

ECONOMIC BASE AREAS FOR RICE PRODUCTION IN WEST JAVA PROVINCE

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ABSTRACT

Achieving self-sufficiency in rice has been pursued in recent years. This study aims to identify the spatial distribution of rice production areas across West Java Province's districts and municipalities. An analysis employs annual rice production data for West Java from 2018 to 2025. The primary analytical tool used in this research is the Location Quotient (LQ). LQ results indicate that the economic base for rice production is predominantly concentrated in the districts of Bogor, Sukabumi, Cianjur, Bandung, Garut, Tasikmalaya, Ciamis, Cirebon, Majalengka, Sumedang, Indramayu, Subang, Karawang, and Bekasi. These findings reinforce the relevance of economic base theory, which posits that sectors with comparative advantages ($LQ > 1$) serve as a key driver of regional economic growth. In West Java, the food crop subsector — particularly rice — continues to serve as a major engine of rural economic activity, generating multiplier effects across sectors such as trade, transportation, and agro-processing. As a result, these areas can be classified as economic base regions that play a pivotal role in meeting national rice demand and potentially contributing to international markets

Keywords: Crop; food; subsector

ABSTRAK

Penelitian ini bertujuan untuk mengetahui lokasi produksi padi di setiap area kota/kabupaten di Jawa Barat. Data yang digunakan merupakan data hasil produksi padi Provinsi Jawa Barat tahun 2018–2025. Analisis instrumen dalam penelitian ini adalah: Analisis Location Quotient (LQ). Hasil analisis Location Quotient (LQ) menunjukkan bahwa: lokasi ekonomi basis terdapat di wilayah Kabupaten Bogor, Sukabumi, Cianjur, Bandung, Garut, Tasikmalaya, Ciamis, Cirebon, Majalengka, Sumedang, Indramayu, Subang, Karawang, dan Bekasi. Temuan ini memperkuat relevansi teori ekonomi basis, di mana sektor-sektor yang memiliki keunggulan komparatif ($LQ > 1$) menjadi pendorong utama pertumbuhan ekonomi wilayah. Dalam konteks Jawa Barat, subsektor tanaman pangan terutama padi tetap menjadi motor ekonomi di wilayah pedesaan, menciptakan efek pengganda (multiplier effect) terhadap sektor lain seperti perdagangan, transportasi, dan industri pengolahan hasil pertanian. Hal ini menjadi suatu kesimpulan bahwa daerah tersebut merupakan daerah ekonomi basis sebagai sumber produksi untuk memenuhi kebutuhan akan beras pada skala nasional, bahkan berpotensi pada skala internasional.

Kata kunci: Beras, lokasi, padi, produksi, quotient

INTRODUCTION

Rice (*Oryza sativa* L.) is one of the oldest crops cultivated in 117 countries, so it is often referred to as a global food

(Kk et al., 2021). Rice (*Oryza sativa* L.) is a strategic food crop in Indonesia that can help improve the national economy. (Samanta et al., 2025). Besides being a

staple food for Indonesians, rice is also a leading crop in trade (Samantha et al., 2021; Samantha et al., 2018). Rice production increased by 1.63% (2018-2025) based on the Ministry of Agriculture's Strategic Plan (2015). An increase in rice production was driven by a 540 thousand-hectare increase in harvested area and a 120-quintal-per-hectare increase in productivity, with a 0.20% annual growth in rice harvested area in Java (Samanta et al., 2025).

A region's economic performance over a certain period of time is measured by Gross Regional Domestic Product (GRDP), calculated either at current prices or at constant prices (Rahmi et al., 2025). GRDP represents the total value of goods and services produced by all economic activities in a region during a given period (Pyo & Ok, 2025). Therefore, this indicator is often used as a reference point for measuring regional economic growth. In the agricultural sector, GRDP achievement is closely related to the level of productivity of agricultural products (Liang et al., 2021, Sundari et al. 2023; Fahmi et al. 2023).

Agriculture, especially **rice** commodities, which have a large contribution to the formation of added value and the regional economic structure (Franck et al., 2025;

Janardhanan et al., 2023). In the context of economic development, economic growth has a very important role because the two are interrelated and cannot be separated from each other (Elbatal et al., 2025; Xin et al., 2020; Yulia et al., 2025; Zhan et al., 2025).

An increase in economic activity that drives increased production of goods and services in a region over a specific period of time is known as economic growth (Carlos et al., 2024; Kapa et al., 2026; Zeng et al., 2023). Economic growth serves as an important indicator in assessing the success of a society's economic development (Saleh et al., 2020). By understanding the level of economic growth, the government can develop more targeted development plans (Ali et al., 2024; Alssadek & Benhin, 2023; Moctar, 2024; Mohapatra et al., 2024; Zhang et al., 2025). Furthermore, businesses can use this information to design product development strategies and manage resources more effectively. (Science et al., 2024; Kk et al., 2021) .

Growth is an increase in a region's capacity to produce goods and services to meet the needs of its people, both within and outside the region, accompanied by an increase in per capita income (Pruksanubal, 2016; Zou et al., 2024). Economic growth plays a

crucial role in reducing inequality and social disparities, as well as in achieving a higher level of well-being (Hizbaron et al., 2022; X. Wang et al., 2025). Thus, economic growth can be understood as a process of increasing income within a region over time through increasingly productive economic activity. (Science et al., 2024; Kk et al., 2021)

The Location Quotient (LQ) technique is a commonly used approach in basic economic models as an initial step to identify sectors that drive economic growth. (Adi, 2017; Nurtia et al., 2022; Sulistyowati et al., 2022) . LQ assesses the relative concentration or level of specialization of an economic activity through a comparative method (Astasari & Ibrahim, 2018; Agustian et al., 2022; Jumiyaniti et al., 2016) . This approach is widely applied to analyze economic conditions, identify specialization of economic activities, and measure the relative concentration of certain sectors to determine the leading sector *in* industrial activity. LQ

analysis usually focuses on indicators such as labor and income to obtain a comprehensive picture of the sector's contribution to the regional economy. (Nurfani et al., n.d.; Pratiwi et al., n.d.; North & Province, 2020; Tahun, 2020)

The Location Quotient (LQ) method is used to identify base sectors in a region (Science et al., 2024; Kk et al., 2021). This is a method that compares the role of a sector or industry at the regional level with its contribution at the national level (Idris et al., 2025; Nandi et al., 2025; Yong-hong et al., 2010). This approach is also useful for assessing the relative strengths and weaknesses of a region compared to other regions. When developing regional development strategies, the region's potential can be used as a basis for consideration. Furthermore, factors hindering the performance of local sectors need to be analyzed to determine whether improvements and strengthening of these sectors should be prioritized.

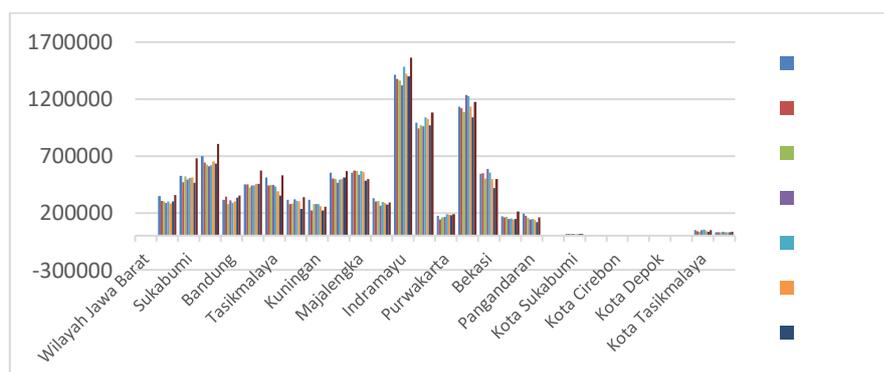


Figure 1. Rice Crop Productivity by City/Regency 2018-2025. Source: Central Bureau of Statistics of Indonesia

Rice production and productivity in West Java Province show significant variation between districts and cities. These differences are influenced by agro-ecological factors, rice field area, planting intensity, and efficiency of production input use. As one of Indonesia's main rice-producing provinces, West Java contributes significantly to national rice availability. However, not all districts play an equal role in supporting the food crop agriculture sector, particularly rice.

RESEARCH METHODS

The data used in this study are secondary. Data collected by official institutions and published for public and researcher use (Rudiyanto et al., 2023). Secondary data used includes data from the Central Statistics Agency (BPS). West Java. Rice crop production data by district/city in West Java Province for 2018-2025. To identify regions with a relative advantage in rice production, a Location Quotient (LQ) analysis was conducted using rice production data from the Central Statistics Agency (BPS). This approach is used to determine the extent to which the agricultural sector, especially the food crops subsector, is a basic sector in a region. An LQ value greater than one ($LQ > 1$) indicates that the region has an

economic specialization in rice production. Thus, it can potentially become a growth center and support rice needs at the provincial level.

Location Quotient (LQ)

Location Quotient (LQ) Analysis is one of the methods used to identify the level of sector or industry specificity in a particular region by examining the presence of basic or leading sectors (Hastir et al., 2025; Noori & Babazadeh, 2025; Pratiwi et al., n.d.; Qlq & Dndu, 2015; Sodqqlqj et al., 2016; J. Wang et al., 2026). This approach is carried out by comparing the proportion of a sector's (sector *i*) contribution at the district or city level to the total regional economy with the proportion of the same sector at the provincial level. Sectors with an LQ value greater than 1 are categorized as leading sectors, those with a comparative advantage and the potential to drive regional economic growth.

The LQ method is widely used in basic economic analysis as a first step in identifying sectors that drive regional development. Through a comparative approach, LQ can illustrate the relative levels of concentration and specialization of economic activity, thereby helping identify leading or priority sectors with strategic potential

for regional economic and industrial development. The formula for the location quotient (LQ) is

$$LQ = \frac{\text{Pangsa Sektor } i \text{ di Wilayah Lokal}}{\text{Pangsa Sektor } i \text{ di Tingkat Regional/Nasional}} \dots\dots\dots(1)$$

Percentage of employment in a particular sector in a region (e.g., district) compared to the percentage of employment in the same sector nationally or regionally. The result indicates whether a sector in a region is more specialized ($LQ > 1$) or less specialized ($LQ < 1$) compared to the wider region.

Location Quotient (LQ) Formula

$$LQ = \frac{i/local}{i/National} \dots\dots\dots(2)$$

Where:

i = Number of jobs or production in sector i (e.g., agricultural sector)

local $lokal$ = Total number of jobs or production in all sectors at the local level

$i/local$ = Share of sector i to total sectors at the local level

$i/national$ = Share of sector i to total sectors at the national or regional level

RESULT AND DISCUSSION

Results of LQ analysis provide a spatial overview of the distribution of rice-based economic activities in West Java. Regencies with high LQ values can be categorized as rice production base areas, which not only meet local needs but also serve as suppliers to other regions. Meanwhile, regions with LQ values below 1 ($LQ < 1$) are relatively dependent on rice supplies from other regions. This finding is important for supporting regional agricultural development planning, especially in determining the priority of programs to increase rice production and improve agribusiness efficiency in potential areas.

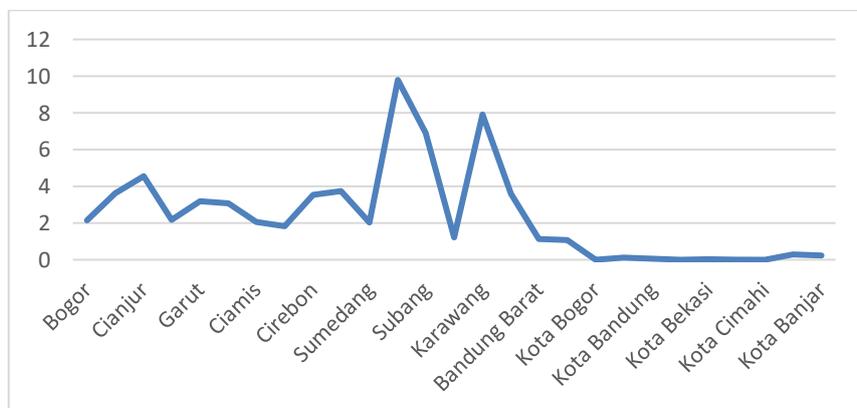


Figure 2. Location Quotient (LQ) Analysis Calculation

The Location Quotient (LQ) calculation shows variations in the level of comparative advantage across districts/cities in West Java in rice

production. Several districts of Bogor, Sukabumi, Cianjur, Bandung, Garut, Tasikmalaya, Ciamis, Cirebon, Majalengka, Sumedang, Indramayu,

Subang, Karawang, Kuningan, Purwakarta, West Bandung, Pangandaran, and Bekasi show LQ values greater than one, indicating that these regions have economic specialization in the food crop agriculture sector, especially rice. This indicates that rice production activities in these districts/cities not only meet local consumption needs but also serve as base areas that supply agricultural products to other regions within and outside the province.

In contrast, regencies/cities such as Bogor City, Sukabumi City, Bandung City, Cirebon City, Bekasi City, Depok City, Cimahi City, Tasikmalaya City, and Banjar City generally have LQ values below 1, indicating that rice farming is not a leading sector in these regions. This condition may be caused by limited rice paddy land, urbanization pressures, and a shift in economic orientation towards non-agricultural sectors. Thus, the contribution of the food crop subsector to Gross Regional Domestic Product (GRDP) in these regions is relatively small compared to other sectors, such as the processing industry or services.

These findings reinforce the relevance of basic economic theory, which holds that sectors with comparative advantage ($LQ > 1$) are the

main drivers of regional economic growth. In West Java, food crop subsector especially rice remains economic driver in rural areas, creating a multiplier effect *on* other sectors such as trade, transportation, and agricultural processing industry. Therefore, agricultural development policies at the provincial level need to be directed at strengthening base areas by increasing productivity and distribution efficiency, and by strengthening farmer agribusiness institutions (Ahmad et al., 2021; Sundari et al., 2023).

Furthermore, LQ analysis results can serve as a basis for determining investment priorities in the agricultural sector for both local governments and the private sector. Regencies identified as rice production bases deserve greater support through intensification programs, irrigation infrastructure development, and the application of modern agricultural technology. Regions with low LQ values still have opportunities for development through commodity diversification strategies or optimizing land use for high-value-added commodities. LQ analysis serves not only as a descriptive tool but also as a strategic instrument in planning economic development based on local potential.

CONCLUSION

These findings reinforce the relevance of basic economic theory, which holds that sectors with comparative advantage ($LQ > 1$) are the main drivers of regional economic growth. The three main base economic regions are Indramayu (9.79), Karawang (7.89), and Subang (6.89). Regencies identified as rice production base areas deserve greater support through intensification programs, irrigation infrastructure development, and the application of modern agricultural technology. Rice productivity-based economic regions are pillars of rice production to maintain national food security.

Authors declaration

Consent to participate

Authors are agreed

Consent to publication

The authors agree to publish this data

Conflict of interest

The author declares no conflict of interest

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