

Identification of Agricultural Sector Base Areas in West Sumatra Using the Location Quotient

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Abstract

This study aims to identify agricultural sector base areas in West Sumatra Province using the Location Quotient (LQ) approach (study for 2018-2023). The research applies a descriptive quantitative method using secondary data from Gross Regional Domestic Product (GRDP) by sector at the district and city levels during the period of 2018-2023. The results show that most districts have LQ values above 1, indicating that agriculture remains a base sector, while cities tend to have LQ values below 1, reflecting a more limited role of agriculture. Districts such as Pasaman, Kepulauan Mentawai, and Pasaman Barat consistently show relatively high and stable LQ values. Overall, changes in LQ values are relatively small, suggesting that the role of the agricultural sector has remained stable during the period of 2018-2023.

Keywords: Location Quotient, agriculture sector, regional economy, base sector, West Sumatra

INTRODUCTION

Regional economic development is closely related to how a region understands and utilizes its economic structure. Each region has its own characteristics in terms of natural resources, geographical conditions (Utomo, 2011), and economic activities. These differences shape the composition of economic sectors, resulting in variations across regions. In practice, not all sectors contribute equally to regional economies. Some sectors tend to play a more prominent role and act as key drivers of economic activity.

The agricultural sector remains closely linked to regional economies. In many areas, this sector not only contributes to the formation of Gross Regional Domestic Product (GRDP) but is also directly associated with employment absorption and the continuity of local economic activities (Heryadi et al., 2025). This is particularly evident in regions with strong rural characteristics. At the same time, recent economic developments indicate a shift in economic structure in several regions, where industrial and service sectors have begun to grow and take on a larger role (Tazkiya et al., 2025).

These changes do not occur uniformly. In some regions, agriculture continues to maintain its role as a dominant sector, while in others its importance has begun to decline. This suggests that the position of a sector is highly dependent on regional characteristics. Understanding these differences is important, as they provide insight into regional economic potential and help explain the direction of economic development across regions.

In regional economic studies, the identification of leading sectors is commonly used to determine which sectors have a relative advantage in a particular area. One widely used approach is the Location Quotient (LQ), which compares the proportion of a sector at the regional level with its proportion at a broader level, such as the provincial or national level (Ronaldi et al., 2026). This comparison provides an indication of whether a sector has a higher level of specialization compared to the reference area. Through this approach, sectors can be classified as base or non-base, which helps in understanding their role in the regional economy.

The use of the LQ method in previous studies shows that the identification of base sectors can vary across regions and over time (Pratiwi et al., 2024; Bakhri et al., 2025; Himmah et al., 2025). These variations may be influenced by factors such as infrastructure development, regional development policies, and changes in production and consumption patterns. This makes the analysis of base sectors still relevant, especially when using more recent data to better reflect current conditions.

However, previous studies employing the *Location Quotient* (LQ) approach in West Sumatra have not yet provided a comprehensive and integrative analysis across all districts and cities within a unified framework. Most of these studies are limited to specific regions, shorter observation periods, or focus solely on identifying base sectors without examining the temporal stability and comparative dynamics of LQ values. Furthermore, there is still limited attention to how the agricultural sector's role persists or shifts consistently over time across different administrative areas. Therefore, the distinguishing aspect of this study lies in its use of a longer observation period (2018-2023), full coverage of districts and cities, and emphasis on the consistency and comparative patterns of agricultural sector specialization, which have not been explicitly addressed in previous LQ studies in West Sumatra.

West Sumatra Province is one of the regions with a relatively diverse economic structure. This diversity is closely related to its geographical conditions, which influence the social, economic, and environmental aspects of the local community (Putri et al., 2025). In some areas, the agricultural sector still plays a significant role, while in others non-agricultural sectors have begun to develop. This variation provides an opportunity for a more detailed analysis of the position of the agricultural sector across regions.

Based on this background, this study focuses on identifying areas where the agricultural sector functions as a base sector in West Sumatra Province using the Location Quotient approach. The analysis is directed at examining the relative position of the agricultural sector across districts and cities in a comparative manner. The results are expected to provide a clearer picture of the distribution of the agricultural sector's role at the regional level and to serve as a reference in understanding regional economic potential.

METHOD

This study employs a descriptive quantitative approach aimed at identifying agricultural sector base areas in West Sumatra Province. The data used in this study are secondary data obtained from Statistics Indonesia (Badan Pusat Statistik/BPS), particularly from the publication West Sumatra in Figures. The data analyzed include Gross Regional Domestic Product (GRDP) by sector at constant 2010 prices, specifically the agricultural sector at both district/city and provincial levels. The use of constant prices is intended to eliminate the effect of price changes (inflation), so that the analysis reflects real changes in economic structure rather than nominal fluctuations. This approach allows for more accurate comparisons of sectoral contributions over time, particularly for the period 2018-2023. Furthermore, the base year 2010 follows the standard published by BPS, ensuring consistency and comparability of data across regions. The data period covers the years 2018 to 2023. The unit of analysis consists of all districts and cities in

West Sumatra Province. The analytical technique used in this study is the Location Quotient (LQ), which is formulated as follows (Puspitasari et al., 2025):

$$LQ = \frac{X_i/X}{Y_i/Y}$$

Where:

- X_i : GRDP value of the agricultural sector in the district/city
- X : Total GRDP value in the district/city
- Y_i : GRDP value of the agricultural sector in West Sumatra Province
- Y : Total GRDP value in West Sumatra Province

The LQ values are interpreted as follows (Malau et al., 2024):

- $LQ > 1$ indicates that the agricultural sector is a base sector
- $LQ = 1$ indicates that the sector has a balanced role with the provincial level
- $LQ < 1$ indicates that the agricultural sector is a non-base sector

The results of the calculation are used to examine the distribution and pattern of the agricultural sector’s relative advantage across regions during the 2018-2023 period.

RESULTS AND DISCUSSION

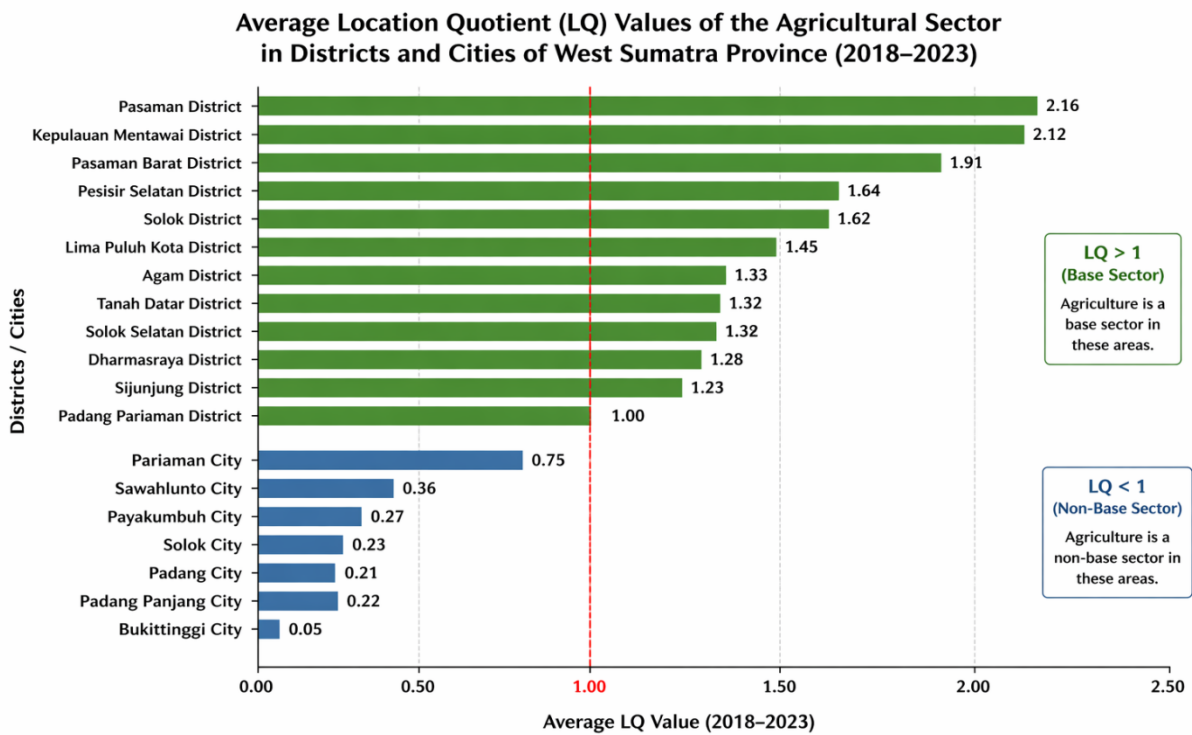
The results of the Location Quotient (LQ) calculation for the agricultural sector across districts and cities in West Sumatra Province during the period of 2018-2023 are presented in Table 1. The table provides an overview of the distribution of LQ values, including annual figures and average values for each region, which are used to identify the relative position of the agricultural sector. To provide a clearer visual interpretation of the distribution of LQ values across regions, the average LQ values are presented in Figure 1. This visualization helps to highlight the comparative differences between districts and cities, which may not be immediately apparent from the tabular data.

Table 1. Location Quotient (LQ) Values of the Agricultural Sector in Districts and Cities of West Sumatra Province

Region	LQ Values						
	2018	2019	2020	2021	2022	2023	Average
Kepulauan Mentawai District	2,07	2,07	2,12	2,13	2,13	2,17	2,12
Pesisir Selatan District	1,64	1,65	1,62	1,63	1,64	1,64	1,64
Solok District	1,62	1,62	1,62	1,62	1,62	1,62	1,62
Sijunjung District	1,27	1,24	1,22	1,22	1,22	1,24	1,23
Tanah Datar District	1,33	1,32	1,32	1,32	1,32	1,32	1,32
Padang Pariaman District	0,91	0,94	1,03	1,03	1,04	1,04	1,00
Agam District	1,34	1,33	1,33	1,33	1,32	1,32	1,33
Lima Puluh Kota District	1,47	1,46	1,45	1,44	1,44	1,44	1,45
Pasaman District	2,17	2,17	2,14	2,14	2,17	2,17	2,16
Solok Selatan District	1,34	1,33	1,32	1,32	1,31	1,30	1,32
Dharmasraya District	1,29	1,29	1,26	1,29	1,28	1,28	1,28
Pasaman Barat District	1,91	1,94	1,89	1,90	1,89	1,90	1,91

Padang City	0,21	0,21	0,21	0,21	0,21	0,21	0,21
Solok City	0,23	0,23	0,23	0,23	0,23	0,22	0,23
Sawahlunto City	0,35	0,35	0,35	0,37	0,38	0,37	0,36
Padang Panjang City	0,21	0,21	0,21	0,22	0,22	0,22	0,22
Bukittinggi City	0,05	0,05	0,05	0,05	0,05	0,05	0,05
Payakumbuh City	0,28	0,27	0,27	0,27	0,27	0,26	0,27
Pariaman City	0,77	0,76	0,75	0,74	0,75	0,75	0,75

Source: Statistics Indonesia (BPS), processed by the author (2026).



Source: Processed from BPS-Statistics Indonesia data, 2018–2023

Note: The red dashed line (LQ = 1) is the threshold between base sector (LQ > 1) and non-base sector (LQ < 1).

Figure 1. Average LQ Values of the Agricultural Sector Across Districts and Cities in West Sumatra Province (2018-2023)

Figure 1 shows that most districts have LQ values above 1, while cities consistently fall below this threshold. This visual pattern reinforces the distinction between rural and urban economic structures, where agriculture plays a more dominant role in districts compared to cities. In particular, regions such as Pasaman District, Kepulauan Mentawai District, and Pasaman Barat District are positioned at the higher end of the distribution, indicating strong agricultural specialization. Meanwhile, cities such as Padang City and Bukittinggi City appear at the lower end, reflecting a limited role of the agricultural sector. Padang Pariaman District is located near the threshold value, suggesting a transitional position.

The observed pattern reflects structural differences in regional economies, where districts tend to rely more on primary sectors such as agriculture, while cities are generally oriented toward secondary and tertiary sectors. This distinction highlights the role of agriculture as a key driver of economic activity in rural areas, particularly in regions with strong agricultural resources. In contrast, the lower LQ values in cities indicate a shift toward more diversified

economic activities, especially in trade and services, which are typically more dominant in urban settings.

Regions such as Pasaman District, Kepulauan Mentawai District, and Pasaman Barat District consistently exhibit relatively high LQ values throughout the observation period. In addition to being high, these values remain stable over time, indicating a strong and persistent role of the agricultural sector in their economic structures. This stability suggests that the sector is less affected by short-term fluctuations and reflects a continued dependence on agriculture, with limited structural transformation toward other sectors. Similar findings have been reported in previous studies, which show that regions with high LQ values tend to exhibit sectoral specialization (Malau et al., 2024).

Several other districts, including Pesisir Selatan District, Solok District, Agam District, Lima Puluh Kota District, and Solok Selatan District, also show LQ values above 1, although at a more moderate level. The relatively stable pattern observed in these regions indicates that agriculture remains an important component of the regional economy, even though it does not dominate as strongly as in the previously mentioned regions. In this context, agriculture tends to coexist with other sectors, suggesting a more balanced economic structure.

In contrast, cities generally exhibit low LQ values, consistently below 1. This indicates that agriculture does not play a major role in urban economies. Instead, economic activities in cities are more oriented toward non-agricultural sectors such as trade and services, which typically develop more rapidly in urban environments (Simatupang et al., 2025). This difference does not necessarily indicate a weakness of the agricultural sector, but rather reflects the variation in economic structure between rural and urban areas.

Padang Pariaman District represents a unique case, with LQ values fluctuating around 1 during the observation period. This condition suggests that the contribution of the agricultural sector in this region is relatively balanced compared to the provincial average. The slight increase in LQ values over time may indicate an ongoing adjustment in the regional economic structure, although the change is not yet strong enough to establish a consistent pattern.

Overall, changes in LQ values across most regions during the period of 2018-2023 are relatively small. This indicates that there has been no significant shift in the role of the agricultural sector within the regional economic structure. The stability of these values suggests that structural transformation is occurring gradually, or has not yet become a dominant trend during the observed period.

From a policy perspective, these findings imply that development strategies should be tailored to regional characteristics. In regions with high and stable LQ values, policy efforts may focus on improving productivity and efficiency in the agricultural sector through better access to technology, inputs, and infrastructure. In regions with moderate LQ values, a balanced approach may be more appropriate by maintaining the role of agriculture while gradually encouraging the development of other sectors. Meanwhile, in urban areas with low LQ values, development strategies tend to focus on non-agricultural sectors, although agriculture may still be considered on a limited scale depending on local conditions.

CONCLUSION

This study shows that the role of the agricultural sector in West Sumatra Province is not evenly distributed across regions. Most districts have Location Quotient (LQ) values above 1, indicating that agriculture remains a base sector, while cities tend to have LQ values below 1, suggesting a more limited role in the economic structure. Regions such as Pasaman District, Kepulauan Mentawai District, and Pasaman Barat District exhibit relatively high and stable LQ values during the period of 2018-2023, reflecting the strong role of agriculture in these areas. In general, changes in LQ values over the study period do not show significant shifts, indicating that the regional economic structure, particularly in relation to the agricultural sector, has remained relatively stable.

These findings provide an initial basis for understanding the direction of agricultural sector development at the regional level. In areas with high LQ values, efforts may be directed toward improving productivity and increasing value added, while in regions with low LQ values, the development of other sectors that better align with regional characteristics may be considered. This study is limited by the use of the Location Quotient method, which focuses on relative sectoral advantage and does not account for factors such as intersectoral linkages or broader economic dynamics. Future research may complement this analysis by applying additional methods and incorporating other relevant variables to provide a more comprehensive understanding of agricultural sector development across regions.

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