

## THE EFFECT OF GOVERNMENT SPENDING ON HEALTH ON ECONOMIC GROWTH: A STUDY OF 508 REGIONS IN INDONESIA

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**Abstract:** *People's lives are impacted by their health, which must be preserved. A nation's economy frequently undervalues the health sector. This study aims to see the effect that government spending on health has on economic growth in 508 regions in Indonesia from 2017 to 2019. The method used in this study is panel data regression analysis with the Fixed effect model (FEM) approach. The data used in this study are secondary data obtained from the Central Statistics Agency (BPS) and the Ministry of Finance of the Republic of Indonesia. The study's findings show that while government expenditure on health and education has a positive and significant impact on economic growth, the rate of population expansion has a negative and significant impact.*

**Keywords:** *Economic Growth, Government Spending on Health*

**Abstrak:** Kehidupan masyarakat dipengaruhi oleh kesehatan mereka yang harus dipertahankan. Ekonomi suatu negara sering meremehkan sektor kesehatan. Studi ini bertujuan untuk melihat dampak pengeluaran pemerintah untuk kesehatan terhadap pertumbuhan ekonomi di 508 kabupaten/kota di Indonesia tahun 2017 hingga 2019. Metode yang digunakan dalam penelitian ini adalah analisis regresi data panel dengan pendekatan Fixed Effect Model (FEM). Data yang digunakan dalam penelitian ini adalah data sekunder yang diperoleh dari Badan Statistik Pusat (BPS) dan Kementerian Keuangan Republik Indonesia. Temuan penelitian ini menunjukkan bahwa pengeluaran pemerintah untuk kesehatan dan pendidikan memiliki dampak positif dan signifikan pada pertumbuhan ekonomi, tingkat laju pertumbuhan penduduk mempunyai dampak negatif dan signifikan.

**Kata Kunci:** Pertumbuhan Ekonomi, Pengeluaran Pemerintah Bidang Kesehatan

## 1. INTRODUCTION

Economic growth is one of the things expected by the government in building community welfare. Good economic growth accompanied by equity is expected to improve the welfare of the community and the quality of life of the people in a region. The success of the government in developing the economy of a region can be seen from various things including the level of public consumption which is a form of influence from increased income. However, in practice, the welfare of the community is still not optimally fulfilled, this can be caused by several internal problems such as gaps that occur in society, economic disparities, and regional disparities. External problems are also a problem that have resulted in not achieving community welfare, external problems such as competition between regions both regionally and nationally (Wahyuni et al., 2014).

Todaro & Smith (2020) explain that the rate of economic growth is not a direct answer to solving problems in welfare. However, the rate of economic growth is one of the most important things in any realistic development program designed to overcome poverty. Economic growth that is going well has a worrying impact in the form of gaps in income distribution.

Human capital is the ability possessed by people and is one of the most important factors in describing the wealth of a country. Modern economic growth theory argues that one of the most important factors is human capital, especially in the fields of health and education. Many studies on human capital link education and health to economic growth, especially in developing countries (Abdu Dawud, 2020).

The level of public health greatly affects the level of productivity of the community itself. Community productivity is not only measured by the amount of goods and services produced but also by the quality of goods and services produced (Nurlina, 2015). The wealth of a country can be seen from its human resources (HR), human resources are classified as active agents who can utilize the natural resources (SDA) and capital resources (HRO) owned by the country. Humans can utilize the wealth of SDA and SDMO to create social, economic, and political structures that will affect the economic growth of a country (Dodo & Isa, 2020).

Research on the effect of health on economic growth has often been carried out by world economists in recent decades. However, until now, research on the effect of health on economic growth tends to be carried out in industrialized countries (Nuradawati, 2019).

One of the tools that can be optimized in health development to increase economic growth is through government spending. The effectiveness of government spending can be seen in the economic growth of a country beyond the amount of investment obtained from the country. Investment is one of the pillars in measuring economic growth (Wahyuni, 2014).

Indonesia is one of the developing countries that adheres to the decentralization system. Decentralization is a system that empowers local governments to regulate and control certain areas. Decentralization can also be interpreted as the division of rights

and responsibilities between the central and local governments in achieving public welfare.

In the decentralization system, local governments are not given full power to make policies to achieve public welfare. The rights and responsibilities of the government are regulated in Law No. 32 of 2004 concerning local government. One of the areas that can be self-regulated by local governments in Indonesia is health (Nuradhawati, 2019).

This study was conducted to see the effect of government spending on health and education on Indonesia's economic growth in 508 regions throughout Indonesia in the period 2017 to 2019.

## 2. LITERATURE REVIEW

This research uses several studies as a reference, including Ogundari & Awokuse (2018) conducted research to revisit the debate regarding the influence exerted by human capital on economic growth in Sub-Saharan African countries with alternative measures of human capital being health and education. This study used the system generalized method of moments (SGMM) and analyzed panel data covering 35 countries in the 1980-2008 time span. The results of the study state that there is a positive and significant effect of health and education on economic growth.

Sethi (2020) this study was conducted to see the influence exerted by healthcare spending, institutional quality, and domestic and foreign investment on economic growth in South Asian countries. This study uses a combined method of Ordinary least squares (OLS) and a Random effect model. The study found that health has a positive relationship with economic growth in the short term, and the effect between institutional quality and economic growth is also positive. In the long run, healthcare investment and expenditure have a positive relationship with economic growth in southern Asian countries.

Sarpong (2018) focused on the effect of government health spending on economic growth. The study used panel data from 35 Sub-Saharan countries for the period 1997 - 2016. The study used the Ordinary Least Square (OLS) method and Granger panel causality test, panel integrity test, and least squares estimation test. The results found a positive effect of government spending on health on economic growth in the long run in 35 Sub-Saharan countries. This study also found that there is a positive causality relationship between institutions and economic growth.

In previous studies, government spending on health has a positive influence on economic growth. A better quality of public health will have a good impact on the economic growth of a region or country. Research conducted by Sethi (2020) states that government spending in the health sector has a positive and significant effect on economic growth. Therefore, the first hypothesis to be tested in this study is that government expenditure in the health sector has a positive effect on GRDP.

Education is one of the factors that has a major influence on improving the quality of human resources. Education is a very large investment in the economy, a large investment in education will have a positive influence on future economic growth. Research conducted by Ogundari & Awokuse (2018) states that government spending

on education as an investment in education has a positive effect on economic growth. So, the second hypothesis to be tested in this study is that government spending on education has a positive effect on GRDP.

### 3. RESEARCH METHODS

#### 3.1 Methods

The method used in this research is panel data. Panel data is a combined method between *cross-section* and *time series*. Gujarati (2004) says that the advantage of using panel data is that the data used is more informative and more varied, the relationship between variables is smaller, and the data used is more efficient. Two methods are often used namely *fixed effect* and *random effect*. (Gujarati, 2004).

#### 3.2 Data

This study uses panel data which is a combination of *cross-section* and time series data from 508 regions (districts /cities) throughout Indonesia in the 2017-2019 period. The variables used are the gross regional domestic product (GRDP) of each city district as the *dependent* variable, government spending on health, government spending on education, and the population growth rate of each region in 2017-2019. The data sources of the variables used come from the Central Statistics Agency (BPS), the Ministry of Finance of the Republic of Indonesia, and the Ministry of Education of Indonesia.

#### 3.3 Operational variables

This study aims to see the influence given by the *independent* variable on the *dependent* variable. The *independent* variables used in this study are government spending on health; government spending on education, and population growth rate. The *dependent* variable used in this study is gross regional domestic product (GRDP). The explanation of the variables used in this study is as follows:

**Table 1. Operational variables**

Variables	Unit	Operational Definition
Gross Regional Domestic Product (GRDP)	IDR	The result of the calculation of all products and services or all added value created by an area in a region one year.
Government spending on health (GSH)	IDR	Total budget issued by the government that aimed at the health sector.
Population Growth Rate (PGR)	Percent	A number that shows the average population growth over a period of time.
Government spending on the education sector (GSE)	IDR	Total budget issued by the government that aimed at the field of education.

#### 3.4 Research Model

The effect of the *Independent* variable on the *Dependent* variable is described in the following model (Isreal Akingba et al., 2018) :

$$\ln GRDP_{it} = \beta_0 + \beta_1 GSH_{it} + \beta_2 GSE_{it} + \beta_3 PGR_{it} + \mu_{it}$$

GRDP describes economic growth in Indonesian rupiahs, *GSH* describes government spending on health in rupiah, *GSE* describes government spending on education, *PGR* describes the population growth rate in percent.

#### 4. RESULTS AND DISCUSSION

The data used in this study is panel data to determine the effect of government spending in the health sector on economic growth in 508 regions in Indonesia in 2017-2019. The descriptive statistical results of this study are as follows:

**Table 2. Descriptive Statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
GDRP	1,524	30.06837	1.212441	25.84723	33.99535
GSH	1,524	27.58931	2.332645	20.71446	34.53569
GSE	1,524	27.96457	.4898905	26.96508	29.88297
PGR	1,524	6.429951	68.18821	-.88	1654

This research is expected to be able to be a consideration for relevant parties in making policies to meet the welfare of the community in the future. Data processing in this study uses the Stata14 application to know how much influence is given by the *independent* variable (Government expenditure on health and education and population growth rate) on the *Dependent* variable (economic growth).

In testing panel data, several tests are needed to determine the best model for this study, the tests carried out are the *Chow* test and the *Hausman* test to determine the best model between *ordinary Least Square* (OLS), *Fixed Effect Model* (FEM), and *Random Effect Model* (REM). The model test results are as follows:

**Table 3. Best Model Selection**

Approach	Testing	Probability F/Chi2	Conclusion
FEM Vs OLS	Chow test	0.0000	FEM
FEM VS REM	Hausman Test	0.0000	FEM

#### Statistical testing results

The effect of government spending on health on economic growth is as follows:

**Table 4. Statistical Testing**

	Coef.	t-value	probability
GDRP	24.06555	14.79	0.000
GSH	0.0203732	9.29	0.000
GSE	0.1945673	2.64	0.000
PGR	-0.0000383	-3.19	0.001
Number of obs	1,524		
Overall r-squared	0.5814		
Prob > chi2	0.000		

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

Based on the estimation results that can be seen in table 3 above, the model can be seen that the GSH and GSE variables have a positive and significant influence on GRDP, while the population growth rate variable has a negative and significant effect on GRDP. The R-Square value of this model is 0.5814, which means that the independent variables can explain labor absorption by 58.14%.

#### **The effect of government spending on health on economic growth**

**Table 5. The effect of government spending on health on economic growth**

	Coef.	t-value	probability
GSH	0.0203732	9.29	0.000

Based on the estimation results, the government expenditure variable in the health sector has a coefficient of 0.0203732 with a probability value of 0.000 and has a positive sign on the Gross Regional Domestic Product (GRDP). This result indicates that every 1% increase in government expenditure on health will increase the level of GRDP of the district/city by 0.02%, *ceteris paribus*.

#### **The effect of government spending on education on economic growth**

**Table 6. Effect of government spending on education on economic growth**

	Coef.	t-value	probability
GSE	0.1945673	2.64	0.000

Based on the estimation results, the government expenditure variable in education has a coefficient of 0.1945672 with a probability value of 0.000 and has a positive sign on the Gross Regional Domestic Product (GRDP). These results indicate that every 1% increase in government expenditure on education will increase the level of district/city GRDP by 0.19%, *ceteris paribus*.

#### **The effect of education population growth rate on economic growth**

**Table 1 effect of population growth rate on economic growth**

	Coef.	t-value	probability
PGR	-0.0000383	-3.19	0.001

Based on the estimation results, the population growth rate variable has a coefficient of -0.0000383 with a probability value of 0.001 and has a negative sign on the Gross Regional Domestic Product (GRDP). This result indicates that every time there is an increase in the population growth rate by 1 unit, the district/city GRDP level will decrease by 0.0000383%, *ceteris paribus*.

## **4. DISCUSSION**

These results show that government expenditure in the health sector has a positive and significant relationship with region GRDP in Indonesia. This is in accordance with the theory of economic growth put forward by Todaro & Smith (2003) which states that there is a positive significant effect of government expenditure in the Health sector on Gross Regional Domestic Product (GRDP). These results are also in line with a study entitled "*The Impact of Human Capital Development on Economic Growth in Ethiopia*" conducted by Abdu Dawud (2020). In this study, it was found that in the long run, health expenditure has a positive and significant impact. Funds spent by the government for the health sector can be utilized to increase the procurement of

medicines, and medical devices, improve the quality of medical personnel, or provide health infrastructure to improve the quality of public health.

These results show that government expenditure on education has a positive and significant relationship with district/city GRDP in Indonesia. This is in accordance with the results of a study entitled "*Impact of human capital on economic growth in Egypt: ARDL approach*" conducted by H.Naseer Ramadhan, Reem Ahmed Mohamed, Hebatalla atef emam (2021) which concluded that the effect of government spending on education has a positive and significant effect on economic growth in Egypt.

The effect given by the population growth rate variable is negative and statistically significant, this is in line with the study entitled "*Human capital contribution to economic growth in Sub-Saharan Africa: Does health status matter more than education?*". Research conducted by Kolawole Ogundari and Titus Awokuse found that the effect given by the population growth rate variable as one of the macroeconomic variables is negative and significant, this illustrates that every one-unit increase in population growth will reduce the level of economic growth (Ogundari & Awokuse, 2018).

This research implies that health and education have a very large role in the economy of a region or country. Improving the quality of health should be a very calculated factor in maintaining and improving the economy. Education is one of the factors that also plays a major role in the country's economy. The government as a policy maker must pay more attention to the quality of human resources in the region and country. *Human capital* theory also explains that the quality of human resources has a huge influence on a country's economy. Better human resources will increase the economy of a region and even a country because it is closely related to the ability of people to carry out economic activities.

## 5. CONCLUSION

This study aims to examine the effect of the variables of government expenditure on health, government expenditure on education, and population growth rate on economic growth in 508 regions throughout Indonesia in 2017-2019. Based on the results of the data discussion, the following conclusions can be drawn:

Health government spending has a positive and significant effect on economic growth. This is in accordance with the theory of economic growth which states that one of the factors in increasing the economic growth of a region or country is influenced by the level of government spending. Government spending on education has a positive and significant effect on economic growth. This means that government spending on education has a good influence on economic growth as measured by the level of GRDP in Indonesia. The population growth rate has a negative and significant effect on Indonesia's economic growth. This means that the higher the rate of population growth in Indonesia will negatively affect or reduce the level of economic growth in Indonesia.

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