Achieving High Income Nation: Study on Impact of Internal and External Factors in Malaysia

Lai Wei Sieng[1]
[1]*Faculty of Economics and Management, Universiti Kebangsaan Malaysia, Malaysia*
laiws@ukm.edu.my
DOI: https://doi.org/10.37134/jcit.vol8.2.2018

Abstract

Achieving status of high income nation is the target of nation's government. Malaysia aims to achieve the status of high income nation by year 2020. In order to achieve the goal, it is crucial to identify the determinants contributing to the effort. Economists suggest that the determinant factors of economic growth consists of internal factors and external factors. This study aims to analyze the internal and external; determinants of Malaysia income growth from year 1985 to 2015. ARDL estimation is applied for this purpose. Results indicate that internal factors that contribute significantly in the long run are employee with high education and fixed capital formation while the exogenous factor is export. Internal determinants in short run is fixed capital formation while exogenous determinant is foreign direct investment. Malaysia's effort in achieving high income nations would be fruitfull given that the government give attention on both internal and external determinants.

Keywords: *high-income nation, ARDL, internal factor, external factor*

1. INTRODUCTION

Malaysia is the top middle-income country in Southeast Asia which has achieved stable economic growth compared to other regional countries. The Government of Malaysia has set targets for achieving a high income nation status by 2020. Based on the definition of the World Bank, a high-income nation is a country where the per capita Gross National Income (GNI), which is calculated, based on the Atlas method, reaching USD 12,236 or more by 2016. Figure 1 shows Malaysia's per capita GNI from 1985 to 2015. Malaysia achieved stable income growth except in year 1997 to 1999 when the Asian financial crisis exploded in July 1997; and in 2008, during the global economic crisis. Figure 1 shows Malaysia's per capita GNI approaches USD 12,000 in 2014 (USD 11,000), but falls in 2015 (USD 10,440) and continues to fall to USD 9850 in 2016. This situation illustrates the target of a high-income nation seems to be hard-earned. Hence, a precise and efficient policy based on economists' research needs to be formulated to ensure that target will be achieved.

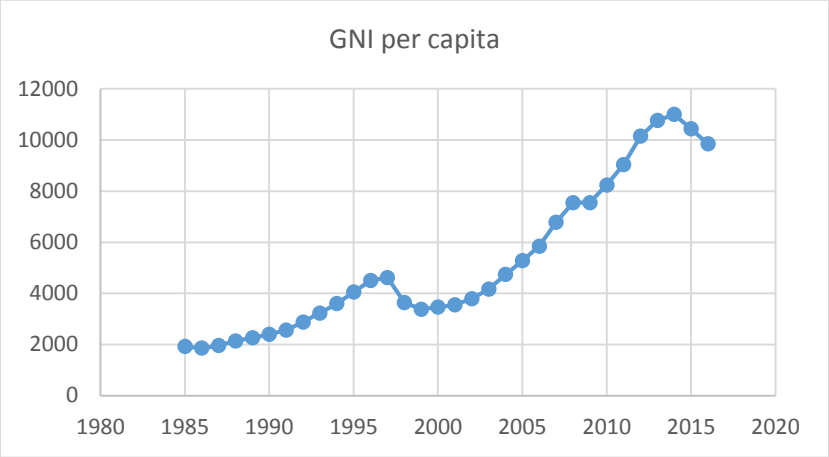

Figure 1: GNI per capita Malaysia, 1985 – 2016 (Atlas method)
Source: World Bank, 2017

The study of economic growth is based on the theory of exogenous growth and endogenous growth theory. Early studies were influenced by the neoclassical growth theory (neoclassical) led by Solow (1956) and Swan (1956). They explained that, in order to achieve positive economic growth in the long run, continuous developments in technology have to take place. The rate of technological growth is assumed to be determined by a scientific process not related to the economy, the theory is also given the name of the theory of exogenous growth, which is an external economic factor that determines economic growth. Furthermore, endogenous growth theory led by Lucas (1988) and Romer (1990) have explained that, the determinant of economic growth is actually a factor in the economic system itself rather than outside the economic system as explained by exogenous growth theory. Factors in the economic system include innovation and investment in human capital which can also be called human capital. The variables associated with a country's economic growth can often be divided into two types, namely external factors (exogenous), and the internal factors of a country. For external factors, the variables commonly associated are tourism (Bini & Masini, 2008; Cortes-Jimenez & Pulina, 2009); foreign direct investment (Agrawal & Khan, 2011) and exports (Balaguer & Jorda, 2001; Awokuse, 2002; Ozturk & Acaravci, 2011). While internal factors are investment (Raza, Sabir, & Mehboob, 2011; Ellahi & Kiani, 2011); education (Pradhan, 2009; Afzal, Farook, Ahmed, Begum, & Quddus 2010); inflation rate (Hasanov, 2010; Abdul Aziz & Marwan, 2013) and consumption expenditure (Tan, Nguyen, Le, & Ye Ye, 2015).

Hence, the objective of this study is to identify the impact of external factors, namely foreign direct investment, exports and tourism; and internal factors, namely education, physical capital, inflation rate and consumption expenditure on Malaysia's income growth from year 1985 to 2015. The organization of this study is as follows: part 2 is a study of the relevant past studies, section 3 discusses the empirical approaches applied in this study and clarifying data for variables in this study, part 4 reports the empirical results of the study and part 5 is the summary and conclusion and provide the policy recommendations.

2. LITERATURE REVIEW

Various studies have been conducted to identify the determinant factors for the growth of the Malaysian economy. The factors studied include endogenous factors and exogenous factors. Panel data analysis of Hakan, Zar, and Zehra, (2014) on 11 randomly selected Asia Pacific countries, including Malaysia from 1990 to 2010, showed fertility rates, female labor participation rate and female enrolment rate in primary education were a significant factor in the growth of per capita income. Cheam, Rosli, Hussin, & Ong, (2013) using the Johansen cointegration method (long term analysis) and Error Correction Model (ECM) for the years 1974 to 2010, concludes that physical capital, education and health capital have positive and significant relationships with Malaysia's economic growth.

Hooi, Sio, and Chee (2014) studied the impact of tourism, international trade and exchange rates on Malaysia and Singapore's economic growth. The results of their study using data from 1980 to 2009 and applying the Johansen-Julius cointegration method show that three factors play a positive and significant role on economic growth. This decision is in line with the results of the Chor and Eu (2015) study which shows that tourism have a positive impact on Malaysia's economic growth in the short and long term. Time series data from year 1975 to 2011 is adopted and Granger causality analysis method is used in this study. Another study by Pramod and Puja (2015) also shows that investment ratios, trade openness and exchange rate have a significant positive impact on economic growth. In addition, the stock market development has also have a significant positive impact on Malaysia's economic growth. Empirical studies, namely the Johansen and ECM cointegration analysis with data from 1970 to 2007 by Mori, Dullah, Lim, and Kasim (2010) concludes that consumption and export spending are an important determinant of economic growth, while foreign exchange rate plays a role as a catalyst and complementary factors to the growth of the Malaysian economy.

The study by Lam (2016) on bilateral relations between GDP and exports of four Asean countries by using the causative methods and data from 1970 to 2006 support that exports have significant bilateral relations with GDP. Lee (2009) in his study also using the causative Granger method shows that foreign direct investment contributes to Malaysia's short-term and long-term economic growth from 1970 to 2000. Fauzi, Norazrul, and Mohd Saifoul (2013) examined the impact of trade factor openness, direct foreign investment, government development expenditure and fixed capital formation on economic growth in Malaysia from 1970 to 2010 using Johansen-Julius method. Results show that openness and foreign direct investment have a significant but negative impact in the short term while government development expenditure has the strongest impact on Malaysia's economic growth.

Mahmoud and Zurina (2015) show that public investment and private investment have a positive and significant impact on Malaysia's economic growth while foreign direct investment has no significant impact. This study uses multi-regression and data from year 1994 to 2013. Furthermore, the study by Mohd Shahidan, Hafizah, and Intan Maizura (2013) using the Granger causality shows that population has a positive impact on energy consumption, while energy consumption contributes to Malaysia's economic growth from year 1991 to 2011. In addition, according to the study of Mohd Yahya, Fidlizan, and Azila (2012), GDP has a positive and significant relationship with capital formation, labor force

participation and government spending and Malaysian education. Education is also likely to lead to growth and vice versa in the short term. The important role of education as a determining factor for economic growth is supported by the study of Sayed Khusairi, Bushra, Mohd Zamzuri, and Mohd Shahrizan (2013) which states that human capital variables: school life, registration of primary education and secondary education affect the growth of the Malaysian economy.

Shabri and Salina (2015) show significant contribution of Islamic banking and financial institutions to Malaysia's economic growth in research through the ARDL method. Hock Tsen (2013) concludes that the real exchange rate could have a significant impact on Malaysia's economic growth, the devaluation will help economic growth while appreciation will slow down economic growth. Tan et al. (2015) concludes Malaysia needs to focus on domestic demand as a step to get out of the middle income trap. Most of the past studies focusing on economic growth using GDP per capita as the dependent variable. This study focus on nation's income growth using GNI per capita as dependent variable.

3. DATA AND METHODOLOGY

This study examines the determinants of gross national income growth (GNI) per capita through regression budgeting. Long-term growth regression models are as follows:

$$lnGNIP_t = \alpha + \beta_1 lnBPT_t + \beta_2 lnFDI_t + \beta_3 lnEX_t + \beta_4 lnFCF_t + \beta_5 lnFCE_t + \beta_6 lnTOU_t + \beta_7 lnINF_t + \varepsilon_t \quad (1)$$

where *ln* is natural logarithm, $GNIP_t$ is gross national income per capita, BPT_t is the number of highly educated workers, FDI_t is foreign direct investment, EX_t is the export amount, FCF_t is fixed capital formation, FCE_t is final consumption expense, TOU_t is the number of tourist arrivals, INF_t is the inflation rate and ε_t is the thermal error.

Data for BPT_t is obtained from the Department of Statistics, Malaysia while data for other variables are obtained from World Bank. The time series data in this study encompasses the period from 1985 to 2015. Natural log transformed variables give interpretation of the percentage change in the dependent variable when the independent variable increases by one percent. The description of the time series data used in this empirical study is reported in Table 1.

Table 1: Descriptive statistic

Variables	Min	Median	Maximum	Minimum	Standard Dev
GNIP	8.757	8.775	9.254	8.154	0.332
BPT	7.152	7.199	8.257	5.956	0.696
FDI	21.901	22.153	23.439	18.558	1.161
EX	25.225	25.323	26.261	23.475	0.087
FCF	25.195	25.265	26.437	23.608	0.797
FCE	24.852	24.751	26.127	23.683	0.7556
TOU	16.148	16.140	17.127	14.950	0.713
INF	0.739	0.962	1.694	-1.238	0.732

The Autoregressive Distributed Lag (ARDL) estimation method is applied for estimation of equation (1). The ARDL method is selected because it can be applied regardless of whether the independent variable is I (1) or I (0). In addition, the ARDL method is also more appropriate if the sample of the study is small (Pesaran, Shin, & Smith, 2001). This method has four steps and a test to be done. The first step is to ensure all time series data is stationary.

Therefore, the unit root test needs to be done first. Non-stationary time series data will cause false correlation problems. The unit root test applied in this study is the Augmented Dickey-Fuller (ADF) test. After the series data is confirmed stationary at I (0) or I (1), the second step is to test whether there is a cointegration between the variables through the ARDL method. The third step is to test the long-term relationship and the last step is to test the short-term relationship. Eviews 7 and Microfit 4.0 software will be applied to this study.

The error-correction version of the ARDL method of equation (1) according to Pesaran and Shin (1997) is:

$$\begin{aligned}\Delta lnGNIP_t = a_1 &+ \sum_{i=1}^{n} b_i\, lnGNIP_{t-i} + \sum_{i=0}^{n} c_i \Delta\, lnBPT_{t-i} + \sum_{i=0}^{n} d_i \Delta\, lnFDI_{t-i} + \sum_{i=0}^{n} e_i \Delta\, lnEX_{t-i} \\ &+ \sum_{i=0}^{n} f_i \Delta\, lnFCF_{t-i} + \sum_{i=0}^{n} g_i \Delta\, lnFCE_{t-i} + \sum_{i=0}^{n} h_i \Delta\, lnTOU_{t-i} + \sum_{i=0}^{n} i_i \Delta\, lnINF_{t-i} \\ &+ \gamma_1 lnGNIP_{t-1} + \gamma_2 lnBPT_{t-1} + \gamma_3 lnFDI_{t-1} + \gamma_4 lnEX_{t-1} + \gamma_5 lnFCF_{t-1} \\ &+ \gamma_6 lnFCE_{t-1} + \gamma_7 lnTOU_{t-1} + \gamma_8 lnINF_{t-1} \\ &+ \varepsilon_t \qquad (2)\end{aligned}$$

Δ is the differential symbol, coefficients *b, c, d, e, f, g, h* and *i* represent short-term dynamics, coefficients γ determine long-term relationships while $\varepsilon_t$is a white horse error. The first step in the ARDL model is to test long-term relationships between variables using the F-test. The null hypothesis for no cointegration and alternative hypothesis is:

H_0: $\gamma_1 = \gamma_2 = \gamma_3 = \gamma_4 = \gamma_5 = \gamma_6 = \gamma_7 = \gamma_8 = 0$ (no cointegration between variables)
H_1: $\gamma_1 \neq \gamma_2 \neq \gamma_3 \neq \gamma_4 \neq \gamma_5 \neq \gamma_6 \neq \gamma_7 \neq \gamma_8 \neq 0$ (cointegration exists)

Given that the F-test does not have a general distribution, critical values have been provided by Pesaran et al. (2001) for different number of dependent variables. Two critical values are given for upper critical areas and lower critical areas. If the F-statistic value obtained is higher than the upper critical area, then the null hypothesis will be rejected, i.e. there is long-term relationship between the variables.

If the F-statistic value obtained is lower than the lower critical area, then the null hypothesis cannot be rejected, i.e. there is no long-term relationship between the variables. If the F-statistic value falls between the upper and lower critical areas, then no conclusions can be made for this test.

After the existence of cointegration is confirmed, the long-term ARDL model is:

$$lnGNIP_t = a_2 + \sum_{i=1}^{n} b_i\, lnGNIP_{t-i} + \sum_{i=1}^{n} c_i\, lnBPT_{t-i} + \sum_{i=1}^{n} d_i\, lnFDI_{t-i} + \sum_{i=1}^{n} e_i\, lnEX_{t-i} + \sum_{i=1}^{n} f_i\, lnFCF_{t-i} + \sum_{i=1}^{n} g_i lnFCE_{t-i} + \sum_{i=1}^{n} h_i\, lnTOU_{t-i} + \sum_{i=1}^{n} i_i\, lnINF_{t-i} + \varepsilon_t \quad (4)$$

The Schwarz-Bayesian Criteria (SBC) is used to select the appropriate lag. The last step is to obtain the error correction term (ECM) by estimating error correction model:

$$\Delta lnGNIP_t = a_3 + \sum_{i=1}^{n} \partial_{1i}\, \Delta lnGNIP_{t-i} + \sum_{i=1}^{n} \partial_{2i} \Delta\, lnBPT_{t-i} + \sum_{i=1}^{n} \partial_{3i} \Delta\, lnFDI_{t-i} + \sum_{i=1}^{n} \partial_{4i} \Delta\, lnEX_{t-i} + \sum_{i=1}^{n} \partial_{5i} \Delta\, lnFCF_{t-i} + \sum_{i=1}^{n} \partial_{6i} \Delta\, lnFCE_{t-i} + \sum_{i=1}^{n} \partial_{7i} \Delta\, lnTOU_{t-i} + \sum_{i=1}^{n} \partial_{8i} \Delta\, lnINF_{t-i} + \delta ecm_{t-1} + \varepsilon_t \quad (18)$$

where ∂_{1i}, ∂_{2i}, ∂_{3i}, ∂_{4i}, ∂_{5i}, ∂_{6i}, ∂_{7i} and ∂_{8i} are short run dynamics moving towards equilibrium and δ is the speed of adjustment.

4. EMPIRICAL RESULT

The first step of ARDL estimation is to ensure that all the variables in the regression model are I(1) or I(0). The results of the ADF unit root test are reported in Table 2.

Table 2: ADF stationary test results

Variables	Level I(0)		First difference I(1)	
	Intercept	Intercept and trend	Intercept	Intercept and trend
$lnGNIP$	-1.175	-2.489	-4.247***	-4.400***
$lnBPT$	-1.060	-2.262	-4.976***	-5.754***
$lnFDI$	-3.670**	-4.533**	-6.175***	-6.086***
$lnEX$	-2.372	-0.418	-4.411**	-5.851***
$lnFCF$	-0.764	-1.673	-4.374**	-4.377**
$lnFCE$	-0.190	-2.042	-4.426**	-4.247**
$lnTOU$	-1.129	-2.567	-5.287***	-5.263***
$lnINF$	-4.203**	-4.027**	-5.400***	-5.736***

** and *** indicates 5% and 1% level of significance

Variables ln*FDI* and ln*INF* are stationary at I(0) and I(1) while the other variables are stationary at I(1). After all variables are confirmed to be stationary, then the second step is the cointegration test to determine the existence of long or short relationship between the variables. If the cointegration relationship does not exist, the estimation cannot be done.

According to Pesaran and Shin (1999) and Narayan (2004), lag 2 is selected as the maximum lag as data is in the form of annual. The total sample size is 31 (year 1985 to 2015),

Narayan (2004) stated that the critical value proposed by Pesaran et al. (2001) is not suitable for small sample sizes. Therefore, Narayan (2005) published a critical value table for sample size ranging from 30 to 80. Critical values for sample size 31 and number of regressor variables, k = 7 and restricted intercept and no trend cases are shown in Table 3. The F value is calculated greater than the critical value at the 10 percent level. This shows how on.

Table 3: Cointegration test result

	Critical value	
Significance level	**I(0)**	**I(1)**
1%	4.104	6.151
5%	2.815	4.445
10%	2.384	3.728
Calculated F-value: 4.078		

Table 4: Long run ARDL(1,0,0,0,0,1,0,0) model

Pemboleh ubah	Koefisien	Nilai-t
$lnBPT$	0.0745*	1.7392
	(0.0428)	
$lnFDI$	0.0383	1.1546
	(0.0332)	
$lnEX$	0.1446**	2.5309
	(0.0571)	
$lnFCF$	0.1451*	1.9757
	(0.0734)	
$lnFCE$	-0.0114	-0.1479
	(0.0770)	
$lnTOU$	0.0270	0.3520
	(0.0768)	
$lnINF$	-0.0320	-1.0420
	(0.0307)	

* and ** indicates 10% and 5% significance level respectively

The third step is the estimation of ARDL's long-term model and the results are reported in Table 4. Long term estimation indicate the coefficients of ln*BPT* and ln*FCF* are positive and significant at the 10 percent level, i.e. the number of highly educated workers and the physical capital formation has a positive and significant impact on the per capita income growth. In addition, the coefficient for ln*EX* variables is positive and significant at 5 per cent, i.e. exports have a positive and significant impact on the growth of GNI per capita. The coefficients of ln*FDI* and ln*TOU* variables are positive but not significant. This means that foreign direct investment and foreign tourist arrivals have a significant positive impact on the growth of gross national income per capita. The coefficients of the ln*FCE* and ln*INF* variables are negative but not significant, i.e. consumption spending and inflation negatively affecting the country's gross per capita income growth.

Furthermore, the results of the empirical estimation of short-term ecm models are reported in Table 5. The coefficient of ect (error-correction term) is significant at the 10 percent level and has a negative sign, which is the correct sign. For the short term, the

variable coefficient of ΔFDI is positive and significant at the 5 percent level. The coefficient for the ΔFCF variable is positive and significant at 1 percent level.

Table 5: Short run ARDL model(1,0,0,0,0,1,0,0) (model ecm)

Variable	Coefficient	*t*-value
$\Delta lnBPT$	0.0263	1.0094
	(0.0260)	
$\Delta lnFDI$	0.1351**	2.2108
	(0.0061)	
$\Delta lnEX$	0.0510	1.3867
	(0.0368)	
$\Delta lnFCF$	0.1428***	4.1038
	(0.0348)	
$\Delta lnFCE$	-0.0040	-0.1521
	(0.0264)	
$\Delta lnTOU$	0.0095	0.3695
	(0.0258)	
ΔINF	-0.0113	-1.4609
	(0.0077)	
ect	-0.3527*	-1.8610
	(0.1895)	
R^2	0.8357	
Adjusted R^2	0.7731	
F Statistic	15.2560***	

*, ** and *** indicates 10%, 5% and 1% significance level respectively

This means that foreign direct investment and physical capital formation have a positive and significant impact on the short term growth of gross per capita income.

Table 6: Diagnostic tests

Test	LM version	F version
Serial correlation	0.6947	0.4741
	(0.405)	(0.499)
Functional form	0.0675	0.0451
	(0.795)	(0.834)
Normality	0.1228	-
	(0.940)	
Heteroscedasticity	2.5332	2.5824
	(0.111)	(0.119)

p value in parenthesis

Meanwhile, the diagnostic test in Table 6 shows that this model is free from serial error correlation, functional form, normality and heteroscedasticity. In addition, the cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residuals (see Figures 2 and 3) proved that the regression model in this study was stable within a 5 percent critical value.

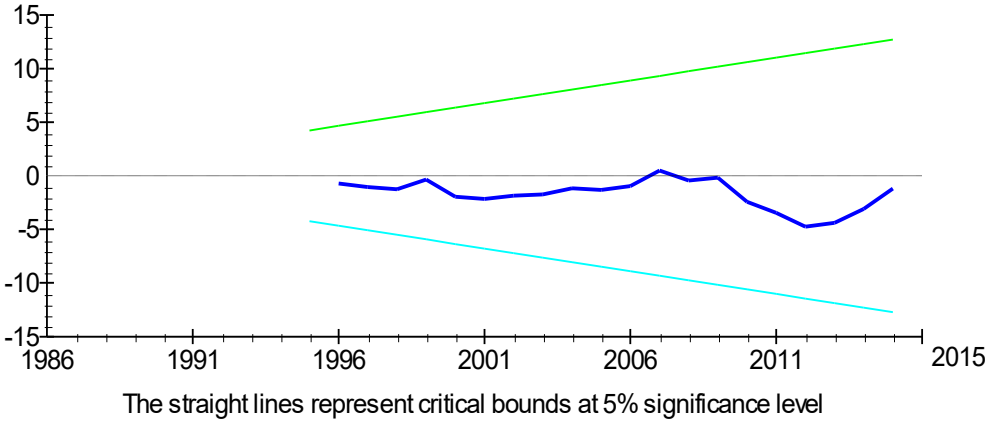

Figure 2: Graph of CUSUM

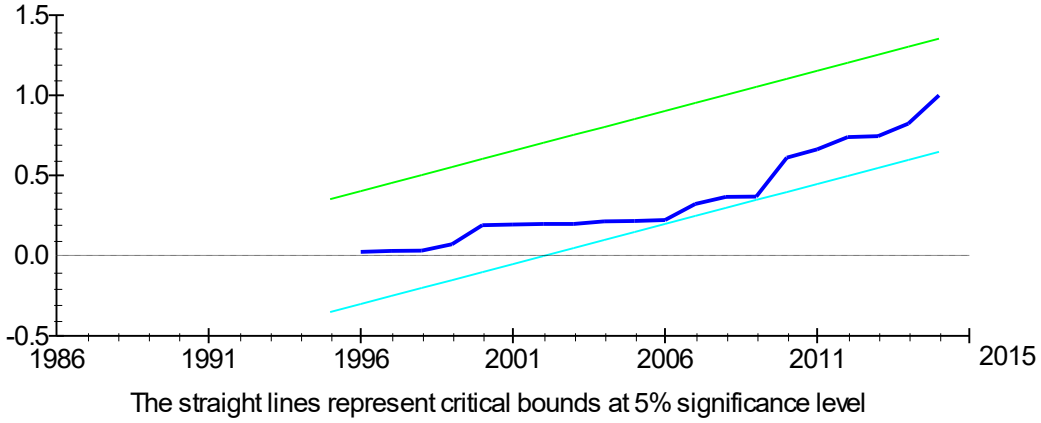

Figure 3: Graph of CUSUMSQ

5. SUMMARY AND CONCLUSION

This study applies the time series regression estimation method to identify the internal and external determinants of Malaysia nation income (GNI) growth from year 1985 to 2015. The findings show that internal factors that contribute significantly to Malaysia's long-term earnings growth are number of highly educated workers and fixed capital formation, while external factors are the number of exports. For short-term determinants, internal factors are fixed capital formation while external factors are foreign direct investments. The outcome of this study suggests important implications in developing policies to increase the country's income growth rate to achieve the target of a high income nation by 2020. Emphasis should be given to both internal and external factors, namely (1) producing more highly educated and highly skilled workers, especially at current era of 4th industrial revolution and (2) increase investments in infrastructure such as roads, railways, schools and industrial buildings. In addition, exogenous factors should also be addressed, namely

(1) establish strong external trade relations and mobilizing policies that promote export and (2) promoting the local industry to attract more foreign direct investment.

The study also found that tourism also has a positive impact on the growth of national income. Although tourism contribution is not significant, tourism is a potential industry. Policies promoting tourism in Malaysia need to be enhanced. High inflation rates will slow down the country's revenue growth; hence the control over inflation is extremely important. Consumption spending is another factor that is found to have a negative impact on the country's revenue growth. Government and household expenditure needs to be managed efficiently to avoid losses and deficits. Prompt actions are to be taken by policymakers as year 2020 is just around the corner.

REFERENCES

Abdul Aziz, F. S., & Marwan Mohammad, A. O. (2013). The effect of interest rate, inflation rate, gdp, on real economic growth rate in Jordan. *Asian Economic and Financial Review, 3(3),* 341-354.

Afzal, M., Farook, M. S., Ahmed, H. K., Begum, I., & Quddus, M. A. (2010). Relationship between school education and economic growth in Pakistan: ARDL bounds testing approach to cointegration. *Pakistan Economic and Social Review, 48(1),* 39-60.

Agrawal, G., & Khan, M. A. (2011). Impact of FDI on GDP: A comparative study of China and India. *International Journal of Business and Management, 6,* 71-79.

Awokuse, T. O. (2002). Is the export-lead growth hypothesis valid for Canada? *FREC Staff Paper 02-01.* Department of Food and Resource Economics, University of Delaware.

Balaguer, J., & Jorda, M. C. (2001). Examining the export-led growth hypothesis for Spain in the last century. *Applied Economics Letter, 8,* 681-685.

Bini, P., & Masini, R. (2008). Dacia and the Roman empire: Tourism led growth and catchingup with macro economic constrains. *CRIE Working Paper, 1/2008.*

Cheam, C. L., Rosli, M., Hussin, A., & Ong, S. C. (2013). Tourism, selected macoeconomics variables and economic growth: An econometrics of long run and short run relationship. *International Journal of Economics and Management, 7(1),* 67-83.

Chor, F. T., & Eu, C. T. (2015). Does tourism effectively stimulate Malaysia's economic growth? *Tourism Management, 46,* 158-163.

Cortes Jimenez, I., & Pulina, M. (2009). Inbound tourism matters to the regional economic growth? The cases of Spain and Italy. *International Journal of Tourism Research.*

Ellahi, N., & Kiani, A. (2011). Investigating public investment-growth nexus for Pakistan. *International Conference on E-business, Management and Economics, IPEDR, 25,* 239-244.

Fauzi, H., Norazrul, M. R., & Mohd Saifoul, Z. N. (2013). Determinants of economic growth in Malaysia. *Asian Journal of Empirical Research, 3,* 1140-1151.

Hakan, O., Zar, C. O., & Zehra, V. S. (2014). Effects of female education on economic growth : a cross country empirical study. *Educational Sciences: Theory & Practise, 15(2),* 349-357.

Hasanov, F. (2010). Relationship between inflation and economic growth in Azerbaijani economy: Is there any threshold effect? *Asian Journal of Business and Management Sciences, 1(1),* 1-11.

Hock Tsen Wong. (2013). Real exchange rate misalignment and economic growth in Malaysia. *Journal Economic Studies, 40,* 298-313.

Hooi, H. L., Sio, H. C., & Chee, W. H. (2014). Tourism and economic growth: comparing Malaysia and Singapore. *International Journal of Economics and Management, 8,* 139-157.

Lam, T. D. (2016). An empirical analysis of the ASEAN-4's causality between exports and output growth. *International Journal of Economics and Financial Issues, 6,* 497-502.

Lee, C. G. (2009). Foreign direct investment, pollution and economic growth: evidence from Malaysia. *Applied Economics, 41,* 1709-1716.

Lucas, R. E. (1988). On the mechanic of economic development. *Journal of Monetary Economics, 22, 4-42.*

M. Shabri, A. M., & Salina, H. K. (2015). Assessing the contribution of Islamic finance to economic growth: Empirical evidence from Malaysia. *Journal of Islamic Accounting and Business Research, 6,* 292-310.

Mahmoud, K. A., & Zurina, M. M. (2015). The relationship between investment and economic growth in Malaysia. *Journal of Empirical Economics, 4,* 116-126.

Mohd Shahidan, S., Hafizah, A. R., & Intan Maizura, A. R. (2013). Relationship among population, energy consumption and economic growth in Malaysia. *The International Journal of Social Sciences, 13,* 39-45.

Mohd Yahya, M. H., Fidlizan, M. F. A., & Azila, A. R. (2012). Education expenditure and economic growth: A causal analysis for Malaysia. *Journal of Economics and Sustainable Development, 3,* 71-81.

Mori, K., Dullah, M., Lim, F. Y., & Kasim, M. (2010). Determinant factors of economic growth in Malaysia: Multivariate cointegration and causality analysis. *European Journal of Economics, Finance and Administrative Sciences, 24,* 123-137.

Narayan, P. K. (2004). Reformulating critical values for the bounts F-statistics approach to cointegration analysis: An application to the tourism demand model for Fiji. *Discussion Papers, Departments of Applied Economics.* Monash University, Australia

Narayan, P. K. (2005). The saving and investment nexus for China: evidence from cointegration tests. *Applied Economics, 37, 17,* 1979-1990.

Ozturk, I., & Acaravci, A. (2010). Export led growth hypothesis: Evidence from Turkey. *Journal of Developing Areas, 44,* 245-254.

Pesaran, M.H, & Shin, Y.C. (1991). An Autoregressive Distributed Lag Modelling Appraoch to Cointegration Analysis. In S. Strom (Ed.), *Econometrics and Economy Theory in the 20th Century: The Ragnar Frisch Centennial Symposium,* Cambridge University Press, Cambridge.

Pesaran, M.H., Shin, Y.C., & Smith, R.J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, *16*, 289-326.

Pradhan, R.P. (2009). Education and economic growth in India: Using error correction modeling. *International Research Journal of Finance and Economics, 1, 139-147.*

Pramod, K. N., & Puja, P. (2015). On the linkage between stok market development and economic growth in emerging market economies. *Review of Accounting and Finance, 14,* 363-381.

Raza, S. A., Sabir, M. S., & Mehboob, F. (2011). Capital inflows and economic growth in Pakistan. *MPRA Paper No. 36790, University Library of Munich, Germany.*

Romer, P. M. (1990). Endogenous technological change. *Journal of Political Economy. 98:* S71-S102.

Sayed Khusairi, S. N., Bushra, A. H., Mohd Zamzuri, A. R., & Mohd Shahrizan, O. (2013). The relationship of education and ict determinants on nation's growth: an empirical analysis of Malaysia and muslim countries. *Journal of Human Capital Development, 6,* 115-123.

Solow, R. M. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics, 70,* 65-94.

Swan, T. W. (1956). Economic growth and capital accumulation. *Economic Record, 32(2),* 334-361.

Tan, K. G., Nguyen, Le P. A., & Ye Ye, D. (2015). Development growth models for Singapore and Malaysia: A Gweke causality analysis. *Journal of Centrum Cathedra: The Business and Economics Research Journal, 8,* 165-186.