

Research Article

The Analysis of Base Sector and Growth Rate of Fruits Commodity in Banyuwangi District

¹Lucky Budiawan, ²Anas Tain, ³Adi Susanto

¹Magister of Agribusiness, Muhammadiyah University Malang, Jl. Raya Tlogomas Malang 65144, Indonesia.

^{2,3}Department of Agribusiness, Muhammadiyah University Malang, Indonesia.

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Abstract: This study aims to identify the base and non-base sectors as well as the growth rate of all fruit commodities in Banyuwangi. The research data used is time series data taken from BPS East Java Province for the production period 2020-2024. The author employs two analytical methods: Location Quotient (LQ) and Klassen Classification. The variable used for analysis is the production output of fruit commodities. The observed commodities are types of fruit with hard stems, such as durian, mango, and orange. The results of the analysis of base and non-base sectors using the LQ method identified three commodities classified as base sectors: mangosteen, orange, and dragon fruit. Taking into account previous research, it is evident that mangosteen and citrus fruits have been the primary sector for the past nine years. The consistency of mangosteen and orange as the base sector shows that these two fruits are the main commodities of Banyuwangi Regency. Klassen analysis identified three commodities that were advanced and growing rapidly, namely grapes, mangosteen, and orange. Dragon fruit is included in the LQ calculation as a base sector, but its growth tends to be depressed. The depressed growth of dragon fruit is due to a decline in farmer interest resulting from a drastic drop in dragon fruit prices during the harvest season.

Keywords: Banyuwangi, Fruits, Basic Sector, Sector Growth, LQ, and Klassen.

I. INTRODUCTION

Banyuwangi is the easternmost region of Java Island, whose had a wide variety of natural landscapes ranging from coastal areas to mountain ranges. The Banyuwangi Regency spans from the southernmost point, namely the Alas Purwo National Park, to the northern region of Badjulat, which borders the Alas Baluran National Park in Situbondo Regency. The western part of Banyuwangi consists of the Raung and Ijen mountain ranges, which border Bondowoso Regency, and the Gunitir Mountain area, which borders Jember Regency. Given that forests and mountains surround Banyuwangi Regency, it is rich in water resources, which are an important component in supporting agriculture and daily life [1].

The geographical conditions of Banyuwangi, with its varying elevations, make it suitable for planting a wide range of crops. The types of crops cultivated in Banyuwangi are: (1) estate crops such as coffee and cocoa; (2) food crops such as rice, corn, and tubers; (3) horticultural crops. The enormous agricultural potential in Banyuwangi makes the agricultural sector a key pillar of the economy. Economic growth can be determined by looking at the Gross Regional Product (GRDP) of a region. Based on data from the Central Statistics Agency (BPS) of Banyuwangi Regency, the agriculture, fisheries, and forestry sectors make the largest contribution, accounting for 26.42 percent. Other sectors include: (1) wholesale and retail trade and vehicle repair, contributing 17.65 percent; (2) construction, contributing 14.04 percent; and (3) manufacturing, contributing 12.94 percent. All the above data represent the GRDP for the 2024 period [2].

The high economic contribution of the agriculture, fisheries, and forestry sectors is not without obstacles. The growth rate of the agriculture, fisheries, and forestry sectors tends to decline. Based on BPS data, the growth rate of the agricultural sector declined by 0.85% and 1.48% in the 2022 and 2024 periods, respectively. The decline in the growth rate of the sector can be minimized by mapping the growth patterns of the basic and non-basic sectors. Growth mapping is carried out to make it easier for related parties to optimize [3].

The potential and growth rate of fruit commodities in Banyuwangi serve as the background for the author's interest in conducting research entitled "Analysis of the Basic Sector and Growth Rate of Fruit Commodity Production in Banyuwangi Regency."

II. LITERATURE REVIEW

Regional development is an activity aimed at boosting economic growth. The role of various sectors is an important component in regional development activities. According to Nurmely (2022), regional development activities should consider both the base sector and its growth rate[4].



Regional development can be optimized by considering two variables:

A) Base Sector

The basic and non-basic sectors are a form of comparison that examines a sector or commodity across different levels. The comparison is used as a benchmark for the competitiveness of the sector being observed against the same sector in different regions [1]. The most commonly used tool for determining the basic and non-basic sectors is the LQ method. The difference between the basic and non-basic sectors lies in the sector's ability to meet the needs of its region. The basic sector can meet the needs of its region and has a high possibility of exporting to other regions. Unlike the basic sector, the non-basic sector can only meet the needs of its region (break-even) and even needs assistance from other regions to meet the needs of its sector (deficit) [5].

B) Sector Growth Rate

The sector growth rate represents the change in output value over a specified period. Sector growth value can be positive or negative. A sector with a positive growth rate is considered a developed sector, whereas a sector with a negative growth rate is classified as a slow-growing sector. Sector development will be easier if the patterns, structures, and growth rates are mapped. Sector mapping is done by comparing it with the level of the sector above it, such as the district sector with the province. The variables compared are the growth rate and sector contribution. The Klassen classification was used to map and determine sector patterns, structures, and growth rates [6] [7].

III. RESEARCH METHOD

A) Research Location and Data Sources

This research was conducted in Banyuwangi Regency, East Java Province. The research data were obtained from the Central Statistics Agency of Banyuwangi Regency and East Java Province.

B) Types of Data Collected

The data collected is secondary, in the form of a time series, for the period 2020–2024. The data was obtained from the websites of the Central Statistics Agency (BPS) of East Java Province and the Banyuwangi Regency. The sector from which the data was collected was the agricultural sector, specifically the fruit sub-sector.

C) Data Analysis Method

Two analysis methods were used, namely Location Quotient analysis and Klassen analysis. Location Quotient analysis was used to determine the base and non-base sectors using the following formula [8]:

$$LQ = \frac{X_j / TX_j}{X_i / TX_i}$$

Explanation:

LQ: *Location Quotient* of the fruit sector in Banyuwangi Regency

Xj: Fruit production in Banyuwangi Regency

TXj: Total fruit production in Banyuwangi Regency

Xi: Fruit production in East Java Province

TXi: Total fruit production in East Java province

The results of the LQ calculation have three criteria, namely:

$LQ > 1$. This means that the sector being observed is a base sector that has a comparative advantage in the market. This category of sector is a surplus sector that enables the region to meet its needs by exporting to other regions.

$LQ = 1$. This means that the sector being observed is a non-basic sector. This category of sector can only meet the needs of its region.

$LQ < 1$. This implies that the sectors observed include non-basic sectors. This category of sectors is in deficit and requires imports from other regions to meet the region's needs.

Klassen analysis is used to determine the growth rate, patterns, and structure of the sector being observed. The class analysis formula can be calculated using the following formula [6] :

$$r_b = \frac{r_b^t - r_b^0}{r_b^0} \times 100$$

$$X_b = \frac{P_b}{tP_b} \times 100$$

$$r_j = \frac{r_j^t - r_j^0}{r_j^0} \times 100$$

$$X_j = \frac{P_j}{tP_j} \times 100$$

Explanation :

r_b : Fruit growth rate in Banyuwangi

X_b : Contribution of fruit commodities in Banyuwangi

r_j : Fruit growth rate in East Java

X_j : Contribution of fruit commodities in East Java

r_{bt} : Growth rate of fruit commodities in Banyuwangi in year t

r_{b0} : Initial growth rate of fruit commodities in Banyuwangi

r_{jt} : Growth rate of fruit commodities in East Java in year t

r_{j0} : Initial growth rate of fruit commodities in East Java

P_b : Fruit commodity production value in Banyuwangi

tP_b : Total production value of fruit commodities in Banyuwangi

P_j : Fruit commodity production value in East Java

tP_j : Total Production value of fruit commodities in East Java

Table 1: Klassen Classification Matrix[9]

Criteria		Contribution to Total Production	
		$X_b > X_j$	$X_b < X_j$
Growth Rate	$r_b > r_j$	Advanced and fast-growing sectors	Fast-Growing Sector
	$r_b < r_j$	Advanced but depressed sectors	Lagging sectors

IV. RESULTS AND DISCUSSION

A) Basic and Non-Basic Sectors

Based on LQ calculations, there are three types of fruit commodities in Banyuwangi that constitute the base sector, namely: pomelo, mangosteen, and dragon fruit. The two base sectors of fruit commodities in Banyuwangi for the 2020–2024 production period, namely mangosteen and pomelo, reinforce the opinion of Jember (2021) in her previous study. Previous research by Jember (2021) stated that the basic fruit commodity sectors in Banyuwangi for the 2016-2020 production period were pomelo and mangosteen. Based on previous research, it can be concluded that mangosteen and pomelo have been in surplus for the past 9 years [10].

The highest production of oranges was in 2023, at 700 thousand tons, and the lowest production was in the 2024 production period, at 188 thousand tons. The high production of pomelo is due to the high interest of the Indonesian people in citrus fruits. The most popular types of oranges are pomelos, grapefruits, and lemons. The orange variety that is widely cultivated in Banyuwangi is the jemali orange (Plant Variety Number: 878/PVL/2018). The jemali orange was chosen because this variety has a high water content and a fresh, sweet taste [11].

Mangosteen is one of the fruits that is part of the basic sector in Banyuwangi. The impact of this basic sector is evidenced by the export of Banyuwangi mangosteen to China in the 2021 production year. Exports to China are proof that mangosteen is in surplus, making it possible to export or distribute mangosteen to other regions. The highest mangosteen production was recorded in the 2023 production period, with a value of 35.97 thousand tons. The highest increase in production occurred in the 2022-2023 period, with consecutive increases of 230.6-368.97 percent.

The third fruit that is part of the basic sector in Banyuwangi is dragon fruit. Considering that Banyuwangi dragon fruit contributes between 80 and 90 percent to East Java, it is only natural that Banyuwangi dragon fruit production is in surplus every year. The high surplus in dragon fruit production is not without its challenges, given that total production is declining every year. The decline in production is attributed to a lack of post-harvest processing during the harvest season, particularly in terms of preserving dragon fruit. Farmers' lack of experience in fruit preservation forces them to sell their products at low prices in large quantities. According to economic law, when supply exceeds demand, prices will continue to decline until the product becomes unsellable, which is what happens to dragon fruit farmers during the harvest season. The decline in dragon fruit prices during the harvest season has led to a decrease in farmers' interest in cultivating dragon fruit in the following year, which is directly proportional to the total production of dragon fruit in Banyuwangi and East Java.

B) Klassen Analysis

Table 2: Klassen Matrix

Criteria		Contribution to Total Production	
		$X_b > X_j$	$X_b < X_j$
Growth Rate	$r_b > r_j$	Grape	Avocado
		Orange	Star fruit

		Mangosteen	Durian Rose apple Guava Jengkol Pomelo Mango Melinjo Papaya Twisted Cluster Bean Banana Rambutan Sawo Soursop Dimocarpus Longan
	$r_b < r_j$	Dragon Fruit	Apple Duku Jack fruit pineapple Snake fruit Bread fruit Lemon

Based on the Klassen Matrix in Table 2, Banyuwangi fruit commodities are mostly in Quadrant 2, which is categorized as commodities with relatively rapid growth. There are three commodities in Quadrant 1, which are advanced and growing rapidly, such as grapes, citrus fruits, and mangosteen. Dragon fruit is in quadrant 3, which is classified as an advanced but depressed commodity. Finally, the lagging commodity category is in quadrant 4, which includes seven commodities: apples, duku, jackfruit, pineapple, salak, breadfruit, and lemon. Mangosteen and orange are base sector commodities in the LQ calculation. The results of the Klassen analysis reinforce both commodities as fast-growing commodities every year in the 2020-2025 period. Dragon fruit is included in the LQ calculation as a basic sector commodity, but its growth tends to be suppressed. The suppression of dragon fruit growth is due to a decline in farmer interest resulting from a drastic drop in dragon fruit prices during the harvest season.

Banyuwangi fruit commodities in quadrant 2 include avocados, star fruit, durians, rose apples, guavas, jengkol, large oranges, mangoes, melinjo, papayas, petai, bananas, rambutans, sapodillas, soursops, and lengkeng. Based on LQ analysis, these sixteen commodities are non-basic commodities that are included in the deficit sector. Commodities in quadrant 2, despite being in deficit, have relatively rapid growth, so if optimized, they could potentially become a base sector in the future.

V. CONCLUSION

Fruit commodities included in the basic sector based on Location Quotient (LQ) analysis calculations are pomelo, mangosteen, and dragon fruit. The LQ analysis that has been carried out obtained the following values: (1) pomelo 3.88; (2) mangosteen 2.17; and (3) dragon fruit 6.51. Dragon fruit, a new leading commodity, makes this study distinct from previous studies.

Based on the Klassen analysis, fruit commodities in Banyuwangi are divided into four categories, namely: (1) advanced and fast-growing commodities; (2) fast-growing commodities; (3) advanced but depressed commodities; and (4) lagging commodities. There are three advanced and fast-growing commodities, namely grapes, mangosteen, and pomelo. Dragon fruit is a relatively advanced yet underappreciated commodity. There are seven lagging commodities, namely apples, duku, jackfruit, pineapple, salak, sukun, and lemon. The remaining sixteen commodities are fast-growing commodities, namely avocado, star fruit, durian, rose apple, guava, jengkol, pomelo, manggo, melinjo, papaya, twisted cluster bean, banana, rambutan, sawo, soursop, and ang dimocarpus logan.

VI. REFERENCES

- [1] R. Syukur, M. Patiung, and D. T. Hermawati, "ANALISIS SEKTOR PERTANIAN, KEHUTANAN DAN PERIKANAN SEBAGAI SEKTOR POTENSIAL YANG BERKELANJUTAN DI KABUPATEN BANYUWANGI," *Jurnal Ilmiah Sosio Agribis*, vol. 21, no. 1, 2021, doi: 10.30742/jisa21120211349.
- [2] "Provinsi Jawa Timur Dalam Angka 2025 - Badan Pusat Statistik Provinsi Jawa Timur." Accessed: Sep. 15, 2025. [Online]. Available: <https://jatim.bps.go.id/id/publication/2025/02/28/5ae8b994b1bebd8cbc2e0781/provinsi-jawa-timur-dalam-angka-2025.html>
- [3] "Provinsi Jawa Timur Dalam Angka 2024 - Badan Pusat Statistik Provinsi Jawa Timur." Accessed: Sep. 15, 2025. [Online]. Available: <https://jatim.bps.go.id/id/publication/2024/02/28/53a51c3ca566561a72d10bde/provinsi-jawa-timur-dalam-angka-2024.html>
- [4] Nurmely V and D. Sagala, "ANALISIS SEKTOR BASIS BUAH-BUAHAN PADA MASING-MASING KECAMATAN DI KABUPATEN SAMOSIR," *Jurnal Agrilink*, vol. 4, no. 1, 2022, doi: 10.36985/jak.v4i1.365.

- [5] R. Kastaman and A. Thoriq, "Prioritas Strategi Pengembangan Agroindustri Manggis di Kabupaten Tasikmalaya, Jawa Barat," *Agrikultura*, vol. 31, no. 3, 2021, doi: 10.24198/agrikultura.v31i3.30525.
- [6] A. Rajab and Rusli, "Penentuan Sektor-Sektor Unggulan yang ada pada Kabupaten Takalar melalui Analisis Tipologi Klassen," *GROWTH Jurnal Ilmiah Ekonomi Pembangunan*, vol. 1, no. 1, 2019.
- [7] P. Partini and T. Prasetya, "STRATEGI PENGEMBANGAN MANGGIS RATU TEMBILAHAN DI KECAMATAN TEMBILAHAN HULU," *Selodang Mayang: Jurnal Ilmiah Badan Perencanaan Pembangunan Daerah Kabupaten Indragiri Hilir*, vol. 7, no. 3, 2021, doi: 10.47521/selodangmayang.v7i3.220.
- [8] I. R. Purba and F. Muliani, "ANALISIS PRIORITAS KOMODITAS UNGGULAN PERKEBUNAN DAERAH KABUPATEN ACEH TIMUR MELALUI ANALISIS LOCATION QUOTIENT (LQ)," *JURNAL GAMMA-PI*, vol. 5, no. 1, 2023, doi: 10.33059/jgp.v5i1.5600.
- [9] A. Hendrawan, "POTENSI DAERAH DAN DAYA SAING DAERAH BERDASARKAN ANALISIS TIPOLOGI KLASSEN," *Jurnal Litbang Sukowati : Media Penelitian dan Pengembangan*, vol. 4, no. 1, 2020, doi: 10.32630/sukowati.v4i1.154.
- [10] U. M. Jember et al., "Analysis of Leading Fruit Commodities in Banyuwangi Regency," *Jurnal Agribest*, vol. 5, pp. 96–107, 2021, doi: 10.32528/agribest.v5i2.4879.
- [11] "Provinsi Jawa Timur Dalam Angka 2023 - Badan Pusat Statistik Provinsi Jawa Timur." Accessed: Sep. 15, 2025. [Online]. Available: <https://jatim.bps.go.id/id/publication/2023/02/28/446036fbb58d36b009212dbc/provinsi-jawa-timur-dalam-angka-2023.html>