Classen Typology and Elasticity Against Economic Growth (Case Study: Aceh)

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Abstract

The main objective of this research is to find out the results of classification typology and elasticity in the sector contribution to economic growth. The type of research method is development research, namely research aimed at developing research findings or previous theories, both for the purposes of pure science and applied science and so on. The data used in this study are secondary data in the form of quantitative data which includes economic growth and sectoral contributions. The data in this study were obtained through agencies or related agencies, namely the Aceh Province Central Bureau of Statistics, the Revenue Service and Regional Financial Management of the Aceh Province.   The results of the study show that 1). The typology of the class shows five areas of the economic sector, one of which is chosen as a mainstay consisting of agriculture, forestry and fisheries; construction; wholesale and retail trade: car and motorcycle repair; transportation and warehousing; government administration, land and social security is mandatory;2). Regression shows that the biggest elasticity in the mainstay is agriculture, forestry and fisheries. This indicates that the district/city government is expected to pay special attention to the development of the superior potential of each region.

Keywords: classification typology, economic growth, sector contribution

1.   Introduction

One of the policies taken by the government to narrow regional inequality is the implementation of regional development policies through the mainstay area concept, which is based on the potential of the regions. The mainstay area is an area designated as a prime mover, which has criteria as a fast-growing area compared to other locations in a region, has a superior sector and has an economic relationship with the surrounding area (Royat, 1996).

The growth of the mainstay area is expected to have a positive impact on the economic growth of the surrounding area (hinterland), through empowering the leading sectors / sub-sectors as a driver of the regional economy and inter-regional economic linkages. The emphasis on economic growth as the direction of the policy of determining the mainstay area is considering "economic growth is one of the economic variables which is a key indicator in development" (Kuncoro, 2000).

The essence of economic growth is a process of continuously changing the economic condition of a country towards a better condition for a certain period. Economic growth can also be interpreted as a process of increasing the production capacity of an economy which is realized in the form of an increase in national income. Their economic growth is an indication of the success of economic development. Economic development cannot be separated from economic growth (economic growth), economic development encourages economic growth, and vice versa, economic growth facilitates the process of economic development.

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This economic growth has an impact on increasing income and ultimately will also affect regional income. The more able to explore the existing regional economic potential, the greater the gross regional domestic product and local revenue, so as to increase regional finance in supporting the implementation of regional autonomy.

In addition, development is a multidimensional process that involves major changes in social structure, familiar mental attitudes and national institutions including accelerating economic growth, reducing inequality and eradicating absolute poverty (Todaro, 2006). In line with this, Sukirno (1985) states also that economic development is defined as a process that causes the income per capita of a society to increase in the long run.

The process of economic development does not only go hand in hand, but is carried out in stages and is consistent with various parties that aim to provide prosperity to the community. This means that it is very necessary to invest capital on a scale that is currently to increase productivity in agriculture, mining, plantations and industry.

Furthermore, the implementation of regional autonomy is focused on the district / city government, so that the district / city government is expected to be able to be independent in administering the government, determining development policies and funding. This condition will be able to increase the ability to explore and manage the sources of potential owned by the region, so that dependence on the central government is kept to a minimum. Munir (2002) states that the key to the success of a decentralized system through regional autonomy is that regional development policies emphasize the characteristics of the regions concerned by using the potential of human, institutional, and physical resources locally.

Aceh has abundant natural resources. The potential for natural wealth comes from forest products, plantations, agriculture, fisheries and mining. The mining sector has been able to contribute around 10.83 percent of Aceh's economy with oil and gas commodities. Apart from mining, the community's economic activities are dominant in the agricultural, plantation and forestry sectors. Figure 1 shows that Aceh's economic growth continued to increase in the 2011-2012 period, then decreased in 2012-2015. During the 2011-2015 period, the economic performance of Aceh Province grew by an average of 1.52 percent, Aceh's economic growth from 2012-2015 slowed down due to the declining impact of mining and manufacturing activities, as indicated by the negative growth of the two sectors.

	2011	2012	2013	2014	2015
Nasional	6,16	6,16	5,74	5,21	4,79
Aceh	3,28	3,85	2,83	1,65	-0,72
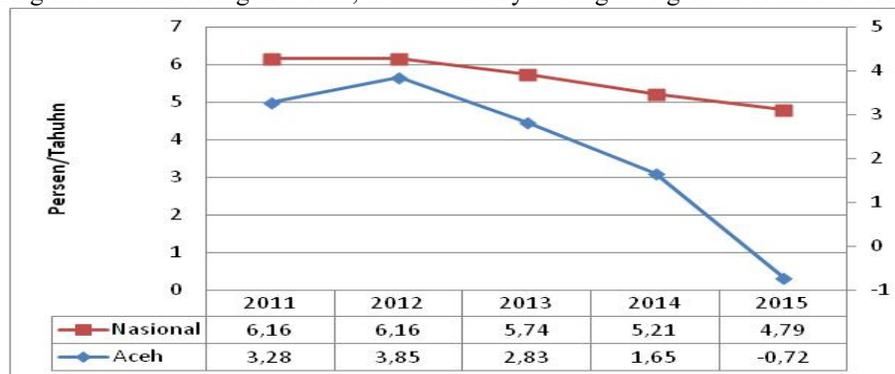
Figure 1. GRDP Growth Rate at Constant Prices

GRDP growth is part of economic sectors. The size of the contribution of the economic sector starts from the planning process carried out in the region. Of course, through good planning will impact the greater contribution of each sector to the GRDP of a region, which in turn will increase economic growth in a better direction.

This research is a development of a previous research study conducted by Sinaga (2015); Endaryanto et. all (2015); Cahyono and Wahyu (2014); Andiatma (2014); Sukriah (2014); Mahardiki and Rokhedi (2013); Nindhitya (2013); Sutrisno (2012); and Aswandi and Mudrajat (2002). The results are to find out the results of classification typology and the elasticity of sector contributions to economic growth. But the data sampled to determine elasticity is the contribution of the mainstay economic sector based on the results of the typology of class. The aim is to accelerate economic growth and per capita income in districts / cities in Aceh.

In theory, the development of GRDP sectors will have an impact on the economy. These economic sources can be seen in regional income. There are three approaches commonly used to calculate GRDP, namely the production approach and expenditure approach, and the income approach.

However, from these three approaches, the sectoral approach is the most widely used approach in calculating GRDP. The production approach is a GRDP calculation that sums up all the gross added value generated by each sector in the economy. The nine sectors are agriculture, mining and quarrying sector, manufacturing industry sector, electricity, gas and water supply sector, building sector, hotel and restaurant trade sector, transportation sector, financial sector and leasing sector, and finally service sector.

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GRDP is also referred to as a regional balance where the content can be separated as sectoral GRDP on the left side and GRDP according to use on the right side. In terms of utilization, GRDP is used as the basis for calculating predictions, various ratios, and measures of regional disparity. In another sense, GRDP data describes the ability of a region / region in managing its resources. Therefore, the value of GRDP produced by each region / region is highly dependent on the potential of natural resources, human resources and technology (factors of production) in these regions / regions. The condition of the limited natural resources and the provision of production factors causes the magnitude of the GRDP to vary between regions / regions.

Furthermore, elasticity is the degree of sensitivity of the quantity requested or offered to one of the factors that influence the function of demand or supply (Arsyad, 2011). Elasticity is a measure of the magnitude of the response to the number of requests or the number of offers for changes in one of the determinants (Gita and Sukarsa, 2013).

1.1. Research Aim

This study aims to accelerate economic growth and per capita income in districts / cities in Aceh. To achieve the objectives of the study, an analysis of the results of the typology of classification and the elasticity of the sector's contribution to economic growth has been determined, in which the sample to determine elasticity is the contribution of the mainstay economic sector based on the results of the classification typology.

2.   Methodology

The type of research method is development research, namely research aimed at developing research findings or previous theories, both for the purposes of pure science and applied science and so on. The data used in this study are secondary data in the form of quantitative data which includes economic growth and sectoral contributions. The data in this study were obtained through agencies or related agencies, namely the Aceh Province Central Bureau of Statistics, the Revenue Service and Regional Financial Management of the Aceh Province.

2.1. Data Collection

The population in this study were all districts / cities (18 districts and 5 cities) in Aceh Province. This research was conducted in census with secondary data in the form of time series from 2013 to 2015. The cross section data consists of 23 districts / cities, so that it is pooled the data, which is a combination of time series data (2013-2015: 3 years) with data cross section 23 districts / cities.

2.2 Data Analysis Method

The analysis model is two, the first typology klassen. Klassen typology analysis is a technique that will classify existing sectors by looking at the growth and contribution of certain sectors to the total GRDP in Aceh Province. Table 1 shows that a sector is grouped into four categories, namely mainstay economic sectors, potential economic sectors, developing economic sectors, and disadvantaged economic sectors.

Table 1. Grouping Economic Sectors Based on the Klassen Typology

Sectoral Contribution / Economic Growth	Sectoral Contribution Above Average	Below-Sectoral Contribution
Economic Growth Above Average	Mainstay Economic Sector	Potential Economic Sector
Below Average Economic Growth	Developing Economic Sector	Underdeveloped Economic Sector

Second, using panel data testing. The indication is to see the elasticity of the dominant sectors towards economic growth. The contribution of the selected sector is included in the mainstay economic sector, because it is a sector that has an impact on accelerating economic growth. This study uses log linear specifications and this model is then specified as a model as follows:

$$LogEG_{it} = \beta_0 + \beta_1 LogAF_{it} + \beta_2 LogCr_{it} + \beta_3 LogT_{it} + \beta_4 LogTr_{it} + \beta_5 LogGA_{it} + \varepsilon \dots \quad (1)$$

where EG is economic growth, AF is the sector of agriculture, forestry and fisheries; Cr is construction; T is large and retail trade: car and motorcycle repair; Tr is transportation and warehousing; GA is compulsory government administration, land and social security.

3. Analysis Results

Before doing the analysis using the panel data test. Then the first step is to make a classification typology map. Table 2 shows that the sectors that can be categorized as developed and growing rapidly (Quadrant I) are agriculture, forestry and fisheries; construction; wholesale and retail trade: auto and motorcycle repair; transportation and warehousing; government administration, land and social security are mandatory. In other words, in this province the sector has a performance rate of economic growth and a larger share compared to the national situation as a whole.

Furthermore, the electricity and gas procurement sector; water supply, waste management, waste and recycling; provision of accommodation and food for drinking; information and communication; financial and insurance services; housing; company services; education services; health services and social activities; Other services according to Klassen's typology are categorized as developed but depressed sectors (Quadrant II). This sector has a GRDP growth value that is lower than the national GDP growth, but has a greater contribution to provincial GRDP than the contribution of the sector's value to national GDP.

Classical typology analysis also found that in this province there are many sectors that are categorized as potential sectors or are still developing rapidly (Quadrant III). These sectors are mining and quarrying; processing industry. Sector in Quadrant III can be defined as a sector that is booming. Although the regional market share is relatively smaller than the national average.

In the context of this class typology, it can also be seen that the sector which is classified as a relatively underdeveloped sector (Quadrant IV) is zero.

Table 2. Results of the Klassen Typology

Sectoral Contributions ╲ Economic Growth	Sectoral Contribution Above Average	Below-Sectoral Contribution
Economic Growth Above Average	Mainstay Economic Sector - Agriculture, forestry and fisheries - Construction - Wholesale and retail trade: Car and motorcycle repairs - Transportation and warehousing - Government Administration, Land and Social Security is mandatory	Potential Economic Sector - Procurement of electricity and gas - Water Procurement, Waste, Waste and Recycling Management - Provision of accommodation and food for drinking - Information and communication - Financial and insurance services - Real estate - Company services - Educational services - Health services and social activities - Other services
Below Average Economic Growth	Developing Economic Sector - Mining and excavation - Processing industry	Underdeveloped Economic Sector

The independent variable is then conducted an empirical study by analyzing the data obtained from the data source. Table 3 shows that this analysis looks at the influence of variables related to the sector's contribution to economic growth. The results of the analysis are where EG is economic growth, AF is the agriculture, forestry and fisheries sectors; Cr is construction; T is the wholesale and retail trade: auto and motorcycle repair shops; Tr is transportation and warehousing; GA is mandatory government administration, land and social security.

Table 3. Estimated Model of Pooled Least Square Cross-Section Weights

Dependent variable	: EG		
Independent Variables	Coefficient	t-Statistic	Prob.
AF_1	2,320	2,345	0,025 *)
Cr_2	1,125	2,364	0,013 *)
T_3	0,641	3,256	0,044 *)
Tr_4	1,180	3,328	0,035 *)
GA_5	0,101	2,453	0,231
$R^2 = 0,781$			
Adjusted $R^2 = 0,792$			
F-Stat= 30,142			
Prob. F Statistics = 0,000			
*) Significant at level 5%			

4. Discussion of Results

Based on the classification typology map, Table 4 shows that the mainstay of the economic sector is the agricultural sector; construction sector; wholesale and retail trade and repair of cars and motorbikes; transportation and warehousing sector; government administration, land and social security. The five mainstay sectors are sectors that have an impact on economic growth. This can be seen from the increased growth of the leading sectors as shown in the table below.

Table 4. Percentage of Mainstay Sector Growth

Mainstay Sector Growth	Growth		
	2013	2014	2015
1. Agriculture	4,98	2,45	4,85
2. Construction	8,57	8,94	9,48
3.Wholesale and retail trade and repair of cars and motorbikes	5,60	4,03	3,92
4. Transportation and warehousing	7,70	7,73	8,01
5. Government administration, land and social security	2,95	7,13	6,83

This is in line with Sudirman and Alhudori (2018) which defines the superior economic sector as a sector that can support and accelerate development and regional economic growth based on the criteria of the sector's ability to contribute to regional GRDP revenue, the level of ability to absorb labor, potential in produce export commodities and strong linkages with other sectors.

According to Urbanus dan Prihawantoro (2002), the criteria for superior commodities of a region, including superior commodities must be able to be the main driver of economic development; superior commodities have strong forward and backward linkages, both superior commodities and other commodities; excellent commodities are able to compete with similar products from other regions in the national market and international markets, both in product prices, production costs, service quality, and other aspects; regional superior commodities have links with other regions, both in terms of markets (consumers) and supply of raw materials (if raw materials in the area itself are insufficient or not available at all); superior commodities have an increasing technological status, especially through technological innovation; superior commodities are able to absorb quality workforce optimally according to the scale of production; excellent commodities can survive in a certain period of time, starting from the phase of birth, growth, peak to decline. When a leading commodity enters a decline, other superior commodities must be able to replace it; superior commodities are not vulnerable to external and internal turmoil; development of superior commodities must get various forms of support. For example, support for security, social, cultural, information and market opportunities,

institutions, facilities incentives / disincentives, and others; development of superior commodities oriented to the preservation of resources and the environment.

The regression results of the production function model show that GRDP representing economic growth has a positive relationship with growth in the agriculture, forestry and fisheries sectors; construction; wholesale and retail trade: car and motorcycle repair; transportation and warehousing; government administration, defense and social security is mandatory. This means that the increase in the independent variable will increase the GRDP of the country / region.

Based on the results of the above data analysis, obtained the value of t count AF variable of 2,320 with a probability of 0,025 This means that the probability obtained is smaller than α = 5% (0,025 <0,05), so it can be concluded that the contribution of the agriculture, forestry and fisheries sector has a positive and significant effect on economic growth. This is consistent with previous empirical research by Block (1999); Changsheng Xu et.all (2003) stated that the contribution of the agricultural sector increases economic growth.

The variable Cr is 1,125 with a probability of 0,013. This means that the probability obtained is smaller than α = 5% (0,013 <0,05), so it can be concluded that the contribution of the construction sector has an influence and is significant on economic growth. This is in line with Mankiw's theory which states that capital or capital is the main source of economic growth, so that a production activity or business can be carried out. Production activities are carried out to produce goods and services where the final number of goods and services is a component to see the GRDP level.

The regional government still prioritizes the construction sector because in addition to being able to absorb a large number of workers it also has a significant influence on economic growth. Moreover construction is a way to carry out a productive economy. This shows that the existing construction is able to boost economic growth, because most of it is in the area of production land in the agriculture, plantation and forestry sectors.

T variable is 0,641with a probability of 0,044. This means that the probability obtained is smaller than α = 5% (0,044 <0,05), so it can be concluded that the contribution of the wholesale and retail trade sector: car and motorcycle repairs has an influence and is significant on economic growth. This is in line with the research by Gunawan and Penangsang (2017).

This is in accordance with the growth theory of Harrod-Domar which says that investment has a significant influence on the growth of the trade sector. The investment in question is delaying consumption to obtain a better value in the future. This means that the growth of the wholesale and retail trade sector: car and motorcycle repairs significantly influences the growth of economic growth, if investment in the trade sector in Aceh can be optimally utilized. This is due to large and retail trade sector investments: car and motorcycle repairs provide significant added value to economic growth.

The Tr variable is 1,180 with a probability of 0,035. This means that the probability obtained is smaller than α = 5% (0,035 <0,05), so it can be concluded that the contribution of the transportation and warehousing sector has an influence and is significant on economic growth.

Transportation and warehousing are important elements in life and the economic, social, political and mobility development of the population that grows together and follows developments in various fields and sectors. But what is urgent is the role and importance of transportation in relation to economic and socio-economic aspects. In this connection, the main thing is the availability of goods, stabilization and price equalization, decreasing prices, increasing land values, the occurrence of specialization between regions, the development of large-scale businesses, and the occurrence of urbanization and population concentration in life.

GA variable is 0,101with a probability of 0,231. This means that the probability obtained is greater than α = 5% (0,232 <0,05), so it can be concluded that the contribution of government administration, land and social security must have no influence and significant impact on economic growth. Although data shows an increase in this sector due to the large number of government institutions that have carried out bureaucratic reforms that have increased employee spending with the remunition of civil servants.

However, the results of the GA variable regression are very much in line with public theory because the increase in employee spending does not have a direct impact on economic growth. But what directly impacts economic growth is public spending (development).

5. Conclusion

Based on the problems, objectives, theory and analysis above. Then it can be concluded that to accelerate economic growth and per capita income in districts / cities in Aceh is to maximize its mainstay economic sector, after that pay attention to its potential economic sector. The selected mainstay economic sector consists of agriculture, forestry and fisheries; construction; wholesale and retail trade: car and motorcycle repair; transportation and warehousing; government administration, land and social security.

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The sector which is dominant, can be seen from the elasticity of the mainstay economic sectors, namely the agriculture, forestry and fisheries sectors. This indicates that the district / city government is expected to maximize the sector to improve the welfare of its people.

6. Recommendation

Furthermore, to develop regional potential as one of increasing economic growth and per capita income of the community. So it is necessary to recommend a number of things that the local government will do to catch up with other regions, such as accelerating local economic development through spatial dimensions; improve rural development integrated with urban development strategies; high motivation for accelerating regional development, such as capital and infrastructure; the need for a vision, mission and strategy of the RPJM on tackling poor and disadvantaged areas that are in line.

7. Acknowledgement

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