

# Empirical Study of *Ricardian Equivalence Hypothesis* in Indonesia: The Effect of Budget Deficit on Public Consumption in 1990-2018

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## **Abstract**

*Fiscal policy remains a central tool to boost the economy. Indonesia has implemented a deficit fiscal policy for the budget deficit, but Indonesia has not achieved the economic growth target. This reality shows that there is a gap between policy and policy outcomes. This research aims to prove the existence of the Ricardian Equivalence Hypothesis (REH), namely whether the fiscal policy, in this case, the budget deficit, affects public consumption. In addition to analyzing gross domestic product (PDB) as a measure of revenue, government debt, and budget deficits, researchers added variable deposit rates as one of the monetary policy instruments. The research employs Adaptive Expectation Model analysis that shows that in the short and long term, only variable deposit rates had a significant effect on public consumption, meaning that other variables such as GDP, government debt, and budget deficits had no impact on public consumption in Indonesia for the 1990-2018 period. Thus, this study validates the existence of Short Ricardian both in the short and long term. With this result, the government must change the deficit policy strategy so that the results of productive spending can be enjoyed directly by the people. Some policies that should disre to maintain interest rates, not do too much debt, develop the country's industry, and country's locate deficit budgets to things that directly support the economy.*

**Keywords:** *fiscal policy, budget deficit, Ricardian Equivalence Hypothesis, public consumption, Adaptive Expectation Model*

**JEL: Clasification :** *E2, E62, H62*

## **A. INTRODUCTION**

Economic problems that occur in Indonesia are increasingly complex in line with uncertain global economic, social, cultural, and political conditions. In this case, the government is required to be able wise in determining the policies taken. For example, fiscal policy is basically the foundation for implementing other policies. Financial management policy is a severe challenge for the government, especially in public

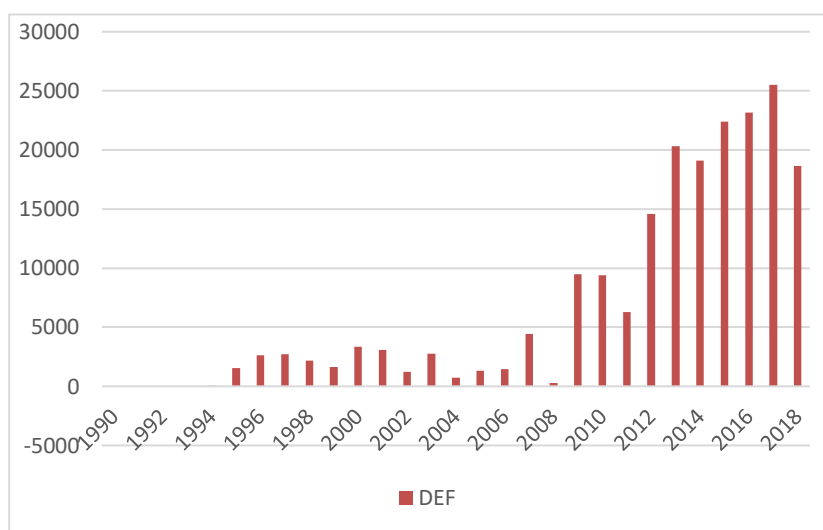
administration and legislation functions. The government states this financial management policy in the State Budget (APBN).

It is just that the classic problem that is often encountered in the preparation of the state budget is the increasing expenditure *needs*, but not balanced with state revenues. To overcome this problem, the government will inevitably implement fiscal policy in the form of a *deficit spending* policy. According to Soebagiyo (2012), a *deficit spending* policy is a

policy in which, at a certain period the flow of expenditure is greater than the flow of tax revenue.

Indonesia is one of the countries that implements a budget deficit policy. As a developing country, infrastructure development is a point that has never been

absent from policy. Infrastructure development is intended to make it easier for people to carry out their economic activities. This has caused the government to inevitably have to increase the budget to meet the agenda. In the period from 1990 to 2018, the budget deficit policy can be seen in Figure 1.



Source: Countryeconomy (2019)

**Figure 1.** Indonesia's Budget DIndonesia's-2018 (In millions of dollars)

Figure 1. shows that the budget deficit from 1990-1998 increased. The interesting thing about the development of the deficit at that time was that from 1990 to 1993, Indonesia experienced a budget surplus. But then, in 1994, there was a budget deficit, and then in 1995, there was a surge in the budget deficit to 14,500%. Allegedly, the surge in the *Current Account Deficit* (CAD) was due to the poor value of Indonesian investment at that time.

Furthermore, the trends of economic indicators pre-crisis 1998 and after the crisis are not much different. Indonesia's fiscal policy used a budget deficit policy, and its value has soared drastically. It was recorded that the

second surge in *the Current Account Deficit* (CAD) occurred in 2008-2009. The spike occurred due to the global crisis in 2008. Nevertheless, Indonesia's economy was shaken because banking conditions are in prime condition (Tambunan, 2015).

The deficit policy taken by the government includes two schemes, namely reducing the level of state revenue and increasing the level of state spending. The level of state revenue is reduced through the tax incentive policy. This policy is a transfer of resources to the public in the form of reducing tax obligations to support the competitiveness of the national industry and encourage downstream industry. Meanwhile, the budget

for increasing state spending is usually obtained from government debt (Ministry of Finance, 2019).

The economic mainstream view states that the budget deficit has an influence on economic growth. The budget deficit pursued through tax cuts will drive an increase in aggregate demand. An increase in aggregate demand will, in turn, increase investment demand. This will boost production levels and have an impact on increasing income (Kuncoro, 2002).

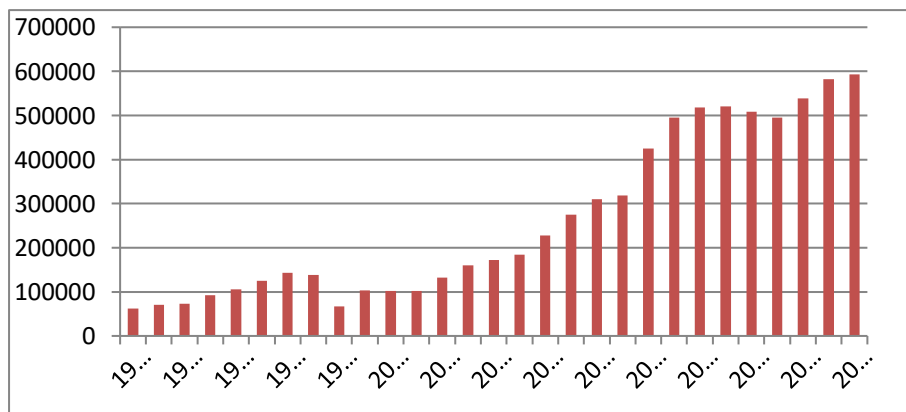
Consumption as a proxy of aggregate demand could increase economic growth. High consumption will increase aggregate demand for goods and services. This high aggregate demand will make the economy produce goods and services until it reaches the point of e-k. This increase in the production of goods and services will then increase economic growth. Conversely, if the level of consumption is low, the demand for goods and services will fall, making the economy sluggish (Eriawati, Amar, & Idris, 2015).

In addition, consumption is also one of the indicators of public welfare. The level of

consumption is directly proportional to the amount of income owned. For example, when a person has a high income, his consumption level will also be high. However, when a person experiences a decrease in income, the level of consumption expenditure also falls. With this, the level of public welfare can be measured by its consumption level.

There are interesting and important to note, history proves the level of consumption once saved Indonesia from the threat of an economic crisis. Consumption is the *backbone* as well as Indonesia's last defense for Indonesia's economy to face the economic crisis. Not only once, but it was also recorded that Indonesia's recovery stimulated by consumption levels occurred twice, namely during the economic crisis in 1997 and the economic crisis in 2008.

The role of public consumption in Indonesia's economy at that time was not based on assumptions. This is evidenced by empirical data on the development of the consumption level of the Indonesian people, which can be seen in Figure 2.



Source: CEIC (2019)

**Figure 2.** Development of Indonesian Public Consumption Year 1990-2018 (In millions of dollars)

In 1998, public consumption only touched the figure in the range of 67 billion US dollars. The increase in consumption levels from 1998 to 1999, which reached 35% to 103 billion US dollars, is considered an important pivot in Indonesia's post-crisis recovery process. It is suspected that this is due to the strong domestic market in Indonesia.

A strong domestic market indicates that Indonesians' consumption level is quite large. Economic growth, which was at -13%, gradually bounced back because domestic production activities continued. The speed of Indonesia's economy recovery from the crisis is inseparable from the role of Micro, Small, and Medium Enterprises (MSMEs). The production of goods and services produced by MSMEs can offset a large amount of demand. Although the Rupiah depreciated at that time, the inflation rate was able to be suppressed, and even slowly economic growth increased (Patriella, 2015)

Consumption in the economy tends to become an essential factor contributing to the economy. This role put the purchasing power parity as the concerned policy from the government of Indonesia. It is just that there has been no empirical evidence that budget deficit policies can significantly affect people's consumption. More research is needed to see the relationship of the budget deficit to public consumption.

In general, three paradigms explain the impact of the budget deficit on the economy. The first opinion is from the neo-classics, who say that the budget deficit will have a negative impact on the economy. A second opinion from Keynesians states that in a state of incomplete *employment*, a budget deficit and adding to total government spending will spur the economy. In contrast, the third paradigm is the Ricardian paradigm.

The Ricardian paradigm states that budget benefits do not always influence the economy due to the rational actions of consumers in responding to policies. Although the taxes paid at present are smaller, consumers will not increase the amount of consumption. The reason is that they believe that the reduced tax burden today will be devolved into the future (Afzal, 2012).

In *Ricardian Equivalence Hypothesis* (REH), national savings are the equivalent of government and household savings. When there is a budget deficit, which means a reduction in government savings, then automatically public savings increased.

Steady national savings will not affect changes in the real interest rate so that even investments do not move forward or backward. For this reason, the REH theory states that there is no effect of the budget deficit on the economy (Ikiz, 2020).

Research related to the existence of *the Ricardian Equivalence Hypothesis* (REH) was conducted by Afzal (2012) in Pakistan. Using the Error Correction Model (ECM) model, this study shows that short-term real consumption, real government spending, and real government income have no effect on real income. As is well known, income is an important factor in changes in consumption. If income does not change, then even consumption does not change. With this, the REH came into force in Pakistan in that period.

REH validation is also shown by the results of research from Mosikari and Eita (2017) in the Kingdom of Lesotho. Using the *Panel Autoregressive Distributed Lag* (ARDL) model, of the many variables used, government debt and government spending show a neutral relationship with public consumption. The same results were obtained

from research conducted by Wardhono et al. (2019) in Indonesia. The methods used in this study were *Ordinary Least Square* (OLS) and *Two Stage Least Square* (TSLS). From this research, it was found that fiscal policy did not have a significant effect on private consumption.

In Indonesia, the size of the allocated deficit is quite large. However, there is no empirical evidence to suggest that budget deficit policies significantly affect public consumption. There may be inefficiencies in the implementation of budget deficit policies, or there may even be other unforeseen factors. Especially if we look at the period from 1990 to 2018, Indonesia experienced two economic turmoil, currency depreciation and swelling of sovereign debt.

Therefore, in line with the focus of research on the budget deficit, the formulation of the problem that the author wants to highlight here is to test the existence of the *Ricardian Equivalence Hypothesis* in Indonesia for the 1990-2018 period and look at the influence of variables such as Gross Domestic Product (GDP), government debt, and deposit rates on public consumption.

## B. RESEARCH METHODS

Consumption is one of the indicators that plays a central role in the economy. For this reason, variables that affect consumption need to be considered. These variables include national income, government debt, and interest rates. The national income has a positive relationship with consumption; income rise will follow by consumption; government and deposit rates have a negative relationship with consumption; government debt will raise interest rates, including deposit rates. If the

interest rate on deposits is high, people will tend to save and reduce consumption to benefit from interest returns.

In addition, the budget financed by the decrease in taxes makes the current tax burden relatively lighter. This will lead to an increase in disposable income. An increase in disposable income will increase consumption and the overall demand side. If the economy is not yet in a state of full employment opportunity, an increase in the demand side will encourage an increase in production and further result in an increase in national income. In the later period, the increase in national income will drive the economy through the Keynesian multiplier effect.

This study will use the modified results of the research model (Adji & Alm, 2016), which can be expressed in Equation 1.

$$PCON_t = f(GDP_t, DEF_t, DEBT_t, DIR_t) \quad (1)$$

Where  $PCON_t$  is public consumption.  $GDP_t$  is the gross domestic product as a measure of national income,  $DEF_t$  is the amount of budget deficit,  $DEBT_t$  is the total government debt both from within and outside the country, and  $DIR_t$  is the interest rate on banking deposits.

The data used in this study is in the form of annual secondary data for the period 1990-2018 taken from several sites of economic survey institutions. Public consumption data was obtained from the website of an economic survey agency called *Census and Economic Information Center* or CEIC (2019) then data on GDP and deposit rates were obtained from the official website of the World Bank (2019), then data on the budget deficit and government debt was obtained from an economic data collection site called Countryeconomy (2019).

The methods in this study will use analytical tools and models in the form of:

### 1. *Adaptive Expectation Model (AEM)*

This study used an analytical tool in the form of multiple linear regression with the *Adaptive Expectation Model (AEM)* technique and the modified results of the Adji and Alm model (2016). Formulated its estimator model expressed in Equation 2:

$$PCON_t = \beta_0\gamma + \beta_1\gamma GDP_t + \beta_2\gamma DEBT_t + \beta_3\gamma DEF_t + \beta_4\gamma DIR_t + (1-\gamma) PCON_{t-1} + v_t \quad (2)$$

Information:

PCON : Public Consumption

GDP : National Income

DEF : Budget Deficit

DEBT : Government Debt

DIR : Deposit Interest Rate

PCON<sub>t-1</sub> : Model Adjustment

Variables Adaptive

b<sub>0</sub>, b<sub>1</sub>, b<sub>2</sub>, b<sub>3</sub>, b<sub>4</sub> : short terms coefficient

γ : Adjustment Coefficient

v<sub>t</sub> : Variable Error

t : Current Period

t-1 : Lag or Inaction Period

One model that includes economic behavior in geometric inaction models is the adaptive adjustment model, for example, in the case of demand for goods (consumption). The demand for goods at a time (Y<sub>t</sub>) depends on the price of the goods (X<sub>t</sub>). But not all consumers adjust due to fluctuations in the price of goods. This relationship can be seen in Equation 3.

$$Y_t = \beta_0 + \beta_1 X_t^* + e_t \quad (3)$$

The value of the price of this item cannot be observed but rather predicted through adaptive adjustments. Then the adjustment model can be expressed in Equation 4.

$$X_t^* = X_{t-1}^* c + (1-c) X_t^* \gamma X_{t-1}^* \quad (4)$$

Where  $0 < \gamma < 1$ ,  $\gamma$  is the coefficient of expectation,  $\gamma$  is also commonly referred to as adaptive expectation, progressive expectation, or error learning hypothesis, popularized by Cagan and Friedman (Gujarati, 2009).

Furthermore, the model can be written into Equation 5.

$$X_t^* = c (X_t^* + 1 - \gamma) X_{t-1}^* \quad (5)$$

The above p.e. states that the expected price is the weighted average of the present price and the expected price in the past with scales of  $\gamma$  and  $(1-\gamma)$ , respectively). If  $\gamma = 1$ , then  $X_t^* X_t^* = X_t$ , this means that the expectation value is realized rapidly in the same period.

To explain the adaptive adjustment model so that the model can be estimated, substitutions of Equations (2) and (4) will be carried out, resulting in the following Equation 6:

$$Y_t = \beta_0 + \beta_1 \gamma X_t + \beta_1 (1-\gamma) X_{t-1} + e_{t-1} \quad (6)$$

After adding inaction, the equation will change to Equation 7.

$$Y_t = b_0 c + b_1 \gamma X_t + (1-c) X_{t-1} + n Y_{t-1} \quad (7)$$

If the coefficient  $\gamma$  has been found from the coefficient of inertial,  $Y_{t-1}$ , then the value of the coefficient  $\beta_1$  can be found by dividing the coefficient  $\beta_1 \gamma$  by  $\gamma$  (Widarjono, 2010).

Based on the adaptive adjustment model above, the form of the adjustment model in the short term of this study is as follows:

$$PCON_t = \beta_0\gamma + \beta_1\gamma GDP_t + \beta_2\gamma DEBT_t + \beta_3\gamma DEF_t + \beta_4\gamma DIR_t + (1-\gamma) PCON_{t-1} + v_t \quad (8)$$

Then from this short-term equation, to get a long-term response, it is necessary to calculate the constants and long-term coefficients. The long-term model is as follows:

$$PCON_t = \beta_0 + \beta_1 GDP_t + \beta_2 DEBT_t + \beta_3 DEF_t + \beta_4 DIR_t \quad (9)$$

## 2. Classic Assumption Breach Detection

Detection of violations of classical assumptions is a classic requirement that must be met on multiple linear regression analyses based on *ordinary least squares*.

### a. Normality Detection

The assumption of the normality of the disorder is very important, given that the test of the validity of the influence both synchronously and partially requires this. If this assumption is not met, the estimated value of the dependent variable is invalid for small or specific samples (Gujarati, 2009).

### b. Multicollinearity Detection

A strong linear relationship between independent variables inside multiple regression is called multicollinearity. Multicollinearity is a condition where although individually, an independent variable has no effect on the dependent variable, the value of  $R^2$  is classified as high (Ekananda, 2015).

### c. Heteroscedasticity Detection

Heteroscedasticity is a symptom in which the residue of a regression equation changes over a given range of data. The effect of heteroscedasticity is that the estimation of the smallest square weighs more in observations that have greater residual variation than in observations that have small residual variations (Ekananda, 2015).

### d. Autocorrelation Detection

One of the basic assumptions of the regression method is the absence of correlations between disorders. Autocorrelation makes the result of the estimation of coefficients consistent and unbiased but has a large variance, or in other words, the result of estimation is inefficient. This inefficient estimation variance causes the calculated t-value to tend to be small, and the test results tend to receive  $H_0$  (Ekananda, 2015).

### e. Model Specification Test

The model specification test is basically used to test CLRM's assumption or linearity test. In this study, the Ramsey Reset test was used, which is famous for the *general specification* error test (Gujarati, 2009).

## 3. Model Goodness Test

The model goodness test is carried out in two ways, namely, the model existence test or the simultaneous regression coefficient significance test and the interpretation of the coefficient of determination ( $R^2$ ).

### a. Coefficient of Determination ( $R^2$ )

Econometrists have developed several statistical tests to select a good model

(*goodness of fit*). The goodness of this model can be from the value of  $R^2$ . Practically speaking, the coefficient of determination is used to show the predictability of the regression equation, namely how capable the variance of an independent variable is in explaining its dependent variables. The higher the  $R^2$  value, the better the model will be (Ekananda, 2015).

b. Test the Existence of the Model

The statistical test F is used to test the parameters of the estimated result (*unrestricted*) against a certain value (*restricted*). This test can be done by comparing probability F with  $\alpha$  (Gujarati, 2009)

#### 4. Influence Validity Test

Influence validity tests or t-statistics are used to measure the parameters of the result (*unrestricted*) against a certain value (*restricted*). The parameter value is the magnitude of the influence of independent variables in econometric models. An important issue regarding model parameters is whether the value of this parameter is statistically equal to or not equal to zero.

If the value of the regression coefficient is statistically not equal to zero, it means that the influence of the independent variable represented by the regression coefficient is econometrically significant. The significant problem of whether the influence of independent variables in the model is verified

by a t-test. The test steps are as follows (Gujarati, 2009).

### C. RESULTS AND DISCUSSION

This study analyzes the effect of GDP, budget deficit, government debt, and deposit rates on public consumption. By using an analytical tool in the form of multiple linear regression with the *Adaptive Expectation Model* (AEM) technique, the existence of the *Ricardian Equivalence Hypothesis* in Indonesia will be known. But before analyzing far, this research model must first pass the detection of violations of classical assumptions and the test of the goodness of the model.

#### 1. Classic Assumption Breach Detection

a. Multicollinearities

The multicollinearity test in this study used the VIF test. VIFs can be used to detect multicollinearity problems within a multiple regression model. If the value of the VIF exceeds the number 10, then it is said that the model undergoes multicollinearity. Table 1 shows that the VIF values on the DEF variable (8.445) and the DIR variable (2.005) are less than 10. Meanwhile, the VIF values in the variables GDP (76,173), DEBT (15,292), and PCON(-1) (33,578) are more than 10. That is, in this AEM model, there is multicollinearity caused by the variables GDP, DEBT, and PCON(-1). In contrast, variables such as DEF and DIR do not cause multicollinearity problems.



**Table 1.** Multicollinearity Test Results

Variable	Coefficient Variance	Uncentered BRIGHT	Centered BRIGHT
C	3.28E+09	131.1444	ON
GDP	0.033588	626.1582	76.17354
DEBT	0.073629	79.61013	15.29216
DEF	3.078738	14.62421	8.445571
YOU	907046.3	7.886222	2.005238
PCON (-1)	0.026696	101.2382	33.57821

Source: Eviews 8 (data processed)

b. Normality Detection

Residual normality will be detected with the Jarque-Bera (JB) test.  $H_0$  of the JB test is the normal residual distribution, and  $H_A$  is an abnormal residual distribution.  $H_0$  is accepted

if the JB probability value is  $> \alpha$ ; conversely,  $H_0$  is rejected if the JB probability value is  $< \alpha$ . It is seen in Table 2 that the JB probability value is 0.094 ( $> 0.05$ );  $H_0$  is accepted, so the residual is normally distributed.

**Table 2.** Jarque-Fallow Test Results

Normality Jarque-Bera Test:			
Jarque-Bera	4.728911	Probability	0.09400

Source: Eviews 8 (data processed)

c. Autocorrelation Detection

The presence of autocorrelation will be detected with the Breusch-Godfrey (BG) test.  $H_0$  of the BG test is that there is no autocorrelation in the model; Its  $H_A$  has

autocorrelation in the model.  $H_0$  is accepted when the probability of the BG test is  $> \alpha$ ;  $H_A$  is rejected if the BG test probability is  $< \alpha$ . Table 3 shows that the BG test probability value is 0.586 ( $> 0.05$ );  $H_0$  is accepted, so there is no autocorrelation in the model.

**Table 3.** Breusch-Godfrey Serial Correlation LM Test Results

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.661364	Prob. F (3,19)	0.5859
Obs*R-squared	2.647461	Prob. Chi-Square (3)	0.4492

Source: Eviews 8 (data processed)

d. Heteroscedasticity Detection

The White will detect the presence of heteroscedasticity with the *cross-term* test.  $H_0$  White test is no heteroskedasticity problem in the model, and  $H_A$  there is a heteroskedasticity

problem in the model.  $H_0$  is accepted when the probability is  $> \alpha$ ;  $H\chi^2_0$  is rejected if the probability is  $< \alpha$ . It can be seen from Table 4 that the probability value is 0.434 ( $> 0.05$ );  $H\chi^2\chi^2_0$  is accepted, so there is no heteroskedasticity problem in the model.

**Table 4.** White Test Results

<b>Heteroskedasticity Test: White</b>			
F-statistic	0.938357	Prob. F (20,7)	0.5799
Obs*R-squared	20.39341	Prob. Chi-Square (20)	0.4336
Scaled explained SS	18.94377	Prob. Chi-Square (20)	0.5255

Source: Eviews 8 (data processed)

e. Model Specification Test

The accuracy of the specifications or linearity of the model in this study will be tested with the Ramsey Reset test. The  $H_0$  in the Ramsey Reset test is that the model specification is precise or linear, while  $H_A$ , i.e., the model specification, is not precise or not linear.  $H_0$  is accepted when the statistical

probability F test Ramsey Reset  $> \alpha$ ;  $H_0$  is rejected if the statistical probability value F of the Ramsey Reset test is  $< \alpha$ .

The static probability value F of the Ramsey Reset test seen from Table 5 is 0.643 ( $> 0.05$ );  $H_0$  is accepted, so the model specifications are precise or linear.

**Table 5.** Ramsey-RESET Test Results

	<b>Value</b>	<b>df</b>	<b>Probability</b>
t-statistic	0.470636	21	0.6428
F-statistic	0.221498	(1, 21)	0.6428
Likelihood ratio	0.293784	1	0.5878

Source: Eviews 8 (data processed)

**2. Model Goodness Test**

a. Interpretation Coefficient of Determination ( $R^2$ )

The coefficient of determination ( $R^2$ ) shows the predictive power of the estimated model. Table 6 shows that the value of  $R^2$  is 0.980, meaning that 98% of the variation in public consumption variables can be explained

by the variables of GDP (GDP), government debt (DEBT), the budget deficit (DEF), and deposit interest rate (DIR), while the remaining 0.2% is explained by other variables or factors outside the model.

b. Model Existence

A model exists when all independent variables simultaneously have an influence on the dependent variable (the regression coefficient is not simultaneously zero). The test of the existence of the model is the test F. In

this study, formulation  $H_0$  is the regression coefficient simultaneously worth zero or the model does not exist; formulation  $H_A$  is a regression coefficient not simultaneously worth zero or the model exists.  $H_0$  will be accepted if the probability value of  $F > \alpha$ ;  $H_0$  will be rejected if the probability of  $F < \alpha$ .

Table 6 shows that probability F in the model estimate has a value of 0.000 ( $< 0.05$ ); if  $H_0$  is rejected, then the model used in the study exists.

**Table 6.** Model Kindness Test Results

R-squared	0.983818	Mean dependent var	270625.0
Adjusted R-squared	0.980140	S.D. dependent var	187698.5
S.E. of regression	26451.39	Akaike info criterion	23.39141
Sum squared resid	1.54E+10	Schwarz criterion	23.67689
Log-likelihood	-321.4798	Hannan-Quinn criteria.	23.47869
F-statistic	267.5059	Durbin-Watson stat	1.723732
Prob(F-statistic)	0.000000		

Source: Eviews 8 (data processed)

**3. Influence Validity Test**

The influence validity test is to partially test the significance of the influence of an independent variable. Because this study uses the *Adaptive Expectation Model* analysis model, the long-term significance is no different from the short-term significance. Table 7, it can be seen that the probability value

t of the GDP variable is 0.525 ( $> 0.05$ ); the variable DEBT 0.719 ( $> 0.05$ ); the variable DEF 0.290 ( $> 0.05$ ); and the DIR variable has a probability value of t of 0.028 ( $< 0.05$ ). From these results, it can be concluded that only the variable deposit interest rate (DIR) significantly affects the variable public consumption (PCON).

**Table 7.** *Adaptive Expectation Model* Regression Results

Variable	Coefficient	Prob.
C	6207.853	0.9146
GDP	0.118363	0.5251
DEBT	0.098986	0.7187
DEF	-1.899891	0.2906
YOU	-2233.577	0.0284
PCON (-1)	0.858160	0.0000

Source: Eviews 8 (data processed)

#### 4. Interpretation of Influence Validity

Thus, the interpretation of the results of the validity test of the influence of independent variables on dependent variables is as follows:

##### a. Deposit Interest Rate

As the only independent variable that has a significant effect on dependent variables, these results confirm the theory and research of Illahi, Adry, and Triani (2018) related to the effect of deposit rates on public consumption. The hypothesis used is that deposit rates have an opposite relationship with public consumption. That is, if the interest rate on deposits rises, then consumption will fall, and vice versa if the interest rate on deposits falls, consumption will rise. This is confirmed by the minus sign of the coefficient of the result of the estimation of the DIR variable.

The magnitude of the variable coefficient of interest rates on short-term deposits is -2233,577. These two variables have a liner-linear relationship pattern, with unit differences where people's consumption people's sillion dollars while deposit rates are in percent. If the interest rate on deposits rises by one percent, then consumption will decrease by 2233.577

million dollars. As for the long-term model, it can be seen from Equation 3:

$$PCON_t = 43.717 - 15.729,4 DIR_t$$

This means that in the long run, for every one percent increase in the deposit rate, consumption will decrease by 15729.4 million dollars. As interest rate theory says, when interest rates are high, consumers will reduce their credit activity (Siwi et al., 2019). This is not without reason because if, in a state of high-interest rates, consumers choose to make credit, then they will pay installments with greater interest. Moreover, even when there is an increase in income, the consumer will not spend his money. They will prefer to profit through interest rates on savings and deposits.

This theory is then supported by facts that occur in Indonesia. Based on Indonesian Banking Statistics (SPI) by Falabiba (2019), it is said that the number of Third Party Funds (DPK) managed by commercial banks as of August 2019 grew 7.61% on an annual basis (*year-on-year / yoy*) to Rp5811 trillion. The growth of deposits managed by conventional commercial banks until August 2019 was still dominated by deposits or expensive funds. Low-cost funds

continue to dominate the composition of deposits managed by banks. However, the ratio of *Current Account Savings Account* (CASA) to total deposits decreased slightly yoy.

This is in line with what Rahardian wrote (2019), the increasing number of deposits managed by banks can also be seen from the high growth of this expensive fund yoy as of August 2019. The value of deposits managed by commercial banks grew 7.88% yoy to Rp2628 trillion, while low-cost funds or savings rose 7.42% to Rp3183 trillion in the period.

If dissected more deeply, the reduced ratio of CASA to total deposits is due to the slowing growth of savings-type deposits. This type of low-cost fund only grew 6.47% yoy, while deposits in the form of demand deposits rose 8.72% yoy. The increase in the ratio of time deposits to total deposits is alleged to have occurred due to the upward trend in interest rates on time deposits of 12 years or more. Since August 2018, the average interest rate on commercial bank deposits has risen to 7.08%.

This statement shows that time savings or time deposits are in great demand by the people of Indonesia. So, it is not surprising that when deposit rates rise, people choose to reduce their consumption to increase their total deposits in the hope of getting profits in the future through interest rate returns.

#### b. Gross Domestic Product (GDP)

GDP as an indicator of income should have a unidirectional relationship with consumption. If income rises, then consumption will rise, and vice versa if income falls, then consumption will fall. However, the results of the validity test state that the rise or fall of GDP has no significant effect on public consumption. These findings contradict the

research of Ofori-Abebrese and Pickson (2018) in Sub-African countries, which said GDP has a positive effect on people's consumption. This can be explained by several economic theories and facts that occur in Indonesia. For example, when GDP falls, meaning that income falls, then a person's consumption will not necessarily fall significantly. This reality is supported by the theory of relative consumption.

The explanation above aligns with the *World Bank press release* written by Boediono (2017), which states that 45% of Indonesia's population, 117 million people, are classified as the middle-income class, which is a group that is no longer poor and towards a more established middle class. This group is a population that is still very simple in meeting its needs. This means that even if incomes fall, they will not significantly reduce their total consumption.

Apart from middle-income reasons, one of the factors that cause no increase in consumption even though income increases is inflation. If inflation rises, although amidst the increase in income, consumption would not increase significantly. Because with high prices, even if income rises, the goods or services consumed in total will be the same as when income is in normal circumstances when prices are normal.

The inflation data reported by the Central Statistics Agency (2018) in the period 2005-2018 has an average of 9% or almost classified as moderate inflation. Even in 2018, almost all expenditure indices increased. For example, the grocery group by 1.45%; the finished food, beverage, cigarette, and tobacco groups by 0.22%; housing, water, electricity, gas, and fuel groups by 0.13%; and even the transport, communications, and financial services group

at 1.28%. The rising inflation would not pull the consumption amidst the increase in income.

#### c. Government Debt

Unlike the results of research from Mosikari and Eita (2017) which found that government debt negatively affects public consumption, this study found that the increase or decrease in government debt did not significantly affect public consumption.

According to Sukirno (2016), government debt can reduce public consumption by recording government debt obtained from domestic savings. The reduction of people's deposits people will make banks raise interest rates to attract people's interest people's. In the end, the community will respond by reducing consumption to then increase deposits.

But this is not the case for Indonesia. Based on data from the Ministry of Finance (2019), the dominance of government debt is not processed through domestic public savings but 81.4% of national securities sales, 18.4% of foreign loans, and the remaining 0.1% of domestic loans. Even from SBN, 40% of ownership is in the hands of foreigners. This explains that government debt is dominated by outside creditors. This means that when government debt rises or falls, it will not significantly affect people's consumption people's country.

#### d. Budget Deficit

No different from the results of a study by Afzal (2012), the budget deficit variable in this study also validates its effect on public consumption. The budget deficit that is expected to increase public consumption has not been proven.

Several things can cause the effect of the budget deficit on public consumption. One of them is the rational action of consumers in responding to policies. The budget deficit has resulted in increased government debt. This makes the taxes borne by the community in the future greater than in the present. For this reason, even when income increases, people will choose not to spend their money and save excess income to cover taxes in the future.

In addition, the thing that causes the budget deficit to not feel the benefits in moving the wheels of the economy is the focus of the deficit policy itself. As reported in the 2019 State Budget by the Ministry of Finance (2019), currently the focus of allocating the budget deficit is aimed at financing education and infrastructure development. However, some government projects are considered less effective.

By looking at how infrastructure development is going, there are several projects that are considered not strategic. One of them is an infrastructure development project in Papua that is considered not on target. This is in line with the statement made by Papua Governor Lukas Enembe as written by Rendy A. (2019) on suara.com.

In fact, in addition to education and infrastructure, domestic industry and capital are also important to be boosted so that the results can be felt directly by the community in the short term. From this, it can be said that if the government does not improve its strategy, it may be that in the long run, even an increase in the budget deficit will not impact public consumption or, broadly, the economy.

If you look at the results and interpretation of the validity test of the influence partially, both in the short and long term, all fiscal policy variables, including the

budget deficit, have no effect on public consumption in Indonesia. This also supports and affirms the enactment of *Ricardian Equivalence* in Indonesia from 1990 to 2018.

#### D. CONCLUSIONS

Based on the analysis results and discussion of empirical facts, research using the *Adaptive Expectation Model* analysis can make further theoretical and practical contributions related to the analysis of *Ricardian Equivalence* in Indonesia.

After research related to the impact or effect of fiscal policy and additional variables of deposit rates on public consumption, it can be concluded that this study has an existing model and escapes the violation of classical assumptions. Meanwhile, partially in the short and long term, only variable deposit rates have a significant effect on public consumption. That means the variables of GDP, government debt, and budget deficit have no effect on public consumption in Indonesia for the 1990-2018 period. Thus, this study validates the existence of *the Ricardian Equivalence Hypothesis* in Indonesia in the short and long term.

This study showed quite astonishing results. The reason is that the budget deficit policy does not significantly affect the economy, especially public consumption. Therefore, the advice that the author can give is as follows:

- (1) To stabilize an economy, the government needs to maintain people's consumption people's so that they are at an equilibrium point. Some ways that can be used are to maintain price stability and set interest rates.
- (2) The government must allocate the budget deficit as best it can. In addition to building

land infrastructure, Indonesia, as a maritime country, must also strengthen marine infrastructure. Through this maritime sector, the distribution of large quantities of goods will be smooth and able to reduce the price gap between the island of Java and islands other than Java. In this way, the purchasing power of people outside Java will increase, and the economy will grow.

- (3) Although debt is an alternative to financing the budget deficit, still too much debt will also burden the people and the country in the future. Because when taxes are raised to cover the debt, of course, it will trigger a decrease in aggregate consumption. Thus the government should be able to find a more appropriate debt scheme.
- (4) To increase consumption, of course, the government must strengthen the real economic sector. This real economy sector will develop when the government encourages the industrial sector.

Every study will certainly not be separated from imperfections. In this study using the AEM model, the results of the significance of the short-term model will be the same as in the long-term model. While there is an economic condition, it could be that in real the short-term and the long-term have different results. For this reason, researchers can then try to use the analysis of other models, such as ECM, which can provide different results in the long and short term.

In addition, the *Ricardian Equivalence Hypothesis* has several substantial transmissions other than through consumption. Among them are through national savings and interest rates. Therefore, researchers can then add a model with these two variables as its dependent variables. It aims to corroborate the research results on this hypothesis's existence.

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