**Nor Aznin Abu Bakar[1], Muhammad Haseeb[2], Muhammad Azam[3]**

# THE NEXUS BETWEEN EDUCATION AND ECONOMIC GROWTH IN MALAYSIA: COINTEGRATION AND TODA-YAMAMOTO CAUSALITY APPROACH

***The impetus of this study is to examine the causal relationship between education and economic growth in Malaysia using the annual time series data from 1975 to 2013. A unit root test is accomplished for both variables using the ADF test confirming that both variables are integrated of order one or I(1). Subsequently, the Johansen test for cointegration is applied to investigate the existence of long-run relationship between the variables. The results indicate that there is a long-run relationship between the variables. The Toda-Yamamoto causality test is employed to investigate the direction of causality between the variables. The results show a two-ways causality that runs from economic growth to education and from education to economic growth for the sample period. In other words, economic growth has an unswerving and significant bump on education and vice versa in case of Malaysia. The findings suggest that Malaysian's government needs to increase public expenditure on divergent components of education to boost further economic growth. Malaysian government has already implemented several policies regarding education such as reorientation of the education system to enable students gain deep knowledge, thinking and entrepreneurship skills. Educational services will also be improved through the construction of schools in rural areas and providing infrastructure and adequate training for teachers.***

***Keywords:*** *education; Toda-Yamamoto approach; economic growth; time series analysis; Malaysia.*

***JEL Classifications: I25, O40, C22.***

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# ВЗАЄМОЗАЛЕЖНІСТЬ ОСВІТИ ТА ЕКОНОМІЧНОГО РОСТУ В МАЛАЙЗІЇ: АНАЛІЗ ЗА МЕТОДОМ КОІНТЕГРАЦІЇ ТА ПІДХОДУ ТОДА-ЯМАМОТО

***У статті досліджено взаємозалежність між освітою та економічним розвитком в Малайзії за даними часових рядів за 1975–2013 роки. Тест на одиничний корінь продемонстрував інтеграцію першого порядку між досліджуваними змінними. Для виявлення довготривалої взаємозалежності використано тест Йохансена на коінтеграцію. Він також підтвердив існування взаємозалежності. Далі застосовано тест Тода-Ямамото для виявлення напрямку взаємозалежності. Результати тестування свідчать про двосторонність взаємозалежності. Загальні висновки даного дослідження містять рекомендації про те, що уряду Малайзії слід збільшити видатки на освіту, що у подальшому буде стимулювати економічний розвиток країни. Уряд має сконцентрувати зусилля на таких напрямках вже початих реформ як переорієнтація навчання на розвиток аналітичних здібностей та підприємництва, будівництво шкіл у сільській місцевості, розвиток інфраструктури та адекватної сучасним реаліям освіті для самих вчителів.***

***Ключові слова:*** *освіта; метод Тода-Ямамото; економічне зростання; аналіз часових рядів; Малайзія.*

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# ВЗАИМОЗАВИСИМОСТЬ ОБРАЗОВАНИЯ И ЭКОНОМИЧЕСКОГО РОСТА В МАЛАЙЗИИ: АНАЛИЗ ПРИ ПОМОЩИ МЕТОДА КОИНТЕГРАЦИИ И ПОДХОДА ТОДА-ЯМАМОТО

***В статье исследована взаимозависимость между образованием и экономическим ростом в Малайзии по данным временных рядов за 1975–2013 годы. Тест на единичный корень продемонстрировал интеграцию первого порядка между данным двумя переменными. Для выявления долгосрочной взаимозависимости использован тест Йохансена на коинтеграцию. Он также подтвердил существование взаимозависимости. Затем применён тест Тода-Ямамото для выявления направленности зависимости. Результаты тестирования свидетельствуют о двусторонней взаимозависимости. Общие выводы данного исследования содержат рекомендации о том, что правительству Малайзии следует увеличить расходы на образование, что в дальнейшем будет стимулировать экономическое развитие страны. Правительство должно сконцентрироваться на таких направлениях уже начавшихся реформ как переориентирование обучения на развитие аналитических навыков и предпринимательства, строительство школ в сельской местности, развитие инфраструктуры и адекватное современным запросам обучение для самих учителей.***

***Ключевые слова:*** *образование; метод Тода-Ямамото; экономический рост; анализ временных рядов; Малайзия.*

**1. Introduction.** Government plays a major role in decision making on allocating capital to competing ventures and sectors. The choice between investments like investment in education against investment in physical infrastructure determines the development of society and this decision must be based on the largest differences between costs of investment and the expected return on it. Education has multidimensional impacts on the economy such as making workers be more productive and promotes reasonable socioeconomic policies. Besides that, it creates social, economic and political environment and decreases poverty. The stability of socioeconomic and political environments attracts local as well as foreign investment. It has been well recognized that education also plays a crucial role in creating effective and efficient labour force.

The motivation behind this study is to inspect the relationship between education and economic growth. There are 3 feasible sorts of relationship: 1) growth-driven education (when GDP cause increase in education expenditure); 2) education-led growth (when education causes economic growth or increase in GDP ratio); 3) the two-way causal link between them. Previous studies have been carried out to investigate this relationship. The study by Seebens and Wobst (2003) showed that decrease in school enrolment tenet to decrease in human capital which eventually hurdle development and economic growth. In the endogenous growth models of Romer (1986) and Lucas (1988) argue that education plays a principle role in economic growth. Meanwhile Renelt and Levine (1992) explore that education has a significant positive impact on economic growth.

The rest of the paper is organized as follows. Section 2 provides a structure of education and trends of GDP growth and education expenditure in Malaysia. The review of previous studies is reported in Section 3. Section 4 describes the model specification, data source, methodology and estimation method used to analyze data

of this study. The empirical results of the study and discussion are reported in Section 5. Summary and conclusion are provided in Section 6.

**2. The structure of education in Malaysia.** Formal education in Malaysia is composed of primary education for 6 years, junior secondary for 3 years, senior secondary for 4 years and tertiary level education for the period of 4 years. Basic education including primary and junior secondary is free of charge and compulsory. Local and state government mainly finances government schools but there is also a number of private schools. Among the skills taught in primary school are the fundamentals of reading, writing and arithmetics. Students start entering primary school at the age of 7 and end at age of 12. When students are in Class 6, at the age of 12, they are required to take the test evaluation called the Primary School Assessment test or UPSR, which evaluates their performance in English and Bahasa Malaysia, Mathematics and Science. Figure 1 shows the enrolment of students to primary education during 1975–2013.

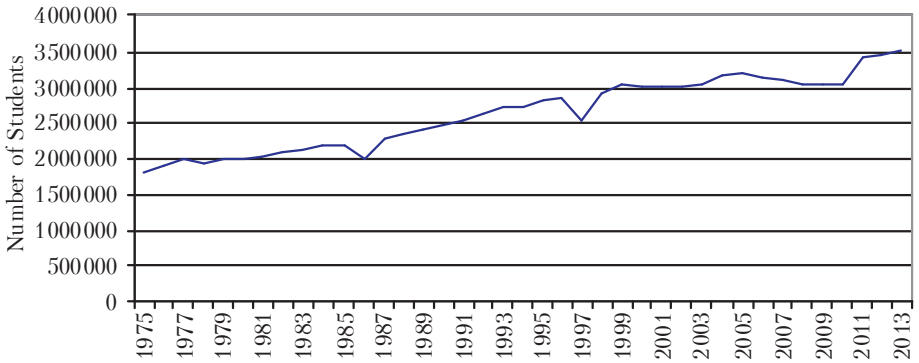


*Figure 1.* **Primary Education Enrolments, 1975–2013**

Figure 1 shows that in 1975 the total primary enrolment was 1789760 which slightly increased till 1985, but in 1986 it decreased from 2199096 to 2008973. The number of enrolment increased during 1987–2013, except small decreases in 1997 and 2007–2010.

Secondary education is the second stage of formal education, where basic education implemented in primary education being improved and strengthened to prepare for higher education or vocational training. A standardized curriculum is arranged to ensure a consistent learning. At this point, the progress of students will be assessed through several stages of the general examination. Secondary education typically begins at the age of 13 and lasts up to 6 years. Students' transition from primary to secondary level requires a registration based on their primary education.

As it is observed in Figure 2, the enrolment increased slowly from 1975 until 1994; from 887643 students to 1,613,182. There was no drop in the number of students enrolled in 1986 or 1987 even though the economic crisis hit Malaysia. But in 1995, the value started dropping and came back on track in 1997. The numbers continued to rise sharply in 1998 and reached its peak in 2000. The number of students continues to increase in 2001 but in a slow movement until 2008 where the movements were quite horizontal until 2013.

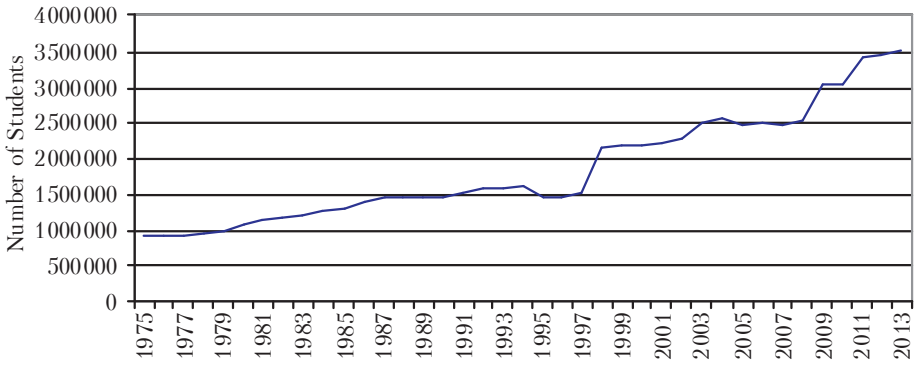


*Figure 2.* **Secondary Education Enrolments, 1975–2013**

Figure 3 shows the enrolment of students in tertiary education. The number increased slowly from 1988 and fall sharply in 1996. The number dropped from 210,724 to 121,412. The economy started to collapse in 1996 and became worse in 1997 when the global financial crisis hit Malaysia. In 1997, the National Higher Education Fund Corporation (PTPTN) was established under the National Higher Education Fund Act 1997 (Act 566) and is effective from 1st July, 1997. As a result from the government action in introducing loan for tertiary studies, the student enrolment in 1998 increased dramatically and continued to grow until it reached its peak in 2011 and slightly decreased in 2012 and 2013.

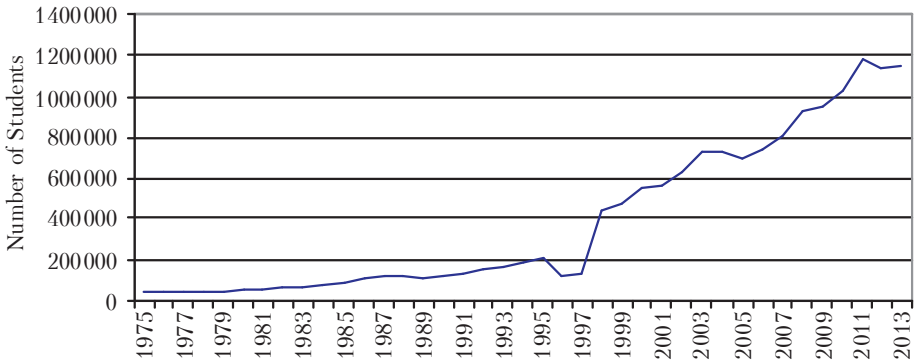


*Figure 3.* **Tertiary Education Enrolments, 1975–2013**

Basically Malaysian education policy focuses on 3 main objectives: 1) to produce society with knowledge, workable, and good morality based on the belief of God; 2) to grow patriotism and strengthen the solidarity in order to produce Malaysia's race that has strong position in all areas; 3) to produce the world standard human capital to fulfil country's need in achieving the status of "developed country".

In enhancing the development of Malaysian economy, the government has identified several policies that should be implemented to achieve those objectives. One of them is a human resource development policy. Among others policies being listed are the following: to expand the supply of highly skilled and knowledgeable workforce based on training and knowledge. The system of education will be reoriented to facil-

itate students to obtain deep knowledge and thinking ability and entrepreneurship skills; to add education facilities and quality training in enhancing the earning capability and superiority of life. Educational services will be improved through building schools in rural areas providing central facilities, infrastructure and adequate skilled teaching; adding conveniences to quality education and teaching system to ensure workforce supply are in pace with changing technology and market demand. The school syllabus will be revised to create creativeness and self-learning between students, with the inclusion of new characteristic of knowledge, expertise and more modern teaching manners; to encourage permanent learning in enhancing the ability for employment and labor efficiency. Employers will be confident to promote permanent learning through training and retraining to train workers with skills and new knowledge.

***2.1. Trends of GDP Growth and Education Expenditure.*** The education sector in Malaysia has received special attention from the government since the country's independence. Government expenditure on education (% of government expenditures) was last measured as 20.97 in 2013 (World Bank, 2013). The average education expenditure of 18.52% was recorded during 1975–2013. Figure 4 shows the comparison between GDP growth and education expenditure.

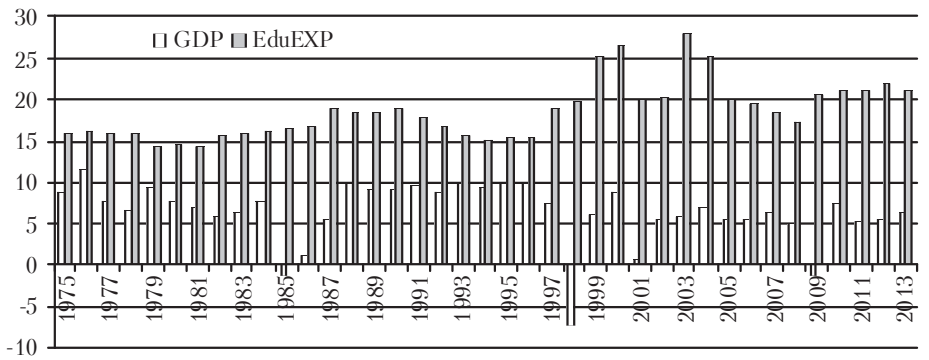


*Figure 4.* **Comparison between GDP growth and education expenditure**

The lowest expenditure (14.23%) in 1979 and the highest expenditure of 28.02% in 2003 were also recorded, and Malaysia ranks 35th in the world by education spending. Determined is also the severe underinvestment by the government during the last 3 decades. Public spending on education currently stands at 5.1% of GDP as adjacent to 4% of GDP determined by UNESCO for education. According to the UNDP, Malaysia is one of the 50 countries in the world, who spends more than 4% of GDP on education. Over the past years education spending increased significantly with small changes. Furthermore, the average GDP growth rate was about 6.35%, the lowest growth rate of -7.35% was registered in 1998 and the highest growth rate of 10.01% was recorded in 1996.

**3. Literature Review.** Solow (1956) assumed that economic growth development can be explained not only through the increase in labor and capital but also determined by the contribution of each production factor and increase in technical progress to the growth rate as a whole. Later on, Lucas (1988) endogenous growth model includes human capital as a production factor. Moreover, Lucas explained that

education is a medium for human capital and it must be referred as a factor of production along with physical and labor capital. This leads to the conclusion that education achievements of labor directly impact production implying to progres to economic growth at the aggregate level. Furthermore, Mankiw et al. (1992) contribute to the Solow's model by introducing the growth of human capital measure through levels of education. They argue that human capital have a positive and significant impact on economic growth.

One of the main aims of education is to increase the development of human capital. However, not only education can develop human capital, it can be enhanced by other social activities. Fogel (1994) explained that beside general education (schooling) good health, nutrition, physical strength and occupational training also have contribution to the level of accumulated human capital. In 1990's special attention has been paid in Barro's (1991) work to measuring human capital as a determinant of economic growth. According to Barro (1991) the results of 98 countries shows that primary level of education measured by schooling rates has a positive effect on economic growth.

Barro and Lee (1993) have explained the rate of schooling success in the adult population for the period 1960–1985 in 129 countries. They argued that education level is an explanatory variable and education has a direct positive effect on economic growth. In contrast, Ben habib and Spiegel (1994) do not agree with Barro and Lee's results and argued that education level does not explain the growth rate of per capita output. On the other side, Bils and Klenow (2000) state that any exceptional case of positive correlation between education and output does not support the argument of education directly affecting economic growth. In addition, Pritchett (2001) also explained that change in regular schooling plays a small role in explaining countries' difference in economic growth rate. Temple (2001) supports the Pritchett's argument and said it is very difficult to not accept Pritchett's views that large investment in education has yield a very minute pay-off, especially in developing countries. In contrast, Gemmell (1996) assumes both the education level of human capital and the growth rate of human capital to be significant in explaining economic growth.

In a similar vein, Gylfason and Zoega (2003) investigate the relationship between education expenditure and economic growth in 87 countries by using 3 different measures of education: 1) total enrollment in secondary schools; 2) government expenditure on education; 3) years of schooling for girls. They conclude that an increase in education level supports economic growth. The results show that the level of education improves and increases human capital, physical capital and social capital. Moreover, Mekonnen (2004) explore the influence of education on economic growth rate in case of sub-Saharan Africa by using endogenous growth model. He considers human capital as a factor of production and education as a means of human capital accumulation and found that education has positive and significant influence on economic growth. Azam and Ather (2010) found that both health human capital and education human capital have positive and statistically significant impacts on economic growth in Pakistan during 1960–2009. In a similar study, Chaudhary et al. (2009) used the Johansen cointegration and Toda-Yamamoto causality techniques in the VAR framework to examine the significance of higher education in economic growth. The study found a unidirectional causality running from economic growth to

higher education and no other causality running from higher education to economic growth for Pakistan during 1972–2005. Barro (2013) found that the years of schooling at the secondary and higher level for males aged 25 and over has a statistically significant positive influence on economic growth.

On the other hand, some other studies, for example, Bils and Klenow (2000), Easterly and Levine (2001), Bosworth and Collins (2003) has failed to prove a positive relationship between human capital measured by years of schooling and economic growth.

**4. Econometric Model, Data Sources and Methodology.**

***4.1. Specification of Econometric Model.*** Empirical investigation of economic growth model developed on the basis of neoclassical model, originally proposed by Solow (1956) and extended by Mankiw et al. (1992). In Mankiw et al. (1992) the human capital model is included in which, according to our hypothesis, education causes economic growth. The general form of this model can be presented as:

$$GDP_t = \alpha_0 + \alpha_1 EDU_t + \varepsilon_{1t}, \quad t = 1,2,3\ldots; \tag{1}$$

$$EDU_t = \alpha_0 + \alpha_1 GDP_t + \varepsilon_{2t}, \tag{2}$$

where $GDP_t$ – Gross Domestic Product; $EDU_t$ – Education Expenditure; $T$ – Time series; $A$ – Parameter for the explanatory variables; $E$ – Error term.

Two models with different dependent variables are used. As it can be seen in equation (1) the dependent variable is economic growth which is a proxy by the gross domestic product (GDP) and equation (2) shows Education as a dependent variable and it is a proxy by the government expenditure on education.

***4.2. Data Sources.*** Time series data covering the period of 1975 to 2013 are used in this study. Data are collected from different sources. Data on GDP and education expenditure belongs to the World Bank while data on number of students enrollment in primary, secondary and tertiary levels have been collected from school level, tertiary – from Malaysia's Department of Statistics and the UNCTAD.

***4.3. Methodology.*** For the intention to explore the relationship between education and economic growth study we will apply cointegration. Furthermore, cause-effect of each variable will be found out via causality test. As usual, these procedures are utilized in the VAR framework, out study also follows these techniques to confirm the required data analysis. Granger (1969) widely used causality test for two variables. As Granger causality approach suffers the problem of spurious result, it is necessary that all the variables are stationary.

***4.4. Test of integration.*** The unit root test utilized to confirm the level of integration I(0) or I(1) and stationarity. There are several methods of unit root which are determined by applying the Augmented Dickey-Fuller (ADF) test. This study will use two types of regressions:

$$\Delta Y = \alpha_0 + \beta Y_{t-1} + \sum_{j=1}^{p} \lambda_j \Delta Y_{t-1} + \varepsilon_t; \tag{3}$$

$$\Delta Y = \alpha_0 + \alpha_1 t + \beta Y_{t-1} + \sum_{i=1}^{p} \lambda_j \Delta Y_{t-1} + \varepsilon_t, \tag{4}$$

where $\Delta Y = Y_t - Y_{t-1}$ ; $p$ – the number of lags in the dependent variables; $\varepsilon_t$ – stochastic error term.

The stationarity of the two variables will the tested by using the following hypothesis:

H0: $\beta = 0$ ($Y_t$ is non-stationary);

H1: $\beta < 0$ ($Y_t$ is stationary).

If the calculated test statistics is less than the tabulated critical value the null hypothesis will be rejected. If the calculated test statistics is greater than the tabulated critical value the null hypothesis will not be rejected.

***4.5. Cointegration.*** After investigating the "stationarity and order of integration, the nest step is to explore the cointegration between $X_t$ and $Y_t$. The purpose to apply cointegration is to confirm the long-run relationship between $X_t$ and $Y_t$. If there is cointegration or long-run relationship between two variables" than we can apply only causality technique. This condition can be fulfilled by using Johansen and Joselius (1990) valid for two or more variables.

Johansen and Juselius (1990) introduced a max-likelihood testing criteria on the several of cointegration vectors. In this technique testing procedure for linear restriction on the cointegrated parameters is also included. The two test statistic, with the name trace statistics and eigen-value statistics are used to investigate the cointegrated vectors. If the trace test statistic proves the null hypothesis that the number of distinct cointegration relationship is $\leq$ to $\eta$ against the alternative hypothesis of $\geq$ to $\eta$ the cointegration relationship is defined as:

$$\lambda_{trace}(\eta) = -T \sum_{j=\eta+1}^{p} \ln(1-\lambda_j), \tag{5}$$

where $\lambda_j$ – eigen-value; $T$ – the total number of observations. For testing the null hypothesis of at most $\eta$ cointegrated vectors against the alternative hypothesis of $\eta + 1$ cointegrated vectors are given below:

$$\lambda_{\max} = (\eta, \eta+1) = -T \ln_{(1-\lambda\eta+1)}. \tag{6}$$

Johansen and Juselius (1990) investigated that, $\lambda_{trace}$ and $\lambda_{\max}$ statistics have non-standard distribution under the null hypothesis.

***4.6. Toda-Yamamoto Test of Granger Causality.*** The general form of Granger (1969) test of causality causes spurious regression and all the variables are must be cointegrated at the level for F-test validity. Engle and Granger (1987) introduced the error correction model (ECM), Johansen and Jesulius (1990) introduced the Vector Error Correction model. These techniques are applied as a alternative in testing for non-causality between economic time series. Toda and Yamamoto (1995) stated that these tests are not suitable for the values of nuisance parameters in finite sample since they cause unreliable results.

Toda and Yamamoto (1995) developed a new simple method for causal inference. This method is based on the augmented level of VAR and additionally with cointegrated and integrated process. There are several advantages of this method but the most prominent it is that is suitable for any order of integration. For this purpose, VAR is estimated not with its "true" lag order but with lag order of ($k + d$), where d is the maximal potential order of integration of variables. Then, Granger causality is tested by applying hypothesis tests in the VAR ignoring the additional lags $k + 1$, ..., $k + d$. Toda and Yamamoto proved that in such a case linear and non linear restric-

tions can be tested using the standard asymptotic theory. This method can avoid the low-power unit root and cointegration pre-tests and have been applied in many causality studies.

Equation (7) shows the formula for the Toda-Yamamoto Granger causality test, where $d_{max}$ is the maximum order of integration in the system, a VAR ($k + d_{max}$) will then be estimated by using the Wald test for linear restrictions on the parameters of a VAR ($k$) which has a asymptotic $\chi^2$ distribution.

$$\ln GDP_t = \phi_1 + \sum_{i=1}^{k+d\max} \beta_{1i} \ln GDP_{t-1} + \sum_{i=1}^{k+d\max} \gamma_{1i} \ln EDU_{t-1} + \mu_{1t}; \quad (7)$$

$$\ln EDU_t = \theta_1 + \sum_{i=1}^{k+d\max} \beta_{2i} \ln EDU_{t-1} + \sum_{i=1}^{k+d\max} \gamma_{2i} \ln GDP_{t-1} + \mu_{2t}, \quad (8)$$

where ln*GDP* and ln*EDU* are the natural log form of GDP and EDU; $k$ is the optimal lag order, and d is the maximal order of integration of the variables in the system and $\mu_1$ and $\mu_1$ are the error terms that are assumed to be white noise. Each variable is regressed on each other variable lagged from one (1) to the $k + d_{max}$ lags in the system.

**5. Empirical Results.** Before applying the Toda-Yamamoto no-causality test in the augmented VAR ($k + d_{max}$), there is a precondition to determine the maximal integration order ($d_{max}$) and the level of stationarity. After confirming the order of integration I(0) or I(1) the study proceeds further with cointegration and causality tests.

***5.1. Unit Root Test.*** The order of integration I(0) or I(1) and the significance level of the variables are investigated by using the Augmented Dickey-Fuller (ADF) unit root tests with both log levels and log differenced forms. The results of ADF tests show in Table 1. The results are indicates that both variables are non-stationary at level I (0) and become stationary after the first difference I(1).

*Table 1.* **ADF Tests for Unit Roots,** *authors' calculations*

| | Levels | | 1st Difference | |
|---|---|---|---|---|
| Variables | without trend | with trend | without trend | with trend |
| LnGDP | 0.987 | 0.1012 | 0.0031* | - |
| LnEDU | 0.312 | 0.2345 | 0.0098* | - |

Notes: *denoted significance at the 5% critical value level.

***5.2. Cointegration.*** The results of the Johansen max-likelihood test of cointegration for education and economic growth are reported in Tables 2 and 3 respectively. The test pattern started with $r = 0$ in Tables 2 and 3, the null hypothesis of no cointegration ($r = 0$ and $r \leq 1$)) is rejected in the favour of alternative hypothesis ($r = 1$ and $r = 2$) at the 5% significance level. The results show there is cointegration and a long-run relationship between education and GDP growth.

***5.3. Toda-Yamamoto Test of Granger Causality.*** The next step is to conduct the Y-T test using MWALD test to verify coefficients $\gamma_1$ and $\gamma_2$ of the lagged variables are significantly different from zero in equations (7) and (8). The reported results of unit root test confirmed that all the variables are stationary at the first difference I(1) meaning that $d_{max} = 1$ and lag length of VAR is $k = 3$ based on the Akaike Information Criterion (AIC). So, the VAR system will estimate at the level with the total

of $k + d_{max} = 3 + 1 = 4$ lags. The results of causality are reported in Table 4. The results show that the null hypothesis "GDP does not Granger cause EDU and EDU does not Granger cause GDP" is rejected for the sample period 1975–2013. Obviously, there is a two-way causality runing from GDP to EDU and from EDU to GDP.

*Table 2.* **Unrestricted Cointegration Rank Test (Max-Eigen values),** *authors' calculations*

| $H_0$ | $H_1$ | $\lambda_{max}$ test | $\lambda_{max}$ (5%) | Prob** |
|---|---|---|---|---|
| r = 0* | r = 1 | 27.932* | 27.308 | 0.0418 |
| r ≤ 1 | r = 2 | 21.324 | 22.671 | 0.0101 |

**Notes**: $H_0$ and $H_1$ denote the null and alternative hypotheses respectively and r denotes the number of cointegrating vectors.
* denote the rejection of null hypothesis at the 5% level; ** denote p-values.

*Table 3.* **Unrestricted Cointegration Rank Test (Trace),** *authors' calculations*

| $H_0$ | $H_1$ | Trace test | Trace (5%) | Prob** |
|---|---|---|---|---|
| r = 0* | r = 1 | 27.932* | 27.308 | 0.0039 |
| r ≤ 1 | r = 2 | 21.324 | 22.671 | 0.0314 |

**Notes**: $H_0$ and $H_1$ denote the null and alternative hypotheses respectively and r denotes the number of cointegrating vectors.
* denote the rejection of null hypothesis at the 5% level; ** denote p-values.

*Table 4.* **Toda-Yamamoto Causality Test Results (1980–2013),** *authors' calculations*

| Null Hypotheses | Lag (k) | $K + d_{max}$ | Wald Test | Conclusion |
|---|---|---|---|---|
| GDP does not Granger Cause Edu | 4 | 3+1 | 0.5412 (0.0321)* | Reject the null hypothesis |
| Edu does not Granger Cause GDP | 4 | 3+1 | 08.5098 (0.007)* | Reject the null hypothesis |

Note: in parentheses are the p values.

**6. Summary and Conclusions.** The main motivation of this paper is to explore empirically the relationship between economic growth and education between the period 1975–2013. The results of the applied cointegration techniques in the proposed study have argued there is s long-run relationship and equilibrium between GDP and education expenditures. The Toda-Yamamoto test of causality results revealed a two-way causality running from economic growth to education and from education to economic growth. The empirical results of this study are theoretically satisfactory and statistically acceptable and helpful for onward policy impaction. It is suggested based on the findings of the study that Malaysian government needs to formulate prudent and sound policies to improve the quality, level and effectiveness of education in the country. It is also recommended Malaysian government should increase expenditure on education. Improved and high-quality education will further stimulate the process of economic growth and development.

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