

## Government Expenditure on Human Capital Development, Culture and Economic Growth

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**Keywords:** Government expenditure, Human capital, Culture, Economic growth.

**Abstract.** Government expenditure and economic growth are both subjects of public attention because the source of government expenditure is mainly from public taxes. The tax payers would expect that their tax contributions be spent wisely by the government. In the other hand, the public would expect high economic growth as a whole in return. The role of human capital in supporting economic growth is well known in the growth literature. In traditional view, the study of human capital has been focused on the education factor. However, human capital is a broad concept that identifies human characteristics which can be acquired and could increase the workers' income, productivity level and welfare. It is commonly include knowledge and skills of the workers that can be obtained partly through education and training and physical strength, mental capacities such as cognitive functioning and reasoning ability, and vitality that dependent on health and nutrition, and other factors, such as an environment that is conducive to learning, cultural and religious aspects. In Malaysia, the public sector plays a dominant role in providing infrastructure necessary to build human capital. Furthermore, Malaysia aims to be high-income economy and developed nation by year 2020. In order to reach this target, government should produce a first class mentality society and productive human capital that is able to generate the economy above the value chain. Policymakers will have to develop strategies for a rapid development of human capital. Greater attention should be given to the development of healthy, educated and well-trained manpower capable of high productivity; hence, a vibrant economy. Recent literature in the field of cultural economics points out that culture may represent an important driver of economic growth. By considering culture as one of the element in the human capital development, this study investigates the government expenditure on human capital development including expenditure in art and culture on economic growth in Malaysia.

### 1. Introduction

Human capital is defined as intangible collective resources possessed by individuals and groups within a given population. These resources include all the knowledge, talents, skills, abilities, experience, intelligence, training, judgement and wisdom possessed individually and collectively and cumulative total of which represents a form of wealth available to nations and organizations to accomplish their goals (Encyclopedia Britannica). The definition of human capital applied by historians of pre-modern economies remained very broad. For example Nakamura (1981) for pre-modern Japan, defines human capital broadly as 'labor skills, managerial skills, and entrepreneurial and innovative abilities plus such physical attributes as health and strength. Newland

and San Segundo (1996) also use several measures as indicators of human capital of slaves in Peru and La Plata in the eighteenth century such as physical strength and skills. They defined human capital as ability and education of an individual and on the other hand, as the costs of physically raising a child or his/her health. The concept of human capital refers to the abilities and skills of human resources of a country (Ohwofasa, Atumah and Obeh (2012). Sapuan and Sanusi (2013) define human capital as a broad concept that identifies human characteristics which can be acquired and could increase the worker's income and productivity level. It is commonly include knowledge and skills of the workers that obtain partly through education, and also their physical capacities such as strength and vitality, which are dependent on their health and nutrition. According to the United Nations Development Program (UNDP), human development is defined as "a process of enlarging people's choice". At all levels of development, the three essential choices for people are, to live a long and healthy life, to acquire better knowledge and to have access to resources needed for a decent standard of living. The UNDP defines the components of human development as involving four basic elements, equality, productivity, sustainability and empowerment.

In the tenth Malaysia Plan (2011-2015), Malaysia aims to become high-income economy and developed nation by the year 2020. The plan highlighted that the government anticipates adopting an integrated human capital and talent development framework starting from early childhood education, secondary, tertiary and higher education and training to adult workers. This framework emphasize on major structural transformation that a high-income economy requires such as revamping the education system to significantly raise number of educated Malaysians, number of skilled labour and increase employability and reforming the labour market.

Government expenditure on education is immense in Malaysia over the period 1974-2012, where the average amount of money spent on education was 20 percent of total government expenditure. This amount is comparable to those spent by government of highly developed countries like Canada which spent an average of 14 percent of total government expenditure between year 1980 and 2009, the USA which spent 15 percent and UK government disbursed 12 percent on education for the same periods. However, government expenditure on healthcare in Malaysia is lower than that highly developed countries, for example Canada spent 16 percent, USA 18 percent and UK 15 percent of their spending between 1980 and 2009<sup>1</sup>. Malaysia only spent an average of 5.89 percent of total government expenditure over the period 1974-2012.

In Malaysia, government expenditure is divided into two categories, operating expenditure and development expenditure. For the operating expenditure, the average amount of money spent on education was 22 percent of total operating expenditure for the time span 1974-2012. Meanwhile the average amount of money spent on healthcare was 6.72 percent. For development expenditure, the average amount of money spent on education was 15.36 percent of total development expenditure for the time span 1974-2012. Meanwhile the average amount of money spent on healthcare was 3.34 percent. The return gain from this spending should be recognized in order to help the policy maker to form policies to ensure the vision of the country to become a high-income economy and developed nation by year 2020 can be achieved. The main objective of this study is to investigate the effects of education and health spending on economic growth of Malaysia.

## 2. Literature review

The important of human capital accumulation has been emphasized by endogenous growth theory which suggests that countries with the higher level of human capital can experience higher economic growth than with lower levels. In this regard there have been numerous studies that extensively explored whether human capital accumulation can contribute to economic growth.

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<sup>1</sup> Data sources, <http://data.worldbank.org/indicator>

## 2.1 Education

Early empirical research on human capital and economic growth focused on education factor. It has been assumed that education is a matter of great relevance. Education improves health practices, influences demographic pattern, and contributes to a better-quality and more prosperous life. But in modern point of view, health and nutrition is also important to form human capital because it can enhance worker's productivity by increase their physical capacities, such as strength and endurance, as well as their mental capacities, such as cognitive functioning and reasoning ability. Recent literature in the field of cultural economic points out that culture may represent an important driver of economic growth. Significant effects of education on productivity in agriculture were found in several East Asia economies. The contribution of education to agricultural productivity was quite high in Korea: one year of additional education was estimated to increase productivity by 2.22 percent (Tilak 1986). Sapuan and Sanusi (2012) found that there is a long run relationship between economic growth and investment, health and education expenditure in Malaysia.

Human development has important effects on economic growth. If a central element of economic growth is allowing agents to discover and develop their comparative advantage, an increase in the capabilities and functioning available to individuals should allow more of them to pursue occupations in which they are most productive. In this sense human development can be seen as the relaxing of constraints which may have interfered with profit maximization. Furthermore, although human development represents a broader concept, many of its elements overlap significantly with the more traditional notion of human capital. Thus, to the extent that human development is necessarily corrected with human capital and human capital affects the economic growth of a nation, human development is bound to have an impact on economic growth. Education, for instance, has a strong effect on labor productivity (Ranis 2004).

## 2.2 Health

The role of health care spending on stimulating economic growth has been suggested by Mushkin (1962). This is known as the health-led growth hypothesis. According to this hypothesis, health is a capital, thus investment on health can increase income, hence lead to overall economic growth. In fact, health can affect economic growth through its impact on human and physical capital accumulation (Elmi and Sadeghi, 2012). Healthier people are more productive because they have a strong incentive to develop their knowledge and skills and expect to enjoy the benefit in the future. By contrary, poor health has an adverse impact on productivity. Baltagi and Moscone cited from Elmi and Sadeghi 2012 reconsidered the long-run economic relationship between health care expenditure and income using a panel of 20 OECD countries during 1971-2004. They studied the non-stationary and co-integration properties between health care spending and income. They suggested that health care is a necessity rather than luxury. Tang (2011) employed the Granger causality test within a multivariate co-integration and error-correction framework to investigate the relationship between health care spending, income and relative price in Malaysia during 1970-2009. He found that in the short-run there is unidirectional Granger causality running from relative price to health care spending, while relative price and income are bidirectional Granger causality in Malaysia. In the long-run health care spending and income is bidirectional Granger causality, while there is unidirectional Granger causality running from relative price to health care spending and income.

## 2.3 Culture

Culture, following Guiso (2006) is defines as "those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation". Economic culture is defines as "the beliefs, attitudes, and values that bear on economic activities of individuals, organizations, and other institutions (Williamson and Mathers, no date). Culture can be viewed as

beliefs, values and attitudes shared and perpetuated by members of a social group. Culture is a complex whole that also includes shared traditions, customs, language and norms that must be learned from families and social communications (Francis 2009). Williamson and Mathers investigates whether culture contribute to economic growth. They create a panel dataset spanning from 1970 to 2004 with the dependent variable is growth rate and the main independent variables are economic institutions measurement and culture. They employ a variety of empirical techniques including Ordinary Least Squares (OLS) and fixed effects with a variable of different control variables. They found that culture and economic freedom contribute to economic prosperity.

### 3. Conceptual framework

The concept of human capital refers to the abilities and skills of human resources while human capital formation refers to the process of acquiring and increasing the number of persons who have the skills, education and experience that are critical for economic growth and development (Ohwofasa et al. 2012). According to the endogenous growth model, the pace of technological change should have an economic explanation and factors such as the efficiency of human capital, education and training attainment and expenditure, to mention a few, should affect technological change and therefore economic growth. In the endogenous growth theory the path of economic growth is dictated by the level of technological change, which level is determined mostly by the efficiency of human capital, level of research and development, as well as learning by doing. The concept of endogenous growth is aligned to the fact that technological change is not exogenous, but rather endogenous as it depends on the above factors (Van Zyl and Bonga-Bonga, 2009).

This paper evaluates the causality and long-run relationship between economic growth, education expenditures, health care expenditures and culture expenditure. The model of this study is written as follows,

$$Y = f(\text{Ed}, \text{H}, \text{C}, \text{ARD}) \quad (1)$$

Where;

Y = Gross Domestic Product at current price

Ed = education expenditure at current price

H = health care expenditure at current price

C = art, culture and heritage expenditure at current price as a proxy of culture expenditure

ARD = agriculture and rural development expenditure at current price as a proxy of training

$$Y = \beta_0 + \beta_1 \text{Ed} + \beta_2 \text{H} + \beta_3 \text{C} + \beta_4 + \varepsilon \quad (2)$$

To test the long-run relationship between these variables, this paper uses E-views 8 software follows the three steps, first, test for non-stationary by using Augmented Dickey-Fuller unit root test. The test conducts a parametric correction for higher order serial correlation of the error terms by assuming that level series followed AR (p) process and adding p lagged differences terms of the dependent variables ( $Y_t$ ) to the right hand side of the test regression.

$$\Delta y_t = \beta_1 + \beta_2 t + \delta y_{t-1} \sum_{i=1}^m \beta_i \Delta y_{t-i} + \varepsilon_i \quad (3)$$

In equation (3),  $\Delta$  is the difference operator,  $t$  is a linear trend,  $\beta_1$  and  $\beta_2$  are constant parameters,  $\varepsilon_t$  is the white noise error term and  $m$  is the number of lags. The number of lagged variables  $m$  is significant in order to ensure the residuals are serially uncorrelated. The results of the unit root test are sensitive to the lag length chosen. Therefore the optimum lag length is selected based on the AIC. Second, test for long-run relationship between variables using co-integration test. This study uses Johansen-Juselius co-integration test. The Johansen co-integration test is performed using a Group object or an estimated Var object. The residual tests may be computed using a Group object or an Equation object estimated using nonstationary regression methods. The last test to be conducted is the Granger causality test. The purpose of the test is to determine the direction of Granger causality. The test of Granger causality is conducted in VECM framework.

#### 4. Estimation result

Table 1 presents the results of the Augmented Dickey Fuller unit root test. The results show that all variables are nonstationary at level with intercept. However all variables are stationary after first differencing. In other word all variables are integrated of order (1).

Table 1. Augmented Dickey Fuller unit root test, maximum lag = 9.

	LEVEL		1 <sup>st</sup> Difference	
	Intercept (t-Statistic)	Trend and intercept t-Statistic	Intercept t-Statistic	Trend and intercept t-Statistic
$Y_t$	-1.1979	-2.2511	-5.8735*	-6.1778*
$Ed_t$	-0.4974	-3.5760**	-5.2006*	-5.1309*
$H_t$	-0.6593	-2.4165	-5.7394*	-5.6657*
$C_t$	-1.3538	-3.7036**	-7.4709*	-7.3577*
$ARD_t$	-2.0572	-2.2463	-4.1623*	-4.5735*

Note: \* significant at 1% level, \*\*significant at 5% level

Table 2 reports the result of Johansen-Juselius co-integration test. The results clearly indicate that there exists a co-integrated relationship between dependent variable and independent variables in the long-run.

Table 2. Unrestricted Cointegration Rank Tests (Trace).

Hypothesized No. Of CE (s)	Eigenvalue	Trace statistic	0.05 critical value	Prob.
None	0.883032	176.6253	69.81889	0.0000
At most 1	0.710236	97.22877	47.85613	0.0000
At most 2	0.622852	51.39734	29.79707	0.0001
At most 3	0.209350	15.31799	15.49471	0.0532
At most 4	0.163977	6.626678	3.841466	0.0100

However, the existence of a co-integration relationship does not give any information on the causality relationship between the variables. Therefore the author use Granger causality test to understand the causality of the relationship. Table 3 reports the result of Granger causality tests.

Table 3. Pair wise Granger causality tests (5% significant level).

Null hypothesis	F-Statistic	Prob	Conclusion
H does not Granger Cause Y	1.08371	0.3504	Causality does not exist
Y does not Granger Cause H	10.7441	0.0003	Causality exist
Ed does not Granger Cause Y	4.72110	0.0160	Causality exist
Y does not Granger Cause Ed	16.3819	1.E-05	Causality exist
C does not Granger Cause Y	2.43674	0.1035	Causality does not exist
Y does not Granger Cause C	20.3076	2.E-06	Causality exist

ARD does not Granger Cause Y	5.19554	0.0111	Causality exist
Y does not Granger Cause ARD	14.4843	3.E-05	Causality exist

The Granger causality tests show that there is a unidirectional long-run causality between GDP and health expenditure. Unidirectional long-run causality also exist between GDP and art, culture and heritage expenditure. In other words, economic growth plays an important role for expanding health care and art, culture and heritage expenditure in long-run. But health care and art, culture and heritage spending does not cause economic growth. In the other hand, there is a bilateral long-run causality between GDP and education expenditure and agriculture and rural development expenditure. In other words, economic growth plays an important role for expanding education and agriculture and rural development expenditure in the long-run. Also, education expenditure and agriculture and rural development expenditure act as engine of economic growth for Malaysia in the long-run.

## 5. Conclusion

The study revealed that there is bilateral causality and long-run relationship between economic growth, education expenditure and agriculture and rural development expenditure. Government spending on health care and culture does not contribute to economic growth. The findings indicated that government expenditure on education and training are important to improve human capital development. This study revealed that government expenditure on education and training can contribute and important to economic growth. In order to achieve the objective of the Tenth Malaysia Plan, government should spend more on education by upgrading early childhood education, providing more facilities in primary and secondary schools and universities, providing good teachers to the students, allocating more money for research and development in education and encourage more people to obtain higher level of education. The government also should spend more on training in order to up skilling existing working adult. Even though government expenditure on health care does not contribute to economic growth, the author suggest that government intervention by implementing policies to encourage health care is required to build up a healthier society.

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