

## Determinants of Regional Economic Growth in Twenty Provinces in Indonesia Using a Data Panel Approach

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### ABSTRACT

The Western and Central Indonesia Regions are far superior when compared to the Eastern Indonesia Region. This is a result of a number of factors, including variations in development spending, the quantity of balancing funds, population, level of investment in the area, and the region's natural resources. The purpose of this study is to investigate and evaluate the effects of macroeconomic factors, the status of oil-rich regions, and regional government spending on regional economic growth. This analysis employs a static panel and dynamic panel approach (VECM panel). The research uses data from 20 provinces in Indonesia between 2008 and 2018, which includes complete data from 34 provinces. The study's findings demonstrate that long-term (VECM panel) spending on education, agriculture, general allocation funds, population, and foreign investment has a positive impact on regional economic growth, while spending on health, fisheries, and maritime has a negative impact. According to studies conducted using a static panel, foreign direct investment and spending on foreign direct investment, education, agriculture, fisheries, and maritime affairs have a positive impact on regional economic growth, while the General Allocation Fund has a negative impact. Research has demonstrated that the dummy variable representing regional status has a positive impact on regional economic growth. The government ensures that the state budget is allocated more optimally to overcome this problem inequality in obtaining opportunities in the education and health sectors through improvement public infrastructure services.

## INTRODUCTION

Economic indicators include more than just economic growth; they also take into account other variables when gauging economic development. Examples of these variables include the GDP per capita Human Development Index (HDI), the happiness index, and data on health care and literacy rates. Economists use Gross Domestic Product (GDP) data, which calculates the total income of all individuals in the economy, to gauge economic growth. GDP calculates the total income and goods produced in a nation (Mankiw, 2003). A nation only needs to look at international data and compare its GDP to that of other, less developed nations, to understand the significance of GDP. In comparison to nations with lower GDP per capita, those with higher GDP per capita levels enjoy higher levels of welfare. Although a high GDP is not a guarantee of happiness for the entire population, it might be the best recipe for happiness that macroeconomists. Table 1.1 shows Gross Domestic Product and economic growth from 2010 to 2018. Indonesia's GDP in 2018 was one and a half times greater than in 2010 or GDP in 2018 increased by 150 percent from GDP in 2010. GDP per capita in 2018 experienced an increase in welfare of 1.36 times compared to GDP per capita in 2010.

**Table 1.1.**  
**Gross Domestic Product and Indonesia's Economic Growth 2010 – 2018**

Year	GDP (Billion Rupiah)	Economic growth	Resident	GDP/capita
2010	6.864.133,1		237.641.326	28.884.425
2011	7.287.635,3	6,17	240.873.248	30.255.063
2012	7.727.083,4	6,03	244.149.124	31.649.032
2013	8.156.497,8	5,56	247.469.552	32.959.601
2014	8.564.866,6	5,01	250.835.138	34.145.402
2015	8.982.517,1	4,88	254.246.496	35.329.954
2016	9.434.613,4	5,03	257.704.248	36.610.236
2017	9.912.928,1	5,07	261.209.026	37.950.174
2018	10.425.397,3	5,17	264.761.469	39.376.565

Source: Central Bureau of Statistics (various publications)

As the primary tool of fiscal policy in Indonesia, the APBN is crucial in promoting the accomplishment of set development goals. This position is consistent with the APBN's use as a tool to preserve stability and boost economic growth. Because of this, fiscal policy always aims to maintain environmental sustainability while promoting economic growth, job creation, and poverty reduction.

**Table 1.2.**  
**Influence between Government Expenditures and 2010 ADHK GDP (Billions of Rupiah)**

Year	Government Expendit	Change (%)	PDB	Change (%)	Ratio of Governme nt Expenditu	Elasticit y <sup>1</sup>
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	ure (BP)				res to PDB (%)	
1	2	3	4	5	6	7
2011	1.294.999	-	7.287.635		17,77	-
2012	1.491.410	15,17	7.741.655	6,23	19,26	0,41
2013	1.650.564	10,67	8.189.122	5,78	20,16	0,54
2014	1.777.183	7,67	8.600.216	5,02	20,66	0,65
2015	1.984.100	11,64	9.012.167	4,79	22,02	0,41
2016	2.095.700	5,62	9.433.034	4,67	22,22	0,83
2017	2.276.479	8,63	9.911.289	5,07	22,97	0,59
2018	2.497.297	9,70	10.423.703	5,17	23,96	0,53

Source: BPS 2012, 2014, 2017 (processed data)

The influence between fiscal policy and economic expansion can be explained by elasticity figures (Table 1.2). The elasticity figure shows how much influence changes in government spending will have on changes in Gross Domestic Income (Mangkoesebroto, 2001). According to Wagner, the increase in government spending is due to the increasing development function, meaning that greater government spending can encourage the rate of a nation's economic progress. One may assume that an increase in government spending can result in higher elasticity figures based on the calculation of the figures from 2012 to 2018. Gross Domestic Product, but after 2016 the additional increase will decrease, and if the government does not improve development programs, it will have an impact on increasing additional government spending, causing low growth in Gross Domestic Product (Hemming). , et al. 2002). Decentralization and regional autonomy essentially aim to achieve efficiency and effectiveness in administering government and public services. The primary theory underlying decentralization is that it can improve the effectiveness with which the government distributes its resources. As per Hayek (1945) and Musgrave (1959), local governments with minimal geographic control and close proximity to the community will be able to allocate government expenditure to public services more efficiently. This is because local governments are better able to understand the needs of their communities due to a variety of factors (Azwar et al., 1999). Second, decisions made by local governments are more sensitive to the needs of the community, which motivates them to use community funds wisely. Third, local governments will be more inclined to innovate in order to improve public services as a result of regional competition in delivering services to their communities.

Based on the above phenomenon, Finding the elements influencing a region's economic growth is essential, and government spending plays a part in fiscal policy. Making the Regional Revenue and Expenditure Budget (APBD) is how regional governments typically carry out their fiscal policies. Based on the

needs of regional revenue capabilities and government administration, the Regional Revenue and Expenditure Budget (APBD) is prepared. The Regional Government Work Plan (RKPD) served as a guide for the preparation of this APBD in order to serve the community and meet state objectives. According to Bastian (2006), APBD performs the following tasks: allocation, distribution, supervision, planning, authorization, and stabilization.

## **LITERATURE REVIEW**

Keynes's Classical Theory is the classical theory that addresses how the role of government affects economic growth. According to this theory, whether or not economic development can proceed as efficiently as possible depends on government intervention in the economy. Keynes's theory implies that government involvement in economic management is necessary to guarantee steady economic growth. Adolf Wagner, a different economist, claimed that government expenditures and operations have been rising over time. In the 19th century, Wagner calculated the difference between government spending and the GDP of the US, Japan, and Europe (Mangkoesebroto, 2002). The findings demonstrate that there is a growing trend in government activity within the economy. This tendency is known by Wagner as the law of ever-increasing state activity. Among the theories advanced by Adam Smith, David Ricardo, and Robert Malthus is the classical approach theory. Three factors determine a nation's production process in generating total output, according to Adam Smith (1869) in his book *An Inquiry Into the Nature and Causes of the Wealth of Nations*: (i) available natural resources; (ii) human resources; and (iii) the stock of capital goods already in place. A nation's primary source of raw materials for production is its natural resources. Both the production process and economic growth will stop if natural resources are exhausted. When we talk about human resources, we mean labor force. Labor is an input in the production process and actively contributes to economic growth. In the production process, quantity and quality will be crucial factors, and capital stock will have a significant impact on how quickly output grows (Djojohadikusumo, 1994).

**Neo-Keynesian Growth Theory Approach** The theories of Roy F. Harrod (1939) and Evsey D. Domar (1946) represent the Neo-Keynes view of the process of economic growth. The broad strokes of Keynes's (1936) analytical framework are evident in Harrod's pattern of approach to the growth process. Keynes was primarily concerned with maintaining full employment, which included using installed production capacity. Harrod (Djojohadikusumo, 1994) is now raising the question of what circumstances allow for the fulfillment of the requirements in a growth process that occurs in a stable equilibrium. Harrod is mostly concerned with economic growth that can occur continuously within a pattern of stable equilibrium states. The two growth rate concepts that Harrod outlined are crucial to his ideas: (i) the growth rate of production and income at a level that entrepreneurs deem adequate; and (ii) the growth rate of production and income is determined by fundamental factors such as an increase in the labor force due to population growth and an increase in work

productivity due to technological advancements. Harrod states that if these two requirements are satisfied, there can be continuous economic growth under full employment circumstances (Djoyohadikusumo, 1994; Hakim, 2002; Todaro, 2000; Sukirno, 2006).

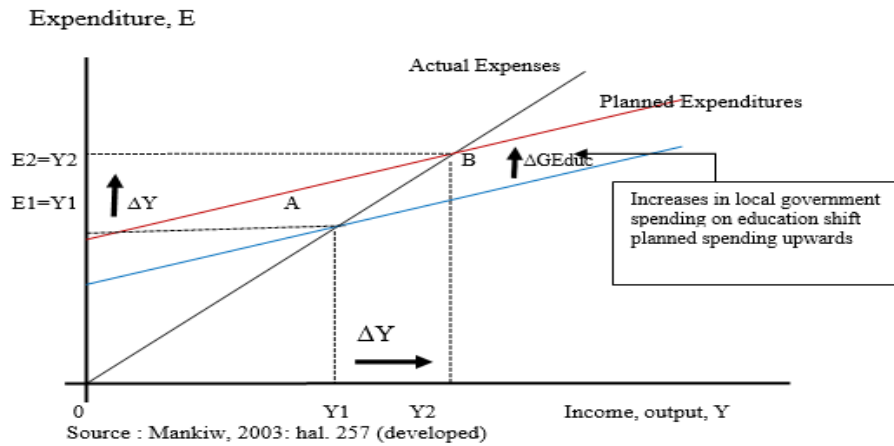
The present discourse confines the discussion of Neo-Classical theory of economic growth to the principal concepts formulated by Simon Kuznet (1934), Robert M. Solow (1957), and Nicholas Kaldor (1955). Solow's model allows for the potential for fluctuations in both interest rates and wage levels. It is believed that the growth process is characterized by erratic balances between the production factors. There is room for substitution among the production factors used in the process because the prices of these factors are negotiable. The price of labor (wage rate) will fall in comparison to the price of capital (interest rate) in circumstances where the supply of labor surpasses the demand for labor. Conversely, the wage level will rise if the growth in capital outpaces the growth in the number of workers. Each of these can reduce the likelihood of a divergence from equilibrium growth, whether through adjustments to the prices of production factors or the replacement of one kind of factor with another. According to Harrod's instability theory, it is therefore inappropriate to suggest that there was an element of instability during the growth process (Djoyohadikusumo, 1994: 44).

### ***Relationship Between Independent Variables and Dependent Variables***

#### ***The Influence of Regional Government Spending on Education on Regional Economic Growth***

Figure 2.1 provides an explanation for the rise in local government spending on education in the Keynesian intersection. For all income levels, an increase of  $\Delta G_{Educ}$  in regional government spending on education results in a  $\Delta Y$  increase in planned regional spending. Regional income rises from  $Y_1$  to  $Y_2$ , and the balance shifts from point A to point B. Figure 2.1. This indicates that there is a positive correlation between increased regional government spending on education and increased regional income. In other words,  $\Delta Y$  exceeds  $\Delta G_{Educ}$ . The regional government purchase multiplier is defined as  $\Delta Y / \Delta G_{Educ}$ . This ratio shows the extent to which increases in regional government spending on education have raised regional income. The Keynesian intersection suggests that there is a positive multiplier effect between local government spending on education and income, meaning that higher education spending leads to higher income.

#### **H1: Effect of Regional Government Spending on Education on Regional Economic Growth**

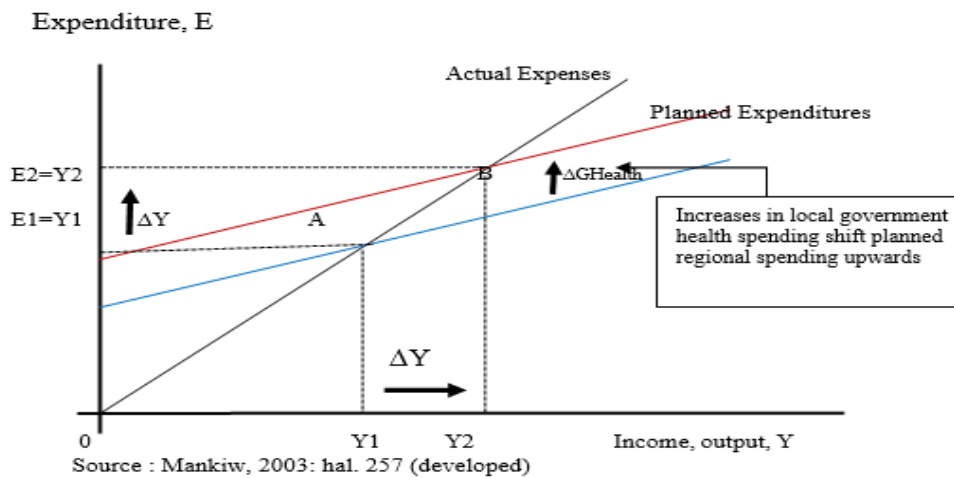


Source : Mankiw, 2003: hal. 257 (developed)  
 Figure 2.1.  
 Increase in Education Spending on the Regional Economy

*The Influence of Regional Government Spending on Health on Regional Economic Growth*

Figure 2.2 provides an explanation for the rise in health-related local government spending in the Keynesian intersection. For all income levels, an increase in government health spending of  $\Delta G_{Health}$  results in an increase in planned spending of  $\Delta Y$ . As income rises from  $Y_1$  to  $Y_2$ , the balance shifts from point A to point B. This graph demonstrates the relationship between rising regional government health spending and rising regional income. In other words,  $\Delta Y$  exceeds  $\Delta G_{Health}$ . We refer to the regional government purchase multiplier as the  $\Delta Y / \Delta G_{Health}$  ratio. This ratio shows the extent to which increases in regional government spending on health have raised regional income. The Keynesian crossover implies that the municipal government spending multiplier on health is positive or that an increase in education spending causes an increase in income.

**H2: Effect of Regional Government Spending on Health on Regional Economic Growth**



Source : Mankiw, 2003: hal. 257 (developed)  
 Figure 2.2.  
 Increase in Health Spending on the Economy

*The Effect of Government Spending on Agriculture on Economic Growth*

The following chart provides an explanation for the rise in local government spending on agriculture in the Keynesian intersection. For all income levels, a  $\Delta G_{Agriculture}$  increase in regional government spending on agriculture results in a  $\Delta Y$  increase in planned regional expenditure. Regional income rises from  $Y_1$  to  $Y_2$ , and the balance shifts from point A to point B. The policy of augmenting the regional government's expenditure on agriculture influences the regional income. This graph demonstrates how rising agricultural expenditures by local governments in a given area contribute to rising regional incomes. In other words,  $\Delta Y$  is bigger than  $\Delta G_{Agriculture}$ . The regional government purchase multiplier is defined as  $\Delta Y / \Delta G_{Agriculture}$ . This ratio shows the extent to which increased regional government spending on agriculture has raised regional income. The Keynesian crossover suggests that there is a positive multiplier effect between local government spending on education and that higher agricultural spending leads to higher income.

**H3: Effect of Government Spending on Agriculture on Economic Growth**

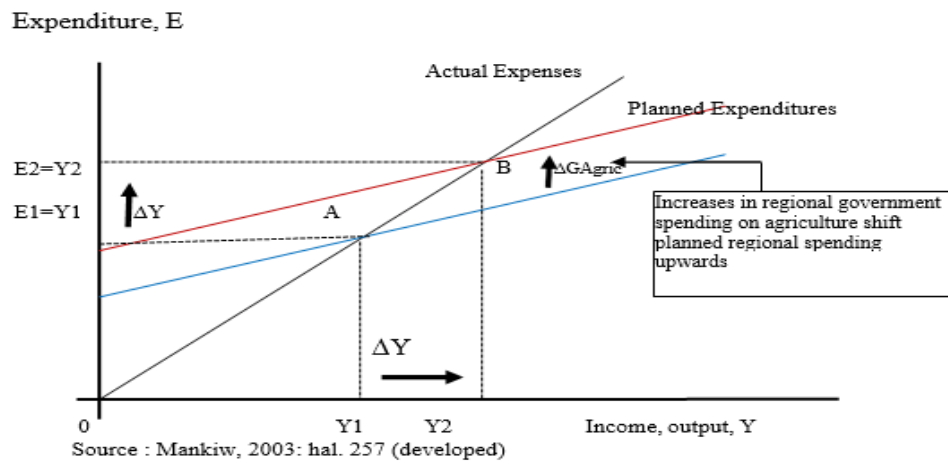


Figure 2.3.  
 Increase in Agricultural Expenditures on the Regional Economy

*The Effect of Government Spending on Fisheries and Maritime Affairs on Economic Growth*

The increase in fisheries and marine spending in the Keynesian intersection can be explained in Figure 2.5. An increase in regional Planned regional expenditure rises by  $\Delta Y$  for all income levels when government spending on fisheries and marine affairs by  $\Delta G_{Marine}$ . As income rises from  $Y_1$  to  $Y_2$ , the balance shifts from point A to point B. Figure 2.4 of the graph. This demonstrates how rising regional income is a direct result of increased regional government spending on fisheries and marine affairs. In other words,  $\Delta Y$  exceeds  $\Delta G_{Marine}$ . The regional government purchase multiplier for fisheries and marine affairs, or  $\Delta Y / \Delta G_{Marine}$ , is a ratio that indicates the amount that regional income has increased as a result of increased regional government spending on these subjects. The Keynesian intersection implies that the spending multiplier for local government for education is positive or that an increase in education spending causes an increase in income.

**H4: Effect of Government Spending on Fisheries and Maritime Affairs on Economic Growth**

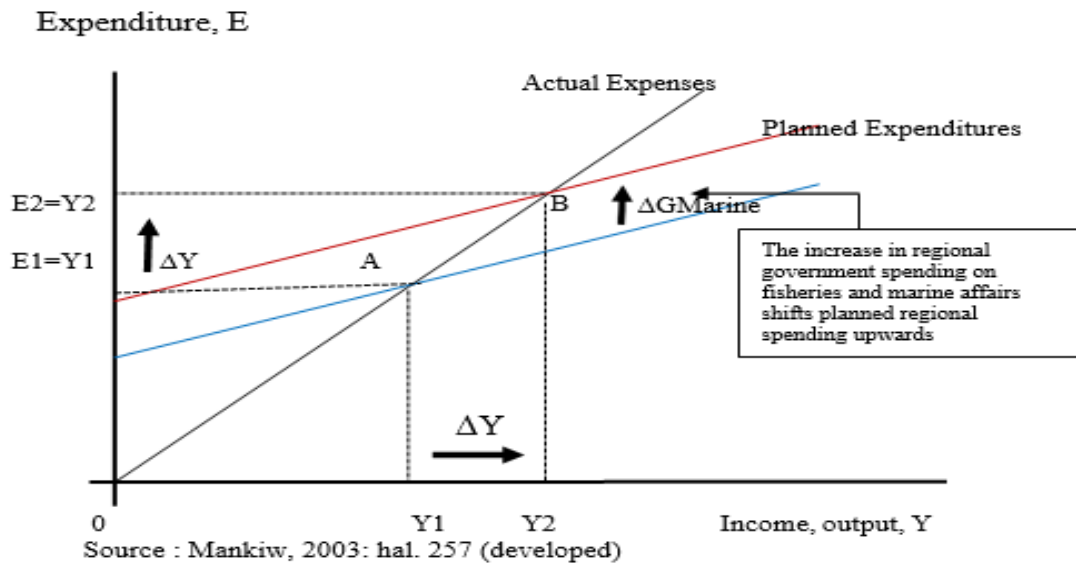


Figure 2.4.  
Increase in Fisheries and Maritime Expenditures on the economy

*The role of General Allocation Funds in Economic Growth*

DAU is allocated to regions using the DAU formula based on the Basic Allocation and Fiscal Gap with the proportion of DAU distribution for provincial and district/city areas respectively 10% (ten percent) and 90% (ninety percent) of the national DAU amount. The DAU formula is formulated as follows:

$$DAU = AD + CF$$

**Information:**

- DAU = DAU allocation per region
- AD = DAU allocation based on Basic Allocation
- CF = DAU allocation based on Fiscal Gap

The Basic Allocation is calculated based on data on the number of Regional Civil Servants (PNSD) and the amount of PNSD salary expenditure by taking into account other policies related to salaries. Meanwhile, the Fiscal Gap is the difference between Fiscal Needs and Fiscal Capacity. DAU is expected to be additional capital in order to create better utilization. For example, if funds are allocated for development purposes, for example infrastructure or basic services (education, health, community empowerment and so on) or efforts to expand employment opportunities, then this will have a big impact on society by providing better or reduced public services. unemployment with employment in a number of employment centers which has an impact on reducing the poor population. Thus, DAU becomes important for a region as a form of regional income that can be used as capital to encourage economic growth.

**H5: The role of General Allocation Funds on Economic Growth**

*Influence of Population on Economic Growth*

Population development has the potential to stimulate or impede economic growth. Increases in education will occasionally follow population growth, making the workforce more competitive and ultimately contributing to economic growth. In this way, population growth will be a driver of economic growth. However, if worker productivity does not rise in tandem with population growth, it will impede economic growth and result in unemployment. Growth in the population will not result in a significant increase in production because the unemployment rate is still rising and getting worse. In addition, low labor productivity contributes to low agricultural sector productivity development. As a result, per capita income levels decrease (Todaro, 2000). Rapid population growth is causing problems (increasing social problems and crime) for the welfare of humanity throughout the world.

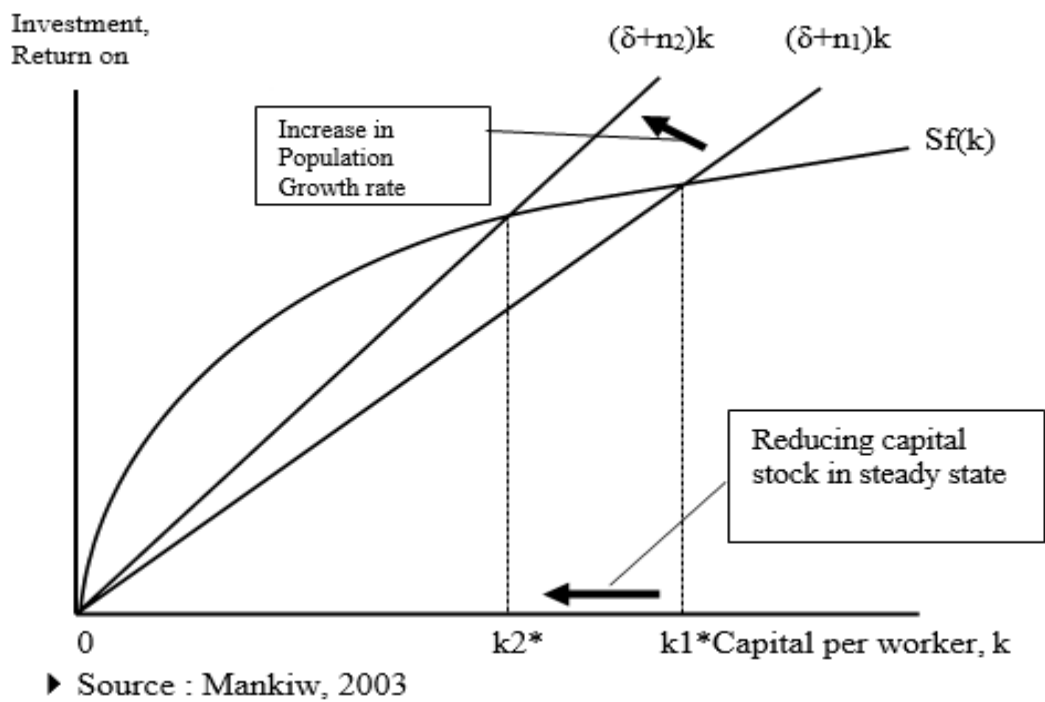
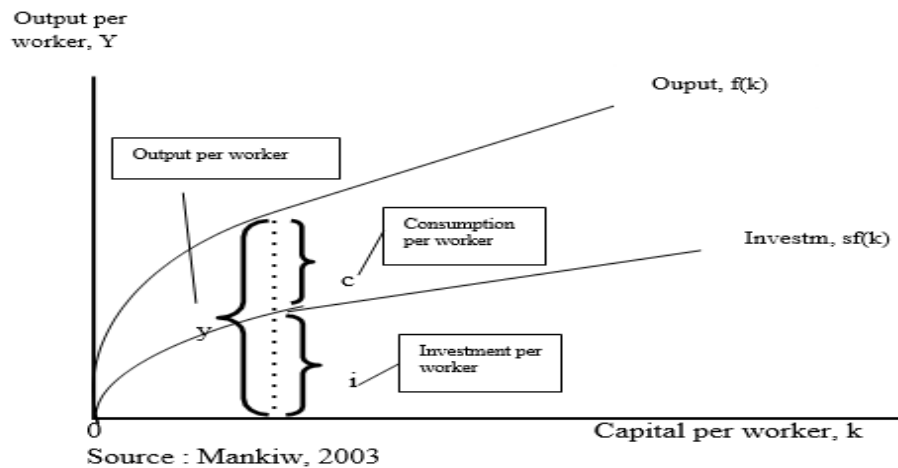


Figure 2.5

*The Effect of Foreign Investment on Economic Growth*

Because the capital stock can fluctuate over time and cause economic growth, it is a significant factor in determining economic output. Investment and depreciation are the two factors that affect inventory (Mankiw, 2003). The capital stock rises as a result of investments made on new machinery and business expansion. The use of capital, or depreciation, results in a decline in the capital stock. Note the following equation:  $I = sf(k)$ .

**H7: Effect of Foreign Investment on Economic Growth**



**Figure 2.6.**  
Output, Consumption and Investment

### Effect of Regional Status on Economic Growth

The Netherlands is a phenomenon in the economic field that refers to the consequences usually caused by the abundance of natural resources in a country. According to Richard Auty's research, resource-poor countries have performed significantly better than resource-rich countries since the 1960s. Auty has taken into account measures of economic growth, particularly exports. According to him, this curse impedes progress by bringing about what he terms the "Dutch Disease," which is the downturn in other economic sectors that follows an increase in revenue from oil exports (Otaha, 2012). The national economy is susceptible to fixed prices due to its reliance on oil revenues from natural resources. Dependency on oil and the volatility of oil prices on global markets make fiscal planning extremely difficult, lower the standard of public spending, and result in financial catastrophes when oil prices decline. But as oil prices decline, fiscal budgets become insufficient, nations begin to borrow money from their reserves, and they continue to accumulate debt unchecked (Auty, 2004).

### H8: Effect of Regional Status on Economic Growth

#### METHODOLOGY

This research uses a quantitative research approach with a linear regression approach. Quantitative research is systematic scientific research on parts and pieces phenomena and their relationships. The aim of Quantitative Research is to develop and use mathematical models, theories and hypotheses associated with phenomena that happened.

#### *Static Panel Data*

Fixed effect model was selected based on the Chow and Hausman test results. The analysis of the Fixed Effect model panel regression approach yielded the following findings:

$$\begin{aligned} \text{Log(PDRBt)} = & 0,972 \log(\text{POP})^{***} - 0,062 \log(\text{POV}) - 0,169 \text{Log}(\text{DAU})^{***} + \\ & 0,071 \\ & \log(\text{EDUC})^{***} + 0,007 \log(\text{HEALTH}) + 0,04 \log(\text{AGRIC})^{**} + \\ & 0,032 \\ & \log(\text{MARINE})^{**} + 0,057 \log(\text{FDI})^{***} + 0,059 \text{DOPINI}^{***} + \\ & 0,290 \\ & \text{DSTATUS}^{***} + 16,661 \end{aligned}$$

**Description: \*\*\* significant  $\alpha$  1% \*\* significant  $\alpha$  5% \* significant  $\alpha$  10%**  
**Dynamic Panel Regression Model Estimation Method (VECM Panel)**

The VECM Panel Model in this research aims to determine the relationship dynamic between economic growth variables on regional spending (education, health, agriculture and fisheries and marine), balancing funds, and variables macroeconomics, namely population, and investment. Eight variables The endogenous variable is treated in the system as a function of the lag value of the endogenous variable in question. Next, the endogenous variables that will be used in The VECM Panel equation system in this research can be formulated as follows:

$$Y_t = [\Delta\text{GRDP}, \text{Educ}, \text{Healt}, \text{Agric}, \text{Marine}, \text{DAU}, \text{Pop}, \text{FDI}]_{-1} \dots\dots (3.15)$$

Where:

- $\Delta\text{GRDP}$  = Economic Growth based on Real GRDP (based on Prices Constant Year 2010)
- $\text{Educ}$  = Regional spending on education
- $\text{Health}$  = Regional spending on health
- $\text{Agric}$  = Regional spending on agriculture
- $\text{Marine}$  = Regional spending on fisheries and marine affairs
- $\text{DAU}$  = General Allocation Fund
- $\text{Pop}$  = Number of residents
- $\text{FDI}$  = Foreign direct investment

The VECM panel model equation for  $\Delta\text{PDRBt}$  is as follows:

$$\begin{aligned} \Delta\text{PDRBt} = & \beta_{1.1} \text{ecm}(-1) + \beta_{2.1} \Delta\text{PDRB}(-1) + \beta_{3.1} \Delta\text{PDRB}(-2) + \\ & \beta_{4.1} \Delta\text{Educ}(-1) + \beta_{5.1} \Delta\text{Educ}(-2) + \beta_{6.1} \Delta\text{Healt}(-1) + \beta_{7.1} \\ & \Delta\text{Health}(-2) + \beta_{8.1} \Delta\text{Agric}(-1) + \beta_{9.1} \Delta\text{Agric}(-2) + \beta_{10.1} \\ & \Delta\text{Marine}(-1) + \beta_{11.1} \Delta\text{Marine}(-2) + \beta_{12.1} \Delta\text{DAU}(-1) + \beta_{13.1} \\ & \Delta\text{DAU}(-2) + \beta_{14.1} \Delta\text{Pop}(-1) + \beta_{15.1} \Delta\text{Pop}(-2) + \beta_{16.1} \Delta\text{Pov}(-2) \\ & + \beta_{17.1} \Delta\text{FDI}(-1) + \beta_{18.1} \Delta\text{FDI}(-2) + \beta_{19.1} + \mu_t \\ & \dots\dots\dots (3.16) \end{aligned}$$

**RESEARCH RESULT**

The interpretation of the results of the fixed effects model calculations is as follows:

***The Effect of Government Spending on Education on Economic Growth***

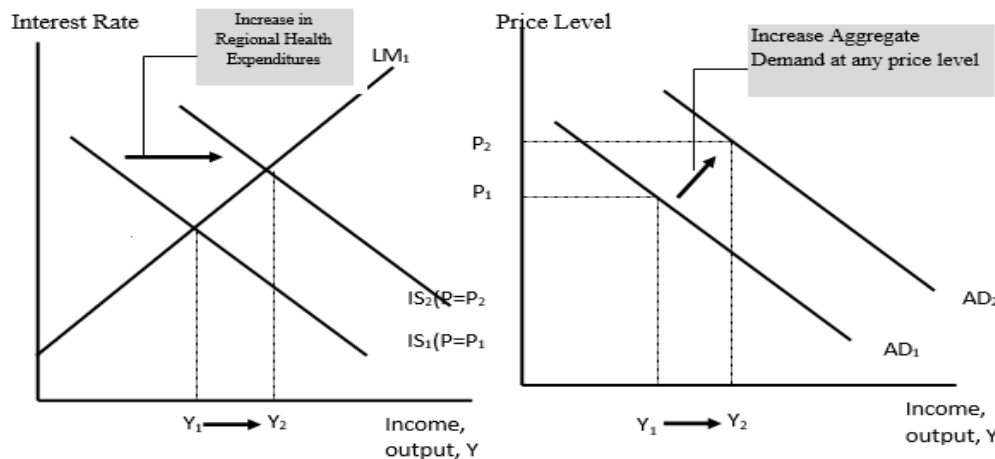
The average regression coefficient for education spending, which is 0.0711, indicates a positive relationship between regional government spending

on education and economic growth. Based on the assumption that all other factors remain constant, this coefficient indicates that a 1% increase in the education budget will stimulate 0.0711% faster economic growth. A further 14% of the education budget (obtained by dividing 1% by 0.0711% or ) is required to increase 1% growth, even though the education budget has a positive influence of 14.05%). Every year the cost of education in Indonesia increases by an average of 15% or the education budget contributes to inflation in Indonesia. The increase in the education budget began in 2005 with the emergence of the law on teachers and lecturers, namely Law No. 14 of 2005. Law no. 14 of 2005 states that teachers and lecturers who have been certified are entitled to an allowance equal to their basic salary. Increasing the welfare of teachers and lecturers has not been balanced with improving the quality of teachers and lecturers, and as a result increasing the education budget through teacher and lecturer professional allowances has not optimally improved the quality of teachers and students. In 2010 the new budget for the teaching and lecturer profession was IDR 10 trillion, while in 2017 it had reached more than IDR 50 trillion and had risen to IDR 70 trillion a year earlier (public dialogue of the Indonesian Teachers' Association with the Minister of Finance and Ministry of Education and Culture held at the Teachers' Building Indonesia, Jakarta (10/7/2018)). These findings are consistent with studies by Li & Liang (2010), Murova & Khan (2017), and Iqbal & Zahid (1998). They come to the conclusion that government investment in education positively impacts economic expansion.

The findings of studies on education spending impact regional economic growth and provide credence to the theories of Keynes, Rostow, and Musgrave as well as Neo Classical thought. According to Keynes's theory, the government can affect aggregate demand in a way that moves it closer to full employment. All of society's annual spending on goods and services is known as aggregate demand. In a closed economy, household consumption expenditures (C), company investment expenditures (I), and government spending (G) make up aggregate demand. Government expenditure has the ability to directly affect aggregate demand, and expenditure on investments and consumption can have an indirect effect. The government established a policy on using the education budget with mandatory spending in order to increase regional government spending in the education sector and promote economic growth. Legislatively mandated state spending or expenditures are known as mandatory spending. Reducing the issue of regional social and economic inequality is the goal of this mandated spending. According to Law No. 20 of 2003 concerning the National Education System and Article 49 paragraph (1) of the 1945 Constitution, mandatory spending in regional government financial management for education budget allocation is 20% of the APBD.

### ***The Effect of Government Spending on Health on Economic Growth***

The low  $t$  value indicates that regional government spending on health has no bearing on economic growth. There is still a low emphasis on maintaining health in Indonesia, which contributes to the rise in the number of patients visiting hospitals. The regional government's health budget is currently insufficient to meet the growing number of people using healthcare facilities. A culture of health maintenance has not kept pace with the growth in health budgets, leading to unhealthy lifestyles and subpar productivity. The research findings of Mohapatra (2017) corroborate the findings of this study. His study's findings demonstrate that GDP Granger is a short- and long-term driver of public health spending. In the short term, public spending on health (?) does not affect GDP. The findings of this study theoretically make sense in Figure 4.1. The figure illustrates how the IS curve changes from  $IS_1$  to  $IS_2$ , and how this in turn causes an increase in aggregate demand from  $AD_1$  to  $AD_2$ . An increase in local government spending on health causes the IS curve to shift from  $IS_1$  to  $IS_2$ . A rise in health spending by local governments causes the IS curve to move to the right at every price point and increases  $Y_1$  to  $Y_2$  income. Increasing regional government health spending does not promote regional economic growth if  $P_2 > P_1$  and  $Y_1/P_1 = Y_2/P_2$ .



Source : Mankiw, 2003

**Figure 4.1**  
 Increased Local Government Spending on Health Shifts Aggregate Demand

This study's findings are consistent with the Australian view theory. In his publication, Market Theory and the Price System, Kirzner makes his conclusions about market disturbances very clear. He states Interference with the networks and forces woven through market processes limits participants' efforts to coordinate their activities through machines with extraordinary efficiency. The existence of this tax tolerance point is a barrier that prevents the government from raising further tax revenue. Achieving economic development will cause tax collections to become greater even though the government does not increase tax rates, this increase in tax revenue for medical equipment will cause government spending on health to increase as well. However, if these conditions are disrupted by social unrest, for example due to a disease outbreak, the government will further increase its spending to finance

these new activities, namely by increasing tax rates. The government's policy of increasing revenue from the tax sector through increasing tariffs will reduce private funds that should be used for consumption and investment so that the level of public investment and consumption in the health sector falls. The reason this phenomenon is known as the "displacement effect" is that social uncertainty leads to the redirection of private efforts into governmental ones.

### ***The Effect of Government Spending on Agriculture on Economic Growth***

The average regression coefficient value for regional government spending on agriculture is 0.04, indicating a positive relationship between the spending and economic growth. With the assumption that all other factors remain constant, this coefficient indicates that a 1% increase in the agricultural budget will stimulate 0.04% economic growth. Even though the agricultural budget has a positive impact, the coefficient value is low, or 25% more of the budget (obtained by dividing 1% by 0.04%, or 24.9%) is required to increase growth by 1%.

Due to their limited land, Indonesian farmers typically cultivate crops on an individual basis. The budget for farmer assistance is higher than it would be for groups because of the impact of farming techniques, which are primarily carried out individually rather than in groups. Due to their dispersed locations, small farmers face significant risks and find it challenging to meet their needs. Only 1% of Indonesia's State Revenue and Expenditure Budget goes toward agriculture (this amount is also primarily used to pay civil servant salaries) (Trubus News, 26 September 2017). In fact, the budget for agriculture in developed nations like the US is so big that it accounts for 20%–40% of the APBN. It is extremely challenging to develop the agricultural sector with such a small budget. It will therefore be challenging to accomplish the nation's goal of establishing food security. These findings are consistent with studies conducted by Armas et al. (2012) and Xu et al. (2011). They came to the conclusion that government expenditure on agriculture positively impacts economic expansion.

### ***The Influence of Fisheries and Maritime Expenditures on Economic Growth***

The average value of the regression coefficient for government spending on fisheries and maritime affairs, which is 0.032, indicates that regional government spending on these areas has an impact on economic growth. Assuming that factors other than government spending on fisheries and marine affairs remain constant, this regression coefficient indicates that a 1% increase in the budget for fisheries and marine affairs will promote 0.032% economic growth. Although the budget for fisheries and the ocean has a positive impact, the coefficient value is low, meaning that an extra 31% of the agricultural budget—or 30.86% of the total—is required to boost economic growth by 1%. These findings are consistent with studies by Novianti et al. (2014), Huda et al. (2015), and Agustine et al. (2013). They came to the conclusion that government funding for the development of fisheries and maritime infrastructure could spur economic expansion.

### *Effect of General Allocation Funds on Economic Growth*

Government revenue sharing for regions. The average regression coefficient value for general allocation funds is -0.169, indicating a negative impact of general allocation funds on economic growth. According to this regression coefficient, if all other factors remain constant, a 1% increase in the general allocation fund budget will result in a 0.169% decrease in economic growth. The application of general allocation funds, which mostly goes toward hiring essential personnel for the regions, can have a detrimental effect on economic growth. Due to the fact that the spending's urgency does not align with community development's response to current demands and needs. It is not appropriate to provide DAU for employee salaries when reducing staff to meet current needs. This lowers the capacity for spending on development, which eventually affects economic growth. The primary issue with DAU is that, with 26% of domestic revenue going to the regions and cities, 10% going to the provinces, and 90% going to all districts and cities, the central government has no jurisdiction to impede on how these entities use DAU. Law No. 23 of 2014 states that the General Allocation Fund (DAU) is intended to close or minimize regional budgetary gaps, allowing regions to meet their needs in accordance with specific priorities and promoting regional development.

In addition, As per Minister of Energy and Mineral Resources Decree No. 4618 K/80/MEM/2016, 11 out of 20 provinces (or 55%) in the sample of provinces used in this study are rich in oil resources produced above 5 million barrels. The primary goal of DAU, a balancing fund, is to close budgetary gaps between regions. It is made very clear in Law 23/2014 that the formula used to distribute DAU is based on basic allocations and fiscal gaps. The fiscal gap is computed from the difference between fiscal needs and fiscal capacity, whereas the basic allocation is mainly based on the amount of personnel expenditure. Regions with small fiscal gaps will also receive small DAU, because 55% of the sample provinces with rich regional status receive small DAU so that in the short term the role of DAU in economic growth will not be as expected.

DAU is the main component in financing regional autonomy, so it is necessary to monitor the use of financing through DAU. More than 80% of the DAU is used for personnel expenditure and the remaining amount is given to the regions with DPRD approval for their use (Kompas, 26 November 2001). Accordingly, the majority of DAU is set aside for the regional payment of civil servants' (PNS) salaries and benefits. These findings support Astria's (2014) research in South Sumatra, which found that the General Allocation Fund had a negative (-) impact on economic growth. The cumulative causal model theory is consistent with the research findings. The theory does not believe that equal development between regions will be achieved by itself based on market mechanisms. According to this model, regional development disparities can only be reduced through government programs. If it is only left to market mechanisms, regional inequality will continue to increase as the development process increases. These results also support the theory of Musgrave (1959) and Oates (1972), who highlight the significance of allocating revenue and expenses among governmental levels. This theory clarifies the impact of fiscal

decentralization on the actions of local governments. There will be less interference from the federal government in the regional economy if regional governments have the power to enact laws governing the local economy. Regional governments are also encouraged to enhance regional economic prosperity due to the strong correlation between regional revenues and expenditures.

Within the framework of public finance, the findings of this study confirm that regional governments possess superior knowledge of local conditions than the federal government. Consequently, regional governments are better equipped to make decisions regarding the delivery of public goods and services when compared to the federal government. This situation is called allocative efficiency. The Balancing Fund to support funding needs for public services in the Harung area uses the Value for Money concept, as well as fighting corruption and abuse. DAU is final to provide certainty of funding for the APBD and the use of 25 percent for regional infrastructure spending.

### *Effect of Population on Economic Growth*

Growth in the population is beneficial to the economy. According to equation 4.4, the population regression coefficient is 0.972, which means that, if all other factors remain constant, a 1% increase in population will result in a 0.972% increase in regional economic growth. According to David Ricardo's classical theory, population growth is one of the factors that propels economic growth. The results of this research are also supported by research conducted by Ibhagui (2020), Rahman, et al. (2017) and Doran (2012), they concluded that population growth drives economic growth, or population addition has a positive effect on economic growth. The Solow and David Ricardo growth model is consistent with the research findings. Population expansion and technological advancement have an impact on the rate of economic output and growth over time, according to Solow and David Ricardo. Technological advancement and population growth interact to influence economic growth. Additionally, these findings support Harrod's theory. According to Harot, the fundamental factors that determine the growth rate of production and income are an increase in the workforce as a result of population growth and an increase in work productivity as a result of technological advancements. Growing numbers of people will result in a larger workforce, and if that labor force is more productive, that will also contribute to economic growth.

A development process that maximizes the advantages of natural and human resources through development is known as sustainable development. Welfare in communities should increase as a result of sustainable growth. Among the many objectives of sustainable development are the reduction of poverty, the eradication of hunger, prosperous and healthy lifestyles, high-quality education, and many more. According to Oekan Abdullah's 2016 book *Human Ecology and Sustainable Development*, in order for a nation to achieve sustainable development, the role of the population is very important. This is because the role of the population is as subjects and objects of sustainable development.

### *The Effect of Foreign Investment on Economic Growth*

The regression coefficient for foreign direct investment has an average value of 0.057, which suggests that foreign direct investment positively influences economic growth. Assuming that all other factors remain constant, this regression coefficient indicates that a 1% increase in foreign direct investment will stimulate a 0.057% increase in economic growth. Even though foreign direct investment has a positive impact, the coefficient is tiny, or 17.5% more foreign direct investment is needed to increase growth by 1% (17.5% is calculated by dividing 1% by 0.057%). Additionally, these findings support the Growth Pole theory. This theory argues that economic development strategies must focus investment on certain sectors, namely the growth poles, or sectors that encourage regional economic development. Growth pillars are usually the core basic industries of regional economies. The idea is that as these poles begin to expand, relationships are forged to other sectors when.

To encourage investment to encourage regional economic growth. Since 2014 investment in the Republic of Indonesia has been directed towards supporting the development of Special Zones of Economic Activity. KPK is a defined region inside the Unitary State of the Republic of Indonesia's legal territory that serves specific purposes and yields specific economic advantages. Establishing Special Economic Zones (SEZs) aims to promote equitable development, boost economic growth, and enhance the competitiveness of the country. The development of KEK involves the preparation of regions with geostrategic and geoeconomic advantages that serve as hubs for industrial, export, and import activities as well as other high-value and globally competitive economic activities. The anticipated outcome of KEK's presence is the enhancement of economic capability and competitiveness at the national level, primarily through the value-added and value chain industries and tourism.

### *Effect of Regional Status on Economic Growth*

Opinions about regional status positively impacts economic growth. This encouraging indicator demonstrates that richer regions will support economic growth because they have an abundance of natural resources (as defined by the Minister of Energy and Mineral Resources Decree No. 4618 K/80/MEM/2016) and can produce petroleum natural resources at a rate greater than \$5 million per barrel. The coefficient value in the regression for the regional status dummy is 0.289611, meaning that regions that receive the title of regions rich in abundant natural resources have a constant value (the constant value in the regression is added 0.289611 or an increase of 1.95 billion Rupiah) which is greater than regions that do not have abundant natural resources. Based on Table 4.1 regarding the development of GRDP in 2008 and 2018 in several provinces that are rich in natural resources and several provinces that have minimal natural resources, you can see the average change in gross regional domestic product in provinces that are rich in natural resources

(average change per year 57.297 billion rupiah) is greater than those with minimum natural resources (average annual change 40.598 billion rupiah).

**Table 4.1**  
**Development of GRDP in 2008-2018**

Natural Resources Rich Province			Province has minimal natural resources				
Province	PDRB (Billion)		Δ	Province	PDRB (Billion)		Δ
	2008	2018			2008	2018	
1. N Aceh D	97.706	126.853	29.148	10. SumBar	89.850	163.981	74.130
2. Riau	376.699	482.451	105.752	11. Bengkulu	24.483	44.180	19.697
3. Jambi	78.273	142.989	64.715	12. D I Y	56.225	98.023	41.798
4. SumSel.	170.095	298.550	128.454	13. SulUt	43.051	84.273	41.222
5. KalSel.	75.916	128.115	52.199	14. NTB	53.304	90.329	37.025
6. KalTim.	435.134	464.939	29.804	15. NTT	38.207	66.009	27.802
7. SulTeng.	36.311	103.697	67.387	16. Papua	89.135	159.732	70.597
8. Maluku	15.612	29.464	13.851	17. MalUt	12.539	25.049	12.510
9. PaBar	36.095	60.458	24.363				
Total	1.323.849	1.839.534	515.674	Total	406.794	731.577	324.782
Mean Change			57,29	Mean Change			40,59

The findings of this study support the theories of the classical approach, including those of David Ricardo (1821), Adam Smith (1869), and Malthus. Three factors determine a nation's production process in generating its total output, according to Adam Smith (1869) in his book *An Inquiry Into the Nature and Causes of the Wealth of Nations*: (i) available natural resources; (ii) human resources; and (iii) the stock of capital goods already in place. A nation's primary source of raw materials for production is its natural resources. Both the production process and economic growth will stop if natural resources are exhausted. According to David Ricardo, the following factors significantly influence a nation's economic growth: (i) natural resources (in this case, land); (ii) population growth; and (iii) the technology

There is a close relationship between a nation's economic standing and its natural resource wealth, which in theory supports rapid economic growth. This is actually highly contradictory, though, as nations with abundant natural resources are often also those with low economic standing. This case is commonly referred to as Dutch disease in the economic community. This is due to the fact that nations that primarily rely on agriculture for a significant portion of their income tend to be less stable socioeconomically than nations

that engage in the industrial and service sectors. Rich in natural resources, nations also frequently lack the technology necessary to process them and are more susceptible to corruption. Usually, the solutions to these issues involve strengthening the political system, shifting financial resources and investments to other industrial sectors, and enhancing accountability and transparency when it comes to protecting the environment.

## DISCUSSION

Realization of an education budget that is in accordance with the mandate of the law, namely 20 percent of the total state budget must be optimized first. Education budget divided into central government spending of 33.7 percent, transfers to regions and village funds of IDR 63 percent. It turns out that central spending does not only mean for the Ministry of Education and Culture (Ministry of Education and Culture) but also distributed as funds for educational functions 20 ministries as well as for the Education Fund Management Institute (LPDP). From 20 ministry/institution that receives education budget allocation, Ministry of Religion received the largest allocation, namely 35 percent, followed by the Ministry of Research, Technology and Higher Education at 26.97 percent, and Ministry of Education and Culture amounted to 26.77 percent. The remaining around 12 percent is spread across a number of ministries and National Nuclear Energy Agency and National Library of the Republic of Indonesia. Ministry of Education and Culture managing primary and secondary education as well as the Ministry of Research, Technology and Higher Education for higher education, get a budget that is actually smaller than the Ministry of Religion. The state budget is not only focuses on meeting the size of the numbers but also on the accuracy and effectiveness of placement budget. It needs to be seen again whether the large budget is in accordance with the expected results, or quite the opposite. Meanwhile, the Ministry of Education and Culture itself also needs to see in more detail the extent The budget covers issues that need priority handling.

The Asian Development Bank aka the Asian Development Bank (ADB) calls the Indonesian education budget inefficient. The reason is, 20 percent of the State Revenue and Expenditure Budget (APBN) allocated to the education sector only has an impact of 3.4 percent on Gross Domestic products (GDP). The results of this study are in accordance with Sylwester's research (2000), results His research concluded that public spending on education had no direct influence directly on economic growth, but had an indirect negative (-) influence directly on economic growth. The coefficient for changes in the education budget last year was 352.5 in term length (see Table 4.3), and from the results of these coefficients the elasticity number can be found. The elasticity number can be found using the following formula  $352.5 \times 0.01 = 3.525$  a change in GDP increase of 0.255 percent assuming other factors are held constant. Changes in local government spending for education have a positive influence on changes in GRDP in the long term, results This research is in accordance with research conducted by Iqbal & Zahid (1998), Li & Liang (2010) and Murova & Khan

(2017) concluded that government spending on education has a positive (+) influence on economic growth.

## **CONCLUSIONS AND RECOMMENDATIONS**

Based on the results of the analysis and discussion using the panel data method, it can be concluded as follows:

1. The influence of regional government spending on regional economic growth is as follows:
  - a. Long-term regional government spending on education has a favorable impact on economic growth. This research proves that education spending allocated to educational infrastructure can increase human resources and have an impact on increasing worker productivity. Increasing worker productivity will encourage economic growth. These results explain that the allocation of education spending which is prioritized for public infrastructure purposes can encourage economic growth (the Law mandates that education spending be at least 20 percent of the APBN).
  - b. Regional government health spending influences economic growth in a positive way, but over time, government health spending has a negative impact on economic growth. According to this research, there is a direct correlation between public health and infrastructure spending. Specifically, raising infrastructure spending will improve public health overall and boost economic growth. Long term, this research explains that health spending has a negative influence on growth. Indonesia has a very large territory but the lowest health budget in ASEAN, as a result, health infrastructure per region in Indonesia experiences quite high disparities. Health spending in Indonesia is indeed growing rapidly at around 10 to 20 percent per year, especially driven by the JKN program since 2015. However, this accelerated growth has not been able to make Indonesia catch up with other countries.
  - c. Long-term regional government spending on agriculture has a favorable impact on economic growth. This research proves that budget allocation for agricultural sector infrastructure can encourage regional economic growth. The working population according to employment in August 2019 for the agricultural sector was 27.33 percent with the agricultural sector contributing 12.72 percent to GDP. This research explains that the agricultural sector is still a mainstay in driving regional economic growth.
  - d. Regional government spending on fisheries and maritime affairs has a positive influence on economic growth, even

though over time it has a detrimental effect on it.. This research proves that the choice of fisheries and marine sectors is a concurrent choice, so that the APBD budget ratio for the fishing or marine sector is still very small compared to other sectors. The fisheries budget for 2017 to 2020 is only 1.27 percent of the APBN. With a very small budget, ideal infrastructure is difficult to realize, and it has been proven that fish production is number two in the world, but is not in the top 10 fish exporting countries in the world.

2. While the General Allocation Fund has a positive long-term impact on economic growth, it has a negative short-term impact. This study demonstrates that unsupervised General Allocation Fund allocations have an effect on the short-term low growth of the economy and the use of budgetary allocations that are not on target (more frequently used for regular employee expenses). According to the study's findings, controlled (long-term) use of DAU in compliance with required spending will boost economic growth.
3. Both immediately and over time, population growth can be beneficial to economic expansion. This study demonstrates that a region's population is its primary source of capital for development. People perceive a rise in population as a rise in labor, and labor growth can support economic expansion. These results explain that an increase in population coupled with an increase in human resources will increase economic growth.
4. Direct foreign investment on economic growth, as well as in the long term, has a positive influence regarding economic expansion. This study demonstrates that FDI's impact on a nation's economy will ultimately determine its level of economic development. PMA will only have a temporary effect if it serves as extra funding for needs that PMDN is unable to satisfy. This is because PMA's crucial role in asset transfers will function more effectively. On the other hand, FDI can bring innovation to the host country so that it can stimulate the economy through more efficient and effective business activities.
5. Regional status positively affects economic expansion. This encouraging indicator demonstrates that the more rich a region is in natural resources, the more it will encourage economic growth. These results support the World Bank's statement that Indonesia is considered in the literature as an example of an oil exporting country that has successfully avoided the resource curse. Indonesia managed to maintain an average GDP growth rate of around 5%, far above the average GDP growth rate of industrial countries during the observation period (Coutinho, 2011).

## ADVANCED RESEARCH

In writing this article the researcher realizes that there are still many shortcomings in terms of language, writing, and form of presentation considering the limited knowledge and abilities of the researchers themselves. Therefore, for the perfection of the article, the researcher expects constructive criticism and suggestions from various parties.

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