

International Conference on Accounting Studies (ICAS) 2016
15-18 August 2016, Langkawi, Kedah, Malaysia

Public Expenditure and Economic Growth in Malaysia

Wong Hong Chau*, Aye Aye Khin, Alexander Tay Guan Meng

Faculty of Accountancy & Management, Universiti Tunku Abdul Rahman, Malaysia

Abstract

This paper examines the relationship between the development expenditure, investment and trade balance in relation to Gross Domestic Product (GDP). The study applied the simultaneous equation model, in particularly two-stage least squares method (TSLS) estimation method. The result showed that Investment (I) and Trade Balance (TB) are the most important variables determine the GDP. In determine the level of investment, it appear that GDP and Trade Balance (TB) are the important factors. GDP and investment are the important factors determine the amount of trade balance (TB).

Keywords: Gross domestic product, development expenditure, investment, trade balance, simultaneous equation

1. INTRODUCTION

It is well-understood in the endogenous growth literature that fiscal policy has potentially important impact on the long term growth rate of the economy. Well-functioning fiscal policy enhances the health of the public finances by introducing the principles of counter-cyclical, ensuring intergenerational fairness, and sustainability of government debts. As at today, fiscal policy remains one of the integral parts of macroeconomic policy in view of its important roles in promote economic growth via capital formation, consumption and total factor productivity. Indeed, fiscal policy is closely related with country tax system which leads to amount of tax collection, and the components and productivity of public expenditure. Broadly speaking, public expenditure can be categorized into operating and development expenditure. Both serve different purpose, as operating expenditure tends to maintaining the effectiveness and efficient of current level of public services, while development expenditure fosters the long term growth via capital formation, productivity and total factor productivity.

The relationship between public spending and national income has been a contentious and inconclusive issue among the researchers and policy markers in both theoretically and empirically. The debate mainly surrounding on two approaches, namely Wagner's Law approach and Keynesian approach. Wagner's Law approach states that national income causes public expenditure, which postulates that government spending is income elastic and that the ratio of government spending to income tends to increase along with economic development. Keynesian approach states that public spending cause's national income, if it involves public investment in infrastructure, but could have a negative effect if it involves only government consumption.

Malaysia as an upper-middle income economy has made a great leap by transformed the country economy from primary commodities based to an energetic and dynamic industrialized nation. Malaysia had recorded average economic growth of 7 per cent for 25 years or more. Households living below the national poverty line (USD

*Corresponding author. Tel.: +6-03-90194722; Fax: +6-03-90197062
E-mail: wonghongchau@gmail.com

8.50 per day in 2012) decrease from more than 50 per cent in 1960s to below 1.0 per cent currently. Literacy rate (% of people ages 15-24) had improved from 87% in 1980 to 98% in 2010, and life expectancy improved from ages of 64 in 1970 to 74 in 2012. According to World Bank (2013), Malaysia is a highly open economy and one of the top exporters of electronic accessories and components, natural gas, palm oil, and electrical appliances. Besides, Malaysia has also grown from merely a raw materials producer like rubber and tin in the early 1970s to become a diversified economy.

The improvement in macroeconomic indicators closely related to the government expenditure. Table 1, showed the government expenditure both in operating and development had increased tremendously over the last four decades. The allocation for security, social and economic related expenses constituted the most important portion of total government expenditure (Figure 1). Nonetheless, other factors such as cost effective and productive workforce, political stability, pragmatic and prudent investor friendly policies, coupled with developed infrastructure had successfully transformed Malaysia becomes an enticing place for foreign investors. According to Malaysia Investment Development Authority, Malaysia had been chosen as one of the world's top Nations for service-based operations and offshore manufacturing. Many existing foreign corporation have continued choose Malaysia as a strategic investment location for diversifications and expansions, especially those MNC involve in high technology sector.

Table 1: Gross Domestic Product (GDP), Operating, Development and Total Government Expenditure from 1970 to 2014.

Year	(RM, million)			
	GDP (Current)	Operating Expenditure	Development Expenditure	Total Government Expenditure
1970	13,092	2,163	725	2,888
1980	54,285	10,292	7,470	17,762
1990	119,080	25,026	10,689	35,715
2000	356,400	56,547	27,941	84,488
2010	797,327	151,633	52,792	204,425
2014	1,070,007	218,896	46,500	265,396

Source: (Bank Negara Malaysia, 2015)

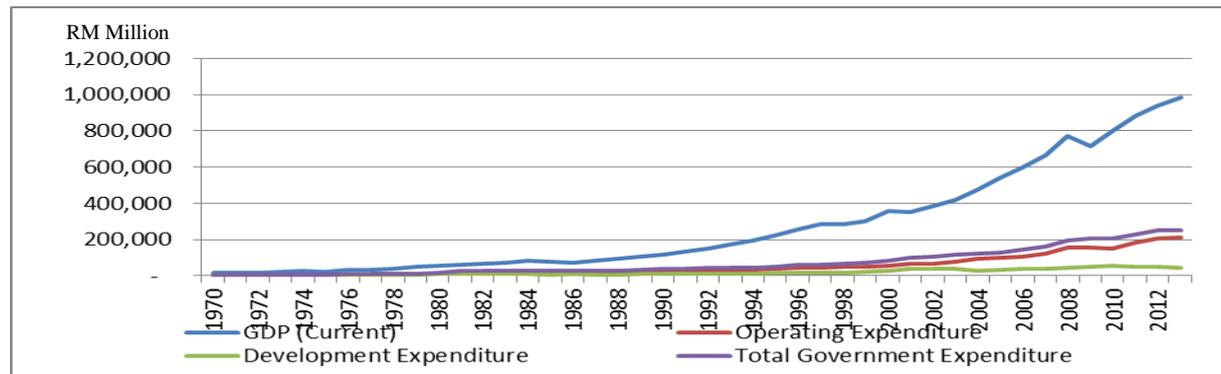


Figure 1: GDP, Total Government Expenditure, Development Expenditure and Operating Expenditure.

Source: (Bank Negara Malaysia, 2015)

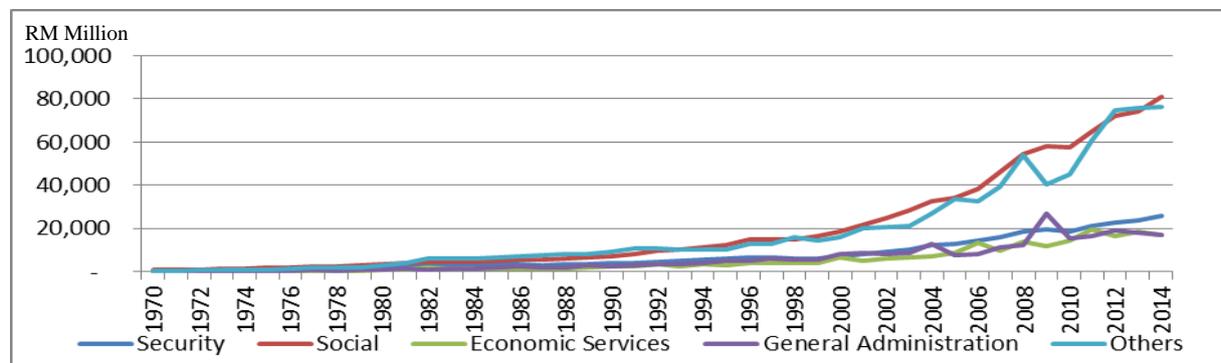


Figure 2: Operating Expenditure for Security, Social, Economic Services and General Administration and Others from 1970 to 2014

Source: (Bank Negara Malaysia, 2015)

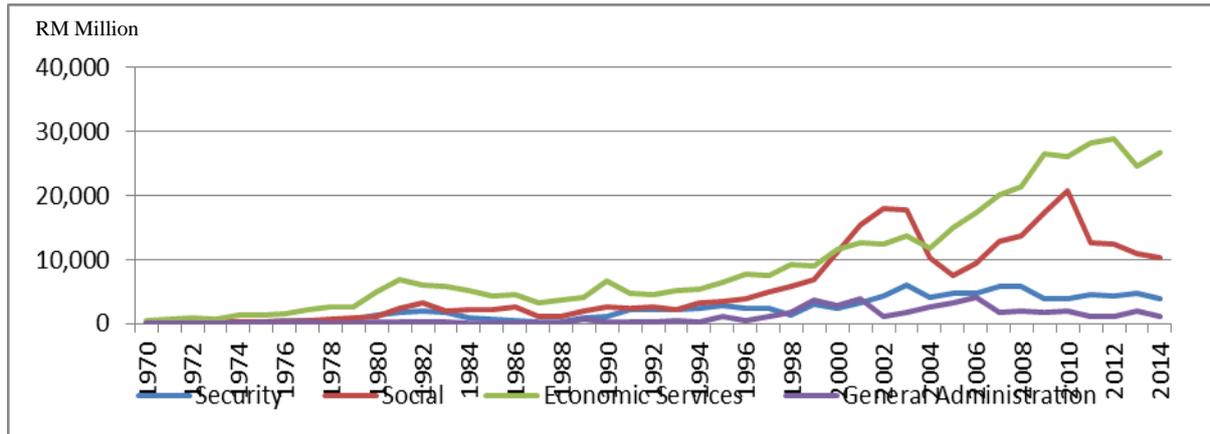


Figure 3: Development Expenditure for Security, Social, Economic Services and General Administration from 1970 to 2014
Source: (Bank Negara Malaysia, 2015)

2. LITERATURE REVIEW

Despite its apparent importance, the effects of each component of public expenditure on economic growth have been rarely examined especially in the developing countries. According to Akitoby *et al.* (2006) most of the existing empirical studies in conducted in developed countries supported Wagner's law approach, but less likely so for developing countries. Barro (1990) was the first to explicitly model government expenditure in a theory of endogenous growth. In this theory the long run rate of growth depends on the structure of government expenditure. In a framework of endogenous growth, 'production-enhancing' public spending tends to foster economic growth compared to 'utility-enhancing' public consumption, and the unproductive governmental expenditure tends to decrease the growth rate of GDP.

However, the studies of the relationship between government spending and economic development had produced inconclusive results. Wu, Tang, and Lin (2010) found that government expenditure had a significant and positive relationship to economic development, and government expenditure promoted economic growth in developed and developing countries, but not in low-income countries. Bose, Emranul, and Osborn (2007) found that the size of government capital expenditure with respect to GDP was positively and significantly correlated with economic growth but that the same did not hold for current expenditure.

Some studies had produced contradiction results. Alfonso and Furceri (2010) recorded a negative relationship in public expenditure and economic growth, while Durevall and Henrekson 2011 found no relationship between public spending and economic. According to Bergh and Henrekson (2011) the contradicting results were possibly caused by different definitions and variations in the countries studied, and likely caused by generally poor institutions and high levels of corruption (Wu, Tang, & Lin, 2010). Also, previous studies have not reached a consensus on the nexus between government spending and economic growth, owing to their differences in measuring government spending, selection of sample as well as economic model specification.

Recently, there are growing interest for researchers to move to investigate the effects of changing the composition of government expenditure, and the impact of reallocation of public spending on long-term economic growth. In particularly, assessing which components of public expenditure has the most profound impact on economic growth and development. Lucas (1988) stated the important role of human capital accumulation on long term economic growth. Public education spending promotes the accumulation of human capital, and thus, enhances economic growth. According to endogenous growth theory, differences in cross-country level of development and growth are mainly resulted by level of investment, particularly in human capital, physical capital and infrastructure development, and knowledge spillovers effect. Agenor (2010) concluded that reallocating expenditures from "unproductive" public spending to infrastructure spending would lead to higher steady state growth.

Bose, Emranul, and Osborn (2007) investigate the composition of government spending and found a significant and positive relationship in investments and spending on education sector and economic growth. Gemmill, Kneller, and Sanz (2012, and Acosta-Ormaechea and Morozumi (2013) stated the importance of reallocating funds to education and infrastructure for long-term growth. Similarly, Alam, Sultana, and Butt (2010) investigated 10 developing countries in Asia concluded that greater social expenditure on education, health, and social welfare led to improvement in productivity, and thus, fostering long term economic growth. Moreover, by

shifting more public resources to education spending will yield a sizable growth dividend. Therefore, the government of developing Asia countries must ensure that the proper mix of both their revenue and expenditures in order to optimum the contribution of fiscal policy toward long term economic development.

The size of government tends to rise as income increases (Wagner's Law) until certain level of income. Then, government expenditure flattens and then slightly decreased. According to Acosta, Ormaechea, and Morozumi (2013), the so call "non-monotonic relationship" of economic development and public expenditure expected to happen around per capita income of \$20,000 (PPP terms). Meanwhile, Halicioğlu (2003) conducted a study in Turkish from 1960 to 2000 found no causal relationships between government expenditure and per capita GDP.

In contrast, Dritsakis (2004) conducted similar study in Greece and Turkey found causality relationship from income to government expenditure. Narayan et al. (2008) investigated sub-national data on China's central and western provinces, and result supported Wagner's law. Guerrero and Parker (2007) investigate on US data since 1792, supported the hypothesis the size of the public sector Granger causes economic growth.

3. RESEARCH METHODOLOGY

Simultaneous equation models are a form of statistical model of a set of linear simultaneous equations. The two-stage least squares method (TSLS) estimation method for the simultaneous equations model is developed by Theil (1953) and Basmann (1957). It is an equation-by-equation technique, where the endogenous regressors on the right-hand side of each equation are being instrumented with the regressors X from all other equations. The method is called "two-stage" because it conducts estimation in two steps.

The Expenditure Method of Gross Domestic Product (GDP) stated that Gross Domestic Product (Y) consists of Private Consumption (C), Government Spending (G), Investment (I) and Trade Balance (TB), represented by:

$$Y_t = f(C, G, I, TB) \tag{1}$$

Whereby,

Y = Gross Domestic Product, (GDP) (RM, thousand million)

C = Private consumption (RM, thousand million)

G = Government spending (RM, thousand million)

I = Investment, (RM, thousand million)

TB= Trade Balance, (RM, thousand million)

Government spending is the combination of operating expenditure and development expenditure, such as:-

$$G = OE + DE \tag{2}$$

The equation (2) substituted in equation (1) and as follows:

$$Y_t = \beta_0 + \beta_1 DE_{t-1} + OE_{t-1} + \beta_2 I_{t-1} + \beta_3 TB_{t-1} + e_t \tag{3}$$

Where,

OE = Operating Expenditure

DE = Development Expenditure

t = Time trend, data range from 1970 to 2014 yearly.

e = error term

The equation (3) had been rewritten (reduced form) as simultaneous equation for GDP (Y) to detect of multicollinearity of C and OE:-

$$Y_t = \beta_0 + \beta_1 DE_{t-1} + \beta_2 I_{t-1} + \beta_3 TB_{t-1} + e_t \tag{4}$$

Thus, the main three (3) hypotheses draw from public expenditure model as follows:

HO1: Development expenditure (DE) is positive related to GDP (Y).

HO2: Investment (I) is positive related to GDP (Y).

HO3: Trade balance (TB) is positive related to GDP (Y).

Therefore,

Two-stage least squares method (TSLS) of GDP Simultaneous equation:-

$$DE_t = \beta_4 + \beta_5 Y_{t-1} + \beta_6 I_{t-1} + \beta_7 TB_{t-1} + e_t \quad (5)$$

$$I_t = \beta_8 + \beta_9 Y_{t-1} + \beta_{10} DE_{t-1} + \beta_{11} TB_{t-1} + e_t \quad (6)$$

$$TB_t = \beta_{12} + \beta_{13} Y_{t-1} + \beta_{14} DE_{t-1} + \beta_{15} I_{t-1} + e_t \quad (7)$$

4. EMPIRICAL RESULTS

The result of the GDP (Y) equation showed that Investment (I) and Trade Balance are the most important variables determine the GDP. The R² and standard deviation reported 0.987 and 32.180 respectively (Table 1).

$$Y_t = 1.544 + -1.151DE_{t-1} + 3.116I_{t-1} + 1.853TB_{t-1} + 32.180 e_t \quad (8)$$

$$t\text{-statistic} = [-0.6237^{ns}] [26.1844^{***}] [11.1734^{***}]$$

$$R^2 = 0.9875; \text{Adjusted } R^2 = 0.9866; d = 0.5449$$

The Development Expenditure (DE) showed that GDP, Investment (I) and Trade Balance are not important factors to determine the development expenditure. The R² and standard deviation reported 0.052 and 0.311 respectively (Table 1).

$$DE_t = 2.536 - 0.008Y_{t-1} + 0.030I_{t-1} - 0.001 TB_{t-1} + 0.311 e_t \quad (9)$$

$$t\text{-statistic} = [-0.6236^{ns}] [0.7369^{ns}] [-0.0526^{ns}]$$

$$R^2 = 0.0526; \text{Adjusted } R^2 = -0.0167; d = 0.4532$$

The Investment (It) equation showed that GDP and Trade Balance (TB) are the important factors in determines the level of investment. The R² and standard deviation reported 0.977 and 7.514 respectively (Table 1).

$$I_t = -0.473 + 0.302Y_{t-1} + 0.423DE_{t-1} + -0.500TB_{t-1} + 7.514 e_t \quad (10)$$

$$t\text{-statistic} = [26.184^{***}] [0.7369^{ns}] [-7.2879^{***}]$$

$$R^2 = 0.9776; \text{Adjusted } R^2 = 0.9760; d = 0.5597$$

The Trade Balance (TB) equations showed that GDP and investment are the important factors determine the trade balance. The R² and standard deviation reported 0.898 and 0.311 respectively (Table 1).

$$TB_t = 0.620 + 0.406Y_{t-1} - 0.045DE_{t-1} - 1.128I_{t-1} + 5.467 e_t \quad (11)$$

$$t\text{-statistic} = [11.1734^{***}] [-0.0526^{ns}] [-7.2879^{***}]$$

$$R^2 = 0.9049; \text{Adjusted } R^2 = 0.8980; d = 0.4233$$

Table 2. GDP Simultaneous Equation

Dependent Variable	Independent Variable	Summary Statistics of the Regression Coefficients			
		Coefficient	Std. Error	t-Statistic	Prob.
GDP (Y _t)	DE _{t-1}	-1.151620	1.846513	-0.623673	0.5363
	I _{t-1}	3.116744	0.119030	26.18444	0.0000
	TB _{t-1}	1.853796	0.165912	11.17340	0.0000
	C	1.544303	4.772241	0.323601	0.7479
R-squared	0.987476	Mean dependent var		29.70360	
Adj: R-squared	0.986560	S.D. dependent var		32.18054	
S.E. of regression	3.730784	Sum squared resid		570.6689	
Durbin-Watson stat	0.544897				
DE _t	Y _{t-1}	-0.008161	0.013085	-0.623673	0.5363
	I _{t-1}	0.030882	0.041905	0.736937	0.4654
	TB _{t-1}	-0.001478	0.028088	-0.052610	0.9583
	C	2.536975	0.69374	36.56972	0.0000
R-squared	0.052614	Mean dependent var		2.522557	
Adj: R-squared	-0.016707	S.D. dependent var		0.311464	
S.E. of regression	0.314055	Sum squared resid		4.043846	
Durbin-Watson stat	0.453245				
I _t	Y _{t-1}	0.302744	0.011562	26.18444	0.0000
	DE _{t-1}	0.423314	0.574424	0.736937	0.4654
	TB _{t-1}	-0.500256	0.068642	-7.287952	0.0000
	C	-0.473670	1.487397	-0.318456	0.7518
R-squared	0.977689	Mean dependent var		7.574851	
Adj: R-squared	0.976056	S.D. dependent var		7.514341	
S.E. of regression	1.162752	Sum squared resid		55.43170	
Durbin-Watson stat	0.559766				
TB _t	Y _{t-1}	0.406075	0.036343	11.17340	0.0000
	DE _{t-1}	-0.045680	0.868281	-0.052610	0.9583

	I _{t-1}	-1.128140	0.154795	-7.287952	0.0000
	C	0.620549	2.234295	0.277738	0.7826
R-squared	0.904957	Mean dependent var		4.021724	
Adj: R-squared	0.898003	S.D. dependent var		5.467378	
S.E. of regression	1.746114	Sum squared resid		125.0054	
Durbin-Watson stat	0.423389				

5. CONCLUSION

The simultaneously equation model applied in this study to examine the relationship between GDP and development expenditure, investment and trade balance. The result showed that Investment (I) and Trade Balance are the most important variables determine the GDP, but development expenditure appears to be not significant to GDP, trade balance and investment. Thus, the results contradict to Wagner's Law of government expenditure generally rises in tandem with income increases. The possible explanations that can be draw from the results either the size of government is driven by from non-economic factors, or insufficient public expenditure is channel toward development expenditure, and the development expenditure is simply not productive or supportive toward long term economic growth in Malaysia. Thus, realign the allocation of public expenditure in operating and development expenditure and assess the effectiveness of each components of public expenditure can lead to more effectiveness physical policy in support long term economic growth.

REFERENCES

- Abdon, A., Estrada, A.G., Lee, M., & Park, D. (2014). *Fiscal Policy and Growth in Developing Asia*.
- Abizadeh, S., & Yousefi, M. (1998). An empirical analysis of South Korea's economic development and public expenditure growth. *The Journal of Socio-Economics*, 27(6), 687-94.
- Acosta-Ormaechea, S., & Morozumi, A. (2013). Can a government enhance long-run growth by changing the composition of public expenditure? *IMF Working Paper* 13/162. Washington, DC: International Monetary Fund.
- Baffes, J., & Shah, A. (1998). Productivity of public spending, sectoral allocation choices and economic growth. *Economic Development and Cultural Change*, 46 (2), 291-303.
- Bagdigen, M., & Cetintas, H. (2003) Causality between public expenditure and economic growth: The Turkish Case. *Journal of Economic and Social Research*, 6(1), 53-72.
- Barro, R. (1990). Government spending in a simple model of endogenous growth. *Journal of Political Economy*, 98 (5), S103-S125.
- Basmann, R.L. (1957). A generalized classical method of linear estimation of coefficients in a structural equation". *Econometrica*, 25 (1), 77-83.
- Rafi, S., & Zeufack, A. (2012). Fiscal multipliers over the growth cycle: evidence of Malaysia. Policy Research Working Paper 5982. The World Bank East Asia and Pacific Region.
- Srinivasan, P. (2013). Causality between public expenditure and economic growth: The Indian Case. *Journal of Economics and Management*, 7(2), 335 - 347.