ESTEEM Journal of Social Sciences and Humanities
Vol. 6, No. 1, 15-29, April 2022
https://ejssh.uitm.edu.my

# The Impact of Government Debt on Malaysia's Economic Growth

**Shaliza Azreen Mohd Zulkifli[1*], Izzatul Syazwani Abd Karim[2], Rozihanim Sheikh Zain[3] and Chen Jen Eem[4]**

*[1]Faculty of Business and Management, University Teknologi Mara Cawangan Arau, Malaysia*
*[2]MBSB Bank Berhad, Petaling Jaya, Selangor, Malaysia*
*[3,4]Faculty of Business and Management, University Teknologi Mara Cawangan Arau, Malaysia*
**Corresponding author: [1]shaliza@uitm.edu.my*

## ABSTRACT

**ARTICLE HISTORY**

Received:
*14 December 2021*
Accepted:
*2 March 2022*
Published:
*26 April 2022*

**KEYWORDS**

*Government Debt*
*Foreign Debt*
*Domestic Debt*
*Economic Growth*
*Trade Openness*

*The Malaysian economic situation has not been improving since the 2010 world economic crisis. The vulnerability of Malaysia government to accumulating high debt is rather worrisome. This study attempts to identify the factors affecting Malaysia's economic growth; namely foreign debt, domestic debt, labor force, trade openness and savings as independent variables and to identify the existence of a bi-directional relationship between economic growth and government debt. Annual time series data over the period from 1987 to 2017 was analyzed using the Dynamic Ordinary Least Square approach. It was found that domestic debt has a positive and significant impact on economic growth. On the other hand, foreign debt has a negative and significant effect on economic growth. Other than that, there is no existence of a bi-directional relationship between economic growth and government debt. This study provides insights for policymakers and investors about the importance of better and quality debt management. Theoretically, it provides a fresh view of the literature that will promote more empirical research in the future. Future studies should extend the current study by considering other key factors that might significantly influence the level of economic growth.*

e-ISSN 2600-7274

# 1. INTRODUCTION

For a nation to be developed, one of the common ways undertaken by the government is through debt or borrowings; also known as public debt or sovereign debt. Debt is a vital tool for a government in a country that would generate productivity and boost the economy. Government debt is defined as what a government borrows to make sure it can fund all its planned expenditures. In normal circumstances, the government will borrow money by supplying and issuing bonds or other securities. Amongst the economists, they would agree to say that certain government debt is not evil. For instance, during an economic downturn or even a recession where tax revenue decreases, money is needed by a government to save jobs and businesses. Then, a deficit is inevitable. A fiscal deficit, as scary as it may sound, is not so bad during good economic growth, is rewarded with a surplus. Hence, it balances out the government budget in the long run. According to Christen and Soguel (2019), higher debt can give an advantage to a government. They further state that when a decrease in the price of the borrowed capital is lower, then, there is the return rate in the capital markets. The government can benefit from this by issuing bonds and making investments using the gained capital on the capital market.

Why does the government borrow, one might ask? A borrowing is deemed more attractive to politicians to raise money rather than collecting more taxes. The purpose of borrowing varies from combating recession to public sector investment, war, and even political pressure since it is simply cheap to borrow. Furthermore, Daud (2016) argues that when the government debt rises to finance infrastructure investment, economic growth in a country will also increase because borrowing will help the rising of the supply side of the economy and enable higher economic growth. There will be higher tax revenues to pay back the debt if the growth is recovered, where the federal government debt accumulation gives a positive impact on the economic growth.

On the other hand, borrowing could lead a country to the bad side of government debt. For example, a competition between government bonds and corporate bonds for who can better attract investors causes interest rates to go higher. Whether the government or private sector should get more would just make one party would receive fewer investors' money than the other. But a great borrowing could create vulnerabilities as proven in the past. A country is more prone to a bad financial crisis if its debt-to-GDP ratio surpasses a certain level (Reinhart and Rogoff, 2009). A piling of debt comes without risk. The higher the debt level, the ability of borrowers to pay back is also critical. In some circumstances, defaulting is a possibility, as known to happen in a beautiful country, Greece. In 2020, its government debt-to-GDP is recorded at 205.60% (Hellenic Statistical Authority - National Statistical Service of Greece, 2021). As known to many, Greece was a troubled country due to economic mismanagement and its decision to enter Eurozone which put a strain further on the economy (Chartered Financial Analyst (CFA) Institute, 2017). Nevertheless, if a reasonable debt can be sustained by a small deficit, with the condition that GDP is increasing, accompanied by a higher level of economic growth, it is safe to take up more debt in the future.

## *1.1 Government Debt in Malaysia*

As an open economy, Malaysia is prone to a financial shock. There are two significant events that have affected Malaysian economic growth. First, Asian Financial Crisis in 1997/98 originated from a massive drop in Thai Bath value. Despite its neighboring countries' act of borrowing to salvage their economies, Malaysia remained firm in not borrowing from International Monetary Fund (IMF). Next, in 2007/08, financial chaos spread worldwide from the US to the rest of the economy. The credit crisis deepened without sign of shrinking despite

interest rate cuts and enormous liquidity injections. Based on data by World Bank, from 2009 onwards, debt is recorded as high again for Malaysia and seen to be struggling to recover from the crisis. Debt is crucial for any country to aid its development when in crisis. Even though government borrowing has been recorded since as early as 1970, a sharp increase can be seen in the 1980s with the highest amount in history at 103.4% (debt-to-GDP ratio). This is the phase where economic reform was taking place and later brought growth to Malaysia. From 1986 until 1997, there was a bearish trend in government debt where it hit only 31.9%. While a fluctuation within 9.3% is seen from 1998 to 2008, none surpass 50%. However, for more than a decade from 2009, debt has never been recorded below 50% except in 2010 (49.6%). This clearly shows Malaysia was in trouble getting back on its feet after the 2007/08 financial crisis. Then, a sudden increase of 60.7% of debt-to-GDP occurred in 2020 where the recent pandemic of Covid-19 was obviously the reason behind this. Overall, an acceptable debt-to-GDP ratio was said to be not more than 60%, but a recent event has the government to change the debt threshold to 65%. An excessive national debt can impact the stability of an economy as everything in it is connected. Hence, how fast the government can react and make decisions on its fiscal problem will determine how damage to the economy can be minimized.

### *1.2 Problem Statement*

A crucial way for a country to finance the development of its nation is by borrowing which would eventually generate productivity and boost the economy of a country. However, the increase in government debt may also lead to macroeconomic implications for the country and the occurrence of high debt can give a negative impact on the development of economic growth. Debt, if used correctly by a government would benefit the people where the standard of living can be improved. However, debt becomes bad if too much debt is being taken by a government to the point its ability to repay is questionable. As reported by Bank Negara Malaysia, as of 2021, the total debt held by the federal government amounts to RM979,814 million. The Gross Domestic Product in 2021 is reported at RM1,544,214 million which makes the debt-to-GDP ratio at 64.6%. Although the ratio is within the safe rate (65%), it should not be taken lightly as the Malaysian economic situation has been not improving since the 2010 world economic crisis.

The vulnerability of the Malaysian government accumulating high debt which has been publicly disclosed and educated is somewhere worrisome. By maintaining a sustainable economy, the government of Malaysia must execute and implement practical debt management strategies to moderate the impacts of the debt of the economy when the continuous rise in domestic and external debt of Malaysia occurs. Freeman and Webber (2009) stated that a government debt that is funded by major sectors such as education, healthcare, and nutrition should have a positive impact on economic growth. Therefore, this study is conducted to identify the factors affecting Malaysia's economic growth; namely foreign debt, domestic debt, labor force, trade openness and savings as independent variables for 30 years from 1987 to 2017. As most of the past studies focused on external (foreign) debt, domestic debt received less attention. Therefore, this variable is added to the model of this study. This study might provide insights to policymakers to remain concerned about the government debt by considering reforms to have a better and quality debt management and make it less prone to financial shocks. Also, it could aid investors as a guide in making decisions of investment. It provides a fresh view of the literature which could future researchers in their research endeavors.

## 2. LITERATURE REVIEW

### *2.1 Foreign Debt and Economic Growth*

A mix of findings has been found in numerous studies regarding external debt's impact on economic growth. Makun (2021) explained three different situations that exist in discussing external (foreign) debt and economic growth; 1) debt-overhang, 2) liquidity constraint situation, and 3) direct effect of the debt situation. The first two situations have hypotheses and theories that were used by researchers in understanding the impact of debt growth. Both suggest that a higher debt level drives down economic growth due to an increase in government borrowing. Next, the direct effect of the debt situation shows enormous foreign debt which may reduce the existing capital productivity which in turn discourages the economic (Fosu, 1996). Meanwhile, some studies use all three situations to assess the impact on economic growth, this study will focus only on the direct effect.

Kharusi and Ada (2018) revealed a negative and significant influence of external debt on economic growth in Oman from 1990 to 2015. They investigated the relationship between government external borrowing and economic growth, prompted by the continuous increase in Oman's external debt to finance its annual budget. Pegkas (2018) examined the Greek country from 1970 to 2016 where he focused on the effect of government debt and investment, private consumption, public consumption, trade openness and population growth on economic growth. He concluded there is a negative significant relationship between government debt-to-GDP and its growth. The results also indicated in the long run external, borrowing has a positive contribution to economic growth. The same result was found by Makun (2021) in Fiji between 1980 and 2018. Using the neoclassical growth framework and ARDL models, he looked for long-run linear and nonlinear associations among the variables: external debt, export and total factor productivity. As a result, in the long run, the linear measure of external debt has a negative significant effect on economic growth.

Anning et al. (2016) investigated the impact of government debt on the economic growth in Ghan, using simple Ordinary Least Squares from 1990 to 2015. They investigated the impact of government debt (both external and domestic) by testing three related models at the domestic and external levels including the general growth. It revealed a negative significant relationship between debt (domestic and external) and growth. It recommended among others that government debt borrowing should be discouraged while the revenue base is increased by encouraging tax reform programs. On the other hand, Matemilola et al. (2016) investigated the effects of public debt on the long-term economic growth of common law versus civil law countries in developing economies. The paper applied the Pooled Mean Group estimator that accounted for heterogeneity across countries by allowing the short-term coefficients to differ across countries but constrained the long-term coefficient to be identical. The results revealed that public debt lowers the long-run economic growth of common law countries, but it has insignificant effects on the long-run economic growth of civil law countries. Conversely, public debt has insignificant effects on the short-run economic growth of common law countries, but it lowered the short-run economic growth of civil law countries.

In Malaysia, Lee and Ng (2015) examined whether the public debt has contributed to the economic growth in Malaysia over the period 1991 to 2013. They also examined whether other indicators of debt burden, such as the budget deficit, budget expenditure, external debt service and government consumption, have an impact on economic growth. The results indicated that public debt over time has a negative and significant impact on GDP. Similarly, Daud et al. (2013) analyzed whether external debt contributes to Malaysia's economic growth in the long

run. By employing the Autoregressive Distributed Lag (ARDL) from 1991 to 2009, the study demonstrated the existence of a long-run relationship between external debt and GDP. In addition, the results also showed a consistent significant and positive relationship between external debt and Malaysia's economic growth for the sub-period analysis. The results substantiated the notion that the accumulation of external debt was associated with an improvement in Malaysia's economic growth up to a certain optimal point; above that level, an additional rise in external indebtedness contributed inversely to the Malaysian economy. This finding was consistent with Burhanudin et al. (2017), who found that government debt has a positive and significant effect on sustainable economic growth using the Autoregressive Distributed Lag approach from 1970 to 2015. There was also unidirectional causality running from government debt to sustainable economic growth. The findings indicated that Malaysia's government debt was an important macroeconomic element for the sustainability of economic growth in Malaysia.

### *2.2 Domestic Debt and Economic Growth*

However, fewer studies were found on domestic debt. Domestic debt is where the debtor and creditor are to be within the same country. There were a few factors discussed to determine borrowing in a country such as the economic growth itself (Castro & Martins, 2020), the value of the collateral (Calza et al., 2013), loose monetary condition (Castro & Martins, 2020) and global factors (Araujo et al., 2017). Nevertheless, Avdjieva et al. (2021) in their study on 40 countries between 1980 and 2015 found that domestic borrowing will be more attractive if external bank lending in the form of bonds was offered. The same study also proved that credit busts were more likely to occur with a lower share of interbank lending and a higher share of lending from banks to non-banks. Furthermore, the authors also stated that external debt composition is a strong predictor of domestic credit cycle performance.

Additionally, Daud (2016) analyzed data from 1970 to 2012 for Malaysia and found a positive and significant result between federal government debt (when it reached maximum level) and economic growth. The result from this study also demonstrated a long-run relationship between federal government debt and economic growth, any amount beyond that would cause a negative relationship. Moreover, a study done by Spilioti and Vamvoukas (2015), showed the results supported the existence of a statistically positive significant relationship between domestic debt and GDP growth using Greek data for about 40 years starting in 1970, taking into consideration the different levels of economic growth in Greece during the examined period. The results suggested that key independent variables such as government debt, the gross domestic per head of population, and the gross national savings represent the important determinants of the growth rate of gross domestic product. In addition, Ibrahim and Khan (2019) indicated in their research that domestic debt has a positive effect on the economic growth in Nigeria from 1981 to 2013 which was highly contributed by a reformation in its financial system.

### *2.3 Labour Force and Economic Growth*

Labour is one of the essential factors of production that contributes to economic development. Many issues have been discussed on the labor force over the decades, including its impact on economic growth (Amir et al., 2015), the importance of the female labor force, minimum wage (Maareka & Moiteaux, 2021), aging (Ribeiro, 2019), and immigrant labor (Azlor et al., 2020). According to Young (2018), a country with an increasing labor force population would help the economy to boost the productivity of its production. A study by Young (2018) examined the impact of labor force dynamics on economic growth in Nigeria from 1970 to 2015, using the newly developed bounds testing approach to co-integration. He found both have significant

positive results on short-run and long-run impacts. Similarly, Amir et al. (2015) have concentrated on the impact of an educated labor force on economic growth in Pakistan. Data on the educated labor force at a primary, secondary, tertiary and higher level is collected in Pakistan using time series data from 1973 to 2013. Human capital is generally considered a positive contributor to economic growth. Their results revealed a positive and significant impact of the labor force with secondary education on economic growth in the long run. In addition, an illiterate labor force was found to have a significant impact only in the short run. Next, based on 100 countries between 1980 and 2005, using an international panel and applying a system GMM approach, a positive and significant result was found from the labor force growth but an insignificant effect from the initial labor force (without growth) on economic growth. This study also focused on the female labor force. The author further explained that the significant result does not mean the increase in productivity itself, merely it is the increase in production due to more workers (Baerlocher et al., 2020). Therefore, noting the contribution of the labor force to an economy, this variable is included in this study.

### *2.4 Trade Openness and Economic Growth*

The impact of trade openness on economic growth has been a consistent view based on foreign economic trade openness which helps the promotion of economic growth quality. Meanwhile, neoclassical growth theory maintains the belief that trade openness also aids in a better economic growth quality through the promotion of capital formation and enhancement of resource allocation efficiency (Kong et al., 2021). According to Mohsin et al. (2021), the relationship between external debt and economic growth in the South Asian region, revealed that trade openness has a positive significant effect on the South Asia economic growth, namely Afghanistan, Bangladesh, Bhutan, India, Pakistan, Sri Lanka, Maldives, and Nepal. Their study used panel ordinary least square (OLS), fixed effect, Quantile regression, and robust output regression from 2000 to 2018 to get the meaningful result. The same result was confirmed by Malefane and Odhiambo (2018) who examined the impact of trade openness on economic growth in South Africa using the sample period from 1975 to 2014, employing the autoregressive distributed lag (ARDL) bound testing approach. Based on the long-run empirical results, this study found that trade openness has a positive and significant impact on economic growth when the ratio of total trade to GDP was used as a proxy.

Keho (2017) conducted a test on the relationship between trade openness and economic growth for Cote d'Ivoire over the period 1965 to 2014. The ARDL bounds testing approach was used to detect cointegration among the variables. It was found that trade openness has positive and significant impacts on economic growth both in the short and long run. Furthermore, this study found positive and strong complementarity between trade openness and capital formation in promoting economic growth. Morever, Kong et al. (2021) in their study investigated the relationship between trade openness and economic growth quality in China from 1994 to 2018 when the exchange rate fluctuation occurred within this period. Using the ARDL approach, this study postulated that trade openness can significantly promote the quality of economic growth in both the short and long term. On the contrary, Musila and Yiheyis (2015) have studied the effects of trade openness on the level of investment and the rate of economic growth in Kenya using annual time series data. Controlling for several factors, aggregate trade openness was found to significantly affect the level of investment in a positive manner but insignificantly affect the rate of economic growth.

### *2.5 Savings and Economic Growth*

It is common knowledge that in a bad economy, savings can help to brighten the economy. Savings can accelerate an economic recovery no matter how simple it may seem. In comparison to a country with low saving rates, those with better rates of savings showed more accelerated economic growth. Developing should prioritize good savings plans and programmes to achieve better capital accumulation which in turn it helps through investing in productive economic activity (Ribaj & Mexhuani, 2021). A study by Egoro and Obah (2017) investigated the relationship between national savings and Gross Domestic Product in Nigeria from 1990 to 2015. Based on Ordinary Least Square analysis, they indicated that national savings have a positive significant impact on the economy's growth of the nation as measured by GDP. While Jagadeesh (2015) wanted to investigate the role of savings in economic growth in Botswana and apply the Harrod –Domar growth model to the economy.

In this study, the test was based on Auto Regressive Distributed Lagged (ARDL) which checked the existence of a long-run relationship between gross domestic savings and GDP. It used the Dynamic Ordinary Least Square (DOLS) approach to identify dynamic long-run co-integration between GDP and its independent variables. Pertinent to previous findings, there was a positive significant relationship between savings and economic growth which also supported the Harrod Domar growth Model. An investigation on the relationship between saving and economic growth in 84 countries between 1970 and 2010 by Opschoor (2015) indicated that public saving has a positive significant effect on economic growth. Another study by Patra et al. (2017) further re-examined the causal nexus between savings and economic growth for India from 1950 until 1951, and from 2011 until 2012. The findings revealed a significant long-run effect of savings on real activity, that is economic growth. Both are in the pre- and post-break periods in the short and long run. Economic growth increases saving in the short run in the pre-break period.

## 3. METHOD

### *3.1 Introduction*

The study focuses on the impact of economic growth in Malaysia within a period of 30 years from 1987 to 2017. Several variables were chosen as indicators which were foreign debt, domestic debt, labor force, trade openness and savings to identify and examine the relevant factors. The data type was secondary, and it was taken from various sources such as World Development Indicators, the Central Bank of Malaysia, and the Department of Statistics Malaysia. Table 1 shows the summary of the variables, proxy and unit selected for the study.

Table 1. Summary of the Variable, Proxy and Unit

| Variable | Proxy | Unit |
|---|---|---|
| Economic growth | GDP per capita | Malaysian Ringgit (MYR) |
| Foreign debt | Total foreign debt | Malaysian Ringgit (MYR) |
| Domestic debt | Total domestic debt | Malaysian Ringgit (MYR) |
| Labour force | Labour force participation rate | Percent (%) |
| Trade openness | Sum of exports plus imports divided with GDP | Percent (%) |

### *3.2 Model of Study*

All the variables in this study were transformed into natural logarithm (ln). Hence, the model of this study is expressed as follows:

$$\ln GROWTH_t = \alpha + \beta_1 \ln FOR_t + \beta_2 \ln DOMt + \beta_3 LAB_t + \beta_4 \ln TO_t + \beta_5 \ln SAV_t + \varepsilon \quad (1)$$

where GROWTH is economic growth, FOR is foreign debt, DOM is domestic debt, LAB is labor force, TO is trade openness, SAV is savings, $\alpha$ is a constant term, $\varepsilon$ is an error term, t is year and ln is Natural Logarithm.

### *3.3 Data Analysis*

For this study to get meaningful results, a preliminary test was conducted to detect multicollinearity problems. A correlation test is a statistical measure of the degree to which changes to the value of one variable predict changes to the value of another. If all independent variables are not highly correlated, a unit root test is the next step of the analysis. A unit root test confirms whether a time series variable is non-stationary and possesses a unit root. Thus, to check whether the variables are trended or not, this study identifies the order of integration by applying and running the Augmented Dickey-Fuller (ADF) and Philips-Perrons (PP) stationary test. Once all variables are proven to be free of unit root, a cointegration test is carried out. This test allows non-stationary data to be used so that invalid or spurious results can be avoided. The aim of the cointegration test is to determine and identify whether there exists a long-run relationship among the variables in the model. The long-run estimation test is the very last test to run. Long run estimation test aims to identify the significance of the variables where the use of p-value is observed. If the variable is less than 10%, then, the result has statistically significant. If there is no significant relationship, it means the independent variable does not give an impact on the dependent variable. Finally, the Granger causality test is applied to examine the causality relationship between two variables in a time series. If the *p* values of the variable which is the dependent variable have significantly affected the value of another variable which is the independent variable, then, there is a causal relationship between the variable or vice versa. Causality can be categorized into three types of causalities: unidirectional causality, bidirectional causality and no causality in a bivariate model. Figure 1 illustrates the steps taken for the study research methodology.

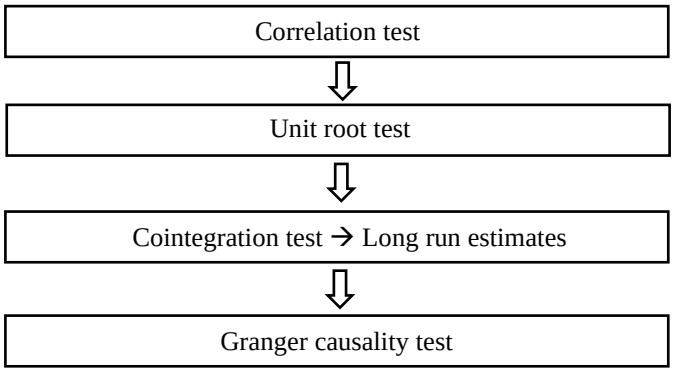


Figure 1. Steps in the Research Methodology

## 4. DATA ANALYSIS AND RESULTS

### *4.1 Correlation Analysis*

This analysis is a statistical measure that indicates which two or more variables fluctuate together. A positive correlation shows that the variables either increase or decrease in parallel and a negative correlation shows variables increase while the other decreases.

Table 2. Correlation Test

| | **GDP** | **FOR** | **DOM** | **LAB** | **TO** | **SAV** |
|---|---|---|---|---|---|---|
| GDP | 1.000000 | | | | | |
| FOR | 0.712228 | 1.000000 | | | | |
| DOM | 0.927632 | 0.724990 | 1.000000 | | | |
| LAB | 0.041834 | 0.650288 | 0.123154 | 1.000000 | | |
| TO | 0.595420 | -0.041967 | 0.360215 | -0.626606 | 1.000000 | |
| SAV | 0.975246 | 0.576178 | 0.894885 | -0.146217 | 0.694493 | 1.000000 |

As depicted in Table 2, the estimated results show that a high correlation among the independent variables does not exist. Thus, there is no multicollinearity problem. Positive correlations can be seen between foreign debt and domestic debt, foreign debt and labor force, foreign debt and savings, domestic debt and labor force, domestic debt and trade openness, domestic debt and savings, and trade openness and savings. A negative correlation relationship consists of foreign debt and trade openness, labor force and trade openness, and labor force and savings.

### *4.2 Unit Root Test/ Stationary Test*

Both ADF and PP unit root tests have the same hypothesis where the null hypothesis ($H_0$) is non-stationary and contains either unit root or trend. If the null hypothesis is rejected, then, it is said that the variable does not contain a unit root that does not contain a trend and it is stationary. The presence of unit roots was tested and the order of integration for each variable in levels, first difference and the second difference were identified. Table 3 shows the results of the Unit Root examination.

Table 3. Unit Root Test

| **Series** | **Level** | | **First Difference** | | **Second Difference** | |
|---|---|---|---|---|---|---|
| | ADF | PP | ADF | PP | ADF | PP |
| lnGDP | -2.61 | -2.61 | -4.98*** | -4.98*** | | |
| lnFOR | -1.56 | -1.63 | -5.03*** | -5.01*** | | |
| lnDOM | -1.43 | -1.61 | -4.40*** | -4.40*** | | |
| LAB | -0.78 | -0.80 | -2.32 | -5.20*** | -8.98*** | -7.63*** |
| lnTO | -1.71 | -2.34 | -4.77*** | -6.33*** | | |
| lnSAV | -1.60 | -1.65 | -4.46*** | -4.47*** | | |

*Notes: The asterisks ***, **, and * denote significance at one %, five %, and ten % level respectively.*

Table 3 shows that all variables cannot reject $H_0$ at level, I(0) but all variables are stationary at the first difference which is integrated at order one, I(1) except for LAB which is stationary at the second difference at order two, I(2). Thus, all variables have no unit roots, and it is stationary after taking the first differencing and second differencing.

### *4.3 Cointegration Test*

After identifying the stationary of the variables, a cointegration test was conducted to determine whether there exists a long-run relationship among the variables in the model of research.

Table 4. Cointegration Test

| Lc statistic | Stochastic Trends (m) | Deterministic Trends (k) | Excluded Trends (p2) | Prob.* |
|---|---|---|---|---|
| 0.481453 | 5 | 0 | 0 | >0.2 |

Table 4 shows that the computed Lc statistics 0.48 is greater than 0.2, thus, we cannot reject the $H_0$, indicating the existence of cointegration. Hence, there is a long-run equilibrium relationship between economic growth and its determinants which is supported by findings from Makun (2021), Young (2018), Daud et al. (2016) and Jagadeesh (2015).

### *4.4 Long Run Estimation*

Table 5 shows the long-run estimation results. The results indicate that the R-squared is 0.99 which means that 99% of economic growth can be explained by foreign debt, domestic debt, labor force, trade openness and savings while the remaining one percent can be explained by variables that are not included in the model. All variables are statistically significant at a 1% significance level given that p-values are less than 0.01. First, foreign debt has negative relation with coefficients of 0.08 where 1% increases in foreign debt, economic growth will decrease by 0.08% which means government consumption does not stimulate economic growth, instead consumption by the government would be a burden to economic growth. This is supported by Makum (2021), Kharusi and Ada (2018), Pegkas (2018), Anning et al. (2016) and Lee and Ng (2015). Particularly, a study by the latter was similar to this study since both were done in the Malaysian context which strengthens the findings. When foreign debt increases, economic growth will decline because government spending exceeds its revenue which leads to a shortage and the government will depend on borrowing. Thus, trade and industrial activity are reduced because of negative economic growth. The Ringgit value fall might also be a factor in the negative relationship of these variables. However, studies by Burhanudin et. al (2017) and Daud et al. (2013) showed contrary results where a positive relationship was found. Having done their study in Malaysia, the latter argued that the external borrowings positively affected economic growth through higher investment (made possible by this external borrowing). Considering the period of their study, there is a difference of 15 years compared to 30 years of this study, which contribute to contradicting result.

On another note, domestic debt, labor force, trade openness and savings have a positive relationship with economic growth. The coefficients for these variables are 0.23, 0.09, 0.5 and 0.26 respectively. The increase of each variable by 1% will increase economic growth by 0.23, 0.09, 0.5 and 0.26%. For domestic debt, this finding is supported by Ibrahim and Khan (2019), Daud (2016) and Spilioti and Vamvoukas (2015); for labor force by Young (2018), Amir et al.

(2015) and Baerlocher et al. (2020); Mohsin et al. (2021), Kong et al. (2021) Malefane and Odhiambo (2018) and Keho (2017) on trade openness; Egoro and Obah (2017), Patra et al. (2017), Jagadeesh (2015) and Opschoor (2015) on savings.

Table 5. Long-run Estimation

| **lnGDP** | **Coefficients** | **Standard Errors** | **t-Statistics** | **p-values** |
|---|---|---|---|---|
| Intercept | -6.31 | 0.70 | -9.00 | 0.0000 |
| lnFOR | -0.08 | 0.01 | -6.30 | 0.0004*** |
| lnDOM | 0.23 | 0.02 | 11.17 | 0.0000*** |
| LAB | 0.09 | 0.01 | 11.91 | 0.0000*** |
| lnTO | 0.50 | 0.07 | 7.38 | 0.0002*** |
| lnSAV | 0.26 | 0.04 | 5.78 | 0.0007*** |
| $R^2$ | 0.99 | | | |
| Hansen Instability Statistics | 0.48(p>0.2) | | | |

*Notes: The asterisks ***, ** and * denote significant at 1 %, 5 % and 10 % level respectively*

Domestic debt is as important as foreign debt. It opens many possibilities in the economy by increasing the money supply in the market. Other than using it to finance infrastructure investment, domestic debt could also increase consumption in the country leading to the rise of the supply side of the economy and enabling higher economic growth. In the case of labor force, more participation will induce a better economy. This is due to the contribution of human capital especially skilled workers by increasing productivity. However as pointed out by Baerlocher et al. (2020), the increase in labor force does not mean an increase in productivity but it is an increase in production due to the increasing number of workers. This is true if the economy fails to create a skilled job opportunity which is the key to developing and increasing productivity. The willingness of an economy to open its economic boundaries promotes good economic growth. This is because the increase in trade will result not only in the efficiency of the resources allocation such as infrastructure and technologies but also in economies of scale. But, in the case of Musila and Yiheyis (2015), their finding was not pertinent to Kenya. This is probably due to a low level of trade openness recorded by the World Bank as of the year 2020 only at 27.35% in comparison to the average world value of 82.61%. Finally, when savings increase, economic growth also increases because savings help to provide more capital which also leads to higher investment in the long-term period. Therefore, it helps to boost the economy. All findings are consistent with the findings of this study. Thus, it confirms the Harrod-Domar growth theory that explains the rate of saving or investment to determine the rate of economic growth.

To conclude, the long run estimates model where includes the coefficient value which is expressed as follows:

$$\underset{\quad}{\text{GROWTH}} = \underset{\quad}{-6.31} \underset{(-6.30)}{- 0.08\text{FOR}^{***}} \underset{(11.17)}{+ 0.23\text{DOM}^{***}} \underset{(11.91)}{+ 0.09\text{LAB}^{***}} \underset{(7.38)}{+ 0.50\text{TO}^{***}} \underset{(5.78)}{+ 0.26\text{SAV}^{***}} \quad (2)$$

The model above shows all variables consist of domestic debt, labor force, trade openness and savings which are positive and significant at one percent level, excluding foreign debt which is negative and significant at one percent level.

### *4.5 Granger-Causality Test*

The Granger-Causality test is conducted to investigate causality between two variables in a time series. Thus, this test is conducted to identify the existence of a bi-directional relationship between economic growth and government debt.

Table 6. Granger Causality Test

| Null Hypothesis | F-Statistic | Probability |
|---|---|---|
| GDP does not Granger cause FOR | 0.37618 | 0.6906 |
| FOR does not Granger cause GDP | 0.65817 | 0.5273 |
| GDP does not Granger cause DOM | 1.80137 | 0.1876 |
| DOM does not Granger cause GDP | 0.05319 | 0.9483 |

Based on Table 6 above, all variables have a *p*-value that is greater than 0.05. Thus, it failed to reject the null hypothesis where GDP does not Granger cause foreign debt and domestic debt. Therefore, this study has identified there is only unidirectional Granger causality from foreign debt on economic growth and domestic debt towards economic growth and there is no existence of a bi-directional relationship between economic growth and government debt.

## 5. CONCLUSION

The study examines the relationship between economic growth with several macroeconomics variables from 1987 to 2017. The data set employed in the study comprises the annual observation of economic growth, foreign debt, domestic debt, labor force, trade openness, and savings. The estimated results show all variables have a positive significance on economic growth, but foreign debt has a significant and negative effect. This study also found no existence of a bi-directional relationship between economic growth and government debt. To conclude, all variables are significant in explaining Malaysia's economic growth. Future researchers are advised to include more independent variables as possible to avoid the biases of results, especially for government debt such as government expenditure, tax revenue and foreign direct investment. In addition, a panel data study that includes countries such as Thailand, Singapore, Indonesia, Japan, or other developing and developed countries could be investigated due to different economic circumstances.

## ACKNOWLEDGEMENTS

The authors would like to thank the World Bank Development Indicator, Bank Negara Malaysia, and the Department of Statistics Malaysia for providing free and useful data.

## AUTHOR CONTRIBUTION STATEMENT

RSZ and CJE wrote the introduction and literature review sections. SAMZ and ISAK wrote the methodology section, collected data, and performed the data analysis using the DOLS regression technique. SAMZ and ISAK also wrote the data analysis, findings, and conclusion sections. All authors read and approved the final manuscript.

## DECLARATION OF CONFLICTING INTERESTS

The author declares that she has no conflict of interest.

## FUNDING

The author received no financial support for this article's research, authorship, and/or publication.

## REFERENCES

Avdjieva, S., Bindera, S., & Sousa, R. (2021). External debt composition and domestic credit cycles. *Journal of International* Money and *Finance*, 115.

Amir, H., Khan, M., & Bilal, K. (2015). Impact of educated labor force on economic growth of Pakistan: A human capital perspective. *European Online Journal of Natural and Social Sciences,* 4(4), 814-831.

Anning, L., Ofori, C. F., & Affum, E. K. (2015). The Impact of Government Debt on the Economic Growth of Ghana: A Time Series Analysis from 1990-2015. *International Journal of Innovation and Economic Development,* 2(5), 31–39.

Araujo, J., David, A., van Hombeeck, C., & Papageorgiou, C. (2017) Joining the club? Procyclicality of private capital inflows in lower income developing economies. *Journal of International Money and Finance*, 70, 157–182.

Azlor, L., Damm, A. P., & Schultz-Nielsen, M. L. (2020). Local labour demand and immigrant employment. *Labour Economics*, 63

Baerlocher, D., Parente, S. L., & Rios-Neto, E. (2021). Female Labor Force Participation and economic growth: Accounting for the gender bonus. *Economics Letters,*200.

Bank Negara Malaysia. (2022). *Monthly Highlights and Statistics in January 2022.* https://www.bnm.gov.my/-/monthly-highlights-and-statistics-in-january-2022

Burhanudin, M. D. A., Muda, R., Nathan, S. B. S., & Arshad, R. (2017). Real effects of government debt on sustainable economic growth in Malaysia. *Journal of International Studies,* 10(3), 161–172.

Calza, A., Monacelli, T., & Stracca, L. (2013). Housing Finance and Monetary Policy. *Journal of the European Economic Association*, 11, (1), 101–122.

Castro, V., & Martins, R. (2020). The collapse of credit booms: A competing risks analysis. *Journal of Economic Studies,* 47 (6), 1437-1465.

Chartered Financial Analyst Institute. (2017, July 27). *The Greek Financial Crisis.* https://www.econcrises.org/2017/07/20/the-greek-financial-crisis-2009-2016/

Christen, R., Soguel, N.C. (2019). How can states benefit from the equity premium puzzle? Debt as revenue source for Swiss cantons. *Swiss J Economics Statistics*, 155(4).

Daud, S. N. M. (2016). The real effect of government debt: Evidence from the Malaysian economy. *Journal of Economic Cooperation and Development,* 37(3), 57–86.

Daud, S. N. M., Ahmad, A. H., & Azman-Saini, W. N. W. (2013). Does external debt contribute to Malaysia economic growth? *Economic Research-Ekonomska Istraživanja,* 26(2), 51–68.

Egoro A. S., & Obah, O. D. (2017). Impact of national savings on economic growth in Nigeria (1990- 2015). *IIARD International Journal of Economics and Business Management,* 3(4), 28–60.

Fosu, A.K. (1996). The impact of external debt on economic growth in Sub-Saharan Africa. *Journal of Economic Development,* 21 (1), 93-118.

Freeman, S. P., & Webber, D. J. (2009). Basic Needs, Government Debt and Economic Growth. *The World Economy.* 32(6), 965-994.

Hellenic Statistical Authority. (2021) *Greece in Figures: April – June 2021*. Statistical Information and Publication Division. https://www.statistics.gr/documents/20181/1515741/GreeceInFigures_2021Q2_EN.pdf/f91d0629-ec88-f4ee-00c4-325a3710ee7b

Ibrahim, A. K., & Khan, S. M. (2019). Domestic debt and economic growth in Nigeria: An ARDL bounds test approach. *Economics and Business,* 33(1), 50-68.

Jagadeesh, D. (2015). The impact of savings in economic growth: An empirical study based on Botswana. *International Journal of Research in Business Studies and Management,* 2(9), 10–21.

Keho, Y. (2017). The impact of trade openness on economic growth: The case of Cote d'Ivoire. *Cogent Economics and Finance,* 5(1), 1–14.

Kharusi, S. Al, & Ada, M. S. (2018). External debt and economic growth: The case of emerging economy. *Journal of Economic Integration,* 33(1), 1141–1157.

Kindreich, A. (2017). The Greek financial crisis (2009–2016). *CFA Institute Journal Review.*

Kong, Q., Peng, D., Ni, Y., Jiang, X., & Wang, Z. (2021). Trade openness and economic growth quality of China: Empirical analysis using ARDL model. *Finance Research Letters*, 38.

Lee, S.-P., & Ng, Y.-L. (2015). Public debt and economic growth In Malaysia. *Asian Economic and Financial Review*, 5(1), 119–126.

Lehar, H., Anas, Y., & Choo, T. H (2014). Malaysian Economy. Malaysia; Oxford Fajar Sdn. Bhd.

Makun, K. (2021). External debt and economic growth in Pacific Island countries: A linear and nonlinear analysis of Fiji Islands. *The Journal of Economic Asymmetries.* 23.

Malefane, M. R., & Odhiambo, N. M. (2018). Impact of Trade Openness on Economic Growth: Empirical Evidence from South Africa. *International Economics,* 71(4), 387-416

Maarek, P., & Moiteaux, E. (2021). Polarization, employment and the minimum wage: Evidence from European local labor markets. *Labour Economics,* 73.

Matemilola, B. T., Rajabi, E., Bany-Ariffin, A. N., & Azman-Saini, W. N. W. (2016). Does country legal origin influence impact of public debt on economic growth of developing countries? *International Journal of Economics and Management,* 10(2), 241–260.

Ministry of Finance Malaysia. (2021, March 21). Government's Temporary Debt Increase Due To Helping Rakyat & Businesses: Fiscal Discipline And Consolidation To Follow Once Economy Recovers. https://www.mof.gov.my/portal/en/news/press-release/government-s-temporary-debt-increase-due-to-helping-rakyat-businesses-fiscal-discipline-and-consolidation-to-follow-once-economy-recovers

Musila, J. W., & Yiheyis, Z. (2015). The impact of trade openness on growth: The case of Kenya. *Journal of Policy Modeling,* 37(2), 342–354.

Mohsin, M., Ullah, H., Iqbal, N., Iqbal, W., & Taghizadeh-Hesary, F. (2021). How external debt led to economic growth in South Asia: A policy perspective analysis from quantile regression. *Economic Analysis and Policy,* 72, 423-437.

Opschoor, S. J. A. (2015). *The effects of saving on economic growth does more saving lead to more growth?* (Dissertation). Erasmus University Rotterdam. Netherlands.

Patra, S. K., Murthy, D. S., Kuruva, M. B., & Mohanty, A. (2017). Revisiting the causal nexus between savings and economic growth in India: An empirical analysis. *EconomiA,* 18(3), 380-391.

Pegkas, P. (2018). The effect of government debt and other determinants on economic growth: The Greek experience. *Economies, 6*(1), 10.

Ribeiro, M.P. (2020). Labour force ageing and productivity growth. *Applied Economics Letters*, 27(6), 498-502.

Reinhart, C., & Rogoff, K. (2009). This time is different. Eight centuries of financial folly, Princeton University.

Press. Semančíková, J. (2016). Trade, trade openness and macroeconomic performance. *Procedia - Social and Behavioral Sciences,* 220, 407–416.

Singh, T. (2010). Does domestic saving cause economic growth? A time-series evidence from India. *Journal of Policy Modeling*, 32(2), 231–253.

Spilioti, S., & Vamvoukas, G. (2015). The impact of government debt on economic growth: An empirical investigation of the Lebanese market. *International Journal of Euro-Mediterranean Studies*, 10(1), 23–41.

Young, A. O. (2018). Impact of labour force dynamics on economic growth in Nigeria: An empirical analysis using ARDL bound testing approach. *Journal of Resources Development and Management*, 42, 31-46.

## AUTHOR BIOGRAPHIES

**Shaliza Azreen Mohd Zulkifli (MBA., B.A.)** is a Senior Lecturer of economics at Universiti Teknologi Mara Arau Branch, Perlis, Malaysia. She has co-authored 12 academic publications including on monetary economics, macroeconomics, environmental economics and finance (capital structure and bankruptcy). Her current research interests are Monetary Economics, Environmental Economics and Sustainable Economics.

**Izzatul Syazwani Abd Karim (MBA., B.A.)** is a former student at Universiti Teknologi Mara Shah Alam, Selangor, Malaysia. She successfully graduated with Master in Business Administration. Currently, she is employed by MBSB Bank as a trainee under Graduate Employability Programme in CCRIS department. This is her first academic publication.

**Rozihanim Sheikh Zain (M.Sc., B.Sc.)** is a Senior Lecturer of finance at Universiti Teknologi Mara Arau Branch, Perlis, Malaysia. She has 14 academic publications in finance and economics. Her research interest is in the liquidity performances of a company.

**Jen-Eem Chen (Ph.D., M.Sc., B.A.)** is a Senior Lecturer of economics at Universiti Teknologi Mara Perlis Branch, Arau Campus, Malaysia. She served as principal investigator in national and international research grants. Her research works have been published in refereed journals. She was also appointed as a reviewer for international journal and conference proceeding papers. Her areas of interest include Development Economics, Environmental Economics, International Economics, and Time Series Data.