

The Effect of Fiscal Policy on the Indonesian Household Consumption: The Application of the Ricardian Equivalence Hypothesis

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ABSTRACT

The Keynesian perspective suggests that fiscal policy through tax reduction affects the economy through its influence on public consumption. However, the Ricardian Equivalence perspective argues that fiscal policy through tax reduction will not have an impact on household consumption because it is likely that the household will respond to tax reduction policy by increasing household savings to anticipate future tax increase. The level of Ricardian equivalence varies by country, depending on the household characteristics and fiscal situation of each country. These imply that the Ricardian Equivalence cannot remain continuous over time. Using the Error Correction Model (ECM) method to analyze the Indonesian data of the period of 1990-2015, this study aims to detect the existence of the Ricardian Equivalence in Indonesia as an indicator of the fiscal policy effectiveness in Indonesia. Our results indicate that fiscal policy through tax instruments and government expenditures do not affect household consumption. We conclude that Indonesia experiences the Ricardian Equivalence Hypothesis and fiscal policy to stimulate aggregate demand through household consumption is not effective.

Keywords: Ricardian Equivalence, Fiscal Policy, Household Consumption.

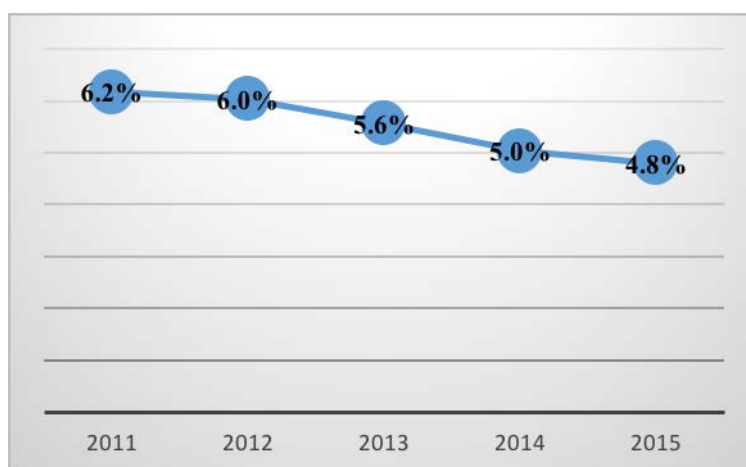
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1. BACKGROUND

The globalization era increases the influence of the global economic condition on countries' economy. As Kilic (2015) shows, the economic globalization is positively associated with the economic growth of developing countries. The finding also suggests that decreased global economic growth has a negative effect on Indonesia. Until the end of 2015, the global economic slowdown has increased the global economic uncertainty as indicated by the weakening US economy, the turbulent economy of the European Union countries, and the falling stock price in the Chinese stock market. Eventually, the global economic slowdown also hit the Indonesian

economy as indicated by its weakening economic growth in 2011-2015.

Graph 1. The Indonesian Economic Growth



Source: BPS 2016, processed

In responding the weakening global economy, the Indonesian government has prepared macroeconomic policies to stimulate economic activities. The Economic Policy Package that has been issued since September 9, 2015, aims to deal with various issues. More specifically, it aims to mitigate the economic slowdown that was caused by both global and domestic economic condition by creating a more conducive economic structure for industrial development, business certainty in labor issue, investment easiness, deregulation, and the expansion of public access to banking credit. In the fiscal issue, the government offers the tax holiday facility for corporate income tax in the form of corporate income tax reduction of 10 to 100% for 5-10 years and the tax allowance in the form of annual net income reduction of 5% for six years as the basis of corporate income tax calculation. The tax allowance facility differs from tax holiday because this does not reduce the corporate income tariff of 25% but reduces taxable income at most 30% for six years. These facts imply that the government uses its fiscal policy to stimulate aggregate demand. However, the ability of fiscal policy to stimulate aggregate demand depends on the household consumption behavior. For example, in Colombia and several African countries, fiscal policy exhibits a positive multiplying effect because it can boost economic activity by increasing consumption. Consumption increases because the expansive policy of increasing government expenditure increases productive capacity that eventually increases wage. The wage increase exceeds the tax increase due to increased government spending; thus increases consumption (Gonzales, 2014; and Anoruo, 2005).

The Keynesian perspective suggests that fiscal policy through tax reduction affects the economy by increasing public consumption. However, the Ricardian equivalence perspective argues that such fiscal policy does not affect household consumption because households respond the tax reduction policy by increasing their savings to anticipate future tax increase (current tax reduction will likely increase tax

in the future) (Mankiw, 2016). The Ricardian equivalence level differs for each country, depending on country's household characteristics and fiscal situation. This difference implies that the Ricardian Equivalence condition cannot sustain continuously.

Afzal (2012) shows that in 1960-2000, Pakistan experienced Ricardian equivalence where the government expenditure and tax revenue did not affect the household consumption. The results support Ali (1992) who investigates the Pakistani economy in the 1960 to 1988 period. However, Saito (2016) indicates that the Ricardian equivalence does not occur in Japan because its fiscal policy has a very strong multiplying effect. Consequently, its fiscal policy has a significant effect on consumption and eventually on economic growth. In line with Saito (2016), Belingher et.al (2015), David (2013), Banzhaf et.al (2012) and Evan (1993) showing that the Ricardian equivalence does not occur in Romania, the US, Venezuela, and in 19 OECD countries because the tax reduction policy increases disposable income and eventually household consumption. Based on the conflicting results of previous studies, this study aims to detect the existence of the Ricardian equivalence in Indonesia as an indicator of its fiscal policy effectiveness.

2. LITERATURE REVIEW

2.1 The Theory of Absolute Income Consumption Hypothesis

The theory of absolute income hypothesis consumption was first developed by Keynes. The theory states that current income is the main determining factor of household consumption while the current interest rate is an unimportant factor (Mankiw, 2016). Based on this theory, the following formula represents the consumption function:

$$C = \bar{C} + cY_d \quad \bar{C} > 0 \text{ and } 0 < c < 1$$

where:

C is consumption;

Y_d is disposable income; i.e., after-tax income.

\bar{C} is the autonomous consumption that takes a constant value

C is marginal propensity to consume (MPC)

Regarding the government expenditure policy, the theory argues that financing government expenditure with tax will reduce consumption because the Keynesian model assumes that consumption only depends on disposable income (Romer, 2012). This perspective argues that governments' fiscal policy is effective in influencing aggregate demand through its effect on household consumption.

2.2 Ricardian Equivalence Hypothesis

Ricardian considers household consumption to be a forward-looking behavior. Household consumption decision is not only affected by current income but also by expected future income. Accordingly, Ricardian argues that financing government expenditure with debt will increase tax in the future. This increase implies that tax cut policy that is financed by debt will not affect household consumption expenditure

because households even increase their savings to anticipate expected tax increase in the future (Mankiw, 2016). Accordingly, Ricardian believes that any policy that stimulates aggregate demand through debt or tax is not effective (Banszaf, 2012).

2.3 Previous Literature

Saito (2016) investigates factors that affect the effectiveness of fiscal policy through the Ricardian equivalence mechanism in Japan for the period of 1998-2013. The findings suggest that tax influence household consumption and fiscal policy exhibits a very strong multiplying effect. In other words, fiscal policy exhibits a strong effect on consumption. It then can be concluded from this research that from 1998 to 2013 Japan economy did not experience Ricardian Equivalence Hypothesis. In line with Saito, Belingher (2015) finds that Ricardian Equivalence did not occur in Romania from 2004 to 2012. More specifically, both government expenditure and disposable income positively affect household consumption.

In a similar vein, Banszaf (2012) also shows that the Ricardian Equivalence Hypothesis did not occur in the US. The US government expenditures that are financed by tax and debt do not affect the US household consumption expenditure. Saito (2016), Belingher (2015), and Banszaf (2012) confirm the previous research of Evans (1993) that shows that Ricardian Equivalence did not occur in 19 OECD countries from 1960 to 1988 because tax cut policy has a significant effect on disposable income. However, using Vector Auto Regression approach, Afzal (2012) shows that Pakistan experienced Ricardian Equivalence Hypothesis from 1960 to 2009. Meanwhile, Ricciuti (2001) focuses more on the method to empirically test the Ricardian Equivalence. According to Ricciuti (2001), the Ricardian Equivalence Hypothesis will be supported if one uses the framework of the life cycle theory to test the hypothesis while the Ricardian Equivalence Hypothesis will not be empirically supported if the optimization model is used to test the hypothesis.

3. RESEARCH METHODOLOGY

3.1 Data and Data Source

This research uses quantitative data of ratio scale, namely household consumption, real national income, government expenditure, and tax revenue as a proxy of tax level. We use time-series data covering the period of 1990-2015. More specifically, this study uses the following data and data source (i) Household consumption from International Financial Statistic (www.data.imf.org), (ii) Real Gross Domestic Product (GDP) as the proxy of national income from International Financial Statistic (www.data.imf.org), (iii) Government expenditure from the Indonesian Central Bureau of Statistic (*BPS – Badan Pusat Statistik*), and (iv) Tax income data from the Indonesian Central Bureau of Statistic.

3.2 Model Specification

We test the effects of fiscal policy (represented by the government expenditure and tax variables) and national income on household consumption by using the

estimation model of Aschauer (1993). More specifically, the following function formulates the relationship between household consumption with government expenditure, national income, and tax in Indonesia:

$$CONS_t = f(G_t, GDP_t, Tax_t) \dots\dots\dots (1)$$

Next, the following econometric specification represents the above function:

$$CONS_t = \beta_0 + \beta_1 G_t + \beta_2 GDP_t + \beta_3 Tax_t + u_t \dots\dots\dots (2)$$

where :

- $CONS_t$: Household consumption
- G_t : Government expenditure
- GDP_t : National income
- Tax_t : Tax
- u_t : residual
- β_0 : constant
- $\beta_1, \beta_2, \beta_3$: regression coefficient

We use the government expenditure and tax variables as the proxies of fiscal policy. Further, we estimate the equation model (2) by using the following error correction model (ECM) method:

$$\Delta CONS_t = \beta_0 + \beta_1 \Delta G_t + \beta_2 \Delta GDP_t + \beta_3 \Delta Tax_t + ECT_t + u_t \dots\dots\dots(3)$$

4. RESULTS AND DISCUSSION

Before running the ECM estimation, it is important to ensure that our data is stationary. Therefore, we run the unit root test to test whether our data is stationary.

Table 1. Unit Root Test

Variables	ADF Value	Mc Kinnon' Critical Value			Results
		1%	5%	10%	
Consumpt	11,49564	-3,724070	-2,986225	-2,632604	Stationary
G	3,316890	-3,737853	-2,991878	-2,635542	Stationary
GDP	8,891072	-3,724070	-2,986225	-2,632604	Stationary
Tax	3,293947	-3,724070	-2,986225	-2,632604	Stationary

Source: data proceed, 2017

Table 1 above suggests that all variables are stationary. Next, we run the cointegration test to investigate the long-term relationship between government expenditure, national income, and tax and household consumption. Using Johansen's test, Table 2 shows that our cointegration test shows that the statistic trace values of all observed

variables are greater than their critical values, implying that there are long-term relationships between government expenditure, national income, and tax and household consumption in Indonesia.

Table 2. Johansen Cointegration Test

Unrestricted Co-integration Rank Test (Trace)

Hypothesized	Trace	0.05		
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.792512	71.90245	47.85613	0.0001
At most 1 *	0.611497	34.15813	29.79707	0.0148
At most 2	0.303771	11.46725	15.49471	0.1843
At most 3	0.109280	2.777412	3.841466	0.0956

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized	Max-Eigen	0.05		
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.792512	37.74432	27.58434	0.0018
At most 1 *	0.611497	22.69088	21.13162	0.0299
At most 2	0.303771	8.689834	14.26460	0.3129
At most 3	0.109280	2.777412	3.841466	0.0956

Source: data proceed, 2017

The following Table 3 displays the results of our estimation of the effects of government expenditure, national income and tax on household consumption expenditure in Indonesia using the ECM model.

Table 3. The results of ECM model

Independent Variable	Coefficient	t-stat	Prob.
Constant	21120,08	1,010225	0,3245
DG	0,048507	0,169278	0,8673
DGDP	0,513903	9,946755	0,0000
DTax	0,020022	0,035387	0,9721
ECT	-0,362522	-2,548674	0,0191

$$R^2 = 0,915974$$

$$F_{stat} = 54,50528$$

Dependent Variable: DCons

Source: data proceed, 2017

Table 3 above shows that the ECT value is negative, suggesting that if the actual household consumption expenditure in period t is greater than the equilibrium household consumption expenditure, then the actual household consumption expenditure will adjust toward equilibrium by decreasing consumption expenditure one period forward (Gujarati, 2003). Meanwhile, the significant value of the ECT variable indicates that our ECM model is valid and eventually there will be an equilibrium in the long run.

Our ECM estimation model shows that in the short run the coefficient of national income is positive, implying that national income has a positive effect on household consumption expenditure. Increased national income will increase household consumption expenditure. This condition is in line with research Markovic et.al (2013) which gives results that one's economic condition will affect the pattern of consumption behavior of person. The national income variable's coefficient value of 0.513903 also represents the marginal propensity to consume of Indonesian households. This value is relatively not high, indicating that the wealth of Indonesian households is relatively good. However, in the short run, only national income affects household consumption expenditure, while government expenditure and tax do not affect household consumption expenditure in Indonesia. The findings indicate that in the short run fiscal policy to stimulate aggregate demand is not effective. These findings are in line with Afzal (2012) who show that Pakistan experienced the Ricardian Equivalence Hypothesis because in the short run government expenditure and tax do not affect household consumption expenditure.

Similarly, in the long run, government expenditure and tax do not affect household consumption expenditure in Indonesia. Only national income influences the Indonesian household consumption expenditure in the long run. The long-run MPC value is less than the short-run MPC value. The results indicate that in the long run households will increase their savings at a greater magnitude than their increase in consumption expenditure because of changes in their income. The findings also confirm the Ricardian perspective that argues that households will respond to an expansive fiscal policy that reduces tax by increasing their current savings because they perceive that in the future tax will increase to compensate current tax cut. On the other hand, our findings indicate that government expenditure does not affect household consumption both in the long run and in the short run because it is likely that government expenditure fails to boost productive capacity that eventually fails to increase household wage as the labor production factor. Constant wage implies constant purchasing power and consumption, as indicated by Dautovic et al. (2017) who find that minimum wage affects household consumption in China.

5. CONCLUSION

Our results empirically show that both in the long run and in the short run government expenditure and tax do not affect household consumption expenditure. These indicate that the Ricardian Equivalence Hypothesis occurs in Indonesia. Further, these also suggest that fiscal policy to stimulate aggregate demand through household consumption is ineffective. From the policy perspective, our study implies that the Indonesian government increase investment through creating conducive investment climate to attract investors and stabilize interest rate to stimulate aggregate demand.

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