| Komoditas | LQ | Mij | Cij | Keterangan | Prioritas |
|---|---|---|---|---|---|
| Corn | 1,47 | 0,59 | 17,91 | unggulan, tumbuh cepat, berdaya saing | I |
| Peanut | 1,75 | 0,05 | -0,03 | Unggulan, tumbuh cepat, tidak berdaya saing | II |
| Sweet Potatoes | 2,15 | 0,33 | -0,49 | Unggulan, tumbuh cepat, tidak berdaya saing | II |
| Onions | 4,64 | -2533,45 | 4212,76 | unggulan, tumbuh lambat, berdaya saing | II |
| Leeks | 2,51 | 2381,34 | -17048,18 | unggulan, tumbuh cepat, tidak berdaya saing | II |
| Potatoes | 1,42 | -26543,97 | 10630,44 | unggulan, tumbuh lambat, berdaya saing | II |
| Cabbage | 1,03 | 206816,76 | -267175,03 | unggulan, tumbuh cepat, tidak berdaya saing | II |
| Cayenne pepper | 1,04 | 86387,06 | -110770,99 | unggulan, tumbuh cepat, tidak berdaya saing | II |
| Tomato | 1,32 | 138682,99 | -182658,13 | unggulan, tumbuh cepat, tidak berdaya saing | II |
| Durian | 1,47 | 128,75 | 393,04 | unggulan, tumbuh cepat, berdaya saing | I |

| Komoditas | LQ | Mij | Cij | Keterangan | Prioritas |
|---|---|---|---|---|---|
| Salak | 2,28 | 1580,45 | -971,14 | unggulan, tumbuh cepat, tidak berdaya saing | II |
| Avocado | 1,11 | 227,03 | 7,00 | unggulan, tumbuh cepat, berdaya saing | I |
| Jengkol | 2,7 | 61,62 | -9,31 | unggulan, tumbuh cepat, tidak berdaya saing | II |
| Petai | 1,24 | 216,64 | -195,79 | unggulan, tumbuh cepat, tidak berdaya saing | II |
| Galangal | 4,89 | -442424 | -71018,723 | unggulan, tumbuh lambat, tidak berdaya saing | III |
| Ginger | 2,29 | -141029,09 | -523814,11 | unggulan, tumbuh lambat, tidak berdaya saing | III |
| Rubber | 5,20 | -1239,50 | 326,35 | unggulan, tumbuh lambat, berdaya saing | II |
| Coconaut | 1,13 | -262,49 | -65,05 | unggulan, tumbuh lambat, tidak berdaya saing | III |
| Coffee | 57,34 | -3070,65 | 221,86 | unggulan, tumbuh lambat, berdaya saing | II |
| Frankincense | 159,73 | -532,25 | 329,93 | unggulan, tumbuh lambat, berdaya saing | II |
| Tobacco | 27,66 | -50,88 | -9,88 | unggulan, tumbuh lambat, tidak berdaya saing | III |

Source: Researcher Processed Data

## 5. Conclusions

1. The leading commodities of the food crop subsector in Humbang Hasundutan district are corn, peanuts, sweet potatoes, shallots, leeks, potatoes, cabbage, cayenne pepper and tomatoes, durian, salak, avocado, jengkol, and petai, galangal, ginger, rubber, coconut, coffee, frankincense, and tobacco.
2. Leading commodities classified as progressive or advanced include corn, peanuts, shallots, durian, salak, avocado, jengkol and petai.
3. Leading commodities included in the top priority include corn, durian, and avocado. Leading commodities included in the second priority include peanuts, sweet potatoes, shallots, leeks, potatoes, cabbage, cayenne pepper, tomatoes, salak, avocado, petai, rubber, coffee, and frankincense. Leading commodities included in the third priority development include galangal, ginger, coconut and tobacco.

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