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ECONOMIC STRUCTURE AND ECONOMIC SHIFT ANALYSIS OF FOOD CROP COMMODITIES IN SOUTH LAMPUNG REGENCY

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Abstract. Research on the economic structure and shifts of the food crop commodities in South Lampung Regency is important to identify local potential that can be optimized to support regional food sovereignty. This study specifically aims to determine the leading commodities within the food crop subsector that should be prioritized for regional development. The research uses secondary data obtained from the Central Bureau of Statistics (BPS) and the Department of Food Crops, Horticulture, and Plantations of South Lampung Regency, focusing on soybean, sweet potato, maize, mung bean, rice, peanut, and cassava as the main food crops distributed across 17 districts, forming 119 commodity–district observation units. The methods used to identify the structure of food crop commodities in the economy of South Lampung Regency include the location quotient, dynamic location quotient, localization index, and specialization index, while the shift-share analysis was applied to examine the economic shifts of food crop commodities. Additionally, Klassen typology was used to classify commodity–district combinations into four quadrants. The results of the economic structure analysis show that 25 observation units fall into the base and prospective categories, with rice in Candipuro District and cassava in Jati Agung District also showing distinct concentration and characteristics. Based on the results of the economic shift analysis, rice in Candipuro District ranks highest in terms of growth and competitiveness, thus being designated as the region's leading commodity that can serve as a foundation for sustainable agricultural development planning and the strengthening of national food sovereignty.

Keywords: economic shift, economic structure, leading commodities, main food crops, South Lampung Regency

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INTRODUCTION

Agriculture in Indonesia plays a crucial role, not only provides food and raw materials but also becomes a main engine of national economic growth and a pillar of national resilience. The Indonesian goverment has considered food sovereignty as both an objective and a strategic direction for agricultural

development, emphasizing the principles of sovereignty, self-reliance, and equity in managing the national food system. Most Indonesians rely on agricultural sector, not only as livelihood but also as driver for inclusive and equitable economic development (Safitri *et al*., 2025; Syahyuti *et al*., 2015).

The food crop subsector holds a central role in national food security, because it produces key commodities prioritized to meet the essential needs of the population. Compared to other agricultural subsectors, it has one of the largest contribution in fulfilling domestic consumption, generating net export value, and creating gross added value (Marlinda *et al*., 2023). Food commodities constitute basic necessities that must be continuously ensured their availability, thereby positioning them not only as essential but also as strategic commodities in sustaining and fulfilling food consumption in society (Farid *et al*., 2018).

The food crop subsector serves not only as the primary source of national consumption but also as a major contributor to the income of farmers, employment creation in rural area, and the socio-economic stability of communities (Wijaksana *et al*., 2017). The important role of this subsector positions it as a vital pillar in maintaining the balance of rural economies while reducing the development disparities among the regions. The development of the food crop subsector is aimed at increasing production, which must be directed toward strengthening a food system that is equitable, resilient, and sustainable (Sihombing, 2022).

The agricultural sector contributes to 12.53% of the national income, with the food crop subsector is accounted for more than 18.02% of the sector's total contribution or generating 2.26% of national income (Kementerian Pertanian, 2024). At the regional level, agriculture is a leading sector within the economic structure of many areas, demonstrating its strategic position in regional economies as well as its role in meeting the population's essential needs (Anggreani *et al*., 2023).

The growth of food crop subsector production during 2021–2023 indicates that Lampung Province and South Lampung Regency demonstrated stronger performance compared to the national level. In 2021, all regional levels experienced contraction, with South Lampung recording the sharpest decline, exceeding both provincial and national levels. However, in 2022, all three levels showed recovery, particularly at the provincial and South Lampung Regency levels, where growth significantly outperformed the national rate. In 2023, overall growth declined, yet both the province and South Lampung Regency maintained positive figures, while the national level again contracted. This indicates that the agricultural system in Lampung Province, particularly in South Lampung Regency, is relatively more resilient and adaptive to external pressures. The growth trend of food crop subsector production is presented in Figure 1.

As one of major food production centers in Indonesia, Lampung has achieved significant growth in the food crop subsector. This achievement is supported by extensive agricultural land, decent labor capacity, and the presence of agricultural regulations and infrastructure that increasingly facilitate development of the agriculture (Gitosaputo & Irawan, 2024; Pratama *et al*., 2018; Salsabila *et al*., 2022). South Lampung Regency plays an important role in supporting regional food security. Based on the production value of each commodity, maize is the most dominant as it is accounted for 58.34% of the total food crop production value, followed by rice with 38.72% food crop production value. In contrast, the contributions of cassava, mung bean, sweet potatoe, soybean, and peanut remain relatively small.

Food crop production in South Lampung region faces complex dynamics which being driven by several challenges. The challenges include climate change which reduces productivity, the reluctance of younger generations to engage in agriculture, limited access to capital for farmers, and low levels of mechanization, all of which hinder efforts to achieve food sovereignty (Ferlin *et al*., 2024; Malau *et al*., 2023; Susanti & Kurniarti, 2025). In addition, although policies based on local potential have been developed, the implementation remains suboptimal, resulting in several agricultural development programs being poorly targeted and giving minimal impact for farmers (Juniarti, 2017; Khodijah *et al*., 2022).

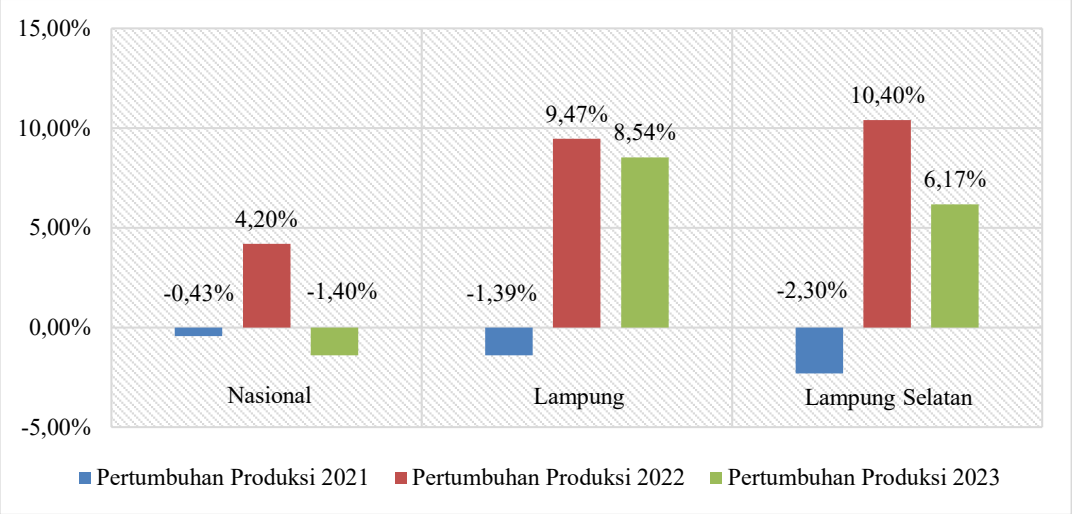

Figure 1. Food Crop Subsector Production Growth, 2021–2023
Source: Data Processed, 2025

A development strategy for the food crop subsector is required to address existing challenges, focusing not only on increasing production but also on strengthening the role of farmer as key actor in the food system. The identification of priority commodities based on local advantages serves as an initial step in designing programs that are well-targeted, sustainable, and aligned with farmers' interests. Such identification provides an essential foundation for this study to formulate development recommendations that are relevant to regional potential and supportive of local food sovereignty.

METHOD

This study employs a quantitative descriptive approach using secondary data obtained from literature reviews and documentation. The data analyzed consist of the production value of food crop commodities (in rupiah) by district, calculated based on production volume multiplied by the average farm-gate price. The data are sourced from official publications and reports of the Central Bureau of Statistics as well as the Department of Food Crops, Horticulture, and Plantations of South Lampung Regency. The data analyzed cover the period 2018–2023. The research population includes peanuts, cassava, soybeans, maize, sweet potato, rice, and mung beans as the main food commodities distributed across 17 districts throughout South Lampung Regency.

Location Quotient

The Location Quotient (LQ) is useful for identifying basic food crop commodities in the observed area (district) by comparing them with a reference area, such as the regency level (Tarigan, 2005). If the LQ value is greater than one (LQ>1), it indicates that the commodity is classified as a basic commodity, as its production exceeds regional consumption and holds potential for marketing beyond the area. An LQ value equal to one (LQ = 1) indicates that production is only sufficient to meet local needs, while an LQ value less than one (LQ < 1) indicates that production is insufficient to meet local demand, requiring supplies from outside the area. by the equation 1.

$$LQ_{ij} = \frac{\frac{w_{ij}}{w_j}}{\frac{W_i}{W}} \quad (1)$$

Dynamic Location Quotient

The Dynamic Location Quotient (DLQ) method is used to track food crop commodities with potential to become regional leading commodities in the future (Widodo, 2006). A DLQ value greater than one (DLQ > 1) indicates that a commodity is expected to become a leading commodity, as its production growth exceeds the average and it has the potential to meet local demand as well as be exported. A DLQ value equal to one (DLQ = 1) suggests that the commodity is likely to remain sufficient only for meeting local needs, while a DLQ value less than one (DLQ < 1) indicates that the commodity will likely remain insufficient to meet local demand and will require supply from outside of the local area. expressed by the equation 2.

$$DLQ_{ij} = \left[\frac{\frac{(1+gij)}{(1+gj)}}{\frac{(1+Gi)}{(1+G)}}\right]^{t} \quad (2)$$

Localization Index

The Localization Index (LI) is used to measure the extent to which a food crop commodity is concentrated in a specific region (Zahid *et al*., 2019). An LI value approaching the number of 0 (zero) indicates that the commodity is relatively dispersed across regions, implying that its development is not dependent on specific locations. Conversely, an LI value approaching the number of 1 (one) reflects a high concentration in particular areas, suggesting that the commodity has greater potential for optimal development when focused in those regions. The LI calculation is based on the ratio between the production volume of a given food crop commodity in each district and the total production of that commodity and all commodities at the South Lampung Regency level. by the equation 3.

$$LI_{ij} = \frac{1}{2}\sum_{j=1}^{n}\left(\left|\frac{X_{ij}}{X_i} - \frac{X_j}{X}\right|\right) \quad (3)$$

Specialization Index

The Specialization Index (SI) is used to identify the distinctiveness of a particular commodity in a given region (Daryanto & Hafizrianda, 2010). An SI value approaching the number of 0 (zero) indicates that the production structure of a district resembles that of the regency level, meaning there is no commodity specialization in the area. Conversely, an SI value approaching the number of 1 (one) suggests that a district is highly distinctive in producing a particular commodity compared to other regions. The SI calculation is based on the ratio of the production volume of a specific food crop commodity in each district to the total production of all commodities in that district, which is then compared with the production structure at the South Lampung Regency level.by the equation 4.

$$SI_{ij} = \frac{1}{2}\sum_{i=1}^{n}\left(\left|\frac{X_{ij}}{X_i} - \frac{X_j}{X}\right|\right) \quad (4)$$

Shift Share Analysis

Shift-Share Analysis (SSA) measures the performance of each component in relation to changes in the production of each food crop commodity between two points of time. (Tarigan, 2005). The SSA value represents the net shift of a commodity in each district, consisting of three main components: Regional Share (RS), Proportional Shift (PS), and Differential Shift (DS). Regional Share (RS) represents the overall economic growth in the reference area, namely the regency, indicating the expected growth of commodity production in each district if it were to follow the total growth rate of the regency. Proportional Shift (PS) illustrates the relative growth performance of a commodity compared to the regency average. A positive PS value indicates growth faster than the average, while a

negative value indicates slower growth. Differential Shift (DS) measures the level of a district's competitive advantage in producing a particular commodity; a positive value indicates an advantage over other districts, while a negative value reflects a competitive weakness.by the equation 5-8.

$$\pi SSAij = RSij + PSij + DSij \quad (5)$$
$$Sij = Ra \times Yij \quad (6)$$
$$\pi Sij = Ra \times Yij \quad (7)$$
$$\pi DSij = (rij - Ri) \times Yij \quad (8)$$

Klassen Typology Quadrant

The initial analysis results were mapped using the Klassen Typology, a classification method that divides the units of analysis into four quadrants. To describe the economic structure of food crop commodities in South Lampung Regency, the first step involved analyzing the Location Quotient (LQ) and Dynamic Location Quotient (DLQ) to identify basic commodities and those with potential to become basic commodities in the future. Commodities falling into Quadrant I were further analyzed using the Localization Index (LI) and Specialization Index (SI) to measure the level of concentration and distinctiveness in each district. The resulting LI and SI values were then reclassified using the Klassen Typology to confirm the position of priority commodities. The economic shifts of food crop commodities in South Lampung Regency were further analyzed in the subsequent stage. Quadrant I commodities identified through LI and SI were evaluated using Shift-Share Analysis (SSA) to assess growth and competitiveness via the Differential Shift and Proportional Shift components. Commodities that meet all criteria (being basic, prospective, concentrated, distinctive, fast-growing, and highly competitive) are designated as leading commodities. The determination is made by considering the total net shift value from SSA as the primary basis (Augia *et al*., 2025). The visualization of Klassen Typology application in this study is presented in Figure 2

Quadrant III	**Quadrant I**
Non Basic Prospective Dispersed Distinctive Slow Growth Highly Competitive *LQ<1, DLQ>1, LI~0, SI~1, DS (-), PS (+)*	Basic Prospective Concentrated Distinctive Fast Growth Highly Competitive *LQ>1, DLQ>1, LI~1, SI~1, DS (+), PS (+)*
Quadrant IV	**Quadrant II**
Non Basic Non Prospective Dispersed Non Distinctive Slow Growth Low Competitiveness *LQ<1, DLQ<1, LI~0, SI~0, DS (-), PS (-)*	Basic Non Prospective Concentrated Non Distinctive Fast Growth Low Competitiveness *LQ>1, DLQ<1, LI~1, SI~0, DS (+), PS (-)*

Figure 2. Klassen Typology LQ-DLQ LI-SI DS-PS
Source: Augia *et al*., 2025

RESULT AND DISCUSSION

Analysis Result of Basic and Prospective Commodity

Location Quotient (LQ)

Based on the Location Quotient (LQ) analysis in Table 1, this study examines seven main food crop commodities in South Lampung Regency. These commodities include rice, maize, soybean, cassava, sweet potato, peanut, and mung bean. Distributed across 17 districts, they generate 119 commodity–district observation units in Table 1.

Table 1. Average LQ of Food Crop Commodities in South Lampung Regency, 2019–2023

District	Commodity						
	Rice	Maize	Soybean	Peanut	Mung bean	Cassava	Sweet Potato
Natar	0.97	1.05	0.25	0.69	1.37	0.73	0.39
Jati Agung	0.67	0.91	0.28	0.46	0.56	6.88	1.71
Tanjung Bintang	0.80	1.07	1.08	1.30	0.21	2.24	0.40
Tanjung Sari	0.96	0.97	1.06	1.82	0.00	2.52	0.56
Katibung	0.34	1.51	0.25	0.19	0.00	0.06	0.07
Merbau Mataram	1.20	0.88	0.08	1.52	2.08	0.77	3.16
Way Sulan	1.54	0.67	1.60	0.00	0.00	0.06	0.00
Sidomulyo	0.96	1.08	0.30	1.11	1.11	0.11	1.11
Candipuro	2.09	0.30	0.20	2.39	0.20	0.08	1.95
Way Panji	1.95	0.39	10.73	0.00	0.00	0.00	0.00
Kalianda	0.88	1.14	0.37	0.33	1.73	0.04	0.24
Rajabasa	0.93	1.08	0.35	0.00	0.00	0.00	0.00
Palas	1.64	0.63	3.30	0.00	0.06	0.01	0.05
Sragi	1.21	0.86	1.84	3.34	8.62	0.21	7.62
Penengahan	0.43	1.45	0.31	0.80	0.00	0.00	0.00
Ketapang	0.72	1.25	1.24	1.99	0.00	0.00	0.06
Bakauheni	0.33	1.52	0.34	1.47	2.42	0.06	1.56

Source: Data Processed, 2025

The results of the average LQ calculation for food crop commodities during 2019–2023, as shown in Table 1, indicate that each district has varying commodity potentials. Maize emerges as the primary commodity, with the widest distribution across nine districts: Natar, Tanjung Bintang, Katibung, Sidomulyo, Kalianda, Rajabasa, Penengahan, Ketapang, and Bakauheni. Other commodities such as rice, soybean, peanuts, mung bean, and sweet potato are also identified as basic commodities in six to seven districts. These findings are consistent with previous research of Piecesha *et al*. (2025) in Nganjuk Regency, East Java, which shows that rice and maize serve as basic commodities in more than 13 districts, followed by soybean and peanut. Moreover, research by Nurlaela dan Abdullah (2025) in District Majene, West Sulawesi It also identifies maize, mung bean, and sweet potato as basic commodities. The consistency of these findings across different regions indicates that maize and rice hold strategic positions as primary food commodities that should be prioritized in regional agricultural development policies. Meanwhile, the analysis also shows that Sragi District has the highest number of basic commodities, including sweet potato, peanut, rice, mung bean, and soybean. In contrast, cassava emerges as the basic commodity with the fewest occurrences, while Natar District ranks lowest in the number of basic commodities among all districts.

Dynamic Location Quotient (DLQ)

The Dynamic Location Quotient (DLQ) analysis is used to assess the development prospects of food crop commodities in the future. This study observes the same seven commodities across 17

districts in South Lampung Regency. The calculation produces a distribution of DLQ values across a total of 119 commodity–district observation units, as presented in Table 2.

Table 2. Average DLQ of Food Crop Commodities in South Lampung Regency, 2019–2023

District	Commodity						
	Rice	Maize	Soybean	Peanut	Mung bean	Cassava	Sweet Potato
Natar	0.02	0.02	150.23	0.03	0.24	0.04	0.00
Jati Agung	1.16	0.89	0.12	1.39	1.77	1.04	3.51
Tanjung Bintang	4.79	2.66	0.03	3.25	1.09	0.24	0.89
Tanjung Sari	1.11	1.00	0.05	0.23	1.27	10.95	1.21
Katibung	2.32	2.19	0.12	1.72	3.78	0.05	1.62
Merbau Mataram	1.24	1.24	0.05	0.57	0.14	22.07	0.52
Way Sulan	1.05	1.08	0.64	2.42	1.44	0.29	1.51
Sidomulyo	3.33	2.44	0.19	0.69	1.32	0.52	0.88
Candipuro	1.50	0.60	0.05	2.78	1.51	0.44	8.09
Way Panji	1.35	2.16	0.02	2.78	1.65	1.00	1.73
Kalianda	2.69	2.21	0.12	0.55	0.20	3.18	1.38
Rajabasa	0.72	3.58	0.05	2.44	1.45	0.88	1.52
Palas	2.05	0.90	0.01	4.66	0.93	3.50	1.07
Sragi	1.01	0.54	0.05	7.62	1.28	1.53	2.17
Penengahan	1.09	2.47	0.07	0.47	2.16	1.31	2.27
Ketapang	1.52	1.71	0.02	0.32	3.01	1.82	3.15
Bakauheni	2.32	4.45	0.18	1.14	0.77	0.36	0.82

Source: Data Processed, 2025

Based on the analysis results in Table 2, rice is the food crop commodity with the greatest development prospects, as evidenced by its presence in 15 districts, which are Jati Agung, Tanjung Bintang, Tanjung Sari, Katibung, Merbau Mataram, Way Sulan, Sidomulyo, Candipuro, Way Panji, Kalianda, Palas, Sragi, Penengahan, Ketapang, and Bakauheni. This indicates that rice has strong growth potential across various districts in South Lampung Regency. Maize, mung bean, sweet potato, peanut, and cassava also show positive prospects, as they have DLQ values greater than 1 in more than half of the districts. In contrast, soybeans exhibit the lowest prospects, as they are found only in Natar District with a value of DLQ is greater than 1 (DLQ > 1). These findings indicate that soybean production in South Lampung Regency remains limited and has not shown a significant growth trend in other areas. This result aligns with previous research by Laikah *et al.*, (2025), which identified rice, maize, cassava, sweet potato, peanuts, and mung bean as prospective commodities in Kendal Regency, Central Java, while soybean exhibited limited prospects.

Klassen Typology Quadrants of LQ and DLQ

The study analyzed 119 commodity–district observation units using the LQ and DLQ methods to identify basic and prospective commodities in each district. Of those units, 25 fell into Quadrant I of the Klassen Typology. Commodities in this quadrant play a crucial role in the local economic structure and exhibit strong growth prospects. Quadrant I indicates that these commodities are not only basic within the districts but also have significant potential for further development. Based on the analysis presented in Figure 3, maize, rice, mung bean, cassava, peanut, and sweet potato are included in Quadrant I, with maize being the most widespread, appearing in 8 districts, followed by rice in 6 districts. Soybean, meanwhile, do not appear in Quadrant I in any district. Sragi District has the highest number of Quadrant I commodities, totaling four.

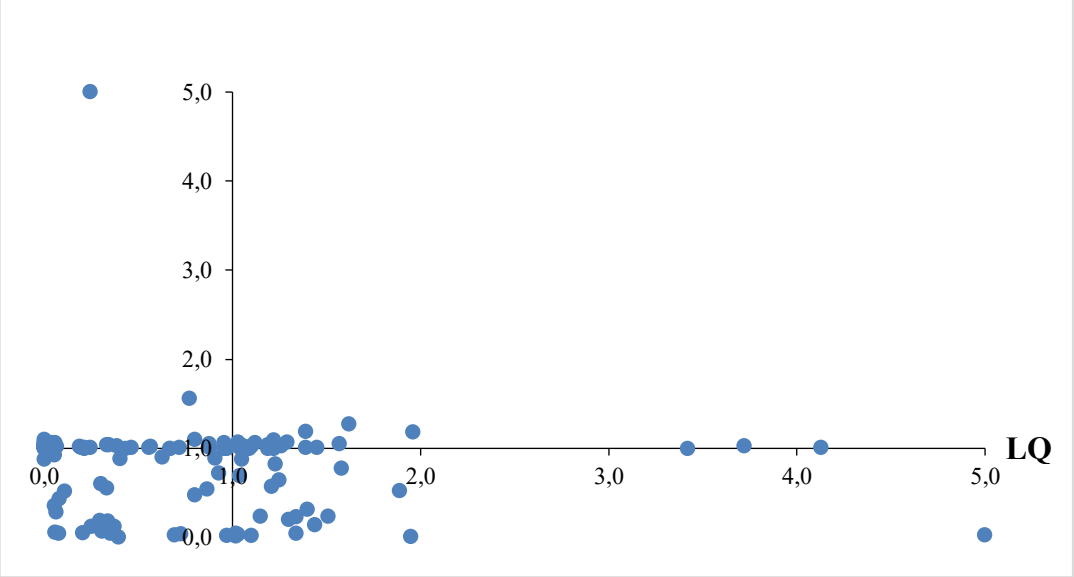

Figure 3. Klassen Typology Quadrant of LQ and DLQ
Source: Data Processed, 2025

Analysis Results of Concentration and Distinctive Commodity

Localization Index (LI)

The analysis of 25 commodity–district observation units was further conducted to determine the level of commodity concentration in specific districts. The Localization Index (LI) analysis of the food crop subsector for the 2019–2023 period shows that most food crop commodities in South Lampung Regency exhibit relatively concentrated production distribution patterns. Soybean, mung bean, cassava, and sweet potato have LI values above 0.5 or close to 1, indicating a high level of production concentration. Soybean is concentrated in Palas District, mung bean is concentrated in Sragi District, cassava is concentrated in Jati Agung District, and sweet potato is concentrated also in Sragi District. Meanwhile, maize, peanut, and rice are not concentrated in specific areas but are instead distributed across the entire regency. For example, rice in Natar, Tanjung Sari, and Merbau Mataram Districts has LI values close to 0, indicating that rice production in these areas does not exhibit a tendency to develop in specific locations only. A similar pattern is observed for maize, where Tanjung Bintang and Merbau Mataram Districts show LI values close to 0, suggesting that maize production is not concentrated in a single area but is distributed across various regions instead. These results are consistent with the findings of Zahid *et al.*, (2019), which found that sweet potato and cassava have high levels of concentration, while rice tends to have lower concentration levels and a more evenly distributed in Table 3.

Specialization Index (SI)

The analysis of 25 commodity–district observation units was further extended using the specialization index (SI) to identify distinctive production characteristics in each district. The SI results for food crop commodities in South Lampung Regency during 2019–2023 reveal variations in production specialization across regions. Overall, most commodities recorded low SI values, indicating the absence of significant specialization in the majority of districts. However, several districts such as Candipuro and Way Panji exhibited the highest SI values for rice and maize, with values of 0.21 and 0.20, and 0.19 and 0.17, respectively. These findings indicate that rice and maize are more dominantly produced in Candipuro and Way Panji compared to other districts. In addition, Katibung, Way Sulan, Palas, and Penengahan also recorded relatively high SI values for both commodities, identifying them as areas with notable specialization in rice and maize production. Conversely, soybean, groundnut, and

mung bean exhibited SI values close to zero across all districts, suggesting that these three commodities are relatively evenly distributed throughout South Lampung Regency without any district showing dominance or distinct specialization. Those results are consistent with the study result of Zahid *et al*., (2019), which reported that rice was identified as a distinctive commodity in 20 districts of Bogor Regency, West Java in Table 4.

Table 3. Average LI of Food Crop Commodities in South Lampung Regency, 2019–2023

District	Commodity						
	Rice	Maize	Soybean	Peanut	Mung Bean	Cassava	Sweet Potato
Natar	0.00	0.00	0.04	0.03	0.06	0.01	0.04
Jati Agung	0.02	0.00	0.04	0.03	0.03	0.29	0.03
Tanjung Bintang	0.01	0.00	0.03	0.01	0.02	0.05	0.02
Tanjung Sari	0.00	0.00	0.02	0.02	0.01	0.02	0.01
Katibung	0.02	0.01	0.02	0.02	0.03	0.02	0.02
Merbau Mataram	0.00	0.00	0.01	0.01	0.03	0.01	0.04
Way Sulan	0.01	0.00	0.02	0.01	0.01	0.01	0.01
Sidomulyo	0.00	0.00	0.02	0.02	0.03	0.02	0.02
Candipuro	0.04	0.03	0.03	0.06	0.03	0.03	0.04
Way Panji	0.01	0.01	0.10	0.01	0.01	0.01	0.01
Kalianda	0.01	0.01	0.03	0.03	0.06	0.05	0.04
Rajabasa	0.00	0.00	0.01	0.01	0.01	0.01	0.01
Palas	0.03	0.02	0.15	0.05	0.04	0.05	0.04
Sragi	0.00	0.00	0.05	0.06	0.19	0.02	0.17
Penengahan	0.03	0.02	0.04	0.03	0.05	0.05	0.05
Ketapang	0.01	0.01	0.05	0.06	0.04	0.04	0.04
Bakauheni	0.01	0.01	0.01	0.02	0.03	0.01	0.02
Total	**0.20**	**0.13**	**0.67**	**0.46**	**0.68**	**0.71**	**0.60**

Source: Data Processed, 2025

Table 4 Average SI of Food Crop Commodities in South Lampung Regency, 2019–2023

District	Commodity							Total
	Rice	Maize	Soy bean	Peanut	Mung bean	Cassava	Sweet Potato	
Natar	0.01	0.01	0.00	0.00	0.00	0.00	0.00	**0.03**
Jati Agung	0.07	0.03	0.00	0.00	0.00	0.09	0.00	**0.18**
Tanjung Bintang	0.04	0.02	0.00	0.00	0.00	0.03	0.00	**0.09**
Tanjung Sari	0.02	0.02	0.00	0.00	0.00	0.03	0.00	**0.06**
Katibung	0.13	0.14	0.00	0.00	0.00	0.01	0.00	**0.29**
Merbau Mataram	0.04	0.03	0.00	0.00	0.00	0.01	0.00	**0.08**
Way Sulan	0.11	0.09	0.00	0.00	0.00	0.01	0.00	**0.21**
Sidomulyo	0.01	0.02	0.00	0.00	0.00	0.01	0.00	**0.05**
Candipuro	0.21	0.20	0.00	0.00	0.00	0.01	0.00	**0.43**
Way Panji	0.19	0.17	0.00	0.00	0.00	0.02	0.00	**0.38**
Kalianda	0.02	0.04	0.00	0.00	0.00	0.01	0.00	**0.08**
Rajabasa	0.08	0.08	0.00	0.00	0.00	0.02	0.00	**0.17**
Palas	0.12	0.11	0.00	0.00	0.00	0.02	0.00	**0.25**
Sragi	0.04	0.04	0.00	0.00	0.00	0.01	0.00	**0.10**
Penengahan	0.11	0.13	0.00	0.00	0.00	0.02	0.00	**0.26**
Ketapang	0.05	0.07	0.00	0.00	0.00	0.02	0.00	**0.14**
Bakauheni	0.13	0.15	0.00	0.00	0.00	0.01	0.00	**0.30**

Source: Data Processed, 2025

Typology Quadrants of LI and SI

The analysis did not identify any LI or SI values approaching 1. Thresholds were therefore determined based on the average of all observation units. Units with values above the average were

categorized as having high concentration and distinctiveness, as illustrated in the Klassen typology quadrant in Figure 4.

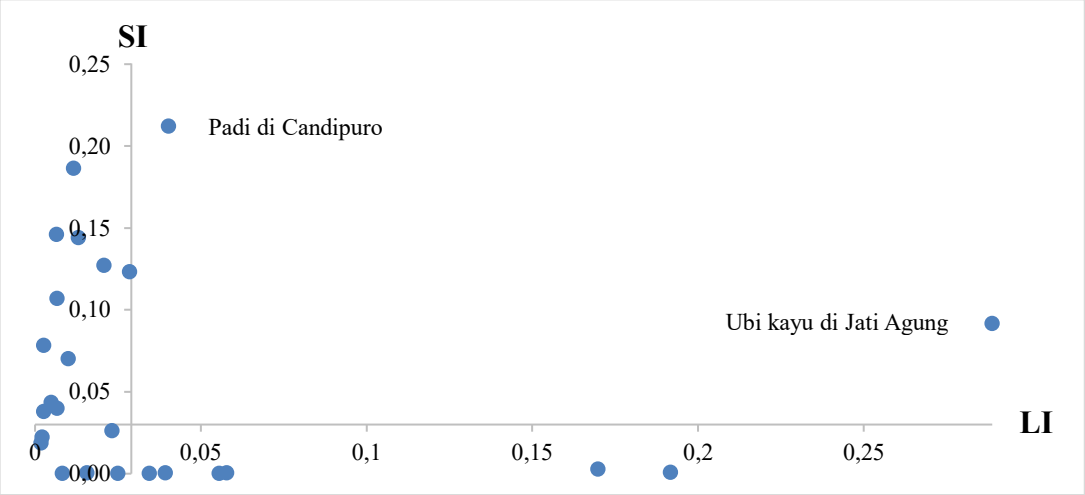

Figure 4. Klassen Typology Quadrants of LI and SI
Source: Data Processed, 2025

Of the 25 commodity–district observation units initially placed in Quadrant I based on LQ and DLQ values, only two units also fell into Quadrant I based on LI and SI values: rice in Candipuro District and cassava in Jati Agung District. These two units confirm their status as both basic and prospective commodities due to their prominent district-level production concentration and distinctiveness. In contrast, maize, soybean, peanut, mung bean, and sweet potato did not exhibit concentration or distinctiveness values above the average threshold. Since the classification requires both indicators (which are concentration and distinctiveness) to exceed the average, the remaining 23 commodity–district observation units did not meet the criteria.

Analysis Result of High Growth and Highly Competitive Commodity
Shift Share Analysis (SSA)

Shift-Share Analysis (SSA) was employed as a further analysis of the two previously identified observation units, namely rice in Candipuro and cassava in Jati Agung, to assess their economic competitiveness. The results of the agricultural economic shift analysis for food crop commodities are presented in Table 5.

This analysis compares two points of time, 2019 and 2023, to measure economic shifts. Based on the Shift-Share Analysis (SSA) results in Table 5, rice in Candipuro District has the highest Differential Shift (DS) value of 0.42, indicating that rice in this district is growing faster than the average economic growth of South Lampung Regency. In contrast, rice in Way Panji and Palas Districts shows negative DS values, reflecting weak production competitiveness. The Proportional Shift (PS) value for rice in South Lampung Regency is 0.0034, indicating that this commodity is experiencing slightly faster growth compared to the overall regency economic growth.

Cassava in Tanjung Sari District shows the highest DS value of 8.46, higher than in Jati Agung District. This indicates that Tanjung Sari has greater competitiveness in cassava production, even though Jati Agung is considered a basic and prospective area. The PS value for cassava in South Lampung Regency is -0.19, indicating that overall cassava growth is slower than the regency's economic growth. This finding aligns with previous research of Suryani *et al.* (2020) in Pinrang Regency, South Sulawesi, which reported rice as a highly competitive commodity in half of the districts, while cassava was dominant in only two districts. These results are also consistent with the study of Sunjaya *et al.,*

(2020) in Cipatujah District, Tasikmalaya Regency, West Java, which found rice to be a highly competitive and fast-growing commodity in nearly all districts, while cassava tended to exhibit low competitiveness and slow growth.

Table 5 Shift-Share Analysis of Food Crop Commodities in South Lampung Regency, 2019 and 2023

District	Differential Shift						
	Commodity						
	Rice	Maize	Soybean	Peanut	Mung bean	Cassava	Sweet potato
Natar	0.12	0.19	0.81	0.05	0.00	0.67	-0.74
Jati Agung	-0.09	0.09	5.45	0.33	-0.42	0.10	0.99
Tanjung Bintang	0.45	0.04	0.01	0.16	-0.42	-1.05	-0.74
Tanjung Sari	0.13	0.35	1.67	1.32	0.00	8.46	1.71
Katibung	-0.28	-0.09	-0.40	-0.30	0.00	-1.05	0.00
Merbau Mataram	0.23	0.65	-0.40	-0.30	-0.42	5.68	-0.74
Way Sulan	-0.01	-0.04	-0.05	0.00	0.00	2.64	0.00
Sidomulyo	0.36	0.37	3.62	-0.10	-0.23	-0.83	0.18
Candipuro	0.42	-0.52	-0.40	0.88	0.00	-0.59	2.46
Way Panji	-0.01	-0.55	-0.31	0.00	0.00	0.00	0.00
Kalianda	0.06	0.06	0.35	-0.30	-0.42	-0.61	-0.74
Rajabasa	-0.73	1.88	-0.36	0.00	0.00	0.00	0.00
Palas	-0.01	-0.68	-0.40	0.00	-0.42	0.43	-0.74
Sragi	-0.03	-0.74	0.78	0.79	0.29	0.67	0.03
Penengahan	-0.56	0.24	-0.40	-0.30	0.00	0.00	0.00
Ketapang	-0.43	-0.21	-0.25	-0.30	0.00	0.00	0.00
Bakauheni	-0.81	0.46	-0.40	-0.30	-0.42	-1.05	-0.74
Total Differential Shift	**-1.17**	**1.50**	**9.30**	**1.62**	**-2.48**	**13.46**	**0.91**
Proportional Shift	**0.00**	**0.02**	**-0.84**	**-0.95**	**-0.82**	**-0.19**	**-0.51**
Regional Share	**0.25**						

Source: Data Processed, 2025

Profit (π)

The profit earned from the sales of cassava and aloe vera fritter at P4S Rama Vera is the difference between total revenue and total costs. The total profit obtained by P4S Rama Vera in one month is IDR 924,621, or 23.2% of the total revenue generated.

Typology Quadrant of DS and PS

The Klassen typology is applied by considering the scores of Differential Shift (DS) and Proportional Shift (PS). Commodities with positive values on both indicators are categorized as highly competitive and fast-growing, placing them in Quadrant I. The results show that only rice in Candipuro District meets these criteria. In contrast, cassava in Jati Agung District has a negative PS score, indicating slow growth. Therefore, rice in Candipuro can be designated as a leading commodity in the food crop subsector of South Lampung Regency. The distribution pattern of observation units from the shift-share analysis is presented in Figure 5.

The observation unit of rice in Candipuro District holds the position as a leading commodity in the food crop subsector of South Lampung. Data from BPS (2024) indicate that South Lampung Regency has a significant harvested area and production of rice, making it one of the main contributors to rice output in Lampung Province. In 2023, Candipuro District contributed 12,053.22 hectares of harvested rice, accounting for 16.86% of the total harvested area in South Lampung. Total rice production in Candipuro reached 72,528.24 tons, or 17.62% of the regency's total production, making it as the district with the highest production.

The success of rice farming in Candipuro District is strongly influenced by the availability and management of irrigation water. Based on RPJPD Lampung Selatan tahun 2025-2045, part of the agricultural irrigation demand in this region is met through a swamp based irrigation system sourced from Sragi, Palas, eastern Candipuro, and Way Sulan Districts. The potential swamp irriagated area reaches 29,160 hectares, of which 27,490 hectares are optimally functioned, leaving around 1,670 hectares which are not yet fully serviced. Moreover, rice fields in Candipuro District also depend on rainfed irrigation covering 6,304 hectares, while one village employs semi-technical irrigation covering an area of 512 hectares (Amelia *et al.,* 2022).

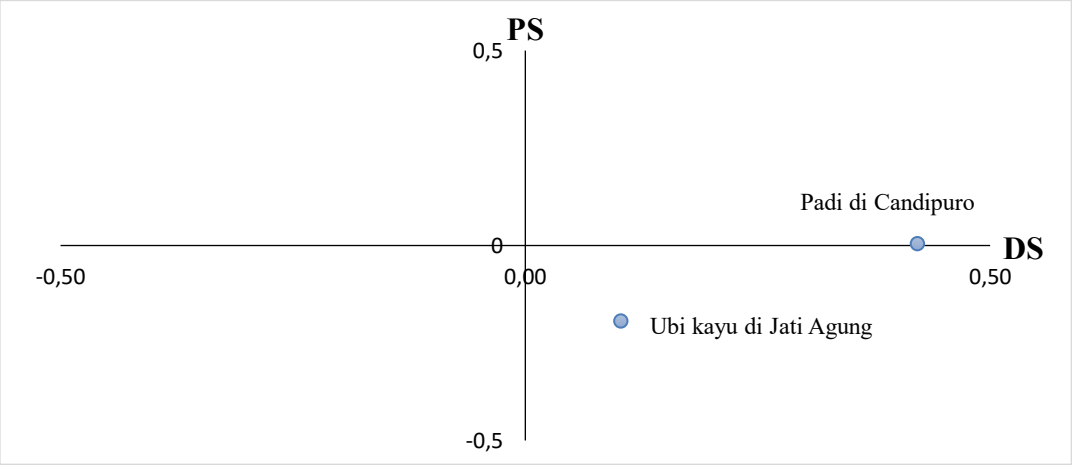

Figure 5. Klassen Typology Quadrants of DS and PS
Source: Data Processed, 2025

Research and community service activities have further strengthened the rice production base in Candipuro. Programs such as rat pest control, the development of biological control agents, and intensive extension services have proven effective in helping farmers reduce yield losses caused by pests. The application of biological agents has successfully minimized crop damage from pests and diseases, thereby improving productivity without relying entirely on synthetic pesticides (Suharjo *et al.*, 2024).

Technological factors and partnership models also strengthen the competitiveness of rice farming in Candipuro. Superior varieties such as Inpari 42 GSR have been proven to yield up to 9,794 kg/ha in swampy land, significantly higher compared to Ciherang (7,328 kg/ha) and Inpara-2 (6,121 kg/ha), which are also cultivated (Slameto *et al*., 2022). Efforts to increase competitiveness of the farmers including partnerships with third parties which are either state owned agricultural enterprise (PTPN) or private partners, supporting farmers through access to financing, provision of equipment, and guaranteed marketing, thereby expanding production capacity as well as enhancing the farming resilience (Pasaribu, 2015). The presence of government support and farmers' positive perceptions, such as the Rice Farming Insurance Program (AUTP) and the billing system program, also contribute to strengthening rice farming activities in the region (Gitosaputro *et al*., 2023; Hutagalung *et al*., 2021).

Risks of flood, drought, and the impact of global climate phenomena such as El Niño remain significant challenges for rice farmers in South Lampung. GIS-based vulnerability mapping studies indicate that parts of Candipuro are prone to drought, even though this risk can be mitigated through improving irrigation and water management. Farmers' ability to maintain income amid uncertain external conditions demonstrates strong adaptive strategies, thereby ensuring that the excellent potential of rice in Candipuro can be sustained over the long term (Amelia *et al.*, 2022; Pebbyola & Maimunnah, 2024).

Rice in Candipuro District has been established as the leading commodity of South Lampung, as it contributes the largest share of harvested area and production in the regency. This position is supported by the availability of irrigation, the application of advanced cultivation technologies, and strong institutional and partnership frameworks that enhance farmer competitiveness. Various government programs and field assistance have also helped maintain production stability amid the risks of flooding, drought, and climate change, ensuring that rice in Candipuro remains consistent and viable as a strategic regional commodity.

CONCLUSIONS

Food crop commodities with basic and prospective status in South Lampung Regency include maize in eight districts, rice in six districts, peanuts in four districts, sweet potato in three districts, as well as cassava and mung beans in two districts each. Among those, rice in Candipuro District and cassava in Jati Agung District stand out as commodities with high levels of concentration and distinctive district characteristics. Rice in Candipuro is particularly prominent, as it demonstrates the highest growth and competitiveness among all analyzed commodities. Based on the largest economic shift value, rice in Candipuro has been designated as the leading commodity in South Lampung, as it qualifies as a base commodity, is projected to remain a base commodity in the future (prospective), exhibits high concentration, is distinctive in the study area, has high growth, is highly competitive, and records the highest economic shift.

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