Agricultural sector development strategy in enhancing local economic competitiveness in Blitar City

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Abstract. The success of regional development could be seen through the level of economic growth among its sectors. In case of Blitar City, although it has limited natural resources, but environmental issues and food securities were the main priorities. Agriculture, as one of the sectors with rapid growth in Blitar City, showed a positive trend which was strengthened by an increase in vegetable consumption, so that food should become the main issue in development priorities. This study aimed to map all economic sectors and formulate appropriate strategies for the agricultural sector as the main driver of food security in Blitar City. This study conducted quantitative descriptive method using secondary data in the form of GRDP in Blitar City and East Java during 2015–2021. The data analysis method combined the Location Quotient analysis, Shift Share, Klassen typology, and SWOT analysis. The results of the study indicated that although the agricultural sector was not classified as the leading sector in Blitar City, but in the economic structure it was classified as a sector that has potential and is growing rapidly. This was the first sectoral competitiveness study before and during Covid 19 pandemic in Blitar City. Considering the urgency of maintaining food security, stakeholders should enhance the urban farming system, by utilizing digital technology in the business cycle so that the value of Blitar City's competitiveness would be higher in the agricultural sector.

1 Introduction

The progress of a country's economy can be seen from its economic growth, therefore each country always spurs its economic growth to continue to develop [1]. Economic growth is also one of the critical indicators in knowing the success of the development of a country and region [2]. The primary purpose of economic development is to improve the community's welfare [3]. The higher the economic growth rate, the better the level of public interest [2].

One of the critical factors of the high economic growth rate is the agricultural sector, given its high share of PDB [4]. This is because sustainable agrarian development will depend on available natural resources, and even this sector will determine the livelihoods of

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a country's population even though there has been a lot of urbanization. Therefore, if a country's agricultural industry is not good, it will impact the collapse of economic growth, which will affect employment followed by low numbers of GDP [5].

Blitar City is one of the autonomous regions in East Java and is included in the category of the second smallest city after Mojokerto City [6]. Although the city area is only around 32.57 km², Blitar City can show productivity in contributing to GRDP. Which shows that the economic development of Blitar City in 2015-2021 has increased the value of GRDP every year. Although in 2020, it had decreased due to the pandemic, it was able to grow again in 2021. According to Widianingsih et al., [7] the increase in GRDP and economic growth from year to year is one of the indicators of the success of economic development.

Environmental issues and food security are the top priorities in sustainable development in Blitar City. Food needs are the main topic in development priorities due to the increase in consumption of vegetable commodities every year in Blitar City. In 2020, the percentage of consumption of vegetable commodities was 2.94%, with a capita expenditure of Rp. 40,223 rupiah, then increased in 2021 to 3.87% with a capital expenditure of Rp. 59,649 rupiah. In line with the progress of economic development supported by an increase in GRDP in Blitar City, this proves that food needs still have the potential to be developed.

GRDP is formed based on the sectors that affect it, including the agricultural sector [8]. The agricultural industry of Blitar City certainly contributes significantly to regional development [7]. In addition to playing an essential role in producing foreign exchange, this is because the agricultural sector also acts as a source of life for most people [9]. The agricultural sector still plays a significant role in the Indonesian economy; research by Zulgani et al., [10] stated that the farming sector contributed 13.37% of GRDP in 2017 and became the second largest contributor to the economy after the processing industry sector.

The critical role of the agricultural sector in economic development is closely related to the community's welfare. Agricultural enterprises will always be necessary and running as long as humans need survival food, and still need agricultural products as raw materials in the industry [11]. As an agricultural country, agriculture in Indonesia is always directed to increase production output, income, and exports and expand equity by opening up employment opportunities. This shows that the agricultural sector is critical to developing because it affects food and industrial needs.

The rapid economic growth in Indonesia is also supported by the agricultural sector, which supports the community's financial activities in general [12]. The farm sector is not only the leading resource of the community in food but also a foreign exchange contributor to Indonesia. This is because the agricultural sector can absorb more workers than other sectors. Known as an Agrarian country, Indonesia mainly uses farm land and the community as a livelihood and the foremost field in meeting the needs. This certainly has an impact on improving the economy for the community. Such conditions also increase the competitiveness of Indonesian agricultural commodities, which occupy a relatively high position in the international market [12].

Seeing the rapid potential of the agricultural sector, this research will focus on developing the agricultural sector to support the food security of Blitar City. Identifying leading sectors can be used as input in evaluating policies that have been implemented and as material for planning new policies to optimize and improve the leading sector into a competitive area [13]. In addition, Prawoto [14], stated that mapping of leading sectors can also be helpful for the government to sharpen and pay attention to the priority scale of development programs accompanied by development strategy and investment focus in the direction of perspective. So that the focus of this research, in addition to identifying leading sectors, is also on development strategies that can improve a sector to be more competitive.
2 Research methods

This research uses a quantitative descriptive approach. Data is obtained secondarily from the website and publications of the Central Statistics Agency of Blitar City and East Java Province in the 2015-2021. The data includes ADHK GRDP based on Blitar City business fields and ADHK GRDP based on East Java Province business fields. Data processing techniques are carried out using four analytical techniques: Location Quotient, Shift Share, Klassen Typology and SWOT Analysis.

2.1 Location quotient analysis

This analysis is intended to look at groups of sectors classified as base and non-base so that a region can see and develop its leading sectors to encourage the regional and district/city economy [14]. The LQ formula used is as follows [15]:

\[ LQ = \frac{si}{S} / \frac{ni}{N} \]  

Information:
\( si \) = GRDP value in sector i of Blitar City  
\( S \) = Total value of GRDP of Blitar City  
\( ni \) = GRDP value in sector I of East Java Province  
\( N \) = Total value of GRDP of East Java Province

Using this formula, if the value of the LQ>1 coefficient is generated, it shows that a specialization or sector is produced that can be exported to other regions. If the value of the resulting coefficient LQ = 1, then the resulting industry can meet only the needs of its territory. Meanwhile, if the value of the LQ<1 coefficient indicates the absence of specialization or the resulting sector is non-base, the region requires imports from the other areas.

2.2 Shift share analysis

This analysis is used to determine the shift or change in the economy sectorally where the results describe the performance of the sectors of Blitar City compared to the upper region, namely East Java Province [16]. In its calculation, this analysis uses three components of the formula, namely national growth, balanced growth, and regional share growth [17].

National growth formula: 
\[ PNij = Ra \times Yij \]  

Information:
\( Ra \) = Ratio of changes in employment or production opportunities (East Java)  
\( Yij \) = Ratio of changes in employment or production opportunities (i-th sector of Blitar City) in the base year of analysis

Proportional growth formula: 
\[ PPij = (Ri-ra) \times Yij \]  

Information:
\( Ri \) = Ratio of changes in employment or production opportunities (i-th sector of East Java)  
\( Ra \) = Ratio of changes in employment or production opportunities (East Java)  
\( Yij \) = Ratio of changes in employment or production opportunities (i-th sector of Blitar City) in the base year of analysis
If the value generated by $PP_{ij}<0$, then the growth rate of employment or production opportunities in the $i$-th sector is categorized as slow. Vice versa, if the value produced by $PP_{ij}>0$, then the growth rate of employment or production opportunities in the first sector is categorized as fast.

Regional Share Growth Formula:

$$PP_{ij} = (r_i - R_i)Y_{ij} \quad (4)$$

Information:

$r_i =$ Ratio of changes in opportunity or production in Blitar City

$R_i =$ Ratio of changes in employment or production opportunities ($i$-th sector of East Java)

$Y_{ij} =$ Ratio of changes in employment or production opportunities ($i$-th sector of Blitar City) in the base year of analysis

If the value produced by $PP_{ij}<0$, then job or production opportunities in the first sector of Blitar City have good competitiveness. But if the value generated from $PP_{ij}>0$, then employment or production opportunities in the first sector of Blitar City do not have good competitiveness.

So that mathematically, the overall shift-share analysis formula is expressed as follows:

$$\Delta Y_{ij} = PN_{ij} + PP_{ij} + PP_{Wij} \quad (5)$$

### 2.3 Klassen typology

This analysis is used to determine the classification of typologies that are divided into sectoral and regional scopes. Using a combination of GRDP data and economic growth rate will later produce a classification of business sectors into 4 quadrants, namely [18]:

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<tr>
<th>Sectoral growth rate</th>
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<td>$r_{\text{sector}} \geq r_{\text{GRDP}}$</td>
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Information:

$Y \text{ sector}= $ Contribution of the $i$-th sector

$Y \text{ PDRB}= $ Average GRDP

$r_{\text{sector}} =$ $i$-th sector growth rate

$r_{\text{GRDP}} =$ GRDP growth rate

### 3 Results and discussion

#### 3.1 Featured sectors of Blitar City

In identifying leading sectors, the role of LQ analysis and shift share is needed to show the base or not of an industry and the resulting competitiveness. For this reason, the description of the analysis is interpreted below.

Based on the calculation of the Location Quotient analysis within a period of seven years (2015-2021) it shows that the economy of Blitar City is dominated by sectors classified as bases. This is known when the resulting LQ value is more than index 1. These sectors include Merlin [1], Financial services & social activities, Nation [19], Other service activities, Blitar [6], Health services & social activities, Darmanto [8], Government administration, defense & compulsory social security, Duriyyah [17], Educational services, Kristiantina [13], Real

The financial services and insurance sector is the most superior sector in Blitar City. This is because, in the 2017-2021 period, the Contribution of financial services and insurance business fields is relatively stable, with a range of 10-11 percent. Although in terms of the pace of economic growth, it had experienced a slowdown that year due to the Covid pandemic in 2020 it was able to bounce back at 0.59 percent, resulting in a contribution of up to 745.60 billion rupiah. Meanwhile, the agriculture, plantation, and fisheries sectors that are the focus of this study are included in the non-base category, where economic growth in this business field always has experienced fluctuations in the last five years, so the Contribution to GRDP contribution is not so significant. The main factor of the low Contribution to GRDP is that the assets owned in the form of land or land to develop the agricultural, plantation, and fishery sectors are not so broad, causing constraints on the productivity of the products produced.

Based on the results with the calculation of shift-share analysis techniques, sectors that have good competitiveness and industries that do not have good competitiveness in Blitar City are obtained as follows: in quadrant I, there is a sector providing food and drinking accommodation, and the real estate sector with a sector category that has fast growth and good competitiveness. In quadrant II, seven sectors are included in the category of having rapid growth but are not supported by good competitiveness, namely the manufacturing industry sector; water procurement; Construction; wholesale & retail trade; information and communication; educational services; and health services and social activities, in quadrant III with a sluggish growth category and poor competitiveness shown by the forestry and fisheries agriculture sector; mining & quarrying; government administration, defense, and compulsory social security. Meanwhile, in the last quadrant, with a classification of sluggish growth and a good contribution of competitiveness, was demonstrated by the electricity and gas procurement sector, transportation and warehousing, financial services, company services, and other services.

### 3.2 Economic structure of Blitar City

Within seven years (2015-2021), the position of the economic structure of Blitar City was obtained based on the analysis of the Klassen typology as follows: Blitar City, based on regional typology results, has an average economic growth of 0.04% and an average GRDP per capita of Rp. 312,974,00.83 million rupiah. While East Java as its reference region has the same average increase of 0.04%, the average GRDP obtained is much greater around Rp. 10,713,201.32 billion Rupiah. This shows that Blitar City is included in the kuadran III group, a potential area that can develop rapidly. Meanwhile, based on the results of sectoral calculations, Blitar City has eleven developed and rapidly growing sectors (Large trade & retail; Financial services & insurance; Transportation & Warehousing; Educational services; Procurement of electricity & gas; Real estate; Provision of food & drink accommodation; Company services; Government administration; Other services; Health services & social activities), two developed but distressed sectors (water procurement, waste management, waste, and recycling; information communication), two potential sectors (agriculture, forestry & fisheries; processing industry), and two relatively lagging sectors (mining & construction).
The economic structure of Blitar City in recent years has been dominated by the large trade and retail sectors, financial services & insurance, and educational services. Where the three industries are included in the quadrant I category, namely sectors that are developed and overgrowing, the industries that contribute the most to the economy of Blitar City are large trade & retail, car, and motorcycle repair. This is due to the geographical condition of Blitar City, which is in the middle of the region so it is strategic to become a trading center in the Greater Blitar region. As evidenced in 2021, this sector contributed 24.16%, which increased compared to 2020 of around 23.55%. The decline in the contribution of this business field in 2020 was due to export-import activities being hampered due to the pandemic and increasing in 2021 because community activities had begun to recover in the economy.

Meanwhile, the agriculture, forestry, and fisheries sectors that are the focus of this study are included in the third quadrant category. This is because it is inseparable from the high economic growth rate produced by Blitar City. Although the agriculture, forestry & fisheries sectors have fluctuated in the last five years, especially in 2020, which had decreased by around 0.17 percent, it was able to increase again in 2021 by 1.80 percent.

### 3.3 Agricultural sector development strategy in supporting food security in Blitar City

In calculating leading sectors through LQ analysis and shift share as well as Klassen typology to find out the economic structure of Blitar City, it can produce different views. In the scope of the leading sector, the agricultural industry is not one of the base sectors that can be excellent in supporting the economy of Blitar City. But within the scope of the economic structure, it falls into the category of potential sectors that can develop with the center. Blitar City is one of the second smallest cities after Mojokerto City, which has a strategic location in the center of the region. Thus making this city a trading center in the Greater Blitar region. The limited geography of Blitar City certainly affects the agricultural land of Blitar City so it ultimately impacts the lack of productivity of farm products. However, this can be overcome by the following strategies:

#### 3.3.1 Development of urban farming techniques

_Urban farming is_ a farming technique carried out to maintain the quality of life, especially in urban areas that do not have large enough land to farm by utilizing home yard land. The method is relatively easy with aquaponics, verticulture; Hydroponic; _wall garden_, and the cultivation of kale and catfish in buckets. Along with research conducted by Salim et al., (2019) stated that urban farming techniques are agricultural activities that refer to _metropolitan_ areas generally used for maintaining food security, food safety, greening the country, and improving environmental quality. Moreover, the study explained that although _urban farming_ has many benefits, it is necessary to pay attention to the challenges that must be faced; for example, the use of animal fertilizers Excessive will have an impact on the nature of the soil that is difficult to fertile, excessive use of pesticides leads to the failure of pre-harvested agricultural land and pollutes the environment. For this reason, recommendations are needed so that local governments can cooperate with the central government in drafting laws and regulations related to open-space agriculture, which can later facilitate the success of gardening programs and encourage the successful uptake of gardening programs.
3.3.2 Sustainable agriculture

Sustainable agriculture is a concept of utilizing resources, whether renewable or non-renewable, in the agricultural sector's production by minimizing negative impacts to a minimum. It is intended that agriculture can lead to the use of environmentally friendly biological products. This concept can be used in the agricultural sector of Blitar City to increase agricultural productivity and environmental quality. In line with the research conducted by Tian et al., [21], stated that there are several strategies for designing sustainable agriculture, namely by improving the following aspects: Merlin [1], increasing crop yields by 2.4% per year to meet the requirements for food in 2050. Nation [19] Improving the nutritional quality of plants. Blitar [6], improve the efficiency of using agricultural resources. and Darmanto [8] reduction in pesticide use.

3.3.3 Digitalization of agriculture

The importance of digitalization at this time is one of the reasons to improve the economy. Especially in the agricultural sector, the goal of digitization is to make the farming process more efficient and can reduce production costs by around 5-15%. In addition, the main goal is to be able to embrace the young generation who are technologically literate to participate in the agricultural sector, with the hope that the productivity of the farming sector can increase with the use of the internet and infrastructure based on information technology. In line research conducted by Krupina et al., [20], reveals that what makes the strength in analysis SWOT in the Republic of Tatarstan in the use of digitization in the agricultural sector is improving the quality of farm products, increasing agricultural productivity, reducing production costs and reducing agricultural production problems. In addition, Bangsa [19], in his research, said that digitalization is the correct form of strategy to be implemented in the agricultural sector because it can reach the rest of the mainly rural areas so that it can optimize the needs of farmers accurately and quickly. Because smart agriculture is agriculture that applies the use of information and communication technology into it [22].

4 Conclusion

It can be concluded from this study that based on the analysis of LQ da shift share, it is dominated by the large trade & retail, real estate, and financial services & insurance sectors. Its economic structure shows that the city of Blitar is categorized as a potential area and can develop rapidly. The agricultural sector that is the focus of this study is included in the non-base industry. Still, in the typology analysis, Klassen is categorized as a potential sector that can develop rapidly. So a strategy is needed to implement the development of urban farming techniques, sustainable agriculture, and digitalization of agriculture to support Blitar City's resilience.

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