

## Mapping Leading Plantation Commodities through Comparative and Competitive Advantage Analysis in South Lampung Regency

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### ABSTRACT

*This study aims to analyze the structure and economic shifts of the plantation subsector in South Lampung Regency to identify leading commodities. The study uses secondary data from the Central Bureau of Statistics and the Plantation Office of South Lampung Regency. The analysis covers seven plantation commodities spread across 17 subdistricts, comprising a total of 119 observation units. The analytical methods applied include Location Quotient (LQ) and Dynamic Location Quotient (DLQ) to identify base and prospective commodities; Localization Index (LI) and Specialization Index (SI) to assess commodity concentration and subdistrict distinctiveness; and Shift Share Analysis (SSA) to evaluate growth, competitiveness, and net shift. The classification of commodity performance at each analytical stage is conducted using the Klassen Typology. The results reveal that 28 commodity–subdistrict units are categorized as base and prospective. Among them, oil palm in Katibung, and cocoa in both Kalianda and Penengahan, are identified as concentrated and distinctive commodities within their respective regions. Moreover, oil palm in Katibung and cocoa in Kalianda are recognized as fast-growing and highly competitive. Notably, oil palm in Katibung records the highest net shift value, positioning it as the leading commodity in the plantation subsector of South Lampung Regency.*

**Keywords:** *Economic shifts, economic structure, leading commodities, plantation*

### BACKGROUND

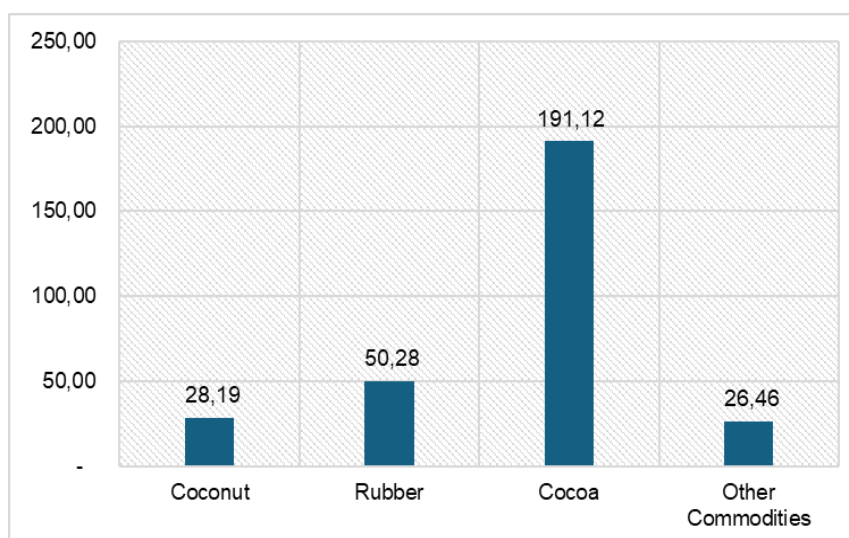
The agricultural sector in Indonesia constitutes a foundational pillar of national and regional economic development. Its role extends beyond fulfilling food requirements, encompassing substantial contributions to income generation, employment creation, and overall economic resilience (Oktavia et al., 2016). Agriculture remains a cornerstone of Indonesia's economic structure. The sector contributes 12.53% to the national Gross Domestic Product (GDP), plays a critical role in ensuring food security, supplies essential raw materials for various industries, reduces poverty levels, and employs approximately 30% of the national workforce (BPS, 2023). These multifaceted contributions, both direct and indirect, emphasize the strategic importance of agriculture. The multiplier effects arising from input-output linkages further reinforce its central role in supporting sustainable economic growth (Khairiyakh et al., 2015).

Among the various subsectors, plantations hold particular importance due to their role in producing high-value commodities that support regional development. The plantation subsector

significantly contributes to the Gross Regional Domestic Product (GRDP) across many provinces, highlighting its relevance in sustaining local economies (Putri et al., 2024; Ramadhani et al., 2021). It also supports social stability and enhances community welfare through rural employment and livelihood opportunities (Bungkuran et al., 2021). Despite facing structural challenges such as commodity price fluctuations and climate change, the subsector continues to make a positive impact on national economic performance (Pratinda & Harta, 2021). In 2023, plantations accounted for 30 percent of the agricultural sector's total GDP, making them one of the largest contributors among agricultural subsectors (BPS, 2023). This dominant share underscores the plantation subsector's strategic function in generating economic value and promoting inclusive local development (Wahyudin et al., 2024).

Lampung Province is recognized as one of Indonesia's leading regions in agriculture and plantation development, supported by fertile land resources and a substantial agricultural workforce (Ambya et al., 2022). More than 1,332,177 agricultural households in Lampung are actively engaged in farming activities, with the plantation subsector serving as a major contributor to the regional economy. Agricultural land use in the province accounts for over 56 percent of the total land area, reflecting the sector's centrality in regional development (BPS, 2024).

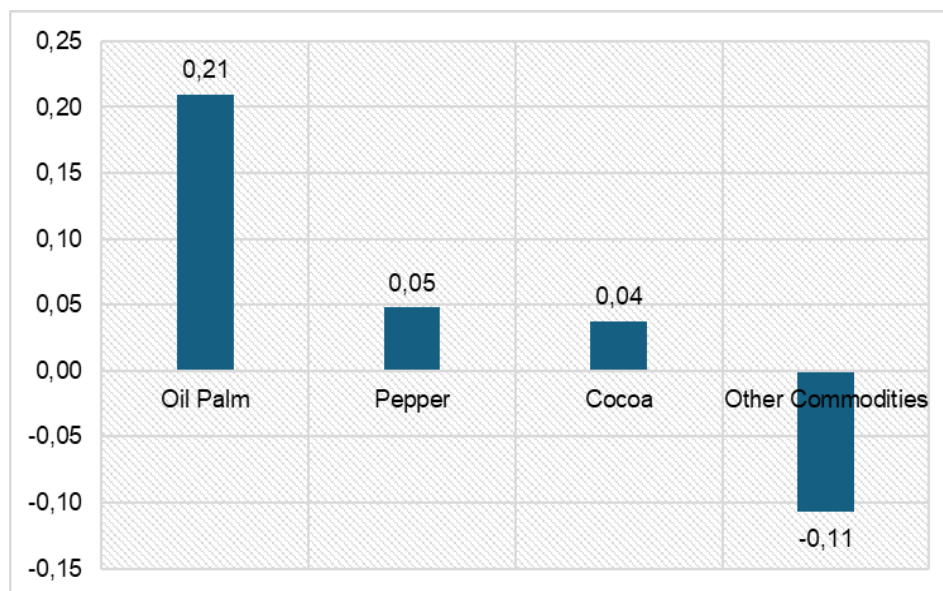
Among its administrative regions, South Lampung Regency holds significant potential for plantation development due to its strategic geographic location, abundant arable land, and a strong base of labor involved in agricultural production (Marlina et al., 2021). Key plantation commodities in the region include oil palm, coconut, rubber, coffee, cocoa, tobacco, and pepper. These commodities not only play a vital role in fulfilling local demands but also demonstrate strong potential as export-oriented products and as raw materials for downstream agro-industrial processing (Alaini et al., 2025; Muslih et al., 2013). As a result, South Lampung strengthens its position as a critical node in both regional and national economic networks. The contributions of the plantation subsector in this region are further illustrated in Figure 1.



**Figure 1.** Average Production Value of Plantation Commodities, 2019–2023 (Billion Rupiah)

Source: Processed data, 2025

The plantation subsector in South Lampung Regency has made a substantial contribution to local economic activities. Over the past five years, the sector has experienced significant structural shifts in the performance of various commodities. Cocoa has emerged as the commodity with the highest production value, indicating its increasing economic importance in the region. In contrast, tobacco has recorded the lowest production and shows a sharp declining trend, reflecting symptoms of structural decline. Oil palm has exhibited the most consistent growth pattern, suggesting its gradual transition into a new strategic commodity within the regional plantation economy. Coconut and coffee, which have traditionally held important positions, are facing increasing pressure. Coffee has suffered a marked decrease in production, pointing to challenges in generational renewal and cultivation adaptability. Rubber, although still a major contributor in terms of value, has shown signs of stagnation with limited growth momentum. Pepper continues to be classified as a minor commodity, but it retains potential for development despite its fluctuating performance. The development trends of the plantation subsector in this region are further illustrated in Figure 2.



**Figure 2.** Average Growth Rate of Plantation Commodities, 2019–2023 (%)

Source: Processed data, 2025

Currently, plantation development policies in Indonesia are gradually beginning to emphasize regional strengths and consider the specific characteristics of each area (Wahyudi et al., 2022). However, many plantation development programs have yet to generate optimal impacts on local economic growth (Casson et al., 2014). This issue is particularly critical, given that each region holds distinct comparative and competitive advantages that should inform development priorities (Milla et al., 2023). Consequently, the identification of plantation commodities with genuine development potential becomes a fundamental step. Without a data-driven and context-sensitive approach to identifying priority commodities, the plantation subsector faces the risk of ineffective interventions that fail to improve productivity, broaden market access, and enhance farmers' income levels (Amaliah et al., 2020).

Despite the sector's promising role and observable structural shifts in South Lampung, there has been no systematic identification of which plantation commodities truly possess comparative and competitive advantages. Existing development efforts still rely heavily on aggregate production data and do not account for spatial-temporal variations in commodity performance (Rahimi et al., 2024). Consequently, local plantation development often lacks a clear focus, resulting in suboptimal resource allocation, overlapping programs, and policies that are not aligned with the region's actual economic potential (Wang, 2021). This lack of analytical mapping represents a critical research gap that limits the effectiveness of plantation-based economic planning.

In facing the challenges of globalization and the fast-paced dynamics of markets, the plantation subsector is expected to adapt and innovate sustainably (Puspitasari et al., 2023). Selecting the right commodities is key to ensuring that the sector remains relevant and continues to make a significant contribution to regional economies. Additionally, understanding the patterns of growth and structural changes within the plantation subsector is equally important to ensure that development efforts are sustainable and adaptive to emerging changes (Taffesse & Tsakok, 2019).

Recognizing this analytical gap, the present study seeks to map and analyze plantation commodities in South Lampung Regency based on their comparative and competitive advantages. Specifically, this research analyzes commodities that are classified as basic and prospective, concentrated and distinctive, as well as competitive and rapidly growing. The findings are expected to provide an empirical foundation for regional policymakers in designing targeted plantation development strategies and strengthening the local agroindustrial base.

## RESEARCH METHODS

This study employs a quantitative descriptive approach, utilizing secondary data obtained through literature review and documentation techniques. These techniques involve accessing documents containing publications and reports from the Central Bureau of Statistics (BPS) of South Lampung Regency and the Department of Plantations of South Lampung Regency. The population for this study includes seven major plantation commodities: oil palm, coconut, rubber, coffee, cocoa, tobacco, and pepper, across 17 subdistricts in South Lampung Regency.

### Location Quotient (LQ)

The Location Quotient (LQ) is used to assess the base of a commodity in a particular region compared to a larger reference area, such as the national level (Tarigan, 2005). The interpretation of LQ values is as follows: an  $LQ > 1$  indicates that the commodity is a base commodity, meaning its production not only meets local demand but also has export potential. If  $LQ = 1$ , the commodity is classified as non-based, indicating that production is sufficient only to meet local needs, without the capacity for export. Finally, an  $LQ < 1$  means that the commodity is non-based, as its production is insufficient to meet local demand, requiring imports to fill the gap. To calculate LQ,  $w_{ij}$  represents the production value of the  $i$ -th plantation commodity in the  $j$ -th subdistrict, while  $w_j$  refers to the total production value of all plantation commodities in that subdistrict.  $W_i$  represents the production

value of the  $i$ -th commodity in South Lampung Regency, and  $W$  reflects the total production value of all plantation commodities in the entire regency.

$$LQ_{ij} = \frac{\frac{w_{ij}}{w_j}}{\frac{W_i}{W}}$$

### Dynamic Location Quotient (DLQ)

The Dynamic Location Quotient (DLQ) is an analytical method used to project the future potential of a commodity as a regional economic base, particularly within the plantation subsector (Widodo, 2006). This method incorporates growth rates over time to evaluate the dynamic shifts in the contribution of plantation commodities. In this analysis,  $g_{ij}$  represents the average growth rate of the production value of the  $i$ -th plantation commodity in the  $j$ -th subdistrict, while  $g_j$  denotes the average growth rate of the total production value of all plantation commodities in that subdistrict.  $G_i$  refers to the average growth rate of the  $i$ -th plantation commodity at the regency level (South Lampung), and  $G$  indicates the average growth rate of the total production value of all plantation commodities in the regency. The variable  $t$  represents the time span between the initial and final years used in the calculation. The DLQ values are interpreted as follows: a  $DLQ > 1$  suggests that the plantation commodity is expected to become a base commodity in the future, capable of meeting local demand and having export potential. A  $DLQ = 1$  implies that the commodity will likely remain non-based, sufficient only for local needs. Meanwhile, a  $DLQ < 1$  indicates that the commodity will continue to be non-based, with production falling short of local demand and requiring imports from outside the region.

$$DLQ_{ij} = \left[ \frac{\frac{(1 + g_{ij})}{(1 + g_j)}}{\frac{(1 + G_i)}{(1 + G)}} \right]^t$$

### Localization Index (LI)

The Localization Index (LI) is an analytical tool used to measure the degree of spatial concentration of a specific plantation commodity within a given region (Zahid et al., 2019). In this method,  $X_{ij}$  refers to the production volume of the  $i$ -th plantation commodity in the  $j$ -th subdistrict, while  $X_j$  represents the total production volume of all plantation commodities in that subdistrict.  $X_i$  indicates the total production of the  $i$ -th plantation commodity in South Lampung Regency, and  $X$  denotes the total production volume of all plantation commodities within the regency. An LI value that approaches zero signifies that the distribution of the commodity is evenly spread across locations, meaning its development does not favor any specific area. In contrast, an LI value nearing one indicates a strong concentration of the commodity in particular locations, suggesting that the commodity is more likely to develop successfully when focused in those specific areas.

$$LI_{ij} = \frac{1}{2} \sum_{j=1}^n \left( \left| \frac{X_{ij}}{X_i} - \frac{X_j}{X} \right| \right)$$

### Specialization Index (SI)

The Specialization Index (SI) is an analytical method used to assess the degree of distinctiveness or uniqueness of a region in the development of a particular plantation commodity (Daryanto & Hafizrianda, 2010). In this analysis,  $X_{ij}$  refers to the production volume of the  $i$ -th plantation commodity in the  $j$ -th subdistrict, while  $X_j$  represents the total production of all plantation commodities in that subdistrict.  $X_i$  indicates the total production of the  $i$ -th plantation commodity in South Lampung Regency, and  $X$  denotes

$$SI_{ij} = \frac{1}{2} \sum_{i=1}^n \left( \left| \frac{X_{ij}}{X_i} - \frac{X_j}{X} \right| \right)$$

### Shift-Share Analysis (SSA)

The Shift-Share Analysis (SSA) is a method used to assess the contribution of various components to changes in the production of plantation commodities over time (Tarigan, 2005). In this analysis,  $SSA_{ij}$  represents the net shift of the  $i$ -th plantation commodity in the  $j$ -th subdistrict. The analysis comprises three components:  $RS_{ij}$  or regional share,  $PS_{ij}$  or proportional shift, and  $DS_{ij}$  or differential shift. The regional share (RS) indicates the overall economic growth of the regency and reflects the portion of growth that would have occurred if the subdistrict's commodity had grown at the same rate as the regency's total economy. The proportional shift (PS) captures the relative growth performance of a specific commodity compared to the general economic growth of the regency. A positive value indicates that the commodity grew faster than the regency's average, while a negative value suggests slower growth. The differential shift (DS) measures the competitive advantage of the subdistrict in producing a specific commodity. A positive DS value implies that the subdistrict has a competitive edge in that commodity compared to other areas in the regency, whereas a negative value reflects a competitive weakness.

$$SSA_{ij} = RS_{ij} + PS_{ij} + DS_{ij}$$

$$RS_{ij} = R_a \times Y_{ij}$$

$$PS_{ij} = (R_i - R_a) \times Y_{ij}$$

$$DS_{ij} = (r_{ij} - R_i) \times Y_{ij}$$

### Klassen Typology

The analysis employed in this study includes the use of Location Quotient (LQ), Dynamic Location Quotient (DLQ), Localization Index (LI), Specialization Index (SI), and Shift-Share Analysis (SSA). LQ and DLQ are applied to identify the base and prospective plantation commodities in South Lampung Regency, using Klassen's Typology. Commodities located in Quadrant I from the previous analysis are further examined using LI and SI to assess the concentration level of plantation commodities and the distinctiveness of subdistricts in South Lampung Regency, which are then reclassified using Klassen's Typology. Commodities in Quadrant I from the previous analysis are further analyzed using SSA, which generates Differential Shift and Proportional Shift as a reference to assess the growth and competitiveness of agricultural commodities, also employing Klassen's Typology. Base, prospective, concentrated, distinctive, fast-growing, and highly competitive commodities are further analyzed using the total net shift value (SSA) to identify the leading

plantation commodities (Augia et al., 2025b). The visualization of the use of Klassen typology in this study can be seen in Figure 3.

<p><b>Quadrant III</b>                  Non-base                  Prospective                  Dispersed                  Distinctive                  Slow-growing                  Highly competitive                  LQ&lt;1, DLQ&gt;1, LI~0, SI~1, DS (-), PS (+)</p>	<p><b>Quadrant I</b>                  Base                  Prospective                  Concentrated                  Distinctive                  Fast-growing                  Highly competitive                  LQ&gt;1, DLQ&gt;1, LI~1, SI~1, DS (+), PS (+)</p>
<p><b>Quadrant IV</b>                  Non-base                  Non-prospective                  Dispersed                  Non-distinctive                  Slow-growing                  Low competitiveness                  LQ&lt;1, DLQ&lt;1, LI~0, SI~0, DS (-), PS (-)</p>	<p><b>Quadrant II</b>                  Base                  Non-prospective                  Concentrated                  Non-distinctive                  Fast-growing                  Low competitiveness                  LQ&gt;1, DLQ&lt;1, LI~1, SI~0, DS (+), PS (-)</p>

**Figure 3.** Klassen Typology of LQ-DLQ LI-SI DS-PS

Source: (Augia et al., 2025b)

**RESULT AND DISCUSSION**

**Analysis of Basic and Prospective Commodities**

*Location Quotient Analysis*

The plantation subsector study encompassed seven commodities across 17 subdistricts in South Lampung Regency, resulting in 119 commodity–subdistrict observation units. The commodities analyzed were oil palm, coconut, rubber, coffee, cocoa, tobacco, and pepper. Location Quotient (LQ) calculations, as presented in Table 1, indicate that all subdistricts possess at least one base commodity. Katibung and Palas Subdistricts exhibited the highest number of base commodities. Katibung Subdistrict serves as the base for four commodities: oil palm, coffee, cocoa, and pepper. Similarly, Palas subdistrict is a base for oil palm, coconut, cocoa, and tobacco. In contrast, several subdistricts were identified with only one base commodity. Tanjung Sari Subdistrict has rubber as its sole base commodity, whereas Kalianda Subdistrict has cocoa.

The commodities most frequently identified as base commodities across various subdistricts were oil palm, cocoa, and coconut. Oil palm was the base commodity in nine subdistricts, namely Natar, Jati Agung, Katibung, Merbau Mataram, Way Sulan, Sidomulyo, Candipuro, Palas, and Sragi. Cocoa was identified as the base commodity in eight subdistricts, including Natar, Katibung, Kalianda, Rajabasa, Palas, Penengahan, Ketapang, and Bakauheni. Meanwhile, coconut served as the base commodity in seven subdistricts, specifically Katibung, Merbau Mataram, Sidomulyo, Rajabasa, Penengahan, and Bakauheni.

**Table 1.** Average LQ of Plantation Commodities in South Lampung Regency for 2019–2023

Subdistricts	Commodities						
	Oil Palm	Coconut	Rubber	Coffee	Cocoa	Tobacco	Pepper
Natar	1,25	1,27	0,86	0,00	1,02	0,00	0,00
Jati Agung	3,59	0,36	3,64	0,00	0,23	0,00	0,00
Tanjung Bintang	0,10	0,77	4,00	0,23	0,36	3,34	0,00
Tanjung Sari	0,14	0,41	5,06	0,00	0,15	0,00	0,00
Katibung	2,96	0,65	0,07	1,16	1,11	0,00	1,97
Merbau Mataram	1,36	0,50	0,98	2,80	0,95	0,00	5,01
Way Sulan	2,12	0,19	0,30	0,00	0,89	0,00	33,55
Sidomulyo	2,10	3,13	0,54	1,17	0,71	0,00	0,00
Candipuro	4,04	1,12	1,33	0,00	0,62	0,00	0,00
Way Panji	0,00	0,76	3,83	0,00	0,08	38,82	0,00
Kalianda	0,05	0,97	0,03	0,64	1,37	0,93	0,10
Rajabasa	0,00	2,25	0,00	4,85	1,07	0,00	0,78
Palas	1,61	1,40	0,25	0,47	1,09	5,29	0,34
Sragi	11,95	1,02	0,85	0,00	0,00	25,42	0,00
Penengahan	0,10	0,68	0,09	1,06	1,37	0,04	1,80
Ketapang	0,84	1,63	0,46	0,32	1,03	0,99	4,43
Bakauheni	0,27	0,26	0,35	2,12	1,33	0,14	0,00

Source: Processed data, 2025

*Dynamic Location Quotient Analysis*

Based on the analysis of the Dynamic Location Quotient (DLQ), the subdistricts in South Lampung Regency generally show good prospects for most plantation commodities. For instance, Natar, Tanjung Sari, Sidomulyo, and Candipuro subdistricts serve as the base for five commodities. On average, subdistricts in South Lampung Regency have four to five commodities with potential to become base commodities in the future. However, Way Panji subdistrict has the fewest prospective commodities, with only coconut identified as a potential base. Despite this, the DLQ value for coconut in Way Panji is the highest compared to all other subdistricts where coconut is a base commodity. The results of the DLQ analysis are presented in Table 2.

**Table 2.** Average DLQ of Plantation Commodities in South Lampung Regency for 2019–2023

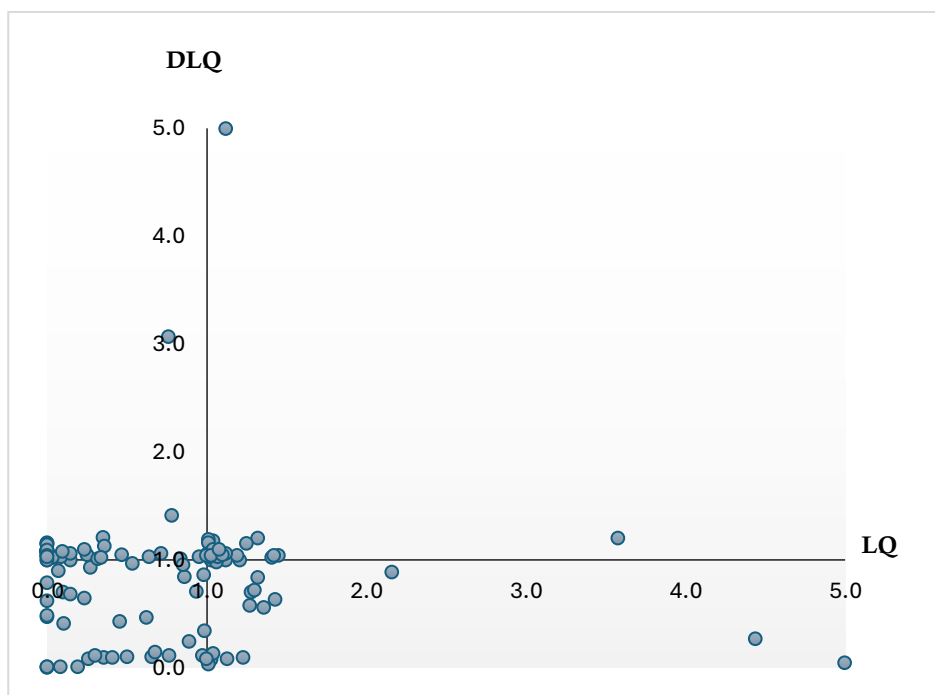
Subdistricts	Commodities						
	Oil Palm	Coconut	Rubber	Coffee	Cocoa	Tobacco	Pepper
Natar	1,02	0,08	0,84	4,30	2,16	2,65	2,74
Jati Agung	0,58	0,10	0,70	4,56	3,22	2,82	2,91
Tanjung Bintang	0,70	0,12	0,84	0,65	3,93	4,28	4,00
Tanjung Sari	1,04	0,10	0,63	4,21	2,41	2,60	2,69
Katibung	1,02	0,10	0,90	1,57	5,11	2,52	2,01
Merbau Mataram	2,20	0,10	0,87	1,95	1,73	2,75	1,89
Way Sulan	88,81	0,01	0,12	0,79	0,24	0,49	0,27
Sidomulyo	1,10	0,09	0,97	2,12	2,26	2,95	3,06
Candipuro	5,32	0,03	4,98	1,63	0,47	1,01	1,04
Way Panji	0,00	46,42	0,72	0,01	0,01	0,05	0,01
Kalianda	1,47	0,11	1,69	1,72	3,10	0,71	2,78
Rajabasa	0,48	0,08	0,62	1,37	4,57	2,00	9,96
Palas	0,98	0,13	2,08	2,15	2,27	1,91	1,40
Sragi	0,89	0,08	0,95	3,08	1,83	5,44	1,97
Penengahan	0,41	0,15	1,75	2,28	3,30	1,50	3,14
Ketapang	1,26	1,73	0,43	1,11	1,82	0,34	0,56
Bakauheni	0,93	0,08	5,55	2,21	1,79	0,68	1,72

Source: Processed data, 2025

The plantation commodities with the best growth prospects are coffee, cocoa, and pepper, with distribution across 14 subdistricts. Coffee is a prospective commodity in almost all subdistricts, except for Tanjung Bintang, Sidomulyo, and Way Panji. Cocoa also shows prospects in nearly all subdistricts, except for Way Sulan, Candipuro, and Way Panji. Pepper is predicted to have strong potential in most subdistricts, with the exception of Way Sulan, Way Panji, and Ketapang. Meanwhile, coconut and rubber are commodities with fewer prospective subdistricts. Coconut is only expected to be a base commodity in Way Panji and Ketapang, while rubber shows prospects in Candipuro, Kalianda, Palas, Penengahan, and Bakauheni subdistricts.

*Klassen Typology Quadrant of LQ-DLQ*

A total of 119 commodity–subdistrict observation units in the plantation subsector were analyzed using the Location Quotient (LQ) and Dynamic Location Quotient (DLQ) approaches. The purpose of this analysis was to identify base commodities (with  $LQ > 1$ ) and prospective commodities (with  $DLQ > 1$ ) in each subdistrict. The results of the analysis indicate that 28 observation units fall into Quadrant I of the Klassen Typology, suggesting that these commodities are not only economically dominant in their respective areas but also exhibit significant growth potential in the future. The representation of the Klassen LQ-DLQ typology can be seen in Figure 4.



**Figure 4.** Klassen Typology Analysis (LQ-DLQ)

Source: Processed data, 2025

Commodities that are both base and prospective are particularly strong for oil palm, tobacco, coffee, cocoa, and pepper. For example, oil palm in Candipuro subdistrict has an LQ of 4.04 and a DLQ of 5.32, indicating its status as a base commodity with strong expansion potential. Similarly, oil

palm in Way Sulan subdistrict has an LQ of 2.12 and a very high DLQ of 88.81, confirming its rapid production growth and contribution in recent years. Tobacco also stands out in Sragi subdistrict, with an LQ of 25.42 and a DLQ of 5.44, highlighting its dominance and strong development prospects. Tobacco in Palas subdistrict also shows a similar pattern, with an LQ of 5.29 and a DLQ of 1.91.

Coffee in Rajabasa and Merbau Mataram subdistricts is also categorized as both a base and prospective commodity, with LQ values of 4.85 and 2.80, respectively, and DLQ values of 1.37 and 1.95. These values indicate the importance of coffee in the local economy and its positive growth trajectory. Cocoa has emerged as a prospective commodity in several subdistricts, including Katibung, Rajabasa, and Penengahan, indicating its growing role as a strategic commodity. Similarly, pepper shows comparable potential in Merbau Mataram and Penengahan subdistricts.

**Analysis of Concentrated and Distinctive Commodities**

*Localization Index Analysis*

**Table 3.** Average LI of Plantation Commodities in South Lampung Regency for 2019–2023

Subdistricts	Commodities						
	Oil Palm	Coconut	Rubber	Coffee	Cocoa	Tobacco	Pepper
Natar	0,01	0,01	0,01	0,03	0,00	0,03	0,03
Jati Agung	0,07	0,02	0,07	0,03	0,02	0,03	0,03
Tanjung Bintang	0,03	0,01	0,09	0,02	0,02	0,08	0,03
Tanjung Sari	0,02	0,02	0,12	0,03	0,02	0,03	0,03
Katibung	0,09	0,02	0,04	0,01	0,00	0,05	0,07
Merbau Mataram	0,01	0,01	0,00	0,05	0,00	0,03	0,09
Way Sulan	0,01	0,01	0,00	0,01	0,00	0,01	0,02
Sidomulyo	0,03	0,05	0,01	0,00	0,01	0,02	0,02
Candipuro	0,03	0,00	0,00	0,01	0,00	0,01	0,01
Way Panji	0,01	0,00	0,03	0,01	0,01	0,15	0,01
Kalianda	0,08	0,01	0,09	0,03	0,03	0,06	0,08
Rajabasa	0,03	0,03	0,03	0,11	0,00	0,03	0,01
Palas	0,01	0,01	0,02	0,01	0,00	0,09	0,01
Sragi	0,01	0,00	0,00	0,00	0,00	0,04	0,00
Penengahan	0,08	0,03	0,08	0,01	0,03	0,09	0,12
Ketapang	0,01	0,02	0,01	0,01	0,00	0,02	0,10
Bakauheni	0,01	0,01	0,01	0,02	0,01	0,02	0,02
<b>Total</b>	<b>0,55</b>	<b>0,25</b>	<b>0,60</b>	<b>0,38</b>	<b>0,17</b>	<b>0,78</b>	<b>0,69</b>

Source: Processed data, 2025

The analysis of the Localization Index (LI) for plantation crops (Table 3) shows that tobacco has the highest concentration level, with a value of 0.78. The subdistrict with the highest tobacco production concentration is Way Panji, followed by Palas and Penengahan subdistricts. Pepper is highly concentrated in Penengahan, followed by Ketapang and Merbau Mataram subdistricts. Rubber exhibits the highest concentration in Tanjung Sari, followed by Tanjung Bintang and Kalianda subdistricts. Meanwhile, oil palm is most concentrated in Katibung, followed by Kalianda and Jati Agung subdistricts. On the other hand, commodities with low concentration levels or more widespread distribution across the region include coconut, coffee, and cocoa. These commodities have an LI value of less than 0.05 in all subdistricts, with an average LI per subdistrict not exceeding

0.02, indicating that no single subdistrict serves as the main production hub for these three commodities.

*Specialization Index Analysis*

The results of the Specialization Index (SI) calculations for plantation commodities in South Lampung Regency from 2019 to 2023 indicate a variation in production specialization across subdistricts. Generally, the SI values in most subdistricts tend to be low, suggesting that there is no significant specialization in plantation production in these areas. The SI values approaching zero in many subdistricts imply that plantation activities in these areas are not particularly prominent compared to other subdistricts. However, five subdistricts show a high level of specialization: Jati Agung, Tanjung Bintang, Tanjung Sari, Way Panji, and Sragi. Jati Agung specializes in oil palm, rubber, and cocoa; Tanjung Bintang specializes in rubber and cocoa; Tanjung Sari specializes in rubber and cocoa; Way Panji specializes in rubber, cocoa, and tobacco; and Sragi specializes in oil palm, cocoa, and tobacco. In contrast, Natar and Merbau Mataram subdistricts have the lowest specialization levels in South Lampung Regency, with an average SI value of 0.01.

**Table 4.** Average SI of Plantation Commodities in South Lampung Regency for 2019–2023

Subdistricts	Commodities							Total
	Oil Palm	Coconut	Rubber	Coffee	Cocoa	Tobacco	Pepper	
Natar	0,01	0,01	0,01	0,01	0,03	0,00	0,00	<b>0,08</b>
Jati Agung	0,07	0,03	0,22	0,01	0,25	0,00	0,00	<b>0,59</b>
Tanjung Bintang	0,03	0,01	0,25	0,01	0,21	0,00	0,00	<b>0,51</b>
Tanjung Sari	0,03	0,03	0,34	0,01	0,28	0,00	0,00	<b>0,69</b>
Katibung	0,06	0,02	0,08	0,00	0,03	0,00	0,01	<b>0,20</b>
Merbau Mataram	0,02	0,02	0,01	0,02	0,02	0,00	0,01	<b>0,10</b>
Way Sulan	0,06	0,04	0,06	0,01	0,09	0,00	0,11	<b>0,37</b>
Sidomulyo	0,03	0,10	0,04	0,00	0,09	0,00	0,00	<b>0,27</b>
Candipuro	0,10	0,01	0,03	0,01	0,12	0,00	0,00	<b>0,28</b>
Way Panji	0,03	0,03	0,24	0,01	0,30	0,11	0,00	<b>0,72</b>
Kalianda	0,03	0,01	0,08	0,00	0,12	0,00	0,00	<b>0,24</b>
Rajabasa	0,03	0,06	0,08	0,04	0,05	0,00	0,00	<b>0,26</b>
Palas	0,02	0,02	0,06	0,01	0,03	0,01	0,00	<b>0,15</b>
Sragi	0,31	0,01	0,01	0,01	0,32	0,04	0,00	<b>0,71</b>
Penengahan	0,03	0,02	0,08	0,00	0,12	0,00	0,00	<b>0,25</b>
Ketapang	0,01	0,04	0,05	0,01	0,07	0,00	0,02	<b>0,20</b>
Bakauheni	0,02	0,04	0,05	0,01	0,11	0,00	0,00	<b>0,24</b>

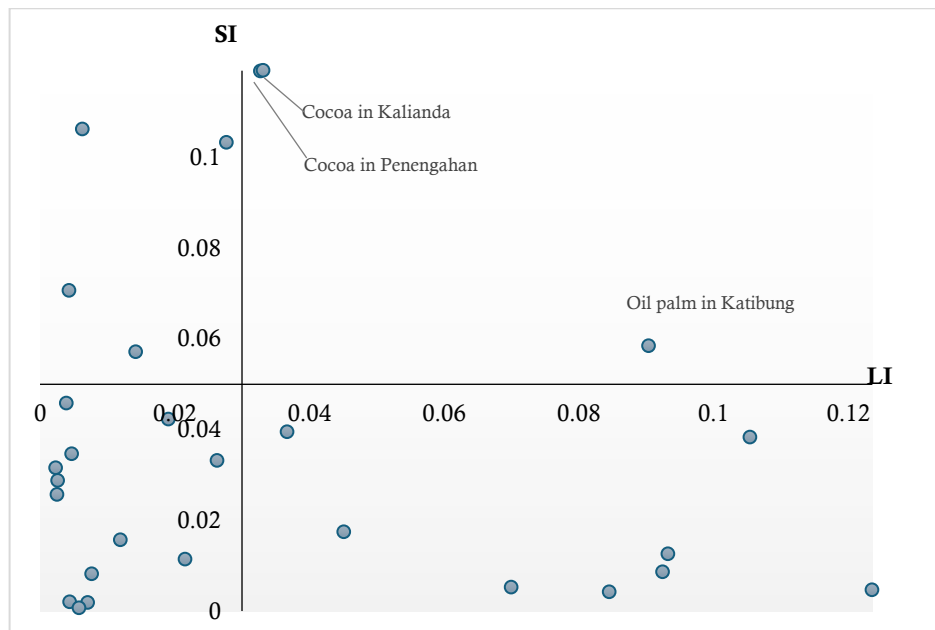
Source: Processed data, 2025

*Klassen Typology Quadrant of LI-SI*

At the regency level, oil palm, rubber, tobacco, and pepper are recorded with high Localization Index (LI) values, indicating that these commodities are dominantly distributed in certain subdistricts within South Lampung Regency. In contrast, commodities such as coconut, coffee, and cocoa exhibit a more evenly distributed production pattern, as reflected in their lower LI values. Variation across regions is also evident in the production specialization analysis. Several subdistricts, including Jati Agung, Tanjung Bintang, Tanjung Sari, Way Panji, and Sragi, recorded SI values approaching 1. This indicates the unique role of these subdistricts in producing specific Mapping Leading Plantation Commodities through Comparative and Competitive Advantage Analysis in South Lampung Regency (Augia et al., 2026)

commodities, making them potential centers for specialized commodity production with strong local characteristics.

When the analysis is focused on the commodity-subdistrict observation units, no LI or SI values are found to approach 1. To address this limitation, an analysis was conducted by setting a threshold based on the average values of all observation units. Units with LI and SI values above the average were categorized as regions with relatively high concentration and specialization.



**Figure 5.** Klassen Typology Analysis (LI-SI)

Source: Processed data, 2025

Based on this approach, from the 28 commodity-subdistrict observation units categorized into Quadrant I of the Klassen Typology based on Location Quotient (LQ) and Dynamic Location Quotient (DLQ), only 3 units also fall into Quadrant I based on LI and SI values. These three units are oil palm in Katibung, and cocoa in Kalianda and Penengahan. The combination of high production concentration and regional specialization strengthens the position of these commodities as base and prospective, as well as concentrated and distinctive within the plantation subsector of South Lampung Regency.

**Analysis of Fast-Growing and Highly Competitive Commodities**

*Shift Share Analysis*

Shift Share Analysis (SSA) is used to analyze the competitiveness of plantation commodities previously identified within the context of regional economic structure analysis. This analysis utilizes two time points, 2019 and 2023, to measure economic shifts. Based on the combination of Location Quotient (LQ), Dynamic Location Quotient (DLQ), Localization Index (LI), and Specialization Index (SI), several base and prospective commodities with distinctive concentrations were identified in Mapping Leading Plantation Commodities through Comparative and Competitive Advantage Analysis in South Lampung Regency (Augia et al., 2026)

various subdistricts, including oil palm in Katibung subdistrict, and cocoa in Kalianda and Penengahan subdistricts.

According to the SSA analysis, as shown in Table 5, oil palm in Katibung subdistrict has the highest Differential Shift (DS) value of 0.46, indicating the competitive advantage of this subdistrict in oil palm production compared to the regency. Moreover, the Proportional Shift (PS) value for oil palm in South Lampung Regency is also the highest at 0.9178, suggesting that the growth of this commodity is faster than the overall economic growth of the regency.

**Table 5.** Shift Share Analysis of Plantation Commodities in South Lampung Regency for 2019 and 2023

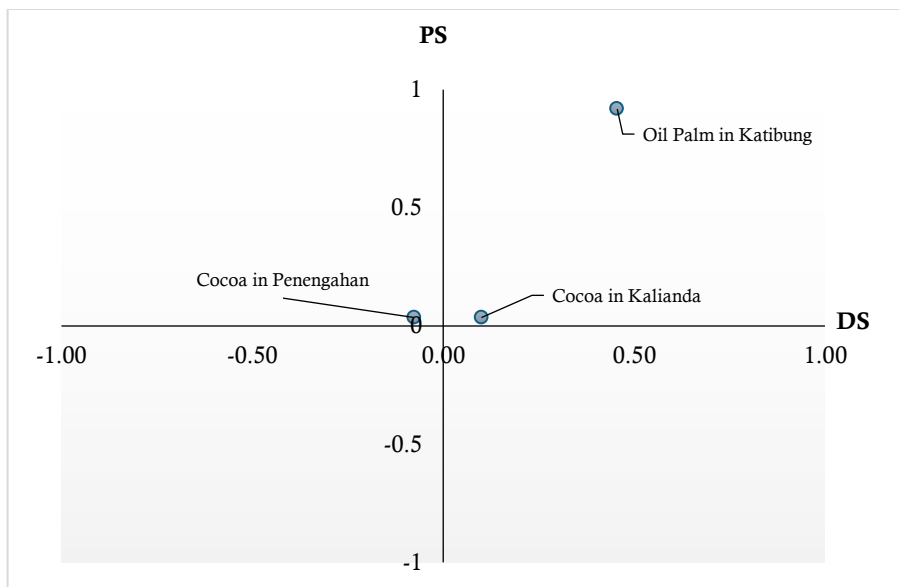
Subdistricts	Commodities						
	Oil Palm	Coconut	Rubber	Coffee	Cocoa	Tobacco	Pepper
Natar	0,36	0,40	0,16	0,00	-0,23	0,00	0,00
Jati Agung	-1,11	0,35	-0,17	0,00	0,21	0,00	0,00
Tanjung Bintang	-1,12	0,16	-0,29	-0,11	0,03	0,00	0,00
Tanjung Sari	0,12	0,63	-0,02	0,00	-0,06	0,00	0,00
Katibung	0,46	0,03	0,20	0,00	0,03	0,00	0,00
Merbau Mataram	2,05	0,59	0,30	0,01	-0,12	0,00	-0,44
Way Sulan	0,00	0,00	0,00	0,00	0,00	0,00	-1,08
Sidomulyo	0,07	-0,20	0,14	0,01	-0,14	0,00	0,00
Candipuro	14,48	-0,04	-0,18	0,00	-0,33	0,00	0,00
Way Panji	0,00	137,51	14,85	0,00	0,09	-0,11	0,00
Kalianda	0,78	0,63	0,83	0,01	0,10	-0,17	0,00
Rajabasa	0,00	0,64	0,00	0,01	0,40	0,00	1,47
Palas	-0,96	0,15	0,62	-0,01	-0,57	-0,04	-1,08
Sragi	0,41	0,19	0,53	0,00	0,00	0,00	0,00
Penengahan	-1,41	0,06	0,26	-0,01	-0,08	0,00	0,00
Ketapang	-1,44	-0,76	0,05	0,05	0,08	0,00	-1,08
Bakauheni	-1,09	0,56	-0,62	0,04	0,31	0,00	0,00
<b>Differential Shift</b>	<b>11,60</b>	<b>140,90</b>	<b>16,68</b>	<b>-0,02</b>	<b>-0,26</b>	<b>-0,31</b>	<b>-2,21</b>
<b>Proportional Shift</b>	<b>0,92</b>	<b>-0,17</b>	<b>-0,07</b>	<b>-0,91</b>	<b>0,04</b>	<b>-0,80</b>	<b>0,05</b>
<b>Regional Share</b>	<b>0,03</b>						

Source: Processed data, 2025

*Klassen Typology Quadrant of DS-PS*

The final stage of the analysis uses the Shift Share Analysis (SSA) approach, applying the Klassen typology based on the values of Differential Shift (DS) and Proportional Shift (PS). This approach aims to identify the commodity-subdistrict observation units that have experienced rapid growth and possess competitive advantages. Units that show positive DS and PS values are classified into Quadrant I, representing commodities that excel in the dynamics of regional development. The results of the analysis indicate that two of the three observation units previously located in Quadrant I in earlier stages of the analysis also have positive DS and PS values. In contrast, the cocoa commodity in Penengahan subdistrict only recorded a positive PS value, while its DS value was negative. Therefore, this unit does not meet the criteria as a fast-growing and highly competitive commodity according to the SSA approach.

All subsequent observation units were analyzed based on the final SSA values, which result from the sum of DS, PS, and Regional Share (RS). The RS value for the plantation subsector in South Lampung Regency is recorded at 0.03. Based on the calculations, oil palm in Katibung subdistrict recorded the highest SSA value at 0.46, while cocoa in Kalianda subdistrict obtained an SSA value of 0.10.



**Figure 6.** Klassen Typology Analysis (DS-PS)

Source: Processed data, 2025

Considering the highest SSA value, oil palm in Katibung subdistrict can be identified as the leading commodity in the plantation subsector. This commodity exhibits characteristics of being a base and prospective commodity, with a high concentration of production, distinct regional characteristics, fast-growth, high competitiveness, and significant economic shifts. Therefore, the development of oil palm in this area should be prioritized in the plantation subsector development strategy for South Lampung Regency.

**CONCLUSION AND SUGGESTION**

The base and prospective plantation commodities across South Lampung Regency include cocoa in eight subdistricts, oil palm and coffee in six subdistricts, tobacco and pepper in three subdistricts, and coconut and rubber in one subdistrict. Notably, the base and prospective commodities that are concentrated and exhibit distinct characteristics are oil palm in Katibung and cocoa in Kalianda and Penengahan. Among these, oil palm in Katibung and cocoa in Kalianda stand out as the commodities with the highest growth rates and competitiveness. Based on the highest economic shift values, oil palm in Katibung is identified as the leading commodity in the plantation subsector of South Lampung Regency. This commodity is characterized by being base, prospective, concentrated, distinctive, fast-growing, highly competitive, and experiencing the highest economic Mapping Leading Plantation Commodities through Comparative and Competitive Advantage Analysis in South Lampung Regency (Augia et al., 2026)

shift. Regional development policies should therefore focus on strengthening these key commodities through investment in processing industries, infrastructure, and farmer capacity building. Further studies are recommended to explore spatial and supply chain linkages between plantation commodity bases and agroindustry locations to support more sustainable regional development.

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