Master Plan Development And Others Supporting: Integrated Food Crop Commodities

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Abstract

The agricultural sector has an essential role in the regional economy of the Demak Regency because the agricultural sector is the leading sector. The area of agricultural land in the Demak Regency that continues to decrease requires detailed mapping portraits of each food crop commodity per sub-district. This study aims to analyze the leading food crop commodities in each sub-district, analyze the regional growth rate of food crop commodities, and map the food crop commodities developed in Demak Regency. This research is a quantitative study using secondary data. Data analysis method using Location Quotient, Shift Share, Scalogram, and Geographic Information System. Analysis tools to identify potential, competitive conditions between commodities and sectors, regional hierarchy by type, availability of the number of infrastructure facilities, and graphical mapping. The results showed that rice and soybeans were the leading commodities with advanced and competitive growth rates in Demak Regency. The superior rice commodities in the districts are Bonang, Sayung, Karang Tengah, Wedung, and Mijen. Main Soybean Commodity in the District: Mijen. Map of the rice processing industry development in Dempet, Bonang, and Guntur districts. Map of soybean processing industry development in the sections: Guntur, Demak, and Mijen.

Keywords: *food crops, geographical information systems, leading commodities, location quotient, shift share.*

Abstrak

Sektor pertanian memiliki peran penting terhadap perekonomian daerah Kabupaten Demak, karena sektor pertanian merupakan sektor unggulan. Luas lahan pertanian Kabupaten Demak yang terus berkurang, menghendaki perlunya potret pemetaan per komoditas tanaman pangan per kecamatan secara terperinci. Penelitian ini bertujuan menganalisis komoditas tanaman pangan unggulan di tiap Kecamatan, menganalisis laju pertumbuhan wilayah komoditas tanaman pangan, dan pemetaan komoditas tanaman

pangan yang dikembangkan di Kabupaten Demak. Penelitian ini merupakan penelitian kuantitatif dengan menggunakan data sekunder. Metode analisis data menggunakan Locationt Quotient, Shift Share, Skalogram, dan Sistem Informasi Geografis. Alat analisis untuk mengidentifikasi potensi, kondisi persaingan antar komoditas dan sektor, hirarki wilayah menurut jenis, ketersediaan jumlah sarana prasarana, dan pemetaan grafis. Hasil penelitian menunjukkan komoditas unggulan yang memiliki laju pertumbuhan yang maju dan berdaya saing di Kabupaten Demak adalah padi dan kedelai. Komoditas padi unggulan di Kecamatan: Bonang, Sayung, Karang Tengah, Wedung, dan Mijen. Komoditas Kedelai unggulan di Kecamatan: Mijen. Peta pengembangan industri pengolahan padi di Kecamatan: Dempet, Bonang, dan Guntur. Peta pengembangan industri pengolahan kedelai di Kecamatan: Guntur, Demak, dan Mijen.

Kata Kunci: *komoditas unggulan, locationt quotient, shift share, sistem informasi geografis, tanaman pangan.*

INTRODUCTION

Development is developing or making changes to improve a situation (Lumintang, 2015). Regional development is a development that needs to pay attention to the ongoing pattern of community life. Regional economic development is expected to improve people's living standards, improve community welfare, reduce income inequality, expand job opportunities and improve the quality of human resources. Improved welfare can be achieved by increasing economic growth through one or several leading developing economic sectors (Massiseng & Ummung, 2018).

Sustainable agriculture is one of the economic sectors being improved in Indonesia, meaning that agriculture has a vital role in the economy (Suharno et al., 2019). This is based on several considerations. First, many rural residents make a living in the agricultural sector. Second, Indonesia has a large area of land that has the potential to be developed as productive land. Third, technological innovation is needed in the agricultural sector to increase agricultural productivity. Fourth, the availability of labor in the agricultural sector is relatively abundant. Fifth, reduce the threat of food shortages and avoid dependence on agricultural imports from other countries (Martadona, 2019).

Demak Regency is one of Central Java's regencies where most people depend on the agricultural sector for their livelihood. This can be seen from the magnitude of the influence of the farming sector on Gross Regional Domestic Product (GRDP) in the Demak Regency. According to (Demak Regency Central Statistics Agency, 2018), the agricultural sector contributes to the Gross Regional Domestic Product (GRDP) of Demak Regency, the second largest after the processing industry, but the agricultural sector has fluctuated for four years; from 2014 to 2015, the agricultural sector increased from Rp. 3,367.15 billion to Rp. 3,568, 63 billion. However, in 2016 it experienced a decrease of Rp. 33.69 billion. In 2017 the agricultural sector began to grow again, so the Gross Regional Domestic Product (GRDP) of the agricultural sector increased to Rp. 3,677.82 billion. Therefore, it is necessary to know the leading agricultural sub-sectors in Demak Regency so that the development of the agricultural sector is more optimal and directed. However, to promote more advanced economic growth, it is necessary to link the farm sector with other sectors, especially the industrial sector, which can process agricultural products and increase the added value of agriculture as a precondition for the growing development process. The linkages between these sectors will be well established in the development of the industrial sector arises due to the strong potential of the agricultural sector. Thus, a balance between the agricultural and industrial sectors is needed to improve the market structure and increase the supply of raw

materials necessary for economic development and growth to obtain maximum benefits (Anjum & Tarique, 2017).

The shift-share analysis is a widely used technique in regional economics to decompose the change in employment or output of a particular industry in a region into three components: 1) a national effect, 2) a regional effect, and 3) an industry-specific effect. The location quotient (LQ) shift-share is a variation of the traditional shift-share analysis that incorporates the LQ measure to account for the relative importance of an industry in a region compared to the national average (Prats, 2018). Despite its popularity, there are still some research gaps in the literature on LQ shift-share analysis. Here are a few: Methodological limitations: LQ shift-share analysis has some limitations, such as the potential for multicollinearity and the difficulty of interpreting the results due to the high degree of complexity of the model; Lack of empirical studies: While there are some studies that have applied the LQ shift-share technique, there is still a lack of empirical studies that have used this approach to analyze regional economic development; Limited scope: Most studies that have used LQ shift-share analysis have focused on specific regions or industries, rather than looking at the broader picture of regional economic development; Lack of comparative analysis: There is a lack of comparative analysis between different regions or industries using LQ shift-share analysis, which could provide valuable insights into the factors that drive regional economic development; Theoretical framework: The theoretical framework underlying the LQ shift-share analysis is still underdeveloped, which limits its potential applications and relevance in policy-making (Broxterman and Larson, 2020). Overall, while LQ shift-share analysis has proven to be a useful tool for understanding regional economic development, there are still significant research gaps that need to be addressed in order to fully realize its potential.

One of the agricultural sub-sectors that are the basis of the Demak Regency is the food crops sub-sector. The food crops sub-sector has slow growth but has good competitiveness. Food crops have an important role in national food security, so there is a need for development efforts in the food crop sub-sector (Khatimah, 2013).

In determining the priority commodities, the impact of developing these commodities on the income and welfare of farmers and the surrounding community must be considered. To achieve an increase in income and community welfare, it is also necessary to look at the completeness of existing infrastructure and map the area. Infrastructure includes public facilities prepared by the central and local governments as public services to support and encourage community economic and social activities such as terminal facilities, roads, bridges, markets, banking, places of worship, education, and health infrastructure (NSS et al., 2015).

Mapping the area using geospatial information technology (GIT) and geographic information system (GIS) applications shows good and effective things in agriculture; in its use, it allows the creation of an accurate database that becomes the basis for farmers' or government decision-making. Thus, farmers become trained to use technology in their work, from fieldwork to tracing food completeness with technology without adding to the burden on farmers (Kahveci, 2017).

We emphasized in research (Andreo, 2013) that using modern technology such as geographic information system (GIS) for agricultural areas can save costs and time. Geographic information system (GIS) can explain crop distribution as a basis for predicting crop suitability or drought risk models.

Various types of food plants exist, but no food crops are used as superior commodities developed in Demak Regency. Therefore, this study aims to analyze comparatively and competitively superior food crop commodities in each sub-district,

regional growth rates based on food crop commodities, and food crop commodity development planning that is prioritized and developed in Demak Regency.

METHOD

The quantitative approach research used in this location quotient and shift share analysis could vary depending on the specific study and the data being collected. However, the methods that used in this approach is spatial analysis, where data are analyzed visually using maps or other graphical representations to assess the correlation between various factors. Spatial statistics can be used to measure the impact of location on a variety of topics, such as sectoral contribution values, local business performance, and population density. The location of this research is in Demak Regency, with the following considerations: 1) the contribution of the agricultural sector is ranked second after the manufacturing sector; 2) the contribution of the food crops sub-sector to the Gross Regional Domestic Product (GRDP) of Demak Regency is the largest compared to other sub-sectors.

The source of data used in this study is secondary data. The secondary data should be directly relevant to the analysis being conducted. It should be appropriate for the research topic and should provide useful insight. The data should be of a high quality. The data should be collected and formatted in a consistent manner to ensure accuracy. The size of the secondary data should be adequate for your analysis. The data should cover the timeline needed for analysis. It should be up-to-date and cover an appropriate period of time. The data should be accurate and from reliable sources. Poorly sourced or inaccurate data can lead to incorrect conclusions. The secondary data used is Demak Regency data in Figures 2014-2018 in the form of production and productivity data for food crop commodities produced in each sub-district in Demak Regency. The data was obtained from the Central Bureau of Statistics of Demak Regency.

Determination of superior food crop commodities comparatively in each sub-district is calculated using the Location Quotient (LQ) analysis method, while the formula for the Location Quotient (Arsyad, 1993) is:

$$LQ = \frac{S_i/S}{N_i/N} \dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

Where LQ is the Location Quotient value, Si is the production of food crop commodity i in sub-district i in Demak Regency, S is the total production of food crops in sub-district i in Demak Regency, Ni is the production of food crop commodity i in Demak Regency, and N is the total production of crops food in Demak Regency.

With the following criteria: 1) If the LQ value > 1, it indicates that the role of food crop commodity i in sub-district i is quite prominent in the region, and the resulting product is in surplus so that it can be exported outside the region. 2) If the value of LQ = 1, it indicates that the production of food crop commodity i is only able to meet the needs of its own region and cannot be exported to other regions. 3) If the value of LQ < 1, it indicates that the production of food crop commodity i in sub-district i is not sufficient for its own area, so it needs to be imported from other areas. 4) If the value of LQ = 0, the sub-district does not produce food crop commodities.

Meanwhile, to see the competitiveness of agricultural commodities in a region using the Shift Share analysis tool. Shift Share analysis has a broader aggregate coverage area based on the performance of the local sector in the region. The study can also find the leading commodities that contribute to growth (fast, slow) in the Demak Regency area.

This analytical technique also aims to analyze the shift in the performance of a sector in an area to be sorted based on the sources causing the shift. The proportional shift component shows the total shift of a particular sector in the broader aggregate area. The differential shift component shows the shift in a specific sector in a certain area.

It can be explained that the Shift Share analysis technique formula (Abidin, 2015) and (Xia, 2011) is:

$$r_i = \frac{Y'_{ij} - Y_{ij}}{Y_{ij}} \dots \dots \dots \dots \dots \dots \dots \dots (2)$$

$$R_i = \frac{Y'_i - Y_i}{Y_i} \dots \dots \dots \dots \dots \dots \dots \dots (3)$$

$$R_a = \frac{Y'_{..} - Y_{..}}{Y_{..}} \dots \dots \dots \dots \dots \dots \dots \dots (4)$$

$$PN_{ij} = (R_a)Y_{ij} \dots \dots \dots \dots \dots \dots \dots (5)$$

$$PP_{ij} = (R_i - R_a)\, Y_{ij} \dots \dots \dots \dots \dots (6)$$

$$PPW_{ij} = (r_i - R_i)\, Y_{ij} \dots \dots \dots \dots (7)$$

$$C_{ij} = (r_i - R_a)\, Y_{ij} \dots \dots \dots \dots \dots \dots (8)$$

Based on the above analysis, when applied to sub-sector commodities (Y), the following information is obtained: Pnij is growing with changes in Demak Regency. PPij is the commodity mix. PPWij is regional share growth. Ri, ri, and Ra as the growth rate of the Demak Regency. Meanwhile, Yij is the production of food crop commodity i in sub-district j. Yi is the production of food crop commodity i in Demak Regency in the base year of analysis, Y'.. is the production of food crop commodity in Demak Regency in the final year of analysis, and Y.. is the production of all food crop commodities in Demak Regency in the final year of analysis. To see the competitive advantage by looking at the value of Cij. If the Cij value is positive, it can be said that the food crop commodity has a competitive advantage, and if the Cij value is negative, it can be said that the food crop commodity does not have a competitive advantage or does not have the same competitiveness as other regions.

From the Location Quotient (LQ) analysis and Shift Share analysis, which food crop commodities will be developed in Demak Regency will be known. Food crop commodities grown are commodities that have comparative and competitive advantages along with advanced growth and good competitiveness.

Scalogram analysis is used to determine the hierarchy of service centers which will later be used as guidelines for establishing the processing industry (Sough, 2018). In comparison, the Geographic Information System (GIS) is used to map the sub-district in the Demak Regency, which has the advantage of food plant commodities and a map of the processing sub-industry.

RESULT AND DISCUSSION
Comparative Analysis of Superior Food Crop Commodities
The presentation of the LQ analysis of food crop commodities in each sub-district in Demak Regency can be seen in table 1.

Table 1. shows the results of the LQ analysis that the District of Demak has a comparative advantage with an average LQ value of > 1, including food crops of rice, green beans, and sorghum. Meanwhile, Bonang District has a comparative advantage with an average value of LQ>1, including rice, cassava, and green beans. Mranggen sub-district has a comparative advantage with an average value of LQ>1 for corn and cassava commodities. Wedung District has a comparative advantage with an average value of LQ>1 for rice commodities.

Wonosalam sub-district has a comparative advantage with an average value of LQ>1 for rice and mung bean commodities. Karanganyar District has a comparative advantage with an average value of LQ>1 for rice, sweet potato, and green beans. Kebonagung District has a comparative advantage with an average value of LQ>1 for rice and mung bean commodities. Dempet sub-district has a comparative advantage with an average value of LQ>1 for rice, cassava, and mung bean commodities. Gajah Subdistrict has a comparative advantage with an average LQ>1 commodity of rice, cassava, sweet potato, peanuts, green beans, and soybeans. Guntur District has a comparative advantage with an average value of LQ>1 for corn and soybean commodities. Karangawen Subdistrict in the form of corn and soybean commodities. Karang Tengah sub-district has a comparative advantage with an average LQ>1 commodity of rice, sweet potatoes, and green beans. Mijen District has a comparative advantage with an average value of LQ>1 for rice, sweet potatoes, peanuts, and soybeans.

Table 1.
Results of LQ Analysis of Food Crops Commodities for Each District 2014-2018

No	District	Paddy	Corn	Cassava	Sweet potatoes	Peanuts	Mung beans	Soya bean	Sorghum
		LQ	LQ	LQ	LQ	LQ	LQ	LQ	LQ
1	Demak	1.243	0.029	0.672	0.327	0.450	1.205	0.330	14.65
2	Bonang	1.260	0	1.424	0.859	0.194	1.184	0.111	0
3	Sayung	1.119	0.73	0.388	0.099	0.886	0.010	4.611	0
4	Mranggen	0.259	3.83	1.759	0.564	0.997	0.070	0.273	0
5	Wedung	1.329	0	0.038	0.394	0.648	0.173	0	0
6	Wonosalam	1.229	0.002	0.201	0.203	0.189	2.000	0.043	0
7	Karanganyar	1.266	0.006	0.402	1.038	0.520	1.185	0.593	0
8	Kebonagung	1.224	0	0.257	0.052	0.379	2.153	0.139	0
9	Dempet	1.199	0.036	1.343	0.742	0.698	2.066	0.174	0
10	Gajah	1.198	0.026	1.986	1.429	3.351	2.084	1.895	0
11	Guntur	0.871	1.479	0.152	0.446	0.044	0.967	3.065	0
12	Karangawen	0.396	3.360	0.293	0	0	0.175	1.371	0
13	Karang Tengah	1.246	0.035	0.481	1.535	0.157	1.305	0	0
14	Mijen	1.255	0.082	0.112	8.333	3.929	0.496	3.095	0

Source: Primary Data Processed, 2014-2018.

By using the basic commodity LQ analysis, it is expected to meet the needs of local communities so as to be able to reduce the number of imported agricultural products with good cultivation practices and support from the government so that local commodity production can be exported outside the region (Harinta et al., 2018).

Analysis of Competitively Superior Food Crops Commodities and Their Growth Rates

Based on Table 2 shows competitively superior rice commodities with positive Cij values in all sub-districts in Demak Regency. Sweet potato commodity is competitively superior in Bonang District, Wedung District, Gajah District, and Mijen District. Meanwhile, peanuts are competitively superior only in Gajah District. Green beans are competitively superior in Wedung District, Karanganyar District, Guntur District, and Karang Tengah District. Furthermore, soybeans are competitively superior in Demak District, Sayung District, Wonosalam District, Karanganyar District, and Mijen District. A competitively superior commodity is a sign that the commodity can compete with the same commodities as other regions.

Based on the growth rate of areas that have advanced growth rates and are well competitive with positive PP and PPW values, namely rice and soybean commodities. Rice

commodities are located in Bonang District, Sayung District, Wedung District, Karang Tengah District, Karangawen District, and Mijen District. Meanwhile, the leading commodity of soybeans is only in Demak, Wonosalam, Karanganyar, and Mijen sub-districts.

Table 2
Results of Shift Share Analysis of Food Crops Commodities in Each District in Demak Regency 2014-2018

No	District	Paddy			Corn			Cassava			Sweet potatoes			Peanuts			Mung beans			Soya bean			Sorghum		
		C_{ij}	PP	PPW	C_{ij}	PP	PPW	C_{ij}	PP	PPW	C_{ij}	PP	PPW	C_{ij}	PP	PPW	C_{ij}	PP	PPW	C_{ij}	PP	PPW	C_{ij}	PP	PPW
1	Demak	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-	0
2	Bonang	+	+	+	0	0	0	-	-	+	+	-	+	-	-	+	-	-	-	0	0	0	0	0	0
3	Sayung	+	+	+	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	+	+	-	0	0	0
4	Mranggen	+	+	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	0	0	0
5	Wedung	+	+	+	0	0	0	0	0	0	+	-	+	-	-	-	+	-	+	0	0	0	0	0	0
6	Wonosalam	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	0	0	0
7	Karanganyar	+	+	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	+	+	+	0	0	0
8	Kebonagung	+	+	-	0	0	0	-	-	+	-	-	-	0	0	0	-	-	-	0	0	0	0	0	0
9	Dempet	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0
10	Gajah	+	+	-	-	-	+	-	-	-	+	-	+	+	-	+	-	-	-	0	0	0	0	0	0
11	Guntur	+	+	-	-	-	-	-	-	+	+	-	+	0	0	0	+	-	+	-	+	-	0	0	0
12	Karangawen	+	+	+	-	-	+	-	-	+	0	0	0	0	0	0	-	-	-	-	+	-	0	0	0
13	Karang Tengah	+	+	+	-	-	-	-	-	+	-	-	+	-	-	-	+	-	+	0	0	0	0	0	0
14	Mijen	+	+	+	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-	+	+	+	0	0	0

Source: Primary Data Processed, 2014-2018.

Information:
Cij = competitive advantage: if positive (+) means food crops have a competitive advantage, negative (-) does not have a competitive advantage, and 0 does not produce.
PP = proportional growth component: if positive (+) means fast food crop growth, negative (-) growth is slow, and 0 is not producing.
PPW = regional share growth component: if positive (+) means food crops have good competitiveness, negative (-) is not competitive, and 0 is not producing.

Food Crops Commodity Development Planning which is prioritized and developed in Demak Regency

Based on the results of the analysis of LQ (LQ>1) and Shift Share (positive Cij, positive PP, and positive PPW), the primary commodities that are prioritized to be developed in Demak Regency are rice and soybeans.

According to (Ritonga, 2018), based on the dynamics of the land area of food crops, Sumedang Regency has the superior commodity of lowland rice, which has been repositioned so that it has become a mainstay commodity. However, in terms of the quantity of production and trade of staple crops, especially corn, rice, and wheat, the geographical pattern has changed dramatically, especially the sharing pattern in the European and Asian continents, and the rate of growth of imports is relatively fast, and exports are relatively slow, so attention needs to be paid to the cultivation of staple crops. To reduce substances in the Asian and European continents (Xia et al., 2011).

Tumrani et al. (2015) stated that rice production in Indonesia from 1960 to 2010 had increased from 12 million tons to 40 million tons. However, the results of the study the following year showed that Indonesia's rice production had declined, and Indonesia became a rice importing country. This is due to the high incidence of natural disasters and other diversification that affect the standard level of rice production; it is necessary to improve the quality and quantity of rice and other food crops to reduce imports and make Indonesia a country that is self-sufficient in rice.

Land use in soybean farming has several advantages, including relatively low farming costs, relatively easy maintenance of soybeans, high soybean prices in the market, and easy marketing of results compared to corn, peanuts, and mung beans. This condition needs to be considered in efforts to develop or increase soybean production (Mahama, 2020).

It can be noted that in each area of superior food crop commodities that can be developed, it is necessary to establish a processing sub-industry, the existence of other areas as supporting areas or as suppliers of inputs for the processing sub-industry to be established. Complete facilities facilitate the distribution of inputs and outputs from the processing industry because the location is easy to reach so that the costs incurred are lower; it is also able to attract investors to invest in the sub-industry and is supported by area mapping for superior commodities using the ArcGIS application. This can help the government and farmers more quickly in the development of superior food crop commodities in the Demak Regency.

Spatial analysis from GIS resulted in a correlation of new data and predictions that the potential area suitable for cereal cultivation (maize, rice, and wheat) is more than 85% of land located in low hills and subtropical areas, where most of the land is fertile, and there is irrigation. The temperate wet and dry zones are also suitable for cereal cultivation with an altitude of more than 1800 masl and less than 4000 masl (Bisht, 2013).
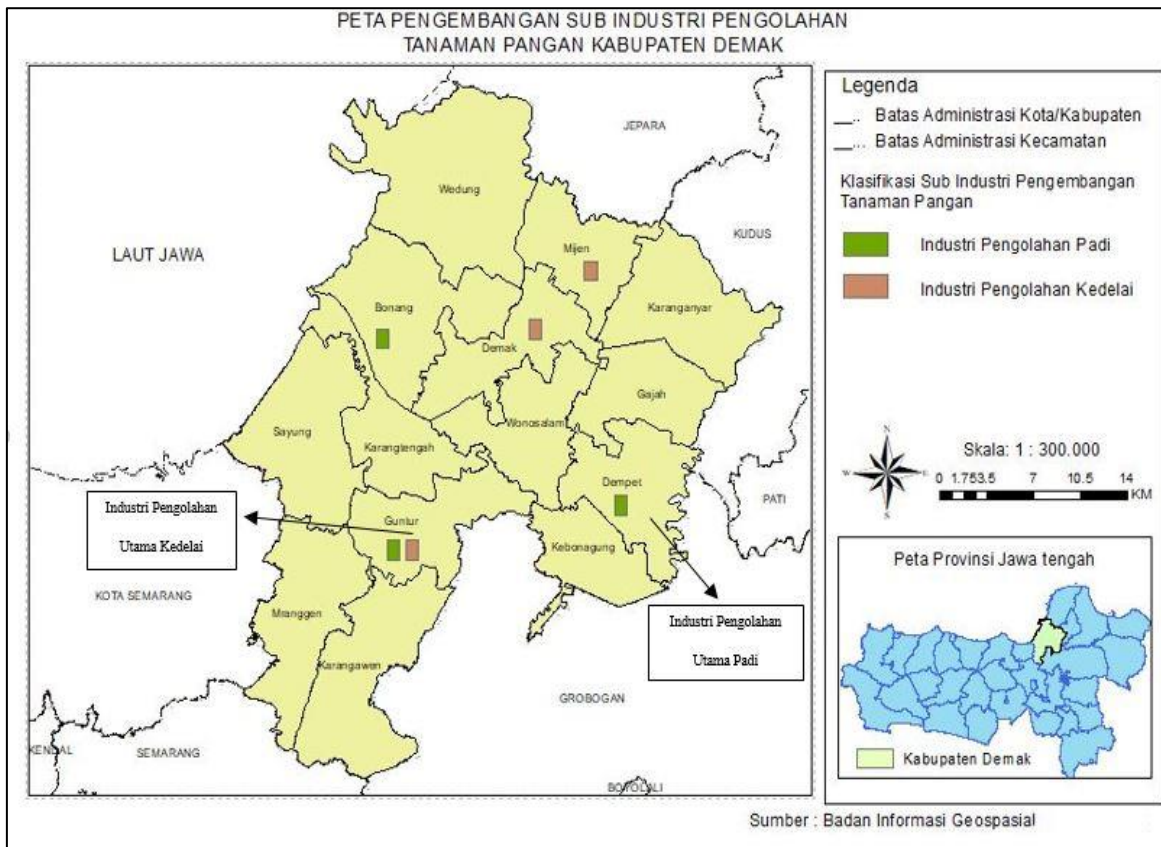
Figure 1. Map of the Development Location of the Leading Food Crops Processing Sub-Industry in Demak Regency
Source: Geospatial Information Agency, processed, 2020

Each center of food crop commodities can be established as a processing sub-industry; the existence of other areas can be used as a support or buffer area that functions as a supplier of inputs to the processing sub-industry and commodities produced directly from farmers. Production centers can be processed into derivative products to obtain a higher selling value (Suharno, 2016; Fauzi et al., 2022).

The establishment of the processing industry is based on the results of the scalogram calculation. Sub-districts that are recommended as industrial areas are those that have more complete infrastructure facilities and services compared to other areas. In the calculation of the scalogram, it belongs to the category of hierarchy one and hierarchy two. In the calculation of the scalogram, it is included in the hierarchical category of one and two. Hierarchy 1 (high) with a Subdistrict Growth Index (GPA) value of more than 461.62 is a sub-district that has a high level of service and regional development, namely Dempet Subdistrict and Guntur District. Hierarchy 2 (medium) with a GPA of 285.03-324.10 is an area with a moderate level of regional development, namely Demak District, Bonang District, Karanganyar District, Kebonagung District, and Mijen District.

The consideration for the development of the processing industry in the form of industrial processing is that the sub-district has a high number of social and economic facilities, which illustrates the infrastructure in providing services to the community. The availability of infrastructure for the provision of inputs and distribution of farm output is an aspect of development planning that must be considered (Muslim, 2014).

Infrastructure support in the form of roads is also essential for the establishment of an industry. According to (Wang, 2020), road infrastructure has an impact across the manufacturing sector because it affects distribution. The industrial center remains along the highway corridor in order to take advantage of the good accessibility.

Based on Figure 1. industrial development in the form of rice milling for superior rice commodities is recommended in Guntur District, Bonang District, and Dempet District as the primary milling industry or as a center for rice milling and rice flour processing industries in Demak Regency.

The rice mills in Guntur and Bonang sub-districts are used to accommodate rice production from the sub-districts of rice production centers in the nearest area.

Furthermore, the direction of development of soybean commodities in Demak Regency is recommended in three sub-districts that become processing and packaging centers, namely Mijen District, Demak District, and Guntur District, as industrial processing centers for soybean commodities. Processing centers can be in the form of the soybean packaging industry itself or the fermented soybean cake, tofu, soy milk, and fermented soybean paste production industries. This is able to provide added value to soybean commodities. This is done to attract consumers or the public and can be sold in supermarkets that have a higher selling value.

CONCLUSION

Based on the Location Quotient (LQ) analysis, it shows that the sub-districts that have a comparative advantage in the food crop sub-sector are Demak, Bonang, Sayung, Mranggen, Wedung, Wonosalam, Kebonagung, Dempet, Gajah, Guntur, Karangawen, Karang Tengah, and Mijen. The comparative advantages of rice and mung bean are almost spread in all sub-districts in Demak Regency. There are eleven sub-districts that are superior for rice commodities and eight sub-districts that are superior for mung bean commodities. The results of the Shift Share analysis show that there are several sub-districts that have competitive advantages in the food crop sub-sector, namely Demak, Bonang, Sayung, Mranggen, Wedung, Wonosalam, Karanganyar, Kebonagung, Dempet, Gajah, Guntur, Karangawen, Karang Tengah, and Mijen. There are only two food crop commodities that have fast growth rates and good competitiveness, namely rice, and soybeans. The sub-districts that have a fast-growing regional growth rate and good competitiveness for rice commodities are Bonang, Sayung, Wedung, Karang Tengah, Karangawen, and Mijen. Meanwhile, soybean commodities are only found in Demak, Wonosalam, Karanganyar, and Mijen. Meanwhile, food crop commodities that have slow growth but have good competitiveness are corn, cassava, sweet potato, peanuts, and green beans. For Corn Commodities are in Sayung, Mranggen, Gajah and Karangawen. Cassava commodities are located in Bonang, Sayung, Mranggen, Karangawen and Karang Tengah. For sweet potato commodities, they are in Bonang, Wedung, Gajah, Guntur, Karang Tengah and Mijen. For peanut commodities, they are in Bonang, Gajah, and

Mijen. For commodities, green beans are in Wedung, Karanganyar, Guntur and Karang Tengah.

Important implications superior food crops that can be developed in Demak Regency are rice and soybeans. The processing industry is used as a container for production results from production center areas and centers for processing them into products that have a higher selling value. Rice production centers are located in Bonang, Wedung, Karang Tengah, and Sayung. Meanwhile, soybean commodities are only spread in one sub-district, namely Mijen. Meanwhile, the processing industry for rice commodities is recommended in Dempet as the primary processing industry, Bonang, and Guntur. Meanwhile, soybeans are recommended in Guntur as the center of the processing industry, Demak, and Mijen.

Limitatios that hint on avenues for future research using survey research. Surveys can be used to collect data on people's attitudes and preferences towards different locations, giving researchers valuable insight into how location affects decision-making. Finally, field experiments can also be used to give researchers further insight into how location impacts behavior.

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