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Amrizal Murdhani, Coki Ahmad Syahwier

Universitas Sumatera Utara, Medan 20155, Indonesia

amrizalmurdhani12@gmail.com

Abstract

This research is motivated by the relatively low economic growth rate in Asahan Regency despite its abundant natural resources. The study aims to identify and analyze the leading economic sectors in Asahan Regency that are competitive in driving economic growth. The research uses secondary data from the Gross Regional Domestic Product (GRDP) of Asahan Regency and North Sumatra Province for the years 2017-2021. To classify the economic sectors of Asahan Regency, the 2017-2021 data is used to identify potential and competitive sectors through the Location Quotient (LQ) and Shift Share analysis methods. The Shift Share analysis results indicate that the service sector is an advanced and rapidly growing sector in Asahan Regency, while the agricultural sector is advanced but under pressure. The LQ analysis results show that the agricultural and service sectors are the base sectors in Asahan Regency. Additionally, the Shift Share analysis reveals that the agriculture, mining and quarrying, electricity, gas, and water supply sectors, along with the service sector, possess competitive advantages in the economy of Asahan Regency. Therefore, based on the results of both analytical tools and sectoral analysis, it can be concluded that the leading sectors in Asahan Regency are those that are advanced, base, and competitive, particularly the agriculture and service sectors.

Keywords: Leading Sector; Potential Sector; Location Quotient; Shift Share

1. Introduction

Economic growth measures the performance of an economy's development. In macroeconomic analysis, the economic growth rate of a region is measured by the growth of real regional gross domestic product (GRDP) or real national income achieved by a country [1]. To achieve a certain level of economic development in an open economic system, the role of the government is crucial. Similarly, economic growth is one of the benchmarks that can be used to enhance development in a region across various economic sectors, indirectly reflecting the level of economic change in that area. The economic growth rate is defined as the increase in GRDP, regardless of whether this increase is greater or smaller than the population growth rate and whether or not there are changes in the economic structure.

The GRDP growth rate of Asahan Regency is contributed by nine sectors: 1) Agriculture, 2) Mining and Quarrying, 3) Manufacturing Industry, 4) Electricity, Gas, and Water Supply, 5) Construction, 6) Trade, Hotels, and Restaurants, 7) Transportation and Communication, 8) Finance, Insurance, Real Estate, and Business Services, and 9) Services [2]. In 2022, the GRDP of Asahan Regency at current prices (ADHB) reached 27.279 trillion Rupiah. The agriculture sector was the main contributor, accounting for 12.021 trillion Rupiah. This was followed by the manufacturing industry sector with 5.512 trillion Rupiah, and the trade, hotel, and restaurant sector with 4.656 trillion Rupiah. The remaining sectors contributed a total of 5.090 trillion Rupiah. The increase in GRDP from 2017 to 2021 is as follows in Table 2.

Based on the percentage distribution table for Asahan Regency, the sectors with the largest contributions are agriculture at 37.91%, manufacturing industry at 23.75%, and wholesale and retail trade at 20.21%. Meanwhile, other sectors have relatively low contributions to GRDP, with many sectors remaining stagnant or either not increasing or declining. To foster economic growth, as measured by GRDP development, it is essential to focus on economic development based on leading sectors. This approach not only accelerates economic growth but also influences fundamental changes in the regional economic structure.

Leading sectors provide significant indications for both national and regional economies. These sectors are likely to grow faster compared to others in a region, especially with supporting factors such as capital accumulation, labor force growth, and technological progress. Investment opportunities can also be created by leveraging the potential of leading sectors within a region.

Table 1. GRDP of Asahan Regency 2018-2021 Based on 2010 Constant Prices (Billion Rupiah)

Num	Sector	Year				
		2017	2018	2019	2020	2021
1	Agriculture	9957.59	10558.75	11169.16	11365.53	12021.76
2	Mining and Quarrying	47.66	50.03	52.97	52.37	53.77
3	Manufacturing Industry	4958	5155.37	5361.63	5401.35	5512.64
4	Electricity, Gas, and Water Supply	22.72	23.92	24.76	26.05	27.25
5	Water Supply, Waste Management, Waste, and Recycling	13.29	13.47	14.31	14.81	15.18
6	Construction	1489	1570.83	1667.39	1568.04	1619.57
7	Wholesale and Retail Trade, Repair of Motor Vehicles and Motorcycles	4013	4281.48	4576.02	4525.59	4656.7
8	Transportation and Warehousing	816	854	912	874	873
9	Services	701	744	791	788.17	786
	GDRP	22018.26	23251.85	24569.24	24615.91	25565.87

Source: Asahan Regency Central Bureau of Statistics, 2022

Table 2. Percentage Distribution of GRDP of Asahan Regency at Constant Prices by Economic Sector 2017-2021 (percent)

Num	Sector	Year				
		2017	2018	2019	2020	2021
1	Agriculture	36,63	36,04	35,48	36,22	37,91
2	Mining and Quarrying	0,20	0,20	0,21	0,20	0,19
3	Manufacturing Industry	23,75	23,42	22,95	23,24	23,05
4	Electricity, Gas, and Water Supply	0,07	0,07	0,07	0,07	0,07
5	Water Supply, Waste Management, Waste, and Recycling	0,06	0,06	0,06	0,06	0,06
6	Construction	6,89	7,13	7,28	6,84	6,59
7	Wholesale and Retail Trade, Repair of Motor Vehicles and Motorcycles	18,65	19,36	20,21	19,91	19,47
8	Transportation and Warehousing	3,60	3,57	3,61	3,45	3,26
9	Services	3,48	3,45	3,46	3,42	3,15
	GDRP	100,0	100,0	100,0	100,0	100,0

Source: Asahan Regency Central Bureau of Statistics, 2022

These sectors contribute not only to national and domestic product formation but also provide major employment opportunities for the population. Economic sectors that absorb labor and can indicate national and domestic economic growth include: 1) Agriculture, 2) Mining and Quarrying, 3) Manufacturing Industry, 4) Electricity, Gas, and Water Supply, 5) Construction, 6) Trade, Hotels, and Restaurants, 7) Transportation and Communication, 8) Finance, Insurance, Real Estate, and Business Services, and 9) Services. Therefore, each local government must identify the base sectors that are leading and potential in the regional economy. This is closely related to regional development enhancement and strategic planning, as well as the government's ability to monitor economic structural shifts and labor absorption year by year. To achieve this, the government must analyze leading and potential sectors by comparing them with larger regional (provincial or national) economies.

2. Literature Review

Development is a dynamic process aimed at achieving a higher level of community welfare. The development of a region, whether as a government capital, trade and service center, or socio-cultural hub, needs to be directed, regulated, and nurtured to meet the expectations of the community as a whole. Additionally, the living conditions in rural areas need improvement to enhance community satisfaction. According to [3], the definition of economic development is addressed by several economists. Economic development is a process of integration between population growth and technological advancement. An increase in a country's population must be accompanied by technological progress in production to meet domestic demand. Sadono defines economic development as economic growth combined with change.

This means that the presence of economic development in a country in a given year is not only measured by the increase in production, prices, and services from year to year but also needs to be assessed by other changes occurring in various aspects of

economic activities. These include advancements in education, technology, healthcare, infrastructure, and improvements in income and community prosperity. Therefore, economic development encompasses various aspects of change in economic activities, indicating how much the level of economic development in a country has progressed.

According to [4], several requirements for economic development are proposed:
1. Development should be based on the domestic or regional economic capacity. Initiatives to improve conditions and create material progress must originate from the community.
2. It should address market imperfections, as market imperfections disrupt factor mobility and hinder sectoral expansion and development.
3. Structural changes are required, meaning the transition from a traditional agricultural society to an industrial one, characterized by the expansion of the secondary and tertiary sectors and the contraction of the primary sector.
4. Capital formation is a crucial and strategic factor in economic development.
5. Appropriate investment criteria aim to ensure investments are most beneficial to society while considering the dynamics of the economy.
6. Socio-cultural requirements necessitate modifications in social and cultural perspectives and organization to align with development goals.
7. Administration involves administrative tools for planning

According to [5], a leading sector is one that is influenced by endowment factors. These factors further develop through investment activities and become a cornerstone of economic activities. The criteria for leading sectors can vary widely. In the context of national income by economic sector or production sector, agriculture in Indonesia is broadly classified into five subsectors: food crops, plantations, fisheries, forestry, and animal husbandry [5]. Each subsector is further detailed into more specific subsectors based on classification criteria. The value added by the agriculture sector in GDP calculations is the sum of the value added from these subsectors, with calculations performed by the Central Bureau of Statistics.

The value added of these subsectors is calculated using production values. The price level used for calculating production value is the market trading price. The food crops subsector is also referred to as the smallholder agriculture subsector, as food crops are typically cultivated by individuals rather than corporations or the government. This subsector includes commodities such as rice, corn, cassava, sweet potatoes, peanuts, soybeans, vegetables, and fruits. The significance of a leading sector in the regional economy is determined by several factors: firstly, it exhibits high growth rates; secondly, it has a relatively large employment absorption rate; thirdly, it has strong linkages with other sectors, both forward and backward; and fourthly, it can generate high added value.

The initial activity in regional development planning involves assessing the current conditions, issues, and development potentials. According to [6], the core issue in development is focusing on policies based on the uniqueness of the region, utilizing local human resources, institutions, and physical resources. Regional economic development, while referring to leading sectors, also impacts economic growth and structural changes. [6] defines a leading sector as one with better potential, performance, and prospects compared to other sectors, thereby expected to stimulate downstream business activities.
1. leading sector can also be defined as one that drives the economic growth of the surrounding region, indicated by parameters such as: a. The sector should produce goods with substantial demand, leading to rapid growth.
2. The sector should have a high multiplier effect.
3. It should have high added value potential.

Identifying leading sectors is crucial for regional economic development planning, particularly in the current era of regional autonomy, where regions have the authority to create policies aligned with their potential to accelerate economic development and enhance community prosperity.

3. Methods

The research is qualitative, which focuses on understanding the quality of meaning (nature and essence) of the subject under study. The data used in this research are secondary data, including the Gross Regional Domestic Product (GRDP) for each economic sector in Asahan Regency and North Sumatra Province from 2017-2021. This data is obtained from the Central Bureau of Statistics (BPS) of North Sumatra, the Central Bureau of Statistics of Asahan, various literatures, the internet, and other sources. The data collection technique involves direct recording of time series data for analysis using:
1. Location Quotient (LQ) Method

    According to [7], Location Quotient, or LQ, is a comparison of the size of an industry sector in a specific region against its national role.
2. Shift Share Method

    This analysis compares the growth rates of various industry sectors in a specific region with those at the national level. However, this method provides a more detailed view compared to the Location Quotient method. The Shift Share method explains the factors behind changes in several variables

4. Results

The agriculture and services sectors are identified as leading sectors in the economy of Asahan Regency. The research results from 2017-2021 indicate that these two sectors are fundamental to the economy of Asahan. Therefore, it is necessary for the government, particularly the local government responsible for managing the Asahan region, to further develop the existing potentials in this area. The agriculture sector, being the largest contributor to Asahan's economy, must be maintained and further developed. This includes expanding agricultural land, improving infrastructure directly related to agriculture, and exploring other methods of enhancement. The agriculture sector, which includes food crops, plantations, animal husbandry, forestry, and fisheries, has shown overall growth year by year. In 2010, Asahan Regency was among the top producers of agricultural products in North Sumatra Province. For instance, the production per hectare in Asahan was 417,494 tons. Additionally, the subsector of food crops has consistently grown over the years. In 2010, Asahan was noted as the largest rice producer in North Sumatra with a production of 464,702 tons, or about 13.17% of the total rice production in North Sumatra. Asahan also consistently achieved rice surpluses each year. Similarly, corn production reached 311,724 tons, accounting for 26.72% of the total corn production in North Sumatra, placing it first in the province.

Other crops also ranked high in production within North Sumatra, such as cassava with 373,304 tons, sweet potatoes with 35,146 tons, and peanuts with 4,958 tons. This positions Asahan as a self-sufficient food-producing region. The region has maintained food self-sufficiency for over a decade. The plantation subsector further strengthens agriculture as a leading sector. Currently, the value of the agriculture sector is nearly 50% supported by the plantation subsector. Since 1995, agricultural lands in Asahan have been converted to plantations, particularly palm oil. The production of palm oil and the area of palm oil plantations in Asahan have continued to increase. The area of palm oil plantations has expanded to 27,155 hectares with a total production of 111,011 tons. The rubber plantations in Asahan, consisting of both smallholder and private plantations, cover 13,280.4 hectares. The sales of rubber products are significantly supported by the presence of PT Good Year Sumatera Plantations (established in 1970), now taken over by PT Bridgestone Sumatera Rubber Estate. Although it has its own plantations, it still processes and purchases rubber from smallholders before selling it outside the region. Additionally, other plantation crops in Asahan, such as cloves, cocoa, coconut, coffee, tea, and pepper, also have considerable potential for development. Given the abundant agricultural production, it is timely for the Asahan Regency Government to focus on optimizing the development of processing industries.

Combining the development of the agriculture sector, as a source of raw materials, with the industrial sector, which adds value through the production of processed goods, supported by a robust trade sector, will significantly advance Asahan as a key agro-business, agro-industrial, and agro-tourism region in North Sumatra. Moreover, the livestock, forestry, and fisheries subsectors have also shown continuous improvement. In the livestock subsector, the cultivated animals include goats, beef cattle, horses, buffaloes, and pigs. In the fisheries subsector, freshwater fish, particularly carp, are a key commodity, with a production of 1,036.5 tons. In the forestry subsector, major commodities include eucalyptus with 105,325.03 cubic meters, timber with a production of 57,151.5 cubic meters per year, and other forest products such as rattan and bamboo. According to the analysis of the services sector, this sector is also considered a leading sector in Asahan's economy. Its importance is evident from the increasing growth rates and contributions year by year. However, despite significant annual growth, this sector is still dominated by the general government subsector, which contributes 89.49% to the services sector. Development priorities in Asahan should focus on leading sectors, as their advancement will stimulate the growth of other sectors. Therefore, the local government must prioritize budgets for each leading sector to stimulate economic development in Asahan. In the current era of regional autonomy, where local economic activities aim to maximize community welfare, local governments should encourage broad community participation in economic activities. Hence, in regional development planning, the Asahan Regency Government must select appropriate development policies to attract both domestic and foreign investments, which will contribute to the accumulation of capital for regional development.

5. Conclusions

According to the analysis using the Location Quotient (LQ) index, the leading sectors, those with an LQ value greater than one, are the agriculture sector and the services sector. Meanwhile, the other seven sectors are considered non-leading sectors. Based on the Shift Share analysis, it can be concluded that the Asahan economy has several sectors with competitive advantages, including: Agriculture, Mining and Quarrying, Electricity, Gas, and Water, and Services. Based on the results from the two analytical tools, Location Quotient and Shift Share, the sectors with high competitiveness are identified. Thus, the sectors categorized as leading are agriculture and services.

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