GOVERNMENT SPENDING AND REGIONAL ECONOMIC GROWTH: THE MEDIATING EFFECT OF HUMAN DEVELOPMENT INDEX

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ABSTRACT

The dynamic of local government spending on education, health care, and infrastructure in the region shows an interesting phenomenon in the last decade. Despite the fact that budget expenditures of sub national governments have grown substantially, the pace of the human development index and the rate of economic growth have provided us different pictures. This study aims to analyze the impact of the three spending groups on the quality of human development and economic growth in Indonesia. This research used purposive sampling method to obtain data from as many as 464 districts/cities that were observed during the 2016-2018 period. Based on panel analysis, there was evidence that health spending had a positive effect on the human development index and community welfare. By contrast, spending on education and infrastructure did not have a good effect on these two development indicators. Based on the Sobel test, only health spending had a positive indirect effect on economic growth through the quality of human development. Meanwhile, education spending did not have a significant effect on economic growth, either directly or indirectly. Future research may develop another measurement for insfrastructure spending to provide better proxy.

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## 1.	INTRODUCTION

Sustainable economic growth is the single most important way to reduce poverty (DFID, 2008). In line with this issue, Kakwani, Neri & Son (2010) stated that economic growth is the main requirement in efforts to reduce poverty and unemployment. In the era of regional autonomy and fiscal decentralization, the role of local governments to improve people's welfare is increasingly awaited. Welfare is an ultimate goal of economic development (Wahyudi, 2020). The instrument that can be used by the government at the local level to drive the economy is the Regional Revenue and Expenditure Budget (APBD).

Local governments are authorized to use government spending as a stimulus for economic growth in their respective regions by enacting fiscal policy. This policy is a vehicle to accelerate economic development and improve life quality of society (Kouassi, 2018). All government spending in general is able to stimulate the economy. This is based on Keynesian theory of economic growth which states that government spending will create a multiplier - effect on aggregate demand (Dudzevičiūtė, Šimelytė, & Liučvaitienė, 2018). Next, the market will respond by changing the supply function. The supply function can change by enhancing the production of goods or services. However, a more recent theory of economic growth emerged, namely the theory of endogenous economic growth.

The theory of endogenous economic growth states that the stability and sustainability of economic growth can be realized if it is supported by government investment in the form of

infrastructure provision and human resource development. The theory provides a framework that to achieve economic growth, the government must invest in infrastructure and human capital. Investments in human development and infrastructure are made through government expenditures that are implemented in the realization of the annual budget. The endogenous economic growth paradigm focuses on human development issues. The effect of human development on economic growth was revealed by Ranis, Stewart & Ramirez (2000) . The results of their study indicate that in the long term, government must prioritize in human development investment to achieve sustainable economic growth.

The expenditures for education, health and infrastructure from a sample of 464 regency/city governments in Indonesia over the 2016 – 2018 period, on average, showed an increase every year. However, on the other hand, the average regional economic growth in the same period (2016 – 2018) actually tended to decline. The average economic growth rate in 464 regencies/cities in Indonesia in 2016 was 5.5%, and in 2017 it fell to 5.44% and again in 2018 it fell to 5.33%. These figures encourage us to scrutinize the association among variables.

Table 1 shows economic indicators from top 10% dan bottom 10% across cities and regencies in Indonesia over 2016-2018 period. Economic performance as indicated by Gross Regional Domestic Product (GRDP) from top 10% of regencies/cities was not followed by improvement in Human Development Index (HDI). The average of HDI of top 10% GRDP (72,15) was still below the average of top 10% HDI (79). By contrast, the average of bottom 10% of regions in terms of GRDP had higher HDI (58) than 10% bottom of HDI (56). Top 10% of cities and regencies in terms of of GRDP and top 10% of cities and regencies in terms of HDI spent more in infrastructure than education and health spending. This was also the case in the lowest 10% of regions in terms of GRDP dan HDI. Each group of local governments both prioritized infrastructures. However, they obtain different figures in GRDP and HDI.

Table 1. Economic Indicators and Government Spending Among Group of Jurisdictions

Figures (in Rp Billions)	Top 10%		Lowest 10%	
	by GRDP	by HDI	by GRDP	by HDI
GRDP	78.237,00	33.738	1.088	2.463
HDI	72,15	79	58	56
Education	892,26	479	110	139
Health	415,79	242	91	111
Infrastructure	1.222,51	706	335	389

Source: Badan Pusat Statistik (2019)

Economic and social performance comparison between cities/regencies in the period of 2018 becomes more interesting when we contrast them with respect of the best ten cities and regencies in terns of GRDP dan HDI. Table 2 tells us that local governments with favorable GRDP does not always mark fantastic level in terms of HDI as well. For instance, the Cities of Surabaya and Bandung had the highest GRDP for three years in a row, but their HDI were beyond top 10 scores. On the other hand, cities with highest HDI such as Yogyakarta, Banda Aceh and Denpasar had GRDP far below the top ten local economic performances.

Table 2. Comparison of the Top Ten GRDP and HDI Comparison

Top 10 Cities/Regencies by GRDP			Top 10 Cities/Regencies by HDI		
Cities/Regencies	Year	GRDP	Cities/Regencies	Year	HDI
Surabaya City	2018	387.333	Yogyakarta City	2018	86,11
Surabaya City	2017	364.715	Yogyakarta City	2017	85,49
Surabaya City	2016	343.653	Yogyakarta City	2016	85,32
Bandung City	2018	185.084	Banda Aceh City	2018	84,37
Bandung City	2017	172.852	Banda Aceh City	2017	83,95
Bandung City	2016	161.228	Banda Aceh City	2016	83,73
Karawang Regency	2018	159.187	Denpasar City	2018	83,30
Karawang Regency	2017	149.531	Denpasar City	2016	82,58
Bogor Regency	2018	148.205	Salatiga City	2018	82,41
Karawang Regency	2016	141.126	Padang City	2018	82,25

Source: Badan Pusat Statistik (2019)

Empirical evidence relating to the effect of government spending on economic growth has been widely obtained from studies carried out in Indonesia. The research in question includes Rifa'i & Moddilani (2021), Syadullah & Setyawan (2021), Wibowo (2020), Mudiarcana & Marhaeni (2018), Putri, Azwardi, Marwa & Andaiyani (2018), Wahyudi (2020), Prasetyo & Zuhdi (2013). These studies have discussed numerous perspectives and locus. For instance, Rifa'i & Moddilani (2021) discussed the effect of education spending on economic growth using time series analysis. Syadullah & Setyawan (2021) analysed the impact of infrastructure spending on economic progress, Wibowo (2020) discussed the influence of three main budgets on regional economic growth. Mudiarcana & Marhaeni (2018) only observed the connection between government expenditure on economic development in Balin Province. Wahyudi (2020) and Putri et al. (2018) expanded study by investigating the impact of government expenditure across provinces in Indonesia. They found positive effect of government expenditure on social welfare. Prior studies have not analysed the regional economic growth determinants from government spending perspective across municipalities and regencies.

Research on the effect of government spending on economic growth is also carried out in foreign countries. Albassam (2020) examined Middle East and North African Countries from 1990-2019. From the results of this study, it is known the association between government expenditures and economic growth is influenced by monetary and fiscal policies and many other macroeconomic indicators.

Paparas, Richter & Paparas (2015) observed economic performance in 15 European Union countries for 1995– 2008 period. This study concludes that spending on education is beneficial for economic progress and the increase in infrastructure disbursement leads to positive impact on economic development in those Europan nations. However, the results of this study differs from that of study conducted by Kouton (2018) who observed the object of research in Ivory Coast for the period 1970 – 2015. This study provides an empirical evidence that government spending in the education sector does not have a significant effect on economic growth in the short or long term. Meanwhile, Owyang & Zubairy (2013), Gaibulloev & Sandler (2016) and Murphy (2015) showed different pattern of the connection between government expenditure and economic performance at state-level in USA.

The various results of the studies mentioned above, which are various, give rise to an indication that not all government spending is directly aimed at influencing economic growth. An interesting thing was obtained by a study conducted by Ryu (2015) with the object of OECD

countries in the period 1995–2007. The results of this study indicate that government spending is not always aimed at increasing economic growth alone. There is government spending aimed at improving the quality of human development, which in turn will be able to help achieve sustainable economic growth. This means that there is an indirect effect of government spending on economic growth through improving the quality of human resources. In line with this, Amaliah (2006) through her research on the influence of human development on the economic performance of regencies/cities in West Java in the period 1999 - 2003, revealed that infrastructure development will encourage economic growth when there are qualified humans in its utilization or management.

The human development index in Indonesia shows an interesting phenomenon in recent years. The number of human development in 464 regencies/cities in Indonesia in the period 2016-2018 experienced an increasing trend. In 2016, the average human development index was 67.18 and dropped to 67.15 in 2017. In 2018, the figure rose significantly to 68.39. The increase in government spending in 464 districts/cities in Indonesia in the period 2016 – 2018 was directly proportional to the increase in human development in Indonesia in the same period.The effect of human development on economic growth has been extensively studied by many scholars. From several existing literatures, there are studies related to the urgency of human development to encourage economic growth. Research by Ranis et al. (2000) focusing on 35 developing countries in the period 1970 – 1992 found empirical evidence that developing countries have their own cycles in economic growth and human development based on their respective policies. The cycle is a virtuosic cycle, in which, a country with a high level of economic growth has a good human development level. Meanwhile an economic growth cycle is the state in which a country with a high economic growth rate has a low level of human developmentA human development cycle is the state in which a country with a high economic growth rate has a low level of human development and vicious cycles is the state in which countries with low economic growth rates has low levels of human development.

The high quality of human development has positively influenced the economy by increasing the capability to manage economic resources, both in relation to technology or institutions. Todaro & Smith (2000) revealed that investment in the form of human resource spending can improve the quality of human capital, then with increased human quality, economic growth can be increased through the discovery of new resources or efficient use of resources. Based on the empirical studies of Todaro & Smith (2000), Amaliah (2006) and Ryu (2015) as well as Keynes and endogenous theories, the authors suspect that government spending in Indonesia is not always intended for economic growth but is used for human development first, and the existence of better quality of human beings is expected to encourage economic growth.

The purpose of this study is to analyze the effect of local government expenditure allocations in Indonesia in the fields of education, health, and infrastructure, on economic growth in Indonesia through human development by taking a sample of various regencies/cities in Indonesia during the period from 2016 to 2018. This study has several research gaps compared to prior literatures. Previous research on the effect of government spending on economic growth nationally were only conducted with the object of the provincial government. Existed research that used samples in the form of regencies/cities only used samples in the form of regencies or cities in one province. Another difference between this study and previous research is that this study used an intermediary variable to see the effect of government spending on economic growth in Indonesia, so it is hoped that the direct influence of government spending on economic growth and

the magnitude of the indirect effect of government spending on economic growth can be revealed. The results of the calculation of direct and indirect effects can be meaningful in evaluating local budget policies. This study suggests that health expenditure matters in enhancing both HDI dan GRDP levels, while education and infrastructure spendings, surprisingly, did not support Keynesian theory. Health expenditure also positively affect GRDP indirectly through HDI.

2.   LITERATURE REVIEW

2.1.   Stewardship and Economic Growth Theory

Stewardship theory is relevant in describing local budget management across provinces. Donaldson & Davis (1991) reveal that managers' motivation to work prioritizes goals of common interest rather than personal interests. When the steward and the company's principle have different interests, instead of opposing, the steward tries to align the interests by cooperating with the principle. Chinn (2000) states that in stewardship theory, humans are seen as having a positive nature where humans can be trusted and act based on integrity and responsibility and are honest with the principle. The government is the steward while the principle is the people. The government is seen as an entity that can be trusted to use the resources it has, in the form of effective and efficient government spending with the aim of maximizing the welfare of the people.

Meanwhile, economic growth phenomenon across regions can be illustrated by Keynesian theory and endogenous growth theory. This study used the Keynesian theory approach to describe the direct influence of government spending on economic growth, while the endogenous theory of growth approach was used to explain the role of government spending on human development which subsequently affect economic growth indirectly.

Economic growth is defined as an increase in the long-term production capacity of a region/country to provide various goods needed to the population in accordance with institutional, technological and ideological advances that are deemed necessary (Kuznet, 1973). In addition, Sukirno (2011) defines economic growth as an increase in economic activity in an area that has implications for an increase in the production of goods and services so that the level of prosperity of the people increases.

Keynesian theory states that government spending can provide a stimulus for economic growth through increased government consumption. An increase in government consumption through spending will create a multiplier – effect on aggregate demand. An increase in aggregate demand will then be responded to by the market through the supply function so that production increases. This is then expected to be able to create jobs and community profitability, and investment will develop so that economic growth can be realized (Romer, 1986).

On the other hand, the theory of endogenous growth is the development of the Solow model of economic growth theory. Endogenous economic growth theory provides a framework for thinking that long-term economic growth is due to not only the accumulation of investment in physical capital, but also the accumulation of human capital. Romer (1986) explains that if a country has the ability to produce new knowledge faster than other countries, this country will be able to increase economic growth that is more than a country with slower knowledge creation. The endogenous economic growth paradigm focuses on human development issues. This is corroborated by research by Ranis et al. (2000) regarding the influence of human development on

economic growth. The results of this study state that in the long term, the state must invest in human development first to realize sustainable economic growth.

2.2. Government Expenditure and Human Development Index

Ilyas (1989) defines government expenditure as the total expenditure made by the government to finance various government activities in order to achieve public welfare in general. Keynes in Sukirno (2000) states that the role of government is needed when the economy is regulated by a free market because in a free market economy when the stability of economic activity and the level of full employment opportunities cannot always be achieved, fluctuations in the economy between these periods will have an impact on the level of unemployment,. prices and job opportunities. Government spending has a positive effect on economic growth. Ram (1986) stated that the overall impact of large government spending on well-being is positive in almost all cases. Lin (1994) stated that the way in which government can improve welfare is through the provision of goods as well as public infrastructure, social services and necessary interventions.

United Nations Development Program (UNDP) defines human development as the process of developing choices for people to build their valuable lives. Human development is seen from three important aspects of human life, namely a healthy and long life, having knowledge, and having access to economic resources needed by a person to live a decent life (UNDP, 2010). Human development parameters are assessed through the Human Development Index (HDI), which is measured by Statistics Indonesia or *Badan Pusat Statistik* (BPS) . The HDI has 3 measurement dimensions, namely: education, health care, and standard of living.

2.3. Hypothesis Development

The authors in this study used three independent variables, namely education, health, and infrastructure spending, and there was one intermediary variable, namely human development, and one dependent variable, namely economic growth as depicted in Figure 1. This research framework was developed from stewardship theory and pays attention to the results of previous studies such as Prawoto & Basuki (2022), Rahmawati (2019), Pratama (2018), Apsari (2017), (Sarkoro & Zulfikar, 2016), Ryu (2015), Moktadir, Dwivedi, Khan, Paul, Khan, Ahmed, & Sultana, (2018) Nurmainah (2013), Prasetyo & Zuhdi (2013), and Kusharjanto, & Kim, (2011).
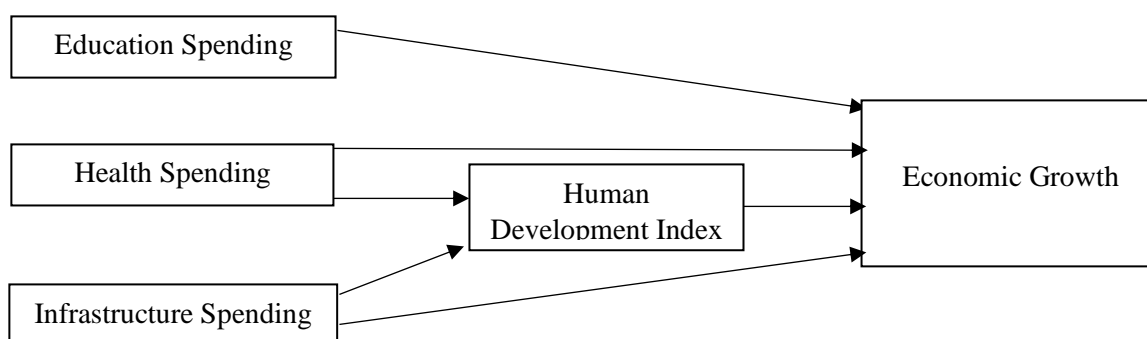

Figure 1. Research framework

Endogenous economic growth theory states that sustainable economic growth can be achieved through the government's role in investing in human development. The investment is in the form of government spending in the education sector to encourage the improvement of uman quality. Artaningtyas, Syari'udin & Maryani (2011) found that government spending on education

and health has a positive effect on human development. Prawoto, & Basuki (2022) suggest that improving access to social service consumption such as education, is an essential policy for government to reduce and improve the population's welfare. Regarding to this matter, the first hypothesis developed in this study is :

H_1 :   Local government spending on education has a positive effect on human development.

Improvement in the quality of human development is influenced by various factors, one of which is health. Based on the theory of endogenous economic growth, the government could create a positive influence on increasing human development through investment in the form of government spending on health. The positive influence of government spending on health on human development is confirmed by Rahmawati (2019). In her research on the factors that influence the Human Development Index in Indonesia she found that government spending on health has a positive influence on human development. Based on the explanation, the second hypothesis can be drawn as follows:

H_2 : Local government spending on health has a positive effect on human development.

Human development is not only affected by government spending on education and health functions. Infrastructure also plays an important role in providing a positive influence on human development through the provision of access to facilities and infrastructure that make it easier for humans to obtain health, education, and economic services. Kusharjanto & Kim (2011) in their research on the effect of infrastructure development on human development on the island of Java found that there is a positive influence between infrastructure development and increasing human development. Zebua & Adib (2013) examined the effect of capital expenditures and expenditures on goods and services on human development and, the results of this study revealed that infrastructure spending has a positive and significant effect on human development, while social assistance expenditures and grants have no significant effect on human development. Based on this explanation, the third hypothesis proposed in this research is:

H_3 : Local government   spending   on   infrastructure   has a positive effect on human development.

Education spending can accelerate economic growth through increasing aggregate demand in society. The government that creates expenditures through financial assistance can provide additional income and it is expected that people will spend this additional income. The public will respond to the increase in consumption demand by increasing the supply function, which is nothing but an increase in economic productivity. Prasetyo & Zuhdi (2013) states that government spending on the education and health sectors has a significant effect on economic growth. Thus, the fourth hypothesis in this study includes:

H_4 : Local government spending on education has a positive effect on economic growth.

Keynes argued that government spending will have an influence on economic growth either directly or indirectly. Direct influence is obtained when the government has a need to buy goods and services from thepeople. This need increases aggregate demand in the market and will be responded by increasing the supply function. Indirect influence is obtained through the provision of incentives to the community so that they want to increase consumption and aggregate supply will increase in the end. Empirical evidence that has been done by previous researchers supports Keynesian theory. Algifari (2016) stated that government spending on the health sector

has a significant effect on economic growth when the allocation of funds is not excessive. Based on these arguments, the fifth hypothesis can be drawn as follows:

H$_5$: Local government spending on health has a positive effect on economic growth.

Keynesian theory sugests that government spending supports economic growth in a positive direction through an increase in aggregate demand. Therefore, increasing government consumption tends to lead to increased employment, profitability and investment through a multiplier effect on aggregate demand (Chude & Chude, 2013). The research of Sabir & Maskie (2015) found empirical evidence that is consistent with Keynes's theory that government spending on infrastructure has a positive effect on economic growth through a multiplier effect. Therefore, the sixth hypothesis developed in this research is:

H$_6$: Local government spending on Infrastructure has a positive effect on economic growth.

The endogenous economic growth theory model states that spending on education, health, and infrastructure has an effect on economic growth. In line with this, Ryu (2015) explained that not all government spending is intended to directly affect the country's economic growth. There is government spending that is used to provide a stimulus to human development which will indirectly have a positive influence on economic growth. Gupta, Clements & Tiongson (1998) in Prasetyo & Zuhdi (2013) argue that the government can increase economic growth by improving human quality. This increase can be achieved through the realization of the government's budget for education and health. Based on the explanation, the seventh hypothesis can be proposed as follows:

H$_7$: Local government spending on education has a positive effect on economic growth through human development.

The theory of endogenous economic growth requires that to achieve sustainable economic growth, not only infrastructure but also qualified human capital is needed to support economic activities. This means that the government has a role, as mandated by law, to provide education and health facilities for the community in order to improve the quality human beings. Ryu (2015), in his research with OECD as the objects during the period 1995 – 2007 found empirical evidence that in some countries, government spending based on the direction of state policies is intended to improve human quality, with which sustainable economic growth can be achieved. In the light of this issue, Todaro & Smith (2000) state that infrastructure investment is passive while investment spending in the form of human resource development will improve the quality of human capital and by improving the quality of human capital, economic growth can be enhanced by innovating, discovering new natural resources. or efficient use of existing resources. Based on the explanation, the eighth hypothesis can be formulated as follows:

H$_8$: Local government spending on health has a positive effect on economic growth through human development.

Endogenous theory provides guidance that in achieving economic growth, infrastructure and good-quality human beings are needed. This can be realized through government spending. This is in line with Ryu (2015) with the object of OECD member countries which found empirical evidence that increasing the quality of human development in sustainable economic growth can be achieved. Kusharjanto & Kim (2011) stated that infrastructure development is able to have a

positive and significant impact on human development by increasing access to education, health care, and the economy for the people. Then in line with this, Todaro and Smith (2000) stated that infrastructure investment is passive while to increase economic growth, human capital is needed to manage and use the infrastructure. Based on the explanation above, the ninth hypothesis developed in this study is as follows:

H_9 : Local government spending on infrastructure has a positive effect on economic
              growth through human development.

Nations that focused on developing the quality of human capital in the following years achieved higher rates of economic growth than countries that did not. Todaro & Smith (2000) revealed that basically the natural resource capital and infrastructure owned by the state are passive. The elements that are able to move it are humans through collecting capital, processing natural resources, and building various kinds of economic, social, political organizations for the creation of development. Sudirman, Zahari & Arafah (2021) revealed that human development determines human ability to receive and manage resources in order to stimulate economic growth. This finding is supported by Prawoto & Basuki (2022) who revealed an essential role of of human development in enhancing economic growth. Based on the description above, the final hypothesis in this research can be:

H10   : Human development has a positive impact on economic growth.

3.   RESEARCH METHODS

3.1.   Data

The sample used in this study amounted to 464 (four hundred and sixty four) local governments in Indonesia with their data on expenditures, HDI, and GRDP over the period 2016 – 2018 (cities/regencies observed in this study can be found in appendix). The sample used in this study was taken by using following criteria :

a.   Cities or regencies that have complete data on expenditures for education, health, and infrastructure functions over the period 2016 – 2018 published on the DJPK official website.

b.   Cities or regencies that have HDI and GRDP data for the period 2016 – 2018 published on the official website of Statistic Indonesian (BPS).

The authors used secondary data in this study. The secondary data in the research is the realization of education, health care, and infrastructure spending from 2016 – 2018 which was obtained from the official website of DJPK, while the data in the form of HDI and GRDP from the period 2016 – 2018 were obtained through the official website of BPS.

The research variables in this study include economic growth as the dependent variable and three other independent variables in the form of local government spending groups. The Human Development Index (HDI) was used as a mediating/intervening variable. Economic growth is defined as an increase in the ability of a region to provide needed goods to the community in a relatively long period of time. (Kuznets, 1973). The variable of economic growth in this study is measured by the value of GRDP at constant prices in 2010 and is expressed in billions of rupiah.

Badan Pusat Statistik (2016) revealed that the quality of human development is measured through a composite index known as the Human Development Index. This index is measured

through 3 (three) dimensions, namely: health and longevity, education and a decent standard of living. The Human Development Index (HDI) of all districts/cities in Indonesia published by *Badan Pusat Statistik* every year is used as a benchmark for the quality of human development and is expressed in percentages.

Realization of infrastructure spending is measured by the realization of local government spending on infrastructure. Infrastructure spending is expressed in billion rupiahs. Meanwhile, the realization of expenditure in the education sector is proxied by the realization of expenditure on the education function, namely government spending to finance the implementation of educational activities, facilities and infrastructure which are the responsibility of the state, and include: early childhood education expenditure, basic education expenditure, secondary education expenditure, non-formal and formal education expenditure, higher education expenditure, expenditure on assistance services for education, expenditure on religious education, expenditure on research and development of education and other education expenditure. Education expenditure is seen through the realization of government expenditure for the education function and is expressed in billionrupiahs.

Realization of expenditure in the health sector is proxied by government spending on health functions, namely the allocation of government spending to finance the provision of health services which are the duties and responsibilities of the government and include spending on drugs, health services, population and family planning, research and development of health, and other health cares. Health spending is seen through the realization of local government spending on health functions and is expressed in billion rupiahs.

Model

The authors use panel data analysis and path analysis methods. In this study, two models of multiple linear regression analysis were used and formulated as follows:

Model I: $HDI_{it} = \alpha + \beta_1 (Ln\ ES_{it}) + \beta_2 (Ln\ HS_{it}) + \beta_3 (Ln\ IS_{it}) + e_{it}$

Model II: $Ln\ GRDP_{it} = \alpha + \beta_4 (Ln\ ES_{it}) + \beta_5 (Ln\ HS_{it}) + \beta_6 (Ln\ IS_{it}) + \beta_7 (HDI_{it}) + e_{it}$

annotation:

α	= intercept
β_{1-7}	= independent variable coefisients
e	= error term
$Ln\ ES_{it}$	= natural logarithm of education spending
$Ln\ HS_{it}$	= natural logarithm of health spending
$Ln\ IS_{it}$	= natural logarithm of infrastucture spending
HDI_{it}	= human development index
$Ln\ GRDP_{it}$	= natural logarithm of regional gross domestic product
i	= cross section data (regencies/cities)
t	= time series data (year of 2016 – 2018)

The author transformed the data on government spending and GRDP in this study into the form of a natural logarithm because coefficients on the natural-log scale are directly interpretable as approximate proportional differences (Gelman & Hill, 2007:60-61). Data transformation was used to reduce data fluctuations that might occur. If the author did not use the natural logarithm, the realized value of government spending and the value of economic growth would be very

unequal with the HDI value.

The model used in the research was a panel data regression model to test the effect of government spending, which consists of local government's spending on education, health and infrastructure, to Gross Regional Domestic Product through Human Development Index. The data analysis method used was trimmed model with path coefficient (trimming model). This method was used to analyze the pattern relationship between variables by removing exogenous variable model whose path coefficient not significant (Riduwan & Kuncoro, 2017). This approach was also adopted by Ariyansyah (2018) in analysing the indirect effect of regional GDP on HDI. The mediation hypothesis can be tested with the Sobel test (Abu-Bader & Jones, 2021). The Sobel test is conducted to examine the hypothesis in which the relationship between the explanatory variable (X) and explained variable (Y) is mediated or affected by a third variable (Z); that is, X and Y have an indirect association (Abu-Bader & Jones, 2021).

4.   RESULTS AND DISCUSSIONS

The purposive sampling that has been carried out gave results in the form of a sample of the 2016-2018 round of data of 464 district/city governments in Indonesia. The authors then removed 5 cities/regencies from the results of purposive sampling due to their incomplete data. After eliminating 5 district/city governments that have inappropriate data, there were a total of 459 districts/cities whose data will be observed. Because each district/city government has 3 years of data, the total sample issued was 459 samples from a total of 1,377 observation samples.

Table 3. Statistical Description of Data of 459 Regencies/Cities

Statistics	GRDP	HDI	EDUC	HEALTH	INFRA
Mean	16.113,12	67,58	383,73	195,67	547,75
Maximum	387.333,00	86,11	2.448,91	1.261,75	6.287,03
Minimun	126,00	26,56	0,40	0,30	14,42
Std. Dev.	27.846,31	6,32	324,49	146,90	388,85
Cross section	459	459	459	459	459
Years	3	3	3	3	3
Observation	1.377	1.377	1.377	1.377	1.377

Table 3 shows us that the minimum GRDP value of the local governments for the period 2016 – 2018 is 126 billion rupiahs, which was the GRDP of the Tambraw Regency government in 2016 while the maximum value of GRDP was achieved by the Surabaya in 2018 with a value of 387.333 billion rupiahs. The average value of regional government GRDP in the period 2016 - 2018 was 16.113,12 billion rupiahs while the standard deviation value was 27.846,31 billion rupiahs. Top economic performance over three year observed period among level two district governments was occupied by Surabaya City, Bandung City, Karawang Regency, and Bogor Regency which marked local GDP in the range of 141.126 billion rupiahs to 387.333 billion rupiahs. By contrast, in the same period, the unfortunate local governments in terms of regional gross domestic products were Tambrauw. Yalimo, Maybrat, and South Manokwari Regencies. Those districts created regional GDP, on average, below 700 billion Rupiahs over 2016-2018.

The minimum HDI value of the regional government for the 2016 - 2018 period occurred in Nduka Regency in 2016 period with an HDI value of 26,56 percent while the maximum HDI

value occurred in the city of Yogyakarta in 2018 with an HDI value of 86,11 percent. The standard deviation of the HDI in the period 2016 – 2018 was lower than the average value. The standard deviation of the HDI for the period 2016 – 2018 showed the figure of 6,32 percent while the average HDI over 2016 – 2018 was 67,58 percent.

The smallest education expenditure value was 0.402 billion rupiahs which was the realization of the education expenditure of the South Tapanuli Regency government in the 2017 budget year, while the maximum value of education expenditure was 2.448,91 billion rupiahs which was that of Bogor regency in the 2018 budget year. The average education expenditure regency/city governments in Indonesia in 2016 – 2018 was 383,73 billion rupiahs and a standard deviation of 324,49 billion rupiahs.

The minimum value of local government spending on health was 0.301 billion rupiah which was the realization of the Subang Regency government's health spending budget in the 2016 fiscal year. The maximum value of local government health spending data was 1.261,75 billion rupiahs which was the realization of the spending budget of Bogor Regency for the 2017 fiscal year. The average value – the average regency/city government health care expenditure in Indonesia in 2016 – 2018 was 195,67 billion rupiahs, while the standard deviation value was 146,90 billion rupiahs.

The minimum value of regency/city governments spending on infrastructures in Indonesia for the period 2016 – 2018 was 14,42 billion rupiah, which was the realization of infrastructure spending for Temanggung regency for the 2016 fiscal year. The average value of local government infrastructure spending in the 2016 – 2018 period was 547,75 billion rupiahs while the standard deviation of local government infrastructure spending in the 2016 – 2018 period was 388,85 billion rupiah. This indicates that the variation of infrastructure development across cities/regencies in Indonesia has been large in the observed period.

Panel data analysis-model I

Equation model I was used to examine the effect of the variables of education spending, health care spending and infrastructure spending on the human development index. Based on the results of the chow test, hauman test, and LM test, for the equation model I, it is more appropriate to use the fixed effect model. Thus, according to Gujarati (2012), the appropriate classical assumption test in the regression model of equation I that is the multicollinearity, heteroscedasticity and autocorrelation tests. The results of data processing with the STATA application showed that equation I with the fixed effect model was free from multicollinearity, but there were heteroskedastitcity and autocorrelation issues that needed to be addressed.

Heteroskedasticity issue was handled by generating Generalised Least Square (GLS) estimation with cross section weight in fixed effect regression model. Meanwhile, the problem of autocorrelation in equation I was solved by using the white robust standard error in the fixed effect regression model. Furthermore, the results of the fixed effect regression model using the white robust standard error in equation I are presented in Table 4.

Table 4. Regression Results of *Fixed Effect* with *White Period Robust Standard Error* in Model I-Dependent Variable: *LnHDI*

Variables	Estimated Coefficients	Std Error	t-statistic	Prob
LnES	-0,2271	0,0851	-2,67	0,008**
LnHS	0,6412	0.0919	6,97	0,000***
LnIS	-0,3324	0,0818	- 4,06	0,000***
R-squared	11,80			
F-test	61,34			0,000
Observation	1.377			
** significant at 5% level				
*** significant at 1% level				

Based on the results of the regression test in Table 4 above, it is known that the education expenditure variable (LnES) was significant at the 5 percent level with a negative coefficient.The coefficient of education spending was -0,2271. This finding denotes that if education spending goes up 1 billion rupiahs, it will lead to a decrease in human development index among local governments by 0,2271 poin. The negative and significant result for education spending variable resulted in the rejection of the first hypothesis (H1).

The health care expenditure variable (LnHS) had a positive and significant effect on human development in local governments in Indonesia during 2016 – 2018. This was based on the probability of t-test value of 0.0000 which was smaller than 0.05. The coefficient value for health spending was 0.6412, indicating that if health spending increases by 1 billion rupiahs, , it will enhance human development in Indonesia across cities/regencies by 0.6412. Thus, this study succeeded in proving the second hypothesis (H2) which states that health care spending has a positive effect on the human development index.

Furthermore, the infrastructure spending variable (LnIS) has been shown to have a negative and significant effect on human development in cities/regencies in Indonesia during 2016 – 2018. This is based on the probability of t-test result value of 0.0000 which was smaller than 0.05. The coefficient of infrastructure spending was -0.3324. This can be interpreted that if infrastructure spending increases by 1 billion rupiahs, it will result in a decrease in human development in Indonesia's lower level regions by 0.3324. Although the regression results showed the significance of the estimated coefficient of infrastructure spending, because it was negative, the third hypothesis (H3) cannot be accepted based on the regression results.

The coefficient of determination ($R2$) of the equation model I was 0.1180; it means that the independent variable in equation I, namely local government spending on education, health and infrastructure was able to explain the variation of the dependent variable, namely the quality of human development by 113.80%. The remaining 88,20% was explained by other predictors outside this equation

Panel data analysis -model II

Equation model II was used to examine the effect of the variables of education spending, health care spending, infrastructure spending, and human development on regional economic growth (GRDP). Based on the results of the chow test, hauman test, and LM test, as in the equation model I, it was more appropriate to use the fixed effect model for the second equation

model.According to Gujarati (2012) the classical assumption test in the regression model of equation II that is appropriate is the multicollinearity, heteroscedasticity and autocorrelation tests. The results of data processing with the STATA application showed that equation II with the fixed effect model was not free from heteroscedasticity and autocorrelation problems.

The value of the Wald test result as shown is 0.000 or less than the significant value (α = 5%) so that it can be concluded that there was a heteroscedasticity problem in equation II. The problem of heteroscedasticity in equation II can be overcome by using General Least Square (GLS) estimation with cross section weight on the FE model. On the other hand, the value of the independent variable in Wooldridge test in equation II was 0.0000 or less than the significant value (α = 5%). Based on these results, it can be concluded that there was an autocorrelation problem in the regression model of equation II. The autocorrelation problem of equation I can be solved by using white period robust standard error in the fixed effect regression model. The results of the fixed effect regression model using the white period robust standard error in equation II are presented in Table 5 below.

Table 5. Regression Results of Fixed Effect with White Period Robust Standard Error in Model II- Dependent Variable: *LnGRDP*

Variables	Estimated Coefficients	Std Error	t-*statistic*	Prob
LnES	-0,0073	0,0045	-1,60	0111
LnHS	0,0351	0,0059	5,89	0,000***
LnIS	-0,0015	0,0058	-1,98	0048
LnHDI	0,04490	0,0017	0,04	0,000***
R-squared	58,61			
F-test	1.839,04			0,000
Observation	1.377			
*** significant at 1% level				

In accordance with the results of the regression test presented in Table 3 above, we are aware that education spending has proven to have a negative but insignificant effect on economic growth (LnGRDP) in regencies/cities in Indonesia during 2016 – 2018. This means that this research failed to confirm the fourth hypothesis (H4) regarding the effect of education spending (LnES) on gross domestic product. On the other hand, health care spending (LnHS) has been shown to have a positive and significant impact on economic growth in regencies/cities in Indonesia during the same period. This result refers to the t-test value of the health expenditure variable of 0.000 or less than 0.05, so this study accepts the fifth hypothesis (H5) regarding the impact of health care spending on regional economic growth. The coefficient value of health expenditure (LnHS) was 0,0351273 and it implies that an increase in health spending by 1 billion rupiahs pushes up the local economi growth by 0,0351273 per cents. Meanwhile, infrastructure spending (LnIS) had a negative but and significant impact on economic growth in regencies/cities in Indonesia during the 3year observation period. This is based on the value of the t test of the infrastructure spending variable of 0,048 or less than 0,05. The coefficient value of infrastructure spending (LnIS) was 0,0015 and thus it can be interpreted that if infrastructure spending increases by 1 billion rupiahs, it will decrease the local economic growth by 0,0015 per cent. The regression results cannot accept the sixth hypothesis (H6) which states that there is a positive effect of infrastructure spending on economic growth across regencies/cities in Indonesia. Furthermore, the human development variable (LnHDI) was proven to have a positive and significant effect on

economic growth in the observation period. This can be seen from the t-test value of the human development variable, which is 0.0000 or less than 0.05. The value of the human development variable coefficient of 0,0449 can be interpreted that if human development increases by 1 percent, it will cause an increase in economic growth of 0,0449~~522~~ per cents. Thus, this research succeeded in confirming the tenth hypothesis (H10).

The coefficient of determination (R2) of equation model II was 0.5903. It is interpreted that the independent variables of equation II, namely human development, local government spending in the fields of education, health care, and infrastructure can explain the variation in the dependent variable by 59,03%. The difference (100% - 59,03% = 40,97%) is explained by other variables outside equation II.

Path analysis Trimming Model

This study used path analysis trimming model in testing hypotheses related to indirect effects (H7, H8, and H9).

Path analysis trimming model is used to improve a structural model of path analysis by excluding variables whose path coefficients are not significant (Kuncoro & Ridwan, 2012: 127). Rahayu (2013) says that the trimming model occurs when the path coefficients tested as a whole find that there are one or more variables that are not significant so that it is necessary to repair the hypothesized path analysis structure module.

The two initial equations (equation I and equation II) were used to see the direct and indirect effects of the independent variable, namely education spending, health care spending, infrastructure spending, HDI and economic growth. Then, the equation II should be repaired according to the results of the significance test and the suitability of the model in the path analysis of the trimming model. After the equation I and equation II were repaired and passed the model suitability test, a new equation model is formed with the following coefficients:

Model I: $HDI_{it} = 67{,}6833 - 0{,}2271 (Ln\ ES_{it}) + 0{,}6412 (Ln\ HS_{it}) - 0{,}3324 (Ln\ IS_{it}) + e_{it}$

Model II: $Ln\ RGDP_{it} = 5{,}8283 + 0{,}0286 (Ln\ HS_{it}) - 0{,}011 (Ln\ IS_{it}) + 0{,}0452 (Ln\ HDI_{it}) + e_{it}$
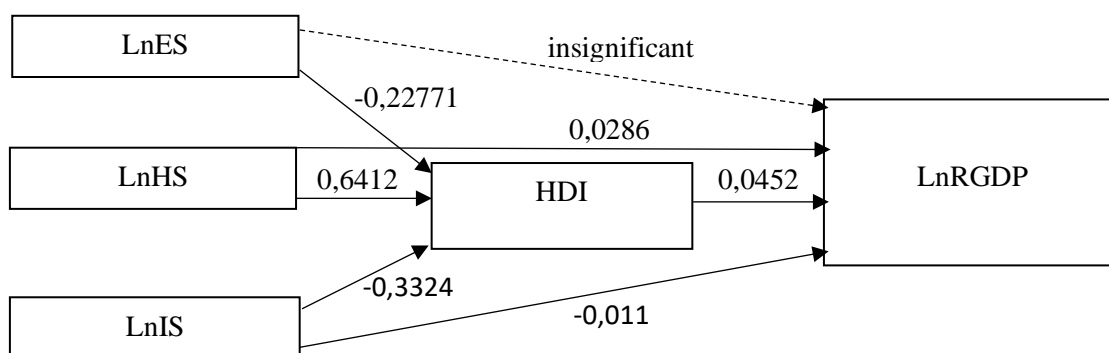

Figure 2. Model Structure

The model structure needs to be improved by eliminating education spending. Ariyaansyah (2018) said that the elimination of insignificant variables is needed to avoid coefficient bias that may arise in determining the total effect given by the independent variable to the dependent variable if the effect is not significant. The direct and indirect effect of the independent variables and their totals are summarized in the research path analysis as follows.

The results of the t-test of equation I show the magnitude of the coefficient value of each independent variable on the intermediate variable. The education expenditure coefficient value of -0.2271 was the path value or path P1 (X1,Y1). The health care expenditure coefficient value of 0.6412 was the path value or path P2 (X2,Y1). The infrastructure spending coefficient value of -0.3324 was the path value or path P3 (X3,Y1).

The results of the t-test carried out in equation II show the coefficient value of each independent variable and the intermediary variable on the dependent variable. The value of the human development coefficient of 0.0453 is the path value or path P4 (Y1,Y2). The education expenditure is not included because it is not significant. The health care spending coefficient value of 0.0286 is the path value or path P6 (X2,Y2). The infrastructure spending coefficient value of -0.011 was the path value or path P7 (X3,Y2).

The direct effect can be seen from the path coefficient value from the independent variable to the dependent variable while the indirect effect is a series of paths through one or more intermediate variables (Sarwono, 2012). This study used the Sobel test to determine the significance of the indirect effect of the independent variable on the dependent variable.

Based on the results of the Sobel test in Table 6 below, it is known that HDI mediated the positive effect of health spending on economic growth (H8 is accepted). GRDP on the other hand, the results of the Sobel test show that HDI did not mediate the positive effect of education and infrastructure spending on GRDP so H7 and H9 are rejected.

Table 6. Sobel Test Results –Path Analysis

Path	Direct Impact	Coeff.	Path	Indirect Impact	Coefficient*)	t-statistic
P1	LnES → LnHDI	-0,2271	P1→P4	LnES →LnHDI→LnGRDP	-0,013[1]	-2,6568
P2	LnHS → LnHDI	0,6412	P2 →P4	LnHS →LnHDI→LnGRDP	0,029[2]	6,7675
P3	LnIS → LnHDI	-0,3324	P3→P4	LnIS →LnHDI→LnGRDP	-0,015[3]	-4.0175
P4	LnHDI → LnGRDP	0,0453		*) coefficient is derived from multiplication:		
P5	LnES→ LnGRDP	insignifica nt		[1)]P1x P4		
P6	LnHS → LnGRDP	0,0286		[2)]P2xP4		
P7	LnIS→ LnGRDP	-0,011		[3)]P3xP4		

Education Spending, Human Development, and Economic Growth

The results of this study indicate that in the period 2016 – 2018, statistically education spending on local governments in Indonesia had a negative and significant effect on human development. The results of this study differ from the theory of government spending proposed by Ilyas (1989) and Lin (1994) and the theory of endogenous economic development which states government spending is in line with the increase in human development. This study also contradicts the results of Maryani's research (2012) which found that spending on the function of education has a positive and significant effect on human development.

Education spending which has negative and significant effect is caused by the unequal allocation of education spending between regions. Based on the results of data analysis on education spending budgets for local governments in Indonesia in 2016 – 2018, the authors

obtained information that the standard deviation of education expenditures for local governments in Indonesia was 241.17. This can be interpreted that there was an imbalance in the value of local government spending on education in Indonesia. This inequality then causes inequality in the quality and quantity of output of education spending between local governments in Indonesia. The implication of the disparity in education spending between regions is that in aggregate, education spending does not have a positive influence on human development.

One of the factors that are thought to make education spending not have a significant positive effect on human development is that the effect of education spending on human development takes time (Ilhami, 2014). The authors conducted an analysis of education spending data and found that the increase in the number of allocations for education spending only occurred in 2015. This is also confirmed by Utama (2017) in his research related to pro-growth or pro-poor government policies stating that education spending has only increased significantly starting in 2015 so that the impact was still small or not even felt in a short time. Chandra (2010) stated that government spending on education will not immediately increase economic growth simultaneously, and it will take at least 5 to 6 years for government investment to increase human resources which then has an impact on economic growth.

The negative and significant effect of education spending on human development may also be caused by a poor bureaucratic system and the tendency for corruption. In Rajkumar & Vinaya's (2007) research on the relationship between bureaucracy and corruption to increase human development in 91 countries in 1990, 1997, and 2000, government spending that did not achieve the expected results, especially in terms of human development, was caused by high rates of corruption and ineffective bureaucratic governance. Widiastuti (2008) in her study on the impact of corruption on the level of public welfare in several Muslim countries, showed that corruption causes budget inefficiency, which results in the state's goals in implementing people's welfare being unable to be achieved. Based on the results of mapping data on corruption cases conducted by Indonesian Corruption Watch (ICW), the number of corruption cases that occurred in the education budget sector in the period from 2005 to 2016 was 425 even though these corruption cases were like an iceberg phenomenon (Rachmaningtyas, 2016). Deswantoro, Ismail & Hendarmin (2017) stated that government spending that did not have a positive impact on public participation and regional development was caused by incorrect bureaucratic practices. Government spending is sometimes misused by the incumbent to carry out political image so that public services and community participation in development will not be achieved. One of the benchmarks for the quality of education used in Indonesia is the PISA (Program for International Student Assessment) score. However, since 2011, Indonesia's PSA score has not experienced a significant increase. Even in 2018, almost a decade after the government mandated 20% of the budget for education spending, about 52% of all Indonesian students sampled for the PISA test were in the category of low performers on literacy, math and science tests. The performance was much lower than that of neighboring countries. This is an indication that government spending has not had a positive influence on the quality of the education process or the output of the educational process (Kurba, 2022).

The results of statistical analysis show that local government spending on education does not have a significant effect on economic growth directly but has negative effect through HDI as a mediation. Based on the results of descriptive data analysis, it is known that there are still many local governments that have not allocated a minimum education expenditure of 20% of the total

expenditure allocation as mandated in the law, in addition the amount of education spending from each local government in Indonesia was unequal. The results of this study are not consistent with Keynesian theory which states that government spending can affect economic growth through aggregate demand either directly through government spending or indirectly through public consumption spending. Ariyansyah's research (2018) states that government spending on education in Indonesia is generally emphasized on financial assistance such as teacher professional allowances, Smart Indonesia Cards for economically disadvantaged students, Bidik Misi assistance for financially disadvantaged students, and School Operational Assistance. This financial assistance should make people able to increase their income or reduce spending on education so that people are able to buy goods/services from the increase in income or decrease in spending.

Oluwatobi & Olurinola (2011) state that government spending on education cannot have an influence on economic growth through the development of human resources because of improper processes in human development itself. The result is that the resulting human resources are not in accordance with market needs so that many human resources do not work and do not contribute to the economy. Adianto & Fedryansyah (2018) stated that Indonesian workers have relatively low mastery and application of science and technology compared to the workers of other ASEAN countries. This poor productivity will then result in a low rate of economic growth.

People do not always think that increasing income or reducing spending on education should be used for consumption. This can be explained based on the basic assumptions of Keynes theory. Keynes argues that the magnitude of the increase in consumption is not congruent with the rate of increase in income. The increase in consumption is always smaller than the increase in income. This can be interpreted that people who have additional income from the results of financial assistance through government spending, do not spend all the additional income that has been received so far. This resulted in the aggregate demand from public consumption not changing so that the market remained stagnant, thus economic productivity did not increase.

The average share of education spending to the total allocation of regional government spending in 2016 - 2018 was 31.4%, 29.5% and 27.22%, respectively, while the share of health care spending was 11.7%, 7.69% and 7%, while infrastructure spending was 6.4%, 8.3% and 7.31%. The results of this analysis show that although education spending has a relatively larger proportion than the other two expenditures, education spending actually fails to have a positive impact on economic growth. Devarajan, Swaroop & Zou (1996) in his research on the composition of government spending on economic growth found that government spending could have a negative effect on economic growth. When the government gives an excess portion of a spending, the amount of other spending will certainly decrease even though the other spending provides a higher rate of return than the prioritized spending. This causes the economic growth not to be maximized due to misallocation of resources by the government. The results of data analysis conducted by the authors found that the comparison of education spending with health care and infrastructure spending can be said to be much different. According to Vedder & Gallaway (1998), government activities can also have negative effect on economic productivity, when the law of diminishing returns occurs where the continuous expansion carried out by the government will place spending on less productive activities. In the end, the government became too broad and will engage in more off-target activities. When this happens, a negative result will appear and it can slow down the economic growth.

Health Care Spending, Human Development, and Economic Growth

The test results of health care expenditure parameters on human development show a positive and significant effect. This means that any increase in health care spending will be able to encourage increased human development. The results of this study are in accordance with the theory of government spending by Ilyas (1989), Lin (1994) and the theory of endogenous growth which states that government spending through the provision of social facilities and infrastructure can encourage increased human development.

The results of the regression estimation of this study are also in accordance with the research of Artaningtyas, Syari'udin, & Maryani, (2011) and Sunarni (2017) which showed that government spending on health care functions had a positive and significant influence on human development. The results of this study also confirm Ryu's (2015) research which in his research on the effect of government spending on 22 (twenty-two) OECD countries from 1995 to 2007 showed that government spending in the health care sector has the main objective of improving social welfare and improving human quality. Health care, education and social spending are aimed at improving the quality of human development which will then indirectly have an impact on the country's economic growth.

The authors analyze the allocation of health care expenditure data for regional governments in Indonesia in the period 2016 - 2018. The results of the analysis of data on health care expenditure allocations showed that some regional governments in 2016 - 2018 still allocated health care expenditures less than the number mandated by law, which is 10%. There were 131 or 26.6% of the total 464 local governments in 2016 that budgeted health care expenditures less than 10% of total regional expenditures as mandated by the law. There was a decrease in the number of local governments budgeted for health care spending less than 10% of total regional expenditures in 2017 and 2018. There were 90 local governments or 18.3% of the total 464 local governments in 2017 that budgeted health spending less than 10%, while in 2018 there were 67 local governments or only 14% of the total 464 local governments that budgeted for health car spending less than 10%. Actually, this is similar to data on education expenditure allocation, but what makes the difference is that health care spending is aimed at increasing health facilities, infrastructure, and human resources and not for improving employee welfare as was the case with education spending allocations. The results obtained from the output of health care and education spending are different. The result of the effect of education spending was not significant and negative on human development while health care spending had a significant and positive effect on human development.

Carolina (2019) in the report on the Development of Infrastructure and Health Indicators in Indonesia, showed that health care facilities, infrastructure and resources as a result of the realization of the health care expenditure budget in Indonesia have increased significantly in the last 5 (five) years. The increase in health care facilities, infrastructure and resources is in the form of an increase in the number of pharmacies from 5,537 pharmacies in 2008 to 12,105 pharmacies in 2018. The number of supporting health centers in 2008 was 23,136 and in 2018 there were 10,820 health centers. The number of polyclinics in 2008 was 7,145 and in 2018 it increased to 8,451. The number of maternity hospitals in 2008 was 3,264 and then increased to 6,407 in 2018. In 2008 the number of hospitals in 2008 was 1,556 while in 2018 it increased to 2,319. The number of health care resources has also increased in recent years. In 2014 there were 891,987 health service personnel and in 2018 it increased to 1,365,049 health service personnel. This increase in

health facilities and resources is an effort by the government to increase human development through health care spending.

The results of statistical analysis of this study indicate that government spending on health functions has a positive and significant effect on economic growth. This research is in accordance with Keynesian theory of economic growth that government spending is able to have a positive influence on economic growth. The results of this study also corroborate previous empirical studies conducted by Prasetiya, & Pangestuty, (2012) and Agustina (2019) regarding the positive effect of health care spending on economic growth.

The authors found information based on the results of descriptive analysis that the average growth in health care spending had increased from year to year and had a high standard deviation. A high standard deviation means that the disparity in health care spending in regencies/city governments in Indonesia is still high.

Although both education and health care spending had high standard deviations, the results of the two expenditures were different. This was due to at least two factors. First, the standard deviation of health care and education spending was the same, but the standard deviation of health care spending was still smaller than that of education spending. This means that the disparity in health care spending between regions was still smaller than education spending. Second, the disparity in spending was still high but the average health care spending was rising and health care spending was focused on the development of facilities and infrastructure as well as the quantity of human resources in the health sector (Carolina, 2019).

The authors argue that statistically these two things distinguish the effect of spending on health care and education spending in directing economic growth. Keynesian theory of economic growth explains that an increase in economic growth can occur through an increase in aggregate demand as a result of an increase in government spending. The government realizes the health care expenditure budget in the form of the construction of facilities and infrastructure. The facilities and infrastructure are of course obtained through the process of procurement of goods and services that have been carried out by the government. This is able to encourage aggregate demand in accordance with Keyneian economic growth framework. Moreover, the increase in the number of workers in the health sector has also experienced a drastic increase. The number of health care personnel resources in 2014 amounted to 891,987 people and in 2018 increased to 1,365,049 people. This significant increase brought changes in additional income. This is in accordance with Keynesian theory which explains that additional people's income will result in increased consumption so that aggregate demand increases. The increase in aggregate demand is offset by the increase in the number of goods/services produced by the market. This is what causes economic growth to increase.

Infrastructure Spending, Human Development, and Economic Growth

This research shows that infrastructure spending actually has a negative and significant impact on human development. The results of the descriptive analysis of local government budget data for 2013 – 2018, showed that the allocation of local government expenditures on infrastructure tends to decrease during the time span of 2013 – 2018. In 2013 the average allocation of infrastructure spending to the total expenditure was 10%, but the average the allocation of infrastructure spending fell to 7% in the 2018 fiscal year. In addition, the proportion of infrastructure spending when compared to education and health care spending was relatively

smaller. The average realization of education spending is 343.748 billion rupiahs and the average health care spending realization was 176.262 billion rupiah, while infrastructure spending was only 79.275 billion rupiahs. This may cause infrastructure spending to not have a significant effect on human development. Empirical evidence regarding the effect of budget allocation on human development obtained by Dewi & Supadmi (2016) found that infrastructure spending had a negative effect on human development. This was due to the low allocation of infrastructure spending.

The results of this study differ from the theory of government spending by Ilyas (1989), Lin (1994), and the theory of endogenous growth. The results of this study can be interpreted that the role of the government in improving the quality of human development through the provision of infrastructure needed by the public to gain access to education, health care and the economy has not been successful. The results of research by Sasana (2012), and Zebua & Adib (2013) stated that infrastructure spending should be able to have a positive impact on human development through the provision of infrastructure that makes it easier for people to access education and health care, and to earn income.

One of the factors that may cause infrastructure spending to have a negative impact on human development is the externality of infrastructure development. Research on the effect of infrastructure spending on human development was conducted by Badrudin & Kahasanah (2011) in the Special Region of Yogyakarta. Based on the results of the study, it was found that the influence of local government spending on education, health care, and infrastructure in years t+2, t+3 and t+4 had a negative effect on human development. The high rate of human development in the Special Region of Yogyakarta, rather than due to local government spending on education, health, and infrastructure, is actually more influenced by the community's sense of education.

The role of infrastructure spending on human development is as a provider of facilities and infrastructure for mobility and affordable access to education, health care and higher economic capacity. However, the negative externalities of infrastructure development lead to a shift in values in society which results in not achieving the goals of human development itself. The value of the community's sense of education has been shifted to the sense of consuming because of the ease of access to the economy. Infrastructure that is intended to facilitate access to education and health care actually results in people's desire to behave consumptively and put aside education and health problems. Consequently, infrastructure development aimed at increasing human development is not achieved and even tends to have a negative effect on human development.

Another reason for the negative impact of infrastructure spending on human development is that the infrastructure built may not be enjoyed by all. Scott & Seth (2012) state that infrastructure development is sometimes not accompanied by open access to use the infrastructure. The result is that this will significantly reduce the effectiveness of development carried out both nationally and locally. The infrastructure built cannot be enjoyed by all levels of society due to unplanned development.

The World Bank (2018) in the Infrastructure Sector Assessment Program report explains that the quality of infrastructure in Indonesia is low because the government does not carry out development based on clear development priorities. Development is carried out by first conducting an in-depth study from the legal, technical, economic, commercial, environmental and social aspects. However, in practice, this study is often not carried out so that the government seems to

carry out development only to see the output of the development without thinking about the effectiveness and impact on the community, the environment or the internal government itself for example, by filing lawsuits for land acquisition.

The function of infrastructure spending is proxied by spending on the economic function of local governments. Expenditures on economic functions consist of several sub-expenditures, namely: trade, business development, cooperatives and SME development expenditures; expenditure on manpower, expenditure on agriculture, forestry, fisheries and marine affairs; irrigation spending; fuel and energy spending; mining spending; industrial and construction spending; transportation spending; telecommunications spending; other economic spending. The function of economic spending does indeed consist of expenditures related to infrastructure such as water, fuel and energy, transportation and telecommunications, but there are also expenditures that are not expenditures for infrastructure development. The authors suspect that spending that is not directly related to infrastructure in economic spending, which was used by this study as a proxy for infrastructure spending, may make the results of the effect of infrastructure spending not in accordance with the expected theory.

Furthermore, the results of this study indicate that government infrastructure spending actually has a negative and significant impact on economic growth. The results of this study contradict the Keynesian economic growth theory and empirical evidence from research conducted by Zebua & Adib (2013) which state that government spending on infrastructure is able to have a positive influence on economic growth.

The results of the descriptive analysis showed that the standard deviation of infrastructure spending is high, namely 42,346. This can be interpreted that there was a disparity in infrastructure spending between local governments in Indonesia in the period 2016 – 2018. In addition, the average figure for infrastructure spending tended to decrease where since 2013 the average infrastructure expenditure has been allocated 10% of the total expenditure allocation. whereas in 2018 the average allocation of infrastructure spending was only 7% of the total regional government expenditure allocation. This caused infrastructure spending to have a negative impact on economic growth. The lack of infrastructure budget caused development targets to not be achieved which results in difficulties faced by the people to carry out economic activities.

Barro (1990) revealed that government investment in infrastructure does not always have a positive influence on economic growth. Infrastructure investment can have a negative impact on economic growth if the marginal product of investment is not greater than the price of capital that the government must spend to build infrastructure. Based on Barro's statement, in the context of local government in Indonesia, it can be interpreted from two perspectives. First, there were problems with infrastructure planning and development. Errors in infrastructure development planning resulted in the additional benefits of infrastructure development built by the government not being greater than the costs incurred by the government. Second, the marginal product from infrastructure investment has not yet been felt. It is not enough to do physical infrastructure development in just one fiscal year, but in terms of recording accountability, government spending on infrastructure is still recorded in the fiscal year in which the expenditure occurs. As a result, the government spending on infrastructure aimed at economic growth does not seem to have a positive effect because the infrastructure is still not usable by the public.

5. CONCLUSION

This study aims to analyze the effect of spending on education, health care and infrastructure on human development and economic growth in a number of regencies/cities during the 2016-2018 period. This study provides evidence that health care spending has a positive impact on human development and economic growth. Research also proves that a high human development index will have a positive effect on economic growth in the region. This study strengthens the endogenous economic theory which explains that the government must invest in human resources through government spending. These expenditures are expected to have a positive influence on human development which in turn will provide a positive stimulus to economic growth. On the other hand, the results of this study cannot prove the positive contribution of education and infrastructure spending to both human development and regional economic growth. This is not in line with Keynesian theory that government spending can stimulate the economy.

This research implies that the government needs to formulate policies that are able to encourage investment from the private sector. Human development is indeed vital in sustainable economic growth, but human capital alone will not be able to have a positive influence on economic growth without the supporting equipment, technology, facilities and infrastructure. Local governments also need to evaluate the effectiveness of education spending in order to better support the improvement of human resources and promote economic growth. Infrastructure development planning needs to be improved so that it has a more positive effect on the human development index and accelerates the improvement of community welfare.

In this study, there are a couple of limitations which, if it can be overcome by further researchers, can provide better results. Firstly, government expenditure in this study was assumed to be exogenous. In fact, the formulation of government spending on sub-national jurisdictions may consider a number of macroeconomic indicators such as human development index and regional economic growth. Future study is strongly recommended to take this issue into account. Secondly, the scope of time and object of research in upcoming research can be considered to expand in order to increase the degree of generalization.

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