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Research Article

The Analysis of Economic Growth Disparity Between Districts in Aceh Province-Indonesia

Samsulijar*[1],Mohd. Nur Syechalad[1] and Muhammad Nasir[1]

Master Program of Economics, Faculty of Economics and Business Universitas Syiah Kuala, Banda Aceh, Indonesia

*Corresponding Author
Samsulijar

Abstract: This study is aimed to see the level of economic growth disparity between districts in Aceh. In order to analyze the data this study used Klassen Typology and Williamson Index. The results showed that there were 2 fast-moving districts, 7 advanced districts but underpressure, then there are 13 districts developed rapidly and only 1 district was relatively lagging behind. The disparity in the economic growth of districts in the Aceh in the year 2011-2016 is included in the moderate category which is between 0.36-0.43, this indicated that the economic growth of districts in Aceh is more evenly distributed. The recommendations of this study are expected that the government will continue to maintain the stability realization of Locally Generated Revenue and maximize the use of The General Allocation Funds and Special Allocation Funds and keep maintaining the quality of education, health and income per capita. The Government of Aceh must make a regulation aimed to stimulate investment growth both domestically and externally by facilitating security, access and security guarantees so that will lower the dependence on The General Allocation Funds and Special Allocation Funds.

Keywords: Disparity, Economic Growth, Classology, Williamson Index.

INTRODUCTION

Regional economic growth is the increase of community income that occurs in the region, namely the increase of all value added. The increase in income is measured in the real value that expressed in constant prices. It also describes the remuneration for production factors operating in the area (land, capital, labor, and technology) which means it can roughly describe the prosperity of the area. The prosperity of a region is determined not only by the amount of value added but also by the amount of transfer payments that are part of the revenue flowing out of the region or obtaining funds from outside the region.

Every Regions has the same opportunity developing their territories according to the needs of local communities (Nehen, 2010). But not all regions experience the process of economic development that runs the same. Some regions achieve rapid development, while some other regions experience slow development. This creates inequality or disparity in economic development between one region and another.

Aceh Province is drawn from 23 districts which continuosly improve to develop their economy to be better. After the end of conflict and disaster in 2004, Aceh has succeeded in increasing economic growth, although in terms of percentage figures that are not proudable, it is not accompanied by the equal distribution of income of each district in Aceh or it is known as inter-district development disparity in Aceh.

Economic indicators of regional inequality are the level of population welfare, the quality of education, the pattern of distribution and concentration of investment and the availability of infrastructure. Those indicators of disparity between districts can be seen in terms of physical development (availability of socio-economic facilities such as health facilities, education and economic facilities, and in terms of economy (population economic capacity can be seen from the level of family welfare in each district, and in terms of social (population and quality of population based on education). Meanwhile, in terms of distribution of districts per capita GRDP in Aceh based on current

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prices according to business fields, the disparity is quite high, Banda Aceh has the highest per capita GRDP with an average of 55.17, followed by the district of Lhokseumawe on the average of 46.69 and Nagan Raya district on the average 36.11 while the lowest per capita GRDP of the district was Aceh Singkil district with an average of 15.02, indicating that there were disparities or economic growth inequality between districts in Aceh.

The condition of economic inequality between districts in Aceh is quite high, actually this condition is in common because the disparity in economic development between regions is a universal phenomenon. In the other countries regardless of the size and level of development, disparity in development is a serious gap problem to be addressed both in the market economic system and in the planned economy. The eceonomic growth data of every districts in Aceh 2016 can be seen in the following graph.

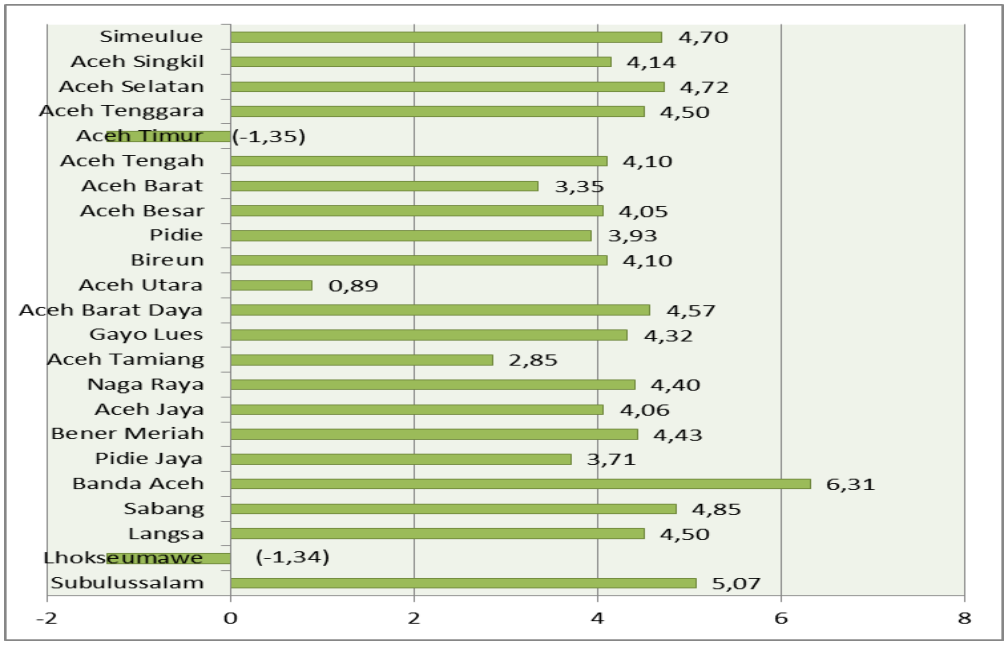

Figure 1. The Districts' Economic Growth of Aceh in 2016 (Percent)
Source: Central Bureau of Statistics Aceh, 2017

Based on the graph above, the highest growth was achieved by the City of Banda Aceh with the percentage of 6.31 percent. Meanwhile, the lowest economic growth was achieved by the district of East Aceh with the negative percentage of 1.35 percent. This is due to the decline in oil and gas mining production. The district of Lhokseumawe also experienced negative growth about 1-34 percent as a result of the declining production of oil and gas refineries.

These figures show the disparity in economic growth of every districts in Aceh which certainly has an impact through the role of districts in the economic formation of Aceh. According to Sjafrizal (2012), there are several factors that influence disparity between regions, namely differences in natural resources, demographic factors including labor conditions, allocation of development funds between regions both government investment and private investment, concentration of regional economic activities, and mobility of goods and services.

It is interesting to study how the dispensation of economic growth between the districts in Aceh is because Aceh has a special autonomy. Through regional autonomy and fiscal decentralization the regional government has the authority to explore revenues and carry out the role of allocation independently in determining development priorities. It is hoped that the existence of autonomy and fiscal decentralization can further equalize the development in accordance with the desire of the regions to develop regions according to their respective potentials.

LITERATURE REVIEW

Economic Growth Disparity

Regional disparities are common in the economic activities of a region. This happens because of differences in natural resource content and differences in demographic conditions found in each region. This difference makes the ability of a region to encourage the development process also be different. Therefore, in each region there are usually developed regions and underdeveloped regions (Sjafrizal, 2012).

Williamson analyzes the relationship between income distribution and economic growth at the regional level in a country. The occurrence of inequality between regions was also explained by Mydral (1957). Mydral built his theory of backwardness and economic

development around the idea of regional inequality at national and international level by using spread effects and backwash effects as the effect of propagation from the growth center to the surrounding area. Spread effect is defined as a favorable effect, including the flow of investment activities at the center of growth to the surrounding area. The backwash effect is interpreted as an infectious effect, including the flow of people from the surrounding area or periphery and the flow of capital into the core region and resulting in reduced development capital for the periphery that is actually needed to be able to balance the development of the core region.

Economic growth

Economic growth according to Simon Kuznets (Jhingan, 2000), is a long-term increase in the ability of a country to provide more and more types of economic goods to its population. This ability grows in accordance with technological progress, and institutional and idiological adjustments that are needed.

Economic growth is the growth rate that is formed from various kinds of economic sectors which indirectly describe the rate of growth that occured and as an important indicator for the region to evaluate the success of development (Sirojuzilam, 2008). Economic growth became a quantitative measurement that described the development of an economy in a certain year compared to the previous year. Economic growth can be recognized by comparing the GRDP at the certain year with the previous year's GDP. Growth in the economy can be seen as a result of government policies, specifically in the economic field.

Gross Regional Domestic Product (GRDP) can be defined as the estimation of total goods and services received by the community in a region as compensation for the use of the factors of production that they have. Economic growth according to Simon Kuznets (Jhingan, 2000), is a long-term increase as the ability of a country to provide more and more types of economic goods to their population. This ability grows in accordance with technological progress, and institutional and idiological adjustments that are needed.

Overall GRDP is presented in two forms, namely the presentation on the basis of current prices and the presentation on the basis of constant prices. Presentation on the basis of current prices shows the amount of gross value added of each sector in accordance with the conditions in the current year. The assessment of production costs between the added value is carried out using the current price for each year.

Previous Study

Research on the disparity or imbalance of economic growth has been carried out in various countries. In Indonesia, the introduction of the research conducted by Astari Khairunnisa (2015) showed that the results of the *Williams Index* analysis showed that there were seven sub-districts with decreasing WI values and 14 sub-districts with increasing WI values. The WI value of sub-district which is classified as low is with an average index of 0.16994. However, it does not rule out the possibility that the economic development gap between sub-districts will continue to increase. This is because the WI value is relatively rose.

Furthermore, the research conducted by Ngakan Putu (2013) showed that the classification of districts based on economic growth and GDP per capita in Gianyar Regency by using the *Klassen Typology* analysis tool with a regional approach indicated that the districts in Gianyar Regency divided into four classifications. The next disparity analysis was carried out by Barika (2012). The average value from 2005 to 2009 of the entrhopitheil index in the province of Bengkulu tended to vary. Seluma, Kaur, North of Bengkulu, South of Bengkulu, and Mukomuko districts have relatively even evenness, this is indicated by theil entropy index value approaching below 10 percent. The results of regional inequality analysis are obtained by the coefficient of determination or *R2* about 0.570. This means that the Government Expenditures variable, Total Population and Private Investment affects the regional inequality about 57 percent, where 43 percent of the funds are affected by other factors which are not included in the model.

Sutarno (2003) concluded that based on the *Klassen Typology* of sub-districts in Banyumas district, it can be classified based on growth and per capita income into four groups, namely fast-developed sub-district and fast-growing sub-districts, advanced but depressed sub-districts, fast developing sub-districts. In the observation period of 1993–2000 there was a tendency for an increase in inequality, both analyzed by the *Williamson Index* and with the *Theil Entropy Index*. This gap is one of the caused of the concentration of spatial economic activity.

Nurhayani, et al (2015), examined the analysis of economic development disparity and its relationship with investment in Jambi in 2002-2014, the results of this research based on the Williamson Index, it is known that the distribution of development in Jambi is between 0.341 - 0.566, the inequality in Jambi is classified as the middle inequality level. Based on the results of the *Pearson correlation test*, it showed a fairly weak relationship between the variable disparity with the *Domestic Investment* with the positive direction where the *Foreign Direct Investment* causes an increase in economic development disparities in Jambi. However, based on the significance value the result is there were not correlation between the

Domestic Investment and the *Foreign Direct Investment*.

Yeniwati (2013), conducted research on economic inequality of Sumatra. The methodology analysis that used to determine economic development inequality is *Williamson Inequality Index* with OLS regression. While to determine the effect of a number variables on the development inequality using panel data with Random Effect method. The results of the study show that from the 10 provinces in Sumatra that have an index of inequality that is greater than the average of Sumatra there are 5 provinces. The estimation results have a significant effect between investment and economic inequality in the Sumatra region. Agglomeration variables also have a significant effect on economic inequality in the districts of Sumatra . The natural resources might has a significant effect on economic inequality in Sumatra.

Affandi, et al. (2016), conducted a study about the effect of education budgets, poverty levels and inequality on gross regional domestic products in Aceh. The results showed that the results of the T-test stated that the education and inequality budgets had a significant and positive effect on GRDP while the poverty rate had a significant and negative effect on GRDP in Aceh Province.

Arif Munandar and Fikriah (2016), the inequality of income and expenditure between sub-districts in the southwest Aceh district. The results of this study conclude that income distribution is at a low level of inequality that is GR value of 0.248 while the expenditure distribution is GR value of 0.2944. Intensive efforts are needed immediately to overcome inequality so that this inequality is not getting bigger and increased income and expenditure, especially in the class of Farmers whose average income is still relatively small.

The results of the study by Denny Iswanto (2015) who used the analytical method *Location Quotient* (LQ), *Shift-share*, *Sectoral Typology*, *Klassen Typology*, *Williamson Index*, *Theil Index*, *Pearson Correlation* and tested the validity of the *Kusnetz Hypothesis*. There are many areas in the province of East Java that are classified as relatively underdeveloped districts that 23 districts including relatively lagging districts. Income disparity between districts in the province of East Java is classified as high (> 0.5) with a value of 0.4295 and has increased. While *Kuznets*' inverse "U" hypothesis that describes the relationship between growth and inequality does not apply in the province of East Java (sig-2 tailed correlation 0.160 to *Williamson Index* and 0.257 *Theil Entropy Index*).

Tutik Yuliani (2015) conducted research with the aim of finding out the inequality of development and income between districts in East Kalimantan and proving whether the reverse U hypothesis was valid in the province of East Kalimantan. In order to find out how much income inequality this study used the *Williamson Index* and *Theil Entropy Index*. Based on the *Williamson index* showed that during 2010 to 2012 there were development inequalities between districts in East Kalimantan of 0.69 in 2010 to 0.72 in 2012. Whereas the *Entropy Theil* count showed that on average during 2010 to 2012 there was an income gap of 17.45. After *Kuznets* analysis showed that in East Kalimantan during 2010 to 2012 *Kuznets* law was applied.

RESEARCH METHOD

Types and Data Sources

The type of data used in this study is secondary data. Secondary data is obtained through literature studies of the literary books, the scientific journals or works related to the problem under study. Data sources used came from the Aceh Central Bureau of Statistics and the Aceh Regional Development Agency. The data used include GRDP and GRDP per districts, the population of Aceh Province and other supporting data. In this study the time period on the data used is in 2011-2016.

Data Analysis Method

a. *Klassen Typology*

Klassen Analysis Typology is the analysis used to see the pattern of economic development in each district in Aceh. In this study, each district will be classified into four groups. The indicator used to classify each district is the economic growth rate and the GDP per capita of the district. Through this analysis about four characteristics and patterns of different economic growth were obtained, namely: high growth and high income, high income but low growth, high growth but income, and low growth and low income.

Table 1. Classification of Districts of Aceh According to the Klassen Typology

GDRP percapita (Y) Growth Rate (r)	**Y1 > y**	**Y1 < y**
r1> r	Fast Forward Area	Fast Developing Area
r1< r	Developed Area but Underpressure	Relative Area Left Behind

b. *Williamson Index (WI)*

The Williamson Inequality Index is an analysis used to determine the inequality development that occurs between districts in Aceh. Economic development inequality can be analyzed using the following formula (Syafrizal, 2012):

$$IW = \frac{\sqrt{\sum (Y_i - Y)^2 \ (f_i - n)}}{Y} \qquad 0 < IW < 1$$

Information:
IW = Williamson Index
Yi = GRDP per capita in the i district
Y = GRDP per capita for the average of the province of Aceh
Fi = The population of i district
n = Total population of the province of Aceh

The results of the Williamson Index calculation are as follows:

a. If WI approaches the number one, it shows that the gap is getting wider or WI = 1: perfect inequality.
b. If WI is close to zero, then it shows a smaller imbalance of economic development between districts in the province of Aceh or WI = 0: perfectly even.

RESULTS AND DISCUSSIONS

Economic growth is the rate of growth that is formed from various economic sectors which indirectly illustrate the rate of growth that occurs and as an important indicator for the region to evaluate the success of development. Disparity in development is a serious gap problem to be tackled both in the market economic system and in the planned economy. The following are the data on the economic growth of 23 districts in Aceh from 2011 to 2016.

The GRDP figure of every district in Aceh is increased every year from 2011 to 2016. Nonetheless, there were several districts which experienced a decline, such as the city of Lhokseumawe in 2014 and 2015 and there was a decline, as well as the district of North Aceh and East Aceh which also declined in certain years. Many factors influence the decline in the GRDP of districts in Aceh such as the growth of the agricultural sector which is slowing down and the average district in Aceh only focuses on the agricultural sector even though there are still many other sectors that can be managed so as to create and stimulate economic growth.The GRDP of the province of Aceh can be seen in the following graph.

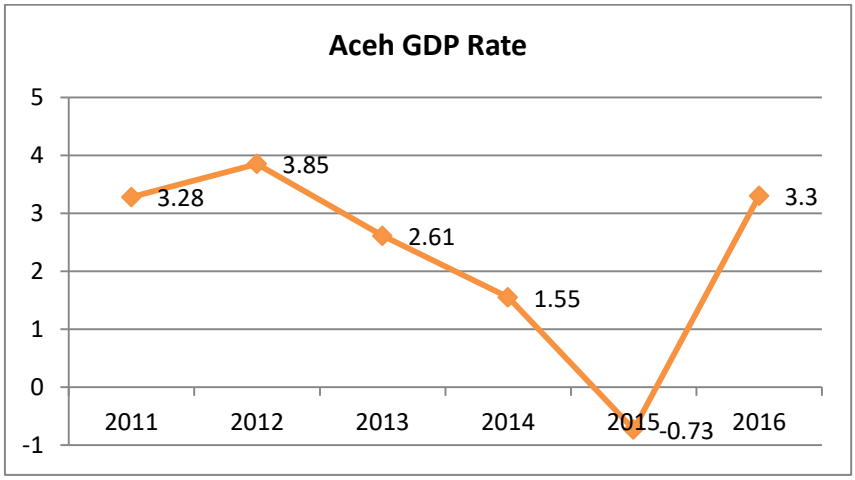

Figure 2. The GRDP of Aceh, 2011-2016 (Percent)
Source*:* BPS of Aceh Province, 2017

Based on Figure 4.2 it is known that in 2011 Aceh's Gross Regional Domestic Product growth of 3.28 percent increased to 3.85 percent in 2012 and subsequently fell to minus in 2015 (-0.73 percent). The decline in Aceh's economic growth in 2015 was caused by various factors, such as declining oil and gas production in both mining and industry, in terms of expenditure caused by government consumption which also fell 39.42 percent. The Aceh economy at that time was still very dependent on Aceh Development and Expenditure Budget, the minimal absorption of Aceh

Development and Expenditure Budget also gave the negative contribution to the economy of Aceh.

The Result of *Klassen Typology*

Klassen Analysis Typology is the analysis used to see the pattern of economic development in each district of Aceh. Through this analysis four characteristics and structure of different economic growth are obtained, namely: fast-growing and high-growth areas, advanced but depressed regions (high income but low growth), fast developing regions (high growth but income)), and relatively underdeveloped areas (low growth and low income) (Kuncoro and Swandi, 2002) and (Radianto, 2003). This grouping based on Classen Typology is as follows.

Table 2.
The Result of *Klassen Typology*

GRDP Percapita (Y) / Growth Rate (r)	Y1 > y	Y1 < y
r1 > r	Banda Aceh, Pidie	Aceh Barat, Aceh Besar, Aceh Timur, Aceh Utara, Bireuen, Lhokseumawe, and Nagan Raya
r1 < r	Aceh Jaya, Aceh Selatan, Aceh Tengah, Aceh Tenggara, Bener Meriah, Gayo Luwes Langsa, Pidie Jaya Sabang, Simeulue Subulussalam, Aceh Barat Daya, and Aceh Tamiang	Aceh Singkil

Source: Secondary Data (processed) 2019

Based on Table 2. the grouping of the Typology Class of the Aceh Province are as follows:

1. Districts that are fast-developed and fast-growing, namely the city of Banda Aceh and Pidie.
2. Advanced but depressed districts, namely the district of West Aceh, Aceh Besar, East Aceh, North Aceh, Bireuen, Nagan Raya and Lhokseumawe.
3. Rapidly developing districts namely the district of Aceh Jaya, South Aceh, Central Aceh, Southeast Aceh, Bener Meriah, Gayo Luwes, Langsa, Pidie Jaya, Sabang, Simeulue, Aceh Barat Daya, Aceh Tamiang and Subulussalam.
4. Relatively left behind districts, namely the district of Aceh Singkil.

Results of *Williamson Index*

The inequality development is one of the important things that must be considered by the Government and the community component. The method used to see the gap between regions is used the williamson index analysis. The Williamson Index test results will show values between 0 and 1. The greater the Williamson Index value, the greater the inequality between regions and vice versa, the smaller the Williamson Index value, the smaller the level of inequality between regions.

The results of the Williamson Index calculation are as follows: if the Williamson Index number chooses one number, it indicates that inequality is widening and if the Williamson Index number approaches zero then it shows that inequality is getting smaller between districts in Aceh Province. Matolla in Puspandika (2007) divides the level of high, medium and low levels as follows:

- Low level gap: IW <0.35
- Moderate level gap: 0.35≤ IW ≤0.5
- High level gap: IW> 0.5

The results of the data analysis on the level of inequality in economic growth in the Province of Aceh in 2010-2016 showed a moderate level of inequality, which was between 0.35 ≤ IW ≤0.5. The results of the analysis carried out can be seen in the following figure.

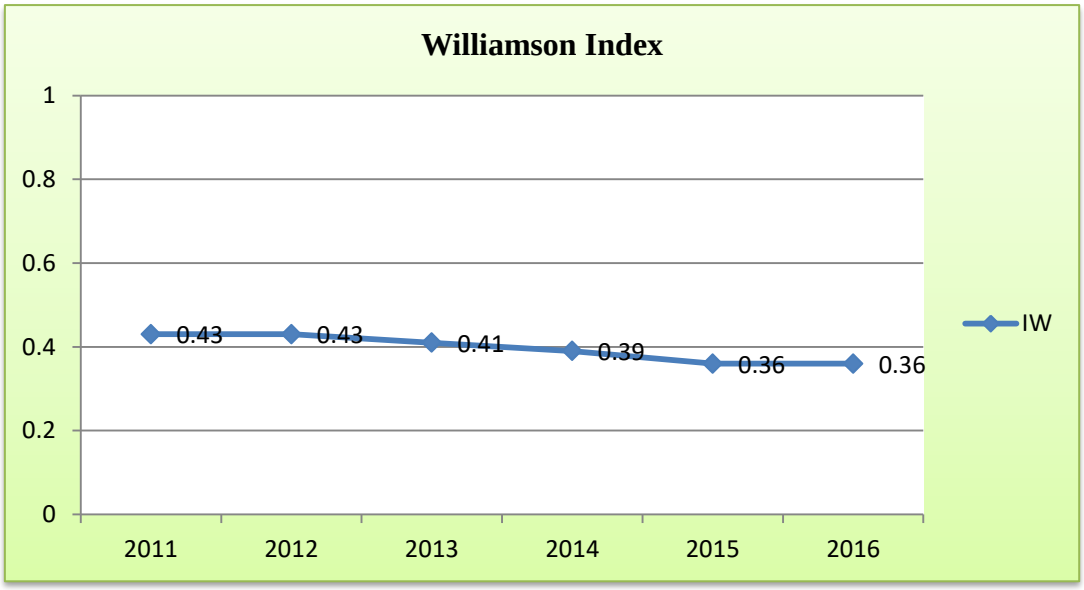

Figure 3. Williamson Index of Aceh Economic Growth, 2011-2016

From the results of the calculation of the level of disparity between districts in Aceh by using the *Williamson Index* showed that from 2010 to 2016 the disparity was at a moderate level (0.35≤ IW ≤0.5). This condition illustrates that the inequality of economic growth in Aceh has been classified as moderate, meaning that there is no more inequality that is high in the level of economic growth of districts in Aceh. The *Williamson Index* figures continue to show a decline from 2011 to 2016, if these conditions continuosly improved and maintained then in the following years will be at a low level or there will be no more gaps in the economic growth of districts in Aceh.

Klassen Analysis Typology is used to see the pattern of economic development in each district of Aceh. Through this analysis there were four characteristics and patterns of different economic growth obtained, namely: fast-developed and fast-growing regions, advanced but depressed regions, fast developing regions, and relatively lagging regions. From the results of the *Klassen Typology* group, it is known that districts are fast-developed and fast-growing, namely the city of Banda Aceh and the district Pidie. Advanced but underpressured districts, namely the district of West Aceh, Aceh Besar, East Aceh, North Aceh, Bireuen, Nagan Raya and Lhokseumawe. Fast developing district, namely the district of Aceh Jaya, South Aceh, Central Aceh, Southeast Aceh, Bener Meriah , Gayo Luwes, Langsa, Pidie Jaya, Sabang, Simeulue, Southwest Aceh, Aceh Tamiang and Subulussalam. Relatively lagging districts, namely the district of Aceh Singkil.

The results of the calculation of the level of disparity between districts in Aceh by using the *Williamson Index* showed that from 2010 to 2016, the more evenly distributed at the moderate level is WI 0.35 ≤ WI ≤ 0.5. This condition illustrates that the inequality of economic growth in Aceh has been classified as moderate, meaning that there is no more inequality that is higher in the level of economic growth of districts in Aceh. The *Williamson Index* figures continue showing a decline from 2011 to 2016, if these conditions continuosly improved and maintained then in the following years will be at a low level or there will be no more gaps in the economic growth of districts in Aceh.

CONCLUSIONS

It indicated that there are 2 fast-moving districts, there are 7 advanced depressed districts, then as many as 13 districts are developing rapidly and only 1 district is relatively lagging. Every districts in the Province of Aceh in the year 2011-2016 are included in the moderate category, namely between 0.36-0.43, indicated that the economic growth of districts in Aceh is more evenly distributed.

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