The Effect of Government Consumption and Government Investment as Intervening Variables to Growth in Indonesia

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Abstract

Fiscal and monetary policy are the two macroeconomic policies used by the government and monetary authorities in order to create a stable of economy. The budget deficit is one form of fiscal policy implemented by the government in order to realize a high level of economic growth. The impact of the implementation of the budget deficit policy on the level of economic growth has a long debate. Neoclassical groups argue that the implementation of budget deficit policy is detrimental to the economy, as it lowers the rate of economic growth. Keynesian groups argue that the implementation of the budget deficit policy is very good for the economy, because it triggers to the rate of economic growth by increasing the number of demand for goods and services through increased government spending. While the Richardian people argue that the implementation of budget deficit policy has no effect on the economy. This study examines the budget defisit policy in Indonesia during the period of 1981-2014. The novelty of this research is the method of analysis in this research by using Partial Least Square-Path Modeling (PLS-PM) approach with SMART-PLS analysis tool which aims to analyze the direct and indirect influence of the implementation of budget deficit policy toward the level of economic growth through government consumption and government investment. This study found no direct effect betwen budget deficit and growth. The finding indicates that an increased budget deficit may not necessarily lead to an increase in growth. Therefore, Keynesian group argue is not applicable in Indonesia because the role of intervening variables (Government Consumption and Government Investment) in mediating growth is relatively weak.

Keywords: Partial Least Square, intervening variables, growth.
JEL classification:

1. Introduction

The economic performance of a country can be seen from three fundamental variables, namely 1) economic growth rate, 2) inflation rate and 3) unemployment rate (Blanchard & Johnson, 2013). The economic conditions of a country can be said to be good if the economic growth rate is positive, the inflation rate is low and

the unemployment rate is low. The government should take part in formulating economic policy to achieve stable economic conditions. Based on data from the Indonesia's Statistics Agency (in Indonesian: *Badan Pusat Statistik* or *BPS),* Indonesia's economic growth has only moved at 5% since 2014. To accelerate growth of economic from 5% to 7%, Government of Indonesia needs to maintain fiscal and monetary policies for further and sustained structural reforms.

One of the policies used to achieve stable economic conditions is fiscal policy. Fiscal policy or known as a budgetary policy is the policy of regulating fiscal instruments in this case government spending and government revenue, with the aim of influencing the level of aggregate demand in the economy. One of the fiscal policies still applied in Indonesia is the budget deficit policy.

There are three groups that have different opinions about the impact of the implementation of the budget deficit policy on economic performance, Neoclassical, Keynesian and Richardian (Saleh, 2003). Neoclassical groups argue that the implementation of budget deficit policies is detrimental to the economy, as it lowers investment levels (Bernheim, 1989). Keynesian groups argue that the policy of budget deficit is done to keep people working, no increase in the number of unemployed which will further weaken the economic condition and result in the crisis in the community (Barro, Robert, 1989). This theory is derived from David Ricardo's Funding System elaborated further by Robert Barro (Barro, 1974) so known as Richardo-Barro Preposition. Empirically, the results of the study indicate that the implementation of the budget deficit policy has a positive impact, negative impact, and no impact on economic growth.

Research on the impact of budget deficit policy on economic growth that support's Richardian group is done by Ghali (Ghali, 1997), Velnampy and Achchuthan (Velnampy, T and Achchuthan, 2013) and Noveski (Martin Noveski, 2018)the expansionary fiscal policy in Macedonia can still be felt, primarily through an increased

level of public expenditures aimed at stimulation of the economic growth. From 2008 onwards, the Republic of Macedonia has continuously recorded a negative budget balance, which affects the resources allocation and the overall economic situation. The question that arises is whether such interference by the Government in the functioning of the market economy is necessary, especially having in mind the EU regulation in this area. Using a multiple regression model for the period 1996-2015, this paper examines the impact of the budget deficit on Gross Domestic Product (GDP. (Ghali, 1997) conducted a study of the relationship between budget deficits and economic growth in Saudi Arabia using data from 1960 to 1996. Using the Vector Auto Regression (VAR) approach as a method of analysis, the results showed that budget deficits, government consumption and government investment have no affect on the level of economic growth. (Velnampy and Achchuthan, 2013) conducted a study of the relationship between budget deficits and economics growth in Sri Lanka using data from 1970 to 2010. Using descriptive statistics approach as a method of analysis, the result showed that the fiscal deficits has no affect on the level of economic growth. (Noveski, 2016) conducted a study of the relationship between budget deficits and economic growth in Macedonia using data from 1996 to 2015. Using a multiple regression approach as a method of analysis, the results is supporting the Ricardian equivalence theory, that budget deficits is not a statistically significant determinant of growth.

Research on the impact of budget deficit policy on economic growth that support's Keynesian group is done by Gupta, Clements, Baldacci, Heartburn-Granados (Sanjeev Gupta, Benedict Clements, 2005), Bose, Haque and Osborn (2007) (Public Expenditure And Economic Growth: A Disaggregated Analysis For Developing Countries, 2007), (Sodik, 2007), (Keho, 2010), (Okelo Simeo Odhiambo, Dr. Momanyi G., Prof. Othuon Lucas, 2013), (Chioma, 2014), and (Eminer, 2015). (Sanjeev Gupta, Benedict Clements, 2005) conducted a study of the relationship between

budget deficits and economic growth in 39 low-income countries using data from 1990 to 2000. Using a regression analysis approach as a method of analysis, the results showed that the budget deficit has a positive effect on the level of economic growth. Bose et.al. (2007) (Public Expenditure And Economic Growth: A Disaggregated Analysis For Developing Countries, 2007) conducted a study of the relationship between budget deficits and economic growth in 30 developing countries using data from 1970 to 1990. Using a panel data approach as an analysis method, the results of research showed that government capital expenditure has a positive and significant effect on the level of economic growth. (Sodik, 2007) conducted a study of the relationship between budget deficits and economic growth in Indonesia using data from 1993 to 2003. Using the Generalized Least Square (GLS) approach as a method of analysis, the results of research showed that government spending has a positive and significant effect on level of economic growth. (Keho, 2010) conducted a study of the relationship between budget deficits and economic growth in the countries of the West African Economic and Monetary Union (WAEMU) including Cote d'Ivoire, Senegal, Togo, Benin, Burkina Faso, Mali, and Nigeria using data 1980 to 2005. Using the Granger Causality Test approach as an analysis method, the results of the study showed that the budget deficit has no effect on the level of economic growth in the countries of Cote d'Ivoire, Senegal and Togo. However, the budget deficit has a positive effect on the level of economic growth in the countries of Benin, Burkina Faso, Mali and Nigeria. (Okelo Simeo Odhiambo, Dr. Momanyi G., Prof. Othuon Lucas, 2013) conducted a study of the relationship between budget deficits and economic growth in Kenya using data from 1970 to 2007. Using the Ordinary Least Square (OLS) approach as a method of analysis obtained research results that showed that deficits government budget has a positive effect on the level of economic growth. (Chioma, 2014) conducted a study of the relationship between budget deficits and economic growth in

Nigeria using data from 1981 to 2012. Using the Granger Causality Test approach as an analytical method, the results obtained showed that capital expenditure has a positive effect on the rate of economic growth. (Eminer, 2015) conducted a study of the relationship between budget deficits and economic growth in North Cyprus using data from 1983 to 2010. Using the Granger Causality Test approach as an analytical method, the results showed that the budget deficit has a positive and significant effect on the rate of economic growth.

Research on the impact of budget deficit policy on economic growth that support's Neoclassical group is done by (Sawitri, 2006), (Goher Fatima, Mehboob Ahmed, 2012) conducted a study of the relationship between budget deficits and economic growth in Indonesia using data from 1995 to 2005. Using the General Evaluation Estimator approach as an analytical method, the results of the study showed that the budget deficit has a negative and significant effect on the level of economic growth. (Goher Fatima, Mehboob Ahmed, 2012) conducted a study of the relationship between budget deficits and economic growth in Pakistan using data from 1978 to 2009. Using a regression approach as an analysis method, the results of research showed that the government budget deficit has a negative and significant effect on level of economic growth.

Research on the impact of government comsumption and government investment on economic growth is done by Sanchez-Robles (Robles, 1998), (Lau, 2007), (Rika Swaramarinda & Indriani, 2017), (Engla Desnim Silvia, 2013), (Dewi Ernita, Syamsul Amar, 2013). The result of the research indicate that government comsumption and government investment have a positive and significant effect on the rate of economic growth.

The novelty of this research is how the effects of the budget deficit on economic growth by using government consumption and investment as an intervening variables.

2. Research Method

This research is quantitative related budget deficit policy in Indonesia during period of 1981-

2014. The data used in this study is secondary data that can be obtained from the Central Statistics Agency (BPS), Bank of Indonesia (BI), the Ministry of Finance of the Republic of Indonesia, Required data include the ratio of budget deficit to GDP, government investment rate, government consumption rate, and economic growth rate. The analysis method used in this research is Partial Least Square-Path Modeling (PLS-PM). PLS-PM has the ability to reveal the complexity of relationships among variables in this study. Structural model testing is used to test the causality relationship between variables, without requiring the use of data that has a certain size scale and small sample size. However, this method also has some limitations such as 1) simple model structure postulate, 2) it is assumed that all variables are considered to be observable, 3) all variables can be measured in the absence of measurement errors (Haenlein, M. and Kaplan, A., 2004)this technique has been received with considerable interest among\r\nempirical researchers. However, the predominance of LISREL, certainly the most\r\nwell-known tool to perform this kind of analysis, has led to the fact that not all researchers\r\nare aware of alternative techniques for SEM, such as partial least squares\r\n(PLS.

2.1 The basic mathematical model of PLS

The basic mathematical model of PLS in this study is the relationship $Y = f(X)$ between two groups of variables known as the dependent variable (Y) and the independent variable (X). The relationship between the dependent variable (Y) and the independent variable (X) refers to Haenlein and Kaplan (Haenlein, M. and Kaplan, A., 2004)this technique has been received with considerable interest among\r\nempirical researchers. However, the predominance of LISREL, certainly the most\r\nwell-known tool to perform this kind of analysis, has led to the fact that not all researchers\r\nare aware of alternative techniques for SEM, such as partial

least squares\r\n(PLS can be written in the form of mathematical formulas as follows;

$$y = b_1x_1 + b_2x_2 + b_3x_3 + ... + b_mx_m + e \qquad (1)$$

$$y = y = \sum_{j=1}^{m} bjxj + e \qquad (2)$$

$$y = x'b + e \qquad (3)$$

The equation illustrates multilinear dependencies for one sample. If the number of samples is n, y1 (i = 1 - n) can be written as a column of vector y, b remains as a beta coefficient, and vector x forms a matrix X. If written in the form of simple matrix equations are as follows;

$$y = Xb + e \qquad (4)$$

to make it easier to understand the simple equation of the matrix above, it is made in graphical form as follows;
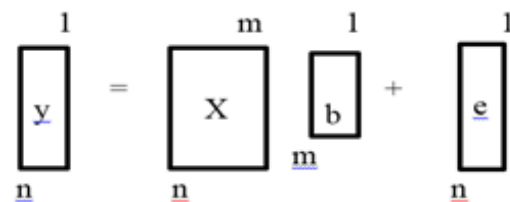
if there is more than one dependent variable, then the simple matrix equation is;

$$y1 = Xb1 + e1; y2 = Xb2 + e2 ... yp = Xbp + ep \quad (5)$$

or can be written in the form of one equation as follows;

$$Y = XB + E \qquad (6)$$

Which is Y = (y1 y2 ... yp), B = (b1 b2 ... bp) and E = (e1 e2 ... ep)

To facilitate understanding of equations that represent bound variavel 2-p, matrix are as follows;

Where;

x = independent variable

y = dependent variable

X = independent variable matrix

Y = bound variable matrix

b = beta coefficient

j = dummy index for measuring independent
    variables

m = number of independent variables

p = number of dependent variables

n = number of samples

e = error or residual

Partial Least Square is generally used in research related to the human behavior, marketing and bussines, but Korkmazoglu, O. B. dan Kemalbay, G. (Korkmazoglu & Kemalbay, 2012), Adusei and Gyapong (Adusei & Gyapong, 2017), and Liu (Liu, 2017) the possibility that fiscal decentralization facilitates economic performance through enhanced public governance largely is ignored. This essay attempts to examine the possible associations among fiscal decentralization, public governance, and economic performance. Different from traditional statistical techniques such as regression analysis, this research employs a novel analytical approach (i.e., partial least square-structural equation modeling, or PLS-SEM used partial least square method in the field of macroeconomic. Korkmazoglu, O. B. dan Kemalbay, G. (Korkmazoglu & Kemalbay, 2012) used partial least square method in research with the title

"Econometrics application of partial least squares regression: an endogenous growth model for Turkey" that was published in a scopus indexed Q3 category journal, namely Procedia-Social and Behavioral Sciences. (Adusei & Gyapong, 2017) used partial least square method in research with the title "The Impact of Macroeconomic Variables on Exchange Rate Volatility in Ghana: The Partial Least Square Structural Equation Modelling Approach" that was published in a scopus indexed Q1 category journal, namely Research in International Business and Finance. (Liu, 2017)the possibility that fiscal decentralization facilitates economic performance through enhanced public governance largely is ignored. This essay attempts to examine the possible associations among fiscal decentralization, public governance, and economic performance. Different from traditional statistical techniques such as regression analysis, this research employs a novel analytical approach (i.e., partial least square-structural equation modeling, or PLS-SEM used partial least square method in research with the title "Fiscal Decentralization, Public Governance, and Economic Performance" that was published in a journal, namely Taiwan Journal of Democracy.

2.2 Rule of Thumb PLS

Latan and Ghozali (Prof Dr H Imam & Hengky, 2012) (Latan & Ghozali, 2013) summarize the rule of thumb structural model evaluation by referring to the opinions of Fornell and Cha (Fornell, C. and Cha, 1994) , Chin (Chin WW, 1998), and Gotz, Liehr-Gobbers and Krafft (Götz, Liehr-Gobbers, & Krafft, 2010) as follows.

Table 1: Rule of Thumb Partial Least Square

Criteria	Rule of Thumb
R-Square	*0.67; 0.3 and 0.19 show a strong, moderate or weak model (Chin, 1998)*
Cointegration	Using Pearson correlation to find out the relationship between variables with the following conditions; 0 - 0.25 (very weak) 0.25 - 0.5 (enough) 0.5 - 0.75 (strong) 0.75 - 0.99 (very strong) 1 (perfect)
Significance (two-tailed)	*t-value* > **1,65** (Significance level =**10%**)

2.3 Operational Definition of Variables

in this study, there are three variables; government's budget deficit that used as exogenous variables, growth rate that used as endogenous variabes, government investment and government consumption that used as intervening endogenous variables.

2.4 Government's Budget Deficit (BD)

To be able to understand the definition of a budget deficit correctly, Blanchard (2009) makes the equation of the budget deficit in a given year t (Def$_t$) as follows:

$$\mathbf{Def}_t = r\mathbf{B}_{t-1} + \mathbf{G}_t - \mathbf{T}_t \qquad (1)$$

where :
$\mathbf{B}_{t-1}$: government debt at the end of year t-1, or government debt at the beginning of
r : the year t;
$r\mathbf{B}_{t-1}$: Real interest rate
$\mathbf{G}_t$: Payment of real interest on government
$\mathbf{T}_t$: debt in year t-1
Government expenditure on goods and services during the year t
Tax receipts in year t minus government transfers

Based on equation (1), it can be defined that the budget deficit is government expenditure (including debt interest payments) reduced by taxes (tax receipts in year t minus government transfers).

Deficits and debt are two different things. Debt is an additional amount of funding to finance budget deficits that have occurred in previous years and must be returned by the government and interest. Whereas the deficit is the amount of funding that the government must borrow for a certain period of year.

The relationship between the budget deficit and debt in the context of financing the budget deficit can be seen by compiling a government budget constraint, where changes in government debt during the year t are the same as the budget deficit during the year t. If it is stated in the form of an equation, then:

$$B_t - B_{t-1} = \mathbf{Defisit}_t \qquad (2)$$

Based on the above equation, an increase in the government's budget deficit will result in an increase in the amount of government debt. Conversely, if the government budget is surplus, then government debt decreases.

If we use the equation about the definition of a budget deficit as stated in equation (1), then the equation of the Government Budget Constraint can be rewritten as follows:

$$B_t - B_{t-1} = rB_{t-1} + G_t - T_t \qquad (3)$$

This government budget constraint changes in government debt with the payment of interest rates on debt used in the previous year and the difference between government expenditure and tax revenue. To make it easier, the budget deficit is the sum of 2 items, payment of interest on government debt, rB_{t-1} and the difference between government expenditure and its revenue, G_t-T_t, in this condition is called the primary deficit (if T_t-G_t is in the condition of primary surplus).

From equation (3) we can rewrite it to find out the amount of debt burden in year t by moving B_{t-1} to the right of the equation, so that the new equation changes to;

$$B_t = (1 + r) B_{t-1} + G_t - T_t \qquad (4)$$

The government debt burden at year t is equal to $(1 + r)$ the amount of debt in year t-1, plus the primary deficit that occurs in year t. Whereas official budget deficit (OMD) measurements are formed from nominal interest payments (iB) plus expenditures on goods and services (G), minus taxes (T) without transfers.

When written in the form of a mathematical equation, then:

$$OMD = iB + G - T \qquad (5)$$

The official measurement of the budget deficit is accurate for measuring the position of government cash flows. If the value is positive, then government spending exceeds the amount of revenue so that additional debt is needed to cover the shortfall. If the value is negative, then it can be used by the government to pay off some of its debts. However, measurement in this way is not appropriate to measure changes in the actual amount of debt, because in this case the change in the amount of government debt is valued from spending on goods rather than the value of the money itself. To be clearer, an illustration example is given as follows:

When the government budget is balanced, the value of the Official Measure of the Deficit (OMD) is the same as Zero, so the government does not add debt or repay some of its debt. Suppose there is an inflation of 10%, then the real value of government debt falls by 10% due to the inflation. In other words, the deficit occurs due to changes in the real value of government debt, where the real value of government debt falls by 10% for one year.

If B is government debt, and π is inflation, the correct measurement of budget deficit (CMD) is to enter πB as a deduction element in the official measure of the deficit. So that the calculation of the correct budget deficit is;

$$\begin{aligned} CMD \quad &= iB + G - T - \pi B \\ &= (i - \pi)B + G - T \\ &= rB + G - T \qquad (6) \end{aligned}$$

Where, $r = i - \pi$ is the real interest rate. Correct Measure of The Deficit (CMD) or often referred to as The Inflation-Adjusted Measure is the sum of payments for real interest and government spending minus taxes (including transfers).

The difference between the official budget deficit measurement and the correct one is in πB. So, the higher the inflation rate (π), or the higher the amount of debt (B), the official measurement of the budget deficit becomes increasingly inaccurate. So it is very important to use The Inflation-Adjusted Measure as the correct measurement tool in measuring the budget deficit.

2.5 Growth Rate (GR)

High and sustainable economic growth is a very important condition for the continuity of economic development (Tambunan, 2001). Economic growth is an additional income of the community in a certain period of time resulting from an economic activity. In other words the economy can be said to experience growth if there is an increase in the real income of the community in a given year which is greater than the real

income of the community in the previous year. Economic growth in the macro economy is called the addition of Gross Domestic Product (GDP), which means an increase in National Income (Tambunan, 2001).

In the simple terms, the relationship between Gross Domestic Product (GDP) and National Income can be explained through the following equations;

$$PNB = GDP + F \tag{1}$$

$$NNP = PNB - D \tag{2}$$

$$PN = NNP - Ttl \tag{3}$$

Where;
PNB : Gross National Product
GDP : Gross Domestic Product
F : Net income to foreign countries
NNP : Net National Products
D : Depreciation
PN : National Income
Ttl : Net indirect tax (difference between indirect taxes and subsidies)

If the combination of the three equations above is done, the new equation will be obtained as follows;

$$GDP = PN + Ttl + D - F \tag{4}$$

or

$$PN = GDP + F - D - Ttl \tag{5}$$

Equations (4) and (5) are obtained from;

$$GDP = PNB - F \tag{6}$$

Then, based on equation (2), PNB is changed to NNP + D, so that;

$$GDP = NNP + D - F \tag{7}$$

Based on equation (3), NNP can be changed to PN + Ttl, so that a new equation is obtained;

$$GDP = PN + Ttl + D - F \tag{8}$$

or

$$PN = GDP + F - D - Ttl \tag{9}$$

In calculating the economic growth rate, real GDP data is used (on the basis of constant prices), this is done to avoid the effect of price changes on GDP values. Thus, the measured economic growth only reflects the output growth produced by the economy for a certain period of time.

The method of calculating the rate of economic growth used a simple method, by comparing the current year's GDP with the previous year. However, this method has the disadvantage that it can only be used to calculate the annual economic growth rate, while to calculate the rate of economic growth in a longer period of time taken by calculating the rate of economic growth per year, then averaged.

In this study, the rate of economic growth is a condition of the increasing rate of economic activity in the community as measured by Gross Domestic Product (GDP) on the basis of constant prices based on expenditure (base year 2000), which is a GDP calculation by reducing the value of GDP in the year n the value in year n-1 (previous year), divided by the value in year n-1 multiplied by 100%. The rate of economic growth is an aggregate development of income from one particular time to the previous time, where when written in the form of a formula it is as follows;

$$GR_t = ((PDB_t - PDB_{t-1})/ PDB_{t-1}) \times 100\%$$

Where :
GRt = Economic Growth in year t
GDPt = Gross Domestic Product year t
PDBt-1 = Gross Gross Domestic Product of a particular year as the basis for calculation

2.6 Government Investment (INV)

Government investment is government expenditure that used to finance the formation of gross domestic fixed capital, measured in the form of a percentage comparison of government investment expenditure with gross domestic product at a constant 2000 price, which is formulated as follows;

INV =(INV$_t$ / PDB$_t$) x 100%

Where;

INV   = Government Investment Ratio to GDP on the basis of constant 2000 prices

INVt = Government Investment in year t

GDPt = GDP in year t on the basis of constant 2000 prices.

2.7 Government Consumption (Cg)

Government consumption is expenditure that used to finance goods expenditure, employee expenditure and expenditure on other goods and services as measured as a percentage comparison between government consumption expenditure and gross domestic product on the basis of constant 2000 prices, which are formulated as follows;

Cg =(Cg$_t$ / PDB$_t$) x 100%

Where;

Cg   = Government consumption ratio to GDP on the basis of constant 2000 prices

Cgt   = Government Consumption in year t

GDPt = GDP in year t on the basis of constant 2000 prices.

2.8 Constructing Path Modelling

In this study, the path modelling diagram based on Keynes Macro Economics theory. Based on that, the diagram are arranged.
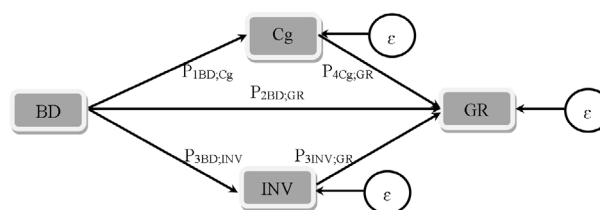

Figure 1: Path Modelling (BD, Cg, INV, and GR)

2.9 Constructing Structural Equation

Modeling construction is carried out with the following stages, 1) Determination of the modelling path diagram, 2) Make a model equation based on a path diagram that is used to detect the direct and indirect effects of intervening variables

$$Cg = \alpha 1 + \beta_1 BD + \varepsilon_1 \tag{1}$$

$$INV = \alpha_2 + \beta_2 BD + \varepsilon_2 \tag{2}$$

$$GR = \alpha_3 + \beta_3 BD + \beta_3 Cg + \beta_3 INV + \varepsilon_3 \tag{3}$$

2.10 Constructing Hypotheses

Based on the form of path modelling diagram, several research hypotheses are constructed;

Direct Effect

1. The budget deficits and government consumption have direct relationship.
2. The budget deficits and government investment have direct relationship.

Indirect Effect;

1. The budget deficits, government consumption and economics growth rate have indirect relationship.
2. The budget deficits, government investment and economics growth rate have indirect relationship.
3. The budget deficits, government consumption, government investment, and economics growth rate have indirect relationship.

3. Results and Discussion
3.1 Results

In this section we will examine and prove the effect of mediating variables (intervenimg) i.e. government consumption and government invesment related to the government budget deficit against the economics growth rate. Government consumption and government investment economics growth rate variables need to be considered as they play an important role through the transmission mechanisms in the impact of the budget deficit on the economics growth rate. Therefore, to test the effect of mediating / intervening variables (government consumption and government investment), we used Partial Least Square-Path Modelling Analysis method. Path modelling analysis is an extension of multiple linear regression and bivariate analysis involving several exogenous and endogenous variables as well as enabling testing of mediating / intervening variables. Ghozali (Latan & Ghozali, 2013), the path modelling analysis can measure the direct and indirect relationships among variables in the model.
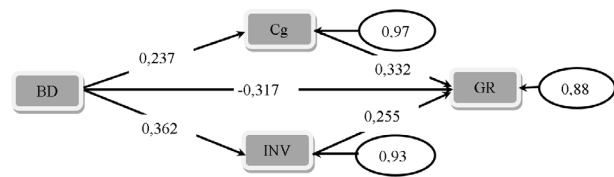
3.1.1 Calculation result of Path Coefficient

Figure 2: Structure of Causal Relation and Path Modelling Analysis Coefficient

3.2 Discussion
3.2.1 Direct effect, Indirect Effect dan Total effect

One of the advantages of Path Modelling Analysis is the model can be used to analyze the overall effect of an independent variable and to decompose it into direct effect and indirect effect. The direct effect is the magnitude of the change caused by one or more independent variables which lead directly to the dependent variable, the indirect effect is the magnitude of the change caused by one or more independent variables which cannot directly lead to the dependent variable as they are mediated by one or more other variables.

Table 2. The magnitude of the direct effect and indirect effect

Variable Impact Paatterns	Causal Relationships				
	Direct	Through Cg	Through INV	Through Cg and INV	Total Effect
BD → Cg	0,237				
BD → GR	-0,317	0,079	0,092	0,171	-0,146
BD → INV	0,362				
Cg → GR	0,332				
INV → GR	0,255				

Hypotheses Test and Verification

Table 3. Summary of model parameter estimation results

Sub-Structure (equation 1)

Model : $Cg = \alpha_1 + \beta_1 BD + \varepsilon_1$

	standardized coefficient	t-value	p-value	R^2	Result
BD → Cg	0,237	1,682	0,093	0,056	Significant

Sub-Structure 2 (equation 2)

Model : $INV = \alpha_2 + \beta_2 BD + \varepsilon_2$

	standardized coefficient	t-value	p-value	R^2	Result
BD → INV	0,362	2,187	0,029	0,131	Significant

Sub-structure 3 (equation 3)

Model : $GR = \alpha_3 + \beta_3 BD + \beta_3 Cg + \beta_3 INV + \varepsilon_3$

	standardized coefficient	t-value	p-value	R^2	Result
BD → GR	-0,146	1,302	0,194	0,216	In-Significant
Cg → GR	0,332	1,409	0,160		In-Significant
INV → GR	0,255	1,297	0,195		In-Significant

Empirically, the results of the study show that the budget deficit has a positive and significant effect on government consumption with a coefficient of 0.237. The level of significance of the effect of the budget deficit on government consumption is indicated by the t-count value of 1.682 greater than the t-statistic of 1.65 (significance level = 10%). The results of this study indicate that the greater of the government budget deficit, the greater of the consumption of the government.

The results of the study show that the budget deficit has a positive and significant effect on government investment with a coefficient of 0.362. The level of significance of the effect of the budget deficit on government investment is indicated by the value of t-count of 2.252 greater than t-statistic 1.65 (significance level = 10%). The results of this study indicate that the greater of the government budget deficit, the greater of the government investment.

The results of the study show that the government budget deficit has a negative but in-significant effect on the level of economic growth with a coefficient value of -0.127. The level of significance of the effect of the government budget deficit on the level of economic growth is indicated by the t-count value of 0.499 smaller than the t-statistic of 1.65 (significance level = 10%). The results of this study indicate that the greater the government budget deficit, the more it will be reduced the rate of economic growth. This is contrary to the results of previous studies conducted by Gupta et al. Sanjeev Gupta, Benedict Clements (2005), Bose et al. (2007), Sodik (2007), Keho (2010), Odhiambo, Momanyi, Lucas, and Aila (2013), Osuka and Chioma (2014), and Eminer (2015) which state that government

budget deficits have a positive and significant effect on economic growth. But it supports the research conducted by Sawitri (Sawitri, 2006), (Goher Fatima, Mehboob Ahmed, 2012) which the budget deficit policies has a negative effect on economic growth.

The results of the study show that government consumption has a positive but in-significant effect on the level of economic growth with a coefficient value of 0.332. The level of significance of the influence of government consumption on the level of economic growth is indicated by the value of t-count of 1.409 smaller than t-statistic of 1.65 (significance level = 10%). The results of this study indicate that the greater the government consumption, the more it drives the level of economic growth. This is supported the results of previous studies conducted by Swaramarinda and Indriani (Rika Swaramarinda & Indriani, 2017), Silvia et. al. (Engla Desnim Silvia, 2013) investment, government spending, net exports, and inflation to the economic growth in Indonesia. (2 and Ernita et. al. (Dewi Ernita, Syamsul Amar, 2013)investment, government spending, and net exports to economic growth in Indonesia, (2 which states that government consumption has a positive and significant effect on economic growth.

The results of the study show that government investment has a positive but in-significant effect on the level of economic growth with a coefficient of 0.255. The level of significance of the effect of government investment on economic growth is indicated by the value of t-count of 1.297 smaller than t-statistic of 1.65 (significance level = 10%). The results of this study indicate that the greater the government investment, the more it will drive the rate of economic growth. This is supported the results of previous studies conducted by Sanchez-Robles (Robles, 1998), Liwan and Lau (Lau, 2007) which the government investment has a positive and significant effect on the level of economic growth.

During the period 1981 to 2014, the average level of the budget deficit was 2.80% with the highest level of budget deficit occurring in 1988

at 6.6% (figure 3). While the lowest budget deficit occurred in 2008 which was equal to 0.1%. The increases of the budget deficit in 1988 was occurred due to the decline in oil prices in the world market, resulting in reduced state revenues. Oil and gas are the main revenue of the budget state during the period of 1981-1998.

The budget deficit during the period 1981 to 1998 was used for fertilizer subsidies in order to support agricultural production sector towards food self-sufficiency. In addition to fertilizer subsidies, the development expenditure was used for food subsidies and fuel oil subsidies as well as increasing various programs in fields that given top priority to increase community participation in development, including village development instructions, district development instructions, province development instructions, elementary school development instructions, community health centers development instructions, reforestation development instructions, roads and bridges development instructions, market infrastructure development instructions and regional development instructions.

Figure 3. The budget deficit of Indonesia in 1981-2014

During the period 1999 to 2014, the largest budget deficit occurred in 2005 triggered by the burden of spending on subsidies, spending on rehabilitation and reconstruction of Aceh and Nias, and international oil prices that are not in accordance with the 2005 State Budget assumption, which in the assumption that the State Budget is set at the price US $ 24 per barrel, but in the reality oil prices up to US $ 70

per barrel.

During the period of 1981 to 2014, the average rate of economic growth was 4.98% with the highest economic growth rate occurring in 1995 at 8.1%. While the lowest economic growth rate occurred in 1998, which amounted to -13.1% (figure 4). In the periods of 1982 and 1985, economic growth declined due to the fall in oil prices and currency repositioning which further increasing Indonesia's foreign debt burden. The government took strategic steps to restore macroeconomic stability, including devaluing the rupiah in 1983 to reduce the increasing current account deficit, implementing a new tax law to increase non-oil and gas revenues, and through banking deregulation. Government actions in order to support economic growth through exports are increasingly enhanced by providing freedom of import duties and devaluation of the rupiah. This policy is able to influence foreign investment in Indonesia which is export oriented. Finally, Indonesia's economic growth averaged annually 6.8% in the periods 1988 and 1991, than slowed to an average of 6.68% a year in the period of 1991-1994 and increased again in the following years to the economic crisis that hit in 1998.

The crisis of economic Asia had an impact on the decline in economic growth of Indonesia in 1998 by -13.1% a year and the economic growth in 1999 was less than 1% a year due to the economic crisis. Indonesia's economic recovery began in 2000-2004 with an average economic growth rate of 3.54% a year. After the economic crisis, the level of economic growth of Indonesia continued to increase, but in 2009 economic growth declined to 4.63% a year due to global financial shocks resulting in capital outflows from Indonesia.

The highest of economic growth of Indonesia after the economic crisis occurred in 2011 which was 6.49% a year. This was caused by an increase in household consumption and commodity price boom in the year of 2000's (2000's commodities boom). The explosion in the price of this commodity was not well anticipated by the government, so the raw commodities exports were not able to be reduced by the government at that time. The next result, when commodity prices began to fall after 2011 had an impact on Indonesia's economic growth slowdown.

Figure 4. The economic growth of Indonesia in 1981-2014

4. Conclusions

This study aims to examine the effect of budget deficit to economics growth rate by including intervening variables namely the government consumption and government invesment in Indonesia. Path Modelling Analysis method is applied to detect whether there is direct and indirect effect of budget deficits to economics growth rate through the mechanism of transmission of government consumption and government investment. The research variables consist of growth rate as endogenous variable (GR) and exogenous variable of government budget deficits (BD) and two endogenous intermediate variables government consumption (Cg) and government investment (INV). Based on this study, the budget deficit has a positive and significant effect to government consumption expenditure and government investment expenditure. Total effect of budget deficit to economic growth is negative but in-significant. Meanwhile, the effect of government consumption expenditure and government investment expenditure have positive but in-significant to economic growth in Indonesia.

5. Referencess

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