The Analysis Of Leading And Non-Leading Sectors The Economic Growth In Southwest Aceh

Witri Endang Lia1*, Yayuk Eko Wahyuningsih1, Yenny Ertika1
1 Teuku Umar University, Campus Ring Road, Alue Peunyareng, Meureubo sub-district, West Aceh-Meulaboh Regency, Aceh Province, Indonesia.
*Corresponding author, Email address: endanglia063@gmail.com

Abstract

The success of economic development, in terms of growth, is by measuring the Gross Regional Domestic Product (GRDP) to optimize local economic development in the era of regional autonomy which refers to Law No. 32 of 2004. This law contains about local government which automatically demands regional governments to be globally oriented such as optimizing the leading sectors and developing the non-leading sector to become leading sectors, as happened in Southwest Aceh. This study aims to analyze the effect of leading and non-leading sectors toward the economic growth in Southwest Aceh in 2010/2016 with 17 sectors. The data used were secondary data taken from Statistics Indonesia by applying location quotient and simple linear regression analysis model. The results of study show that the value of the correlation coefficient (R) obtained was 0.895 which draws that the relationship between leading and non-leading sectors toward the economic growth had a good correlation. Furthermore, the coefficient of determination ($R^2$) was 80.1%. The equation was $Y = 8.214 + 2.034X1 + 31.007X2 + \epsilon$. Next, the value of $\hat{\beta}_2$ in the leading sectors was 2.338 and significant at $\alpha = 10\%$, and the value of $\hat{\beta}_1$ in the leading sector coefficient was as much as 1.719 and insignificant. Then, the $F_{hit}$ value of leading and non leading sectors were significant. In other words, both leading and non leading sectors had positive effects on the economic growth in Southwest Aceh.

Keywords: Leading Sector, Non-Leading Sector and Economic Growth.

1. Introduction
1.1. Background of Study

Developing countries are more focused on an economic development due to economic backwardness. The economic development is capable of supporting the goal achievements or encourage changes or renewal in other fields of life. The main backwardness faced by developing countries includes an economic field. Regional economic development constitutes a process whereby the regional government and the community manage resources and conduct a partnership pattern between the regional government and private sector to create new jobs and stimulate the development of the economic growth in the region.

The potential of each region must be different due to the characteristics of each region in order that the main policy that needs to be conducted to achieve regional economic development goals is to strive as much as possible that the priority of regiodal development is in accordance with the potential of the region. The main problem of regional development lies in the emphasis of development policies based on the specific characteristics of the region concerned (endogeneous development) using human resources, institutions, and physical resources locally (regions).

Each regional economic development has a goal of increasing the number and types of employment opportunities for local communities. The benchmarks for the development success can be perceived from the economic growth and the smaller income disparities among residents, regions and sectors. Law No. 22 of 1999 on local government which was later changed to Law No. 32 of 2004 became a reform in the relationship between the central and regional governments [1].

1.2 Research Question

This study proposes two research questions as follows:

a. How do leading sectors influence the economic growth in Southwest Aceh?
b. How do non-leading sectors influence the economic growth in Southwest Aceh?

1.3 Aims of Study
The purpose of this study was to:

a. analyze the influence of leading sectors toward the economic growth in Southwest Aceh.
b. analyze the influence of non-leading sectors toward the economic growth in Southwest Aceh.

2. Literature Review
2.1 Leading and Non-Leading Sectors
2.1.1. Leading Sector

Economic base analysis is concerned with identifying basic incomes. Increasing the number of base activities in an area will increase income streams into the area concerned, which in turn will increase demand for goods or services in the region. Conversely, the lack of base activities will effect in a lack of income flowing into the area with the result that it will cause a decrease in product demand from base activities (Adisasmata in Richardson, 2005)[2].

2.1.2. Non-Leading Sector
According to Tarigan (2007)[3], non-leading sector is a sector or activity that is only able to serve the regional market itself in order that the demand is greatly influenced by local economic conditions and cannot develop beyond the regional economic growth.

2.2 The Economic Growth
2.2.1 Definition
Regional economic growth constitutes the increase of community income that occurs in an area, included the increase in all added value that occurred in the region (Tarigan, 2005)[4]. The regional income calculation is initially made at the current price, still in order to see the increase occasionally, it must be stated in real value, meaning that it is stated in constant prices. Furthermore, according to Kuznet as quoted by Jhigan (2009)[5]. Economic growth forms an increase in the ability of a country (region) to provide economic goods for residents, which is manifested by a continuous increase in national output supported by technological advancements as well as the institutional adjustments, attitudes and ideologies needed.


According to Tadoro and Smith (2006) [6], basically the community in the development process must be given the freedom independently in determining their own activities. In this activity, the most suitable system covers free market systems to guide the economy towards full employment.

b. Neo Classical Growth Theory.

Tadoro and Smith (2006) [7] wrote that Solow’s neoclassical growth model pioneered by Robert Solow denotes the most famous model in the economic growth. Although in some cases, the Solow model describes the economies of developing countries better than its ability to explain the economies of developing countries. This model remains a basic reference point in decisions regarding growth and development. Furthermore, this model also states that conditionally the economies of various countries will converge at the same level of income with the condition that these countries have the same level of savings, depreciation, labor force growth, and productivity growth.

c. Harrod Growth Theory - Domar

Arsyad (2010) [8] says that Harrod-Domar’s growth theory is a direct development of John Maynard Keynes’s macro growth theory. According to Harrod-Domar, each economy basically reserves or saves a portion of the national income to add or replace damaged capital goods i.e. buildings, tools, and raw materials.
d. Theory of Structural Transformation.

Risna (2012) [9] states that this theory focuses on mechanisms that prepare poor and developing countries able to increase economic growth by transforming their economic structure from the traditional agricultural sector to the modern manufacturing industry sector.

e. The Growth Theory of Walt Whiti Rostow’s (1916-1979)

According to Budiman (2003) [10], Rostow’s theory explained that modernization is a gradual process in which society will develop from traditional society to high consumption society. Rostow distinguishes between the traditional sector and the modern capitalist sector.

2.3. Factors Affecting the Economic Growth.

According to Jhigan (2009) [11], the factors of the economic growth are as follows:

a. Economic Factors
b. Natural Resources.
c. Capital accumulation.
d. Organization.
e. Advanced technological progress.

3. Research Methods

3.1 Research scope

The scope of this research included Gross Regional Domestic Product (GRDP) at current prices in Southwest Aceh District and Aceh Province in the period 2010-2016.

3.2 Research Data.

The data used in this study was secondary data to support or complete primary data. This data was obtained directly from documents in the Statistics Indonesia (BPS) of Southwest Aceh and literatures which provide references and information related to this research.

3.3 Data Analysis

3.3.1 LQ analysis

One of the techniques commonly used to analyze the economic base of a region is location quotient (LQ) to find out how large the level of specialization of base or leading sectors is. Various variables (factors) can be used as indicators of the regional growth such as employment opportunities, and regional gross domestic product (GRDP) of a region.

Location Quotient analysis is intended to identify and formulate the composition and shift of the base sectors of a region by using gross regional domestic product (GRDP) as an indicator of the regional growth (Adisasmita 2005) [12].

The mathematical formulation was:

\[
LQ = \frac{V_1^R}{V_1} / \frac{V}{V} = \frac{V_1^R}{V} \times \frac{V}{V_1}
\]

\[V_1^R\] : Total GRDP of a district/city sector.

\[V^R\] : Total GRDP of all regency/city sectors. \[V_1\] : Total GRDP of all provincial sectors.

\[V\] : Total GRDP of all provincial sectors

There are three interpretation model based on the LQ calculation. They are:

1. LQ > 1 indicates a base sector. It means that the level of specialization of the district is higher than the provincial level.
2. LQ < 1 indicates a non-base sector. It means that the level of specialization is lower than the provincial level.
3. LQ = 1 indicates that the district specialization level is similar to the provincial level.
1.3.2. Multiple Linear Regression Analysis

Multiple Linear Regression Analysis was used to predict the dependent variable (including up and down) if two or more independent variables as predictor factors are manipulated (Sugiono, 2013)\[^{13}\] with mathematical formulation as follows:
\[ Y = a + b_1 X_1 + b_2 X_2 + \varepsilon \]
\[ Y \quad : \quad \text{Economic growth} \]
\[ a \quad : \quad \text{Regression coefficient} \]
\[ b_1, b_2, b_3 \quad : \quad \text{Constant coefficient} \]
\[ X_1 \quad : \quad \text{Base sector} \]
\[ X_2 \quad : \quad \text{Non base sector} \]
\[ \varepsilon \quad : \quad \text{Error term} \]

a. Correlation Coefficient Analysis (r)

The correlation coefficient shows how close the relationship between the independent variable and the dependent variable, or between the dependent variable with other independent variables in the regression model expressed by the notation (r) (Supangat 2007, h. 341)\[^{14}\].

b. Coefficient of Determination (r²)

The coefficient of determination explains the magnitude of the variable value effect (variable X) toward up and down (variation) of the other variable values (variable Y) (Hasan, 2009)\[^{15}\].

c. T test

T test is used to examine the hypothesis of a parameter carried out to observe the significant between the independent variables and the dependent variable (Hasan, 2009)\[^{16}\].

d. F Test

F test is applied to verify parameter b (Correlation Test) using statistical F test. In other words, it is used to examine the independent variables together (simultaneously) against the dependent variable (Sugiono 2013, h. 257)\[^{20}\].

3.4 Hypothesis Testing

The hypotheses used in this study were:

a. \( H_0 : \beta = 0 \), there is no significant influence between the leading and non-leading sectors on economic growth in Southwest Aceh
b. \( H_1 : \beta \neq 0 \), there is a significant influence between the leading and non-leading sectors on Economic Growth in Southwest Aceh

3.4.1.1. Partial Hypothesis Testing

To perceive the effect of variable X on Y partially, "t test" was used with the following criteria:

a. If \( t_1 > t_0 \), then \( H_0 \) is rejected and \( H_1 \) is accepted. It means that there is significant between the leading and non-leading sectors of Economic Growth in Southwest Aceh
b. If \( t_1 < t_0 \), then \( H_0 \) is accepted and \( H_1 \) is rejected. It means that there is no significant difference between the leading and non-leading sectors of Economic Growth in Southwest Aceh

Furthermore, "F Test" was also used with the following criteria:

a. If \( f_1 > f_0 \), then \( H_0 \) is rejected and \( H_1 \) is accepted. It means that there is a significant influence between the leading and Non-leading Sectors on Economic Growth in Southwest Aceh.
If $f_h < f_t$, then $H_0$ is accepted and $H_1$ is rejected. It means that there is no significance between the leading and Non-leading Sectors of Economic Growth in the Southwest Aceh.

4. Result and Discussion
4.1. Leading Sector

Leading sectors with the value: $LQ > 1$ in Southwest Aceh of 17 available sectors were described in the following graphs:

![Figure 1 Leading Sector in Southwest Aceh in 2010-2016](image1)

Source: Statistics Indonesia of Southwest Aceh (Data in February 2019).

The graph draws that the leading sectors in Southwest Aceh from 2010 to 2016 received the highest rate in 2011 i.e. 2.74% and the lowest rate in 2016 i.e. 2.29% and fluctuated.

![Figure 2 Non-Leading Sector in Southwest Aceh in 2010-2016](image2)
Source: Statistics Indonesia of Southwest Aceh (February 2019)

Based on the graph above, the highest rate was in 2014 i.e. 0.18%, the lowest rate was in four consecutive years and experienced fluctuations.

4.3. Economic Growth in the Province of Aceh

Regional economic growth in the province of Aceh in the period 2010-2016 was as showed in graph 3 below:

![Economic Growth Rate of Southwest Aceh in 2010-2016](image)

Source: Statistics Indonesia of Southwest Aceh (the result of the research in December 2018)

Based on graph 3 the economic growth of the Southwest Aceh from 2010 to 2016 fluctuated with the highest rate i.e 2.96% in 2011 and subsequently fluctuated to the lowest rate i.e 1.20% in 2016.

4.3 Discussion

4.3.1 Multiple Linear Regression Analysis

<table>
<thead>
<tr>
<th>Table 1MultipleLinearRegressionAnalysis</th>
<th>EstimationCoefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-8,214</td>
</tr>
<tr>
<td>Coefficient of Leading Sectors</td>
<td>2,034</td>
</tr>
<tr>
<td>Coefficient of Non-Leading Sectors</td>
<td>31,007</td>
</tr>
<tr>
<td>Coefficient of Correlation</td>
<td>0,895</td>
</tr>
<tr>
<td>Coefficient of determination</td>
<td>0,800</td>
</tr>
</tbody>
</table>

Based on Table 1, the regression equation was obtained as follows:

Y = -8,214+2,034X1+31,007X2+e......................................................(3)
Y = 2,034SU+31,007SNV+e...............................................................(4)
The linear regression equation can be interpreted as follows:

a. Constant
The constant value obtained was -8.214 which means that if leading sectors, non leading sectors, and the economic growth in Southwest Aceh equal to zero, the constant value is -8.214.  
b. Coefficient of Leading Sector Variables.
The coefficient value of leading sector was 2.034. It means that if the leading sector increases by 1 then the economic growth increases by 2.034%. This is consistent with economic theory that the more leading sectors increase, the better economic growth in this district.

c. Coefficient of Non-Leading Sector Variables
The value of coefficient was 31.007. It means that if the non-leading sector increases by 1 then the economic growth also increases by 31.007%.

4.3.2. Correlation Coefficient Analysis
The correlation coefficient (R) was 0.895 which means that there was a good correlation between the leading and non-leading sectors of the economic growth in Southwest Aceh.

4.3.3. Analysis of the Determination Coefficient
The value of determination coefficient (R adjusted) was 0.800. It means that 80.0% of economic growth was influenced by the ratio of dependency burden on the elderly population and the human development index and 75.7% was contributed by other variables outside this model.

4.3.3. T-Test and F-Test
a. Based on the result of t-test, it was obtained the value of $t_{hit} = 2.388$ with a significance at $\alpha$ 10% for the leading sectors, and the value of $t_{hit} = 1.719$ with a insignificant at $\alpha$ 10% for non-leading sectors.
b. Based on the result of f-test, both were significant.

5. Conclusion and Suggestion
5.1 Conclusion
a. Leading Sector had a real and positive effect on the economic growth in the Southwest Aceh.
b. Non-Leading Sector also had a real and positive effect on the economic growth in the Southwest Aceh.

5.2. Suggestion
a. The government of Southwest Aceh must pay special attention to non-leading sectors which have a positive effect on economic growth.
b. The government should conduct a community empowerment program such as labor intensive and capital intensive for individuals who are capable of creativity and independence of their respective skills.
c. The provision of job training or internships that are focused on individuals or empowering SMEs that have capabilities in leading and non-superior sectors is also needed.

Acknowledgements
This conference was supported by Prof. Dr. Jasman, J. Ma’ruf, SE, MBA (Rector of Teuku Umar University), Dr. Teuku Zulham, SE, M.Si (Dean of Economic Faculty), Head of Economic Development Department, Head of Statistics Indonesia of Aceh.

References

Sadono, 2008, Regional Development. Publisher Graha Ilmu, Yogyakarta.

