
Analysis of Leverage Employment and Agricultural Product Factors on The Aceh Economy

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Abstract: The regional economy was basically a dynamic condition that occurs due to changes in the economic, political, and social systems of an area. Economic growth which is the output of resource management occurs from increased production of goods and services. This research was conducted with the aim of knowing the leverage of employment and agricultural production on the Acehese economy. By using Multi Dimension Scale (MDS) analysis, the results of the study show that transportation and warehousing factors are the most sensitive leverage in the employment sector, while corn, soybeans and buffalo are the most sensitive leverage of the agricultural production sector to the Acehese economy.

Keywords: Employment, agricultural production, Multi Dimension Scale (MDS) analysis.

Introduction

The development process is basically an effort made by humans in improving the economy by creating justice and equitable development, and this must be done while still paying attention to the aspect of resource sustainability for the next generation. Economic development carried out by developing countries including Indonesia aims to achieve prosperity and welfare for all its people, but the main problems faced to achieve these goals are limited employment opportunities, unemployment, equitable distribution of income and poverty (Priyarsono and Nugraheni. 2012). Development carried out nationally with these limiting factors has a reciprocal relationship with the regional economy in each region (Ascani et al., 2012).

Theoretically, the regional economy is a dynamic condition that occurs due to changes in the economic, political, social system in an area (Hoover and Giarratani, 2020). Regional economic growth is the output of the resource management process between the local government, the community and the business world so as to stimulate the development of economic activities in the region. Economic growth occurred due to an increase in the production of goods and services or Gross Regional Domestic Product (GDP) (Jolianis, 2012), correlation with population growth (Amalia, 2014), and make it a measuring tool for the progress of a region (Russ and Jones, 2008; Jolianis, 2012). Economic growth can be used as the basis for development plans, acceptance and assistance from certain parties by the government, while for the community and business actors, economic growth can be the basis for developing businesses and their products (Carree et al, 2007).

The process of development and economic growth will factually shape the economic structure of an area, where changes in aggregate demand will occur due to changes in income that result in changes in consumption, needs and demand in the community. In terms of aggregate supply, the economic structure formed is influenced by technological advances, improving the quality of human resources, supply of materials and the discovery of new materials for production (Froyen, 2002; Mankiw, 2003; Blanchard, 2009), where these factors are directly

and indirectly correlated with employment (Hukom, 2014) and the resulting product (Tvaronavičienė and Lankauskienė, 2013).

Employment as a place for labor has a close relationship with economic growth. According to Okun's Law there is a negative relationship between unemployment and Gross Domestic Product (GDP), where if there is a 1% decrease in unemployment it will encourage economic growth to approach 2%. The higher the unemployment rate, the lower the economic growth rate. (Blanchard, 2011; Maryati et al 2021). Based on this theory, in studying the economy of a region, it is necessary to provide information on employment which is a lever for the regional economy, and more specifically which types of employment play a role in the economy.

In relation to the employment specifications, the regional economic levers from 9 economic sectors in 30 provinces of Indonesia, the agricultural sector absorbs the most labor, even though the wage level is low (Sitanggang and Nachrowi 2004), as well as in North Sumatra (Sinaga, 2005). In Central Java there is a one-way causal relationship where employment will affect economic growth (Nurrohman and Arifin, 2010). To employment and the regional economy specifically OECD (2021) reported that the ongoing Covid-19 pandemic has had a more severe impact on local employment and workforce than the 2008 global financial crisis, in the short term affecting the local labor market and in the long term affecting regional development. Furthermore, what about the leverage of employment in Aceh Province which has implemented special autonomy since 2008 with a total autonomy fund of Rp. 88.43 trillion (Ministry of Finance, 2021), and specifically which jobs have the greatest leverage on the Acehese economy.

In addition to employment variables, agricultural products are also an important factor as a lever for the regional economy. Its role as a lever for the economy of agricultural commodities can be directly or indirectly involved in the input-output of an open system of several interdependent components. This interdependence shows that the output of some components serves as the input of other sectors. A common process of input output analysis is to evaluate the impact of exogenous changes in external components on interdependent components and primary input components (Perwitasari, 2012 in Hartono et al., 2015). In Aceh Province, it can be seen that the agricultural sector is able to contribute to GRDP of Rp. 51,545.38,- billion or 30.98% of Aceh's total GRDP at current prices in 2020 (BPS Aceh, 2021). However, which agricultural products have a high leverage value to the economy, further information is needed so that this research is carried out. Systematically, the factors that affect aggregate supply and demand will influence each other so that they become a lever for economic conditions, including employment and agricultural production. But on the other hand, the conditions that occur are that these levers are closely related to government policies, the economic system, politics, and social conditions of the community. (Froyen, 2002; Mankiw, 2003).

Based on this description, it is hypothetical to assume that employment and agricultural production have a correlation as economic levers, but it is necessary to know which factors of employment and agricultural production are strong as regional economic levers. The purpose of this study was to determine the strength of the factors of employment and agricultural production as levers of the Acehese economy. Information on the leveraging factors of employment and agricultural production becomes important as a reference for regional development planning and business strategy planning for the business world in Aceh.

Methods

Research Time and Location

This research was conducted in January-May 2021 in all Regencies/Cities in the Province of Aceh. The selection of research locations took into account that the Regency/City is a sub-section of the province, and the Province of Aceh is a special autonomous region that has a large portion of the development budget from the central government, where a large development budget factor will provide great opportunities for regions to carry out development. (Harliza and Anitasari, 2017).

Research data

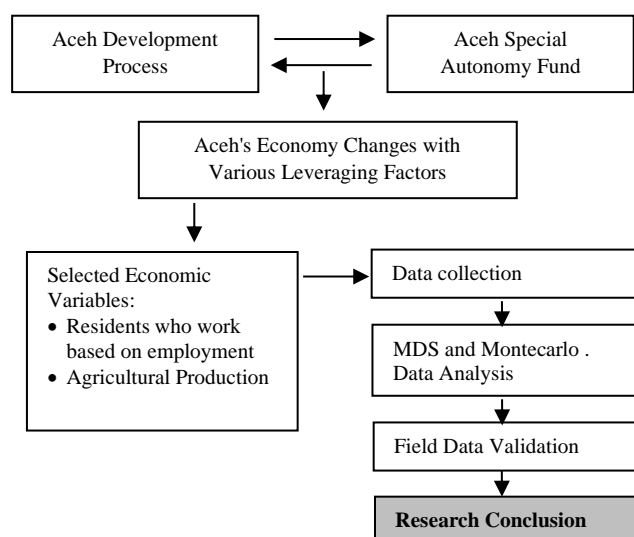
The research was conducted descriptively using secondary data from Aceh Province and District/City in Aceh in 2020. As a variable is the number of working population according to main employment and agricultural production. While primary data is field validation from the results of both factual analysis in the field and interviews with the community and local officials related to the research.

Population and Sample

The population of this study is 23 or all districts/cities in Aceh province, and economic analysis is carried out on the entire population. Field validation is carried out by taking samples of districts/cities. Samples of Aceh in the south-west region are West Aceh, Southwest Aceh and Subussalam City; Central Aceh region, namely Central Aceh, Bener Meriah and Gayo Lues; Aceh in the north-east region of Banda Aceh, Pidie Jaya and North Aceh.

Research Model and Design

This study uses a quantitative descriptive research model which is carried out in 4 stages: (1) data collection; (2) data analysis using the selected analytical model according to the research objectives, namely the Multi Dimension Scale (MDS) test and Monte Carlo analysis; (3) field validation of the results of data analysis obtained; (4) drawing conclusions. While the research design was carried out following the diagram in Figure 1.



Methods

In accordance with the research objectives for Knowing the factors that leverage Aceh's economy through the variables of employment and agricultural products, the analysis was carried out using the Multi Dimension Scale (MDS) modified from Rapfish (Rapid Appraisal for Fisheries) and Montecarlo analysis. The MDS analysis in this study was conducted to see the research variables as leverage factors for the Acehnese economy, while the Montecarlo analysis was to evaluate the effect of errors in the process of estimating the ordinance value of the sustainability level from the MDS analysis.(Ramadan et al., 2015).

In the MDS analysis, the data or variables used are grouped into 4 scales, namely: Poor (1); Less Bad (2); Not Good (3); and Good (4). Furthermore, the scale results were analyzed using the Rapfish Template Application in the modified Exel program. The analysis produces the value of the sustainability index, S-Stress, R2, and sensitivity or leverage. The sustainability index value has the following criteria: (1) 0-25 poor or unsustainable; (2) 26-50 less sustainable; (3) 51-75 is quite sustainable; (4) 76-100 good or very sustainable. The S-Stress value with criteria < 0.25 indicates good or good fit, while the value > 0.25 indicates bad or bad fit. The R2 value that is close to 1 or 100% indicates the model used is good (Malhotra, 2006; Nababan et al., 2008). The value of sensitivity or leverage with a large index indicates the most influential relative to the measured variable, so that it becomes a determining factor for better management and this value is visualized in a bar chart (Pitcher and Preikshot, 2001; Wisdom et al., 2011).

The diffeence between the MDS sustainability index value and the Montecarlo value indicates the level of confidence in the system under study, the smaller the difference, the higher the confidence level or with an index < 1 (Thamrin et al., 2007; Ramadhan et al., 2015). The value of sensitivity or leverage with a large index indicates the most influential relative to the measured variable, so that it becomes a determining factor for better management and this value is visualized in a bar chart (Pitcher and Preikshot, 2001; Wisdom et al., 2011).

Results and Discussion

Sustainability Index and Status

The MDS analysis technique with Rap-Insus and Montecarlo ordinance is carried out in addition to identifying sensitive leverage variables from the object being tested, it can also assess or explain the index and sustainability status of the object. The results of the analysis of the factors of employment and agricultural production on the economic conditions of Aceh are as shown in Table 1.

Table 1. Index and Sustainability Status of Employment and Production Factors Aceh Agriculture.

| Variable | Index | Sustainability Status | Montecarlo Value | Difference With Montecarlo | S-Stress | R2 |
|-------------------------|--------|-----------------------|------------------|----------------------------|----------|-------|
| Working Residents | 61,858 | Enough | 60,852 | 0.806 | 0.191 | 0.898 |
| Agricultural Production | 45,100 | Not enough | 44,989 | 0.110 | 0.197 | 0.909 |

Based on Table 1. the working population has a fairly sustainable status. The difference in the value of the sustainability index with the Montecarlo value of the tested variable is still low or < 1 which indicates high confidence or small errors that occur from the system being tested (Thamrin et al., 2007; Ramadhan et al., 2015). The S-Stress value is still < 0.25 and R2 is close to 1 or 100%, indicating that the model tested is good and the indicators used represent the object being compared (Malhotra, 2006; Nababan et al., 2008), accurate and reliable model (Kavanagh and Pitcher, 2004; Fauzi and Anna, 2005).

The results showed that the working population was quite sustainable with an index of 61,858, while the agricultural production factor was less sustainable with an index of 45,100. The condition of the working population with a fairly sustainable status indicates that this factor still has the ability to support the economy. Although in accordance with the Bank Indonesia report, Aceh's economy as a whole grew slower in 2020 due to weakening household and government consumption, declining performance in agriculture, trade and transportation with an inflation rate of 3.59% in the fourth quarter of 2020, which was the highest on the island of Sumatra (Bank Indonesia, 2021).

Agricultural production is an unsustainable factor with an index of 45.100 lower than the working population, even though statistically the agricultural sector contributes the most or 30.98% to the GRDP of districts/cities in Aceh (BPS Aceh, 2021). This large contribution still makes the agricultural factor less sustainable. This relates to the nature of the agricultural sector that will develop if it gets support from other variables such as human and natural resources, facilitation of development from regional spending, technology development, and public spending in buying agricultural products (Dewi et al., 2017; Liliane and Charles, 2020). In addition, the nature of agricultural products as well as several other economic factors indirectly affect economic development. Agricultural products also affect the economy through other variables, for example through selling prices, people's income, providing employment, industrial raw materials.

Working Population According to Main Employment

Residents in an area are basically actors or resources for factors of production, although on the other hand they are targets or consumers for the products produced. According to Adam Smith's classical theory that the effective allocation of human resources is the beginning of economic growth and is a necessary condition for economic growth. Adipuryanti and I Ketut Sudibia, 2015) so that human capital very important in increasing productivity and economic growth (Wen-Hsin Huang et al., 2019). The condition of the working population according to the main occupation with a fairly sustainable status shows that this factor has been able to support the regional economy.

The sensitivity of the working population levers according to the main occupations in Aceh Province in sequence are: (1) Transportation and Warehousing; (2) Information and Communication; (3) Company Services; (4) Real Estate; (5) Financial Services and Insurance; (6) Water Supply, Waste Management, Waste and Recycling; (7) Construction; (8) Provision of Accommodation and Food and Drink; (9) Electricity and Gas Procurement; (10) Health Services and Social Activities; (11) Wholesale, Retail, Repair of Cars and Motorcycles; (12) Government Administration, Defense and Social security; (13) Mining and Quarrying; (14) Processing Industry; (15) Education services; (16) Forestry Agriculture and Fisheries. The results of this analysis show that transportation and warehousing are the most powerful economic levers for working population according to the main occupation.



Figure 2. Sensitivity of Leverage Factors (Leverage) Yang residents Working By Main Job

factortransportation and warehousing are the most powerful economic levers for ppopulation who work according to the main occupations in Aceh, this is related to The development of the economic system with the trend of nationalization and globalization places the importance of logistics management, including transportation and warehousing in managing product delivery from factories to final consumers. Yung-yu Tseng and Wen Long Yue, (2005), and this sector is dominated by informal workers, especially men than women (Rahman et al., 2020). In Aceh Province, the dominance of male informal workers is greater than that of women (BPS Aceh, 2021) make transportation and warehousing the biggest levers for the Aceh economy in terms of the working population according to the main occupation.

Transportation and warehousing factors are increasingly needed in line with population and economic growth due to an increase in demand for goods and services (Cherrett et al., 2012). Furthermore, this growth will affect the type and number of products produced and consumed, thus affecting the total number of people and goods transportation (Allen, et. al., 2012). Hit is almost certain that there is no line of business that does not require transportation (Sumantri and Agustin, 2020). This condition is related to the provision of employment opportunities that provide economic opinion, so that it has the opportunity to become an economic lever.

The transportation sector has become more involved in the structure of the economy, especially during this Covid-19 pandemic, where restrictions on activities carried out in breaking the Covid virus chain require logistics services to ensure the supply of food stocks, medical supplies, and all consumer goods to their destination (Rivera, 2020). Despite the large-scale social restrictions carried out to break the Covid-19 virus chain, this has an impact on the decline in economic growth in 2020 by 2.3%. (Sembiring, 2020). This decline was due to weakening economic activity in several key economic sectors such as hotels and tourism, airlines, gatherings, bars and restaurants, malls, retail and others. (Pmudita, 2020), but there is an increase in sales and online food delivery (Berawi, 2020; Cahyadi, 2020). It is estimated that in 2019 there will be purchases of goods or services online by 1.92 billion people with a value of more than 3.5 trillion US dollars worldwide. (Coppola, 2021), and in Indonesia this activity continues to increase (Annur, 2020a; Annur, 2020b), for example, an increase in Grab Food's online food order transactions by 4% in March 2020 (Hastuti, 2020).

These conditions also occur in Aceh as the results of research conducted show the strength of the employment factor of transportation and warehousing in leveraging the Acehese economy. As an economic lever, transportation and warehousing are becoming increasingly important in conveying products from producers to consumers, and good information and communication systems will further encourage the development of various forms of the business world in driving the regional economy.

Agricultural Production.

Agriculture is a field of business carried out for produce food, feed, fiber and various other products carried out by cultivating plants and raising certain animals or livestock (Harris and Fuller, 2014). As an economic enterprise, the agricultural sector contributes 30.98% to GRDP Regencies/Cities in Aceh (BPS Aceh, 2021). However, based on the analysis the working population according to the main occupation of the agricultural sector is not the main lever of the Aceh economy (Figure 2). The sensitivity of agricultural production which is the lever of Aceh's agricultural sector is visualized as shown in Figure 3.

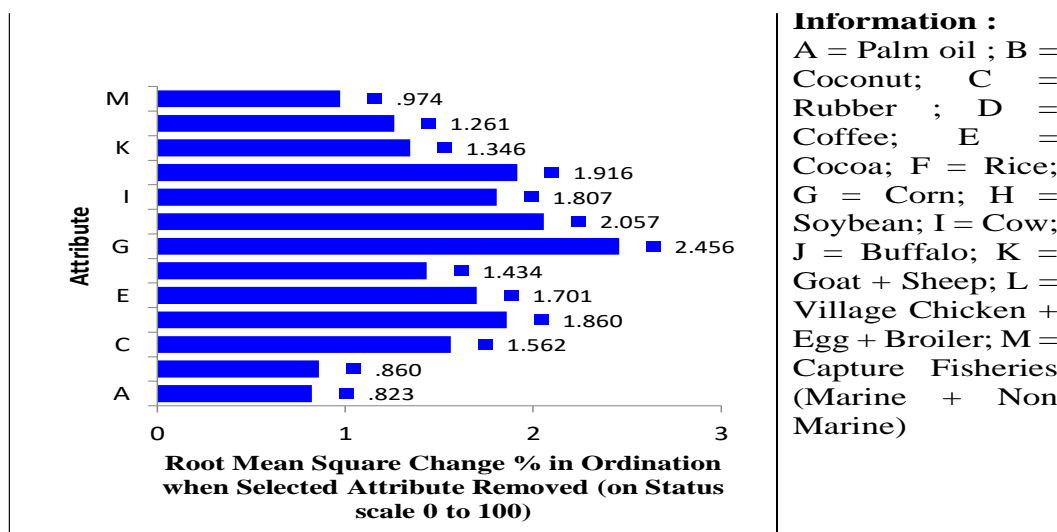


Figure 3. Sensitivity of Agricultural Production Leverage.

Figure 3. shows that the sensitivity of the agricultural sector's leveraging factors in terms of commodities sequentially are: (1) Corn; (2) Soybean; (3) Buffalo; (4) Coffee; (5) Cow; (6) Cocoa; (7) Rubber ; (8) Rice; (9) Goat; (10)= Village Chicken + Egg + Broiler; (11) Capture Fisheries (Marine + Non Marine); 12 (12) Coconuts; (13) Oil palm. Plantcorn has the highest score of leveraging factors in the agricultural sector compared to other commodities, this shows that corn is able to drive other economic sectors, especially in agriculture.

Corn crops in Aceh are developed mainly in South Aceh, Gayo Lues, East Aceh, Aceh Tamiang, North Aceh with the main production center of Southeast Aceh, where government support is the main strength factor for development and marketing support is a weakness factor (Yusmaizal, 2017). Corn is a sensitive commodity for agricultural levers in Aceh, such as in Southeast Aceh Regency. This district has an area of 30,000 ha of corn with a productivity of 7.2 tons/ha, an average harvest of 75 ha occurs every day with a production of 540 tons and with a corn price of Rp. 3,200,-/Kg will produce Rp. 1.7 billion per day, so that corn is the main driver of the economy in the region (Ministry of Republic of Indonesia, 2017).

The growth and development of the corn cultivation business so that it is able to leverage the Aceh economy is supported by a partnership between corn farmers and animal feed companies. Corn harvests carried out in Bireuen Regency in August – September 2020 covering an area of ± 3,000 hectares are strongly supported by natural conditions with sufficient rainwater, resulting in 55 quintals of shelled corn per hectare. With a selling price of Rp. 3,200,- per Kg farmers can get a profit of 7.5 million per hectare from corn cultivation(Liputan6.com, 2020).

Conclusion

The economy of a region, including the province of Aceh, is a dynamic condition of changes in the economic system, including employment factors and agricultural products. The condition of the working population according to employment in Aceh has a fairly sustainable status as an economic lever, while agricultural production has a less sustainable status. The sensitivity test of the working population condition variable according to employment shows that transportation and warehousing factors are the economic levers with the highest score, followed by information and communication until the weakest are agricultural, forestry and fishery factors. For the agricultural production variable, it shows that the maize crop factor is the economic lever with the highest score, followed by soybeans, buffalo and the lowest is oil palm. Knowing the level of economic leverage factors from regional economic variables will greatly help various problems and carry out development planning in improving the regional economy in Aceh Province.

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