THE IMPACT OF GOVERNMENT DEBT ON ECONOMIC GROWTH IN MALAYSIA

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APRIL 2022

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A final year project submitted in partial fulfillment of the requirement for the degree of

BACHELOR OF FINANCE (HONS)

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF BUSINESS AND FINANCE
DEPARTMENT OF FINANCE

APRIL 2022

DECLARATION

We hereby declare that:

(1) This undergraduate FYP is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this FYP has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the FYP.

(4) The word count of this research report is 10299 words   .

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Date: 7 APRIL 2022

ACKNOWLEDGEMENT

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LIST OF ABBREVIATIONS

BGD   Budget Deficit

BNM   Bank Negara Malaysia

BOP   Balance of Payments

DV   Dependent Variable

EM   Expectation-maximization

EXDT   External Debt

GDP   Gross Domestic Product

GEXP   Government Expenditure

HAC   Newey-West method

IV   Independent Variables

OLS   Ordinary Least Squares

RGDP   Real Gross Domestic Product

RM   Ringgit Malaysia

USD   United States Dollar

VIF   Variance Inflation Factors

ABSTRACT

The COVID-19 pandemic has affected the economy of Malaysia since any type of movement control order is still implemented by the government, and it caused most businesses and companies to be forced to suspend operations, which caused the economy to decline. Before the pandemic, the significant rise in public debt in recent years was partly owing to the current government's goal of making Malaysia a high-income and developed country by 2020. In 2021, the Malaysian government decided to lift the government debt ceiling from 60 percent to 65 percent and asked for agreement from Malaysia's Parliament, in order to raise funds for improving economic growth during the pandemic period. Even though the amount of public debt Malaysia owes is still judged as reasonable, it may impede the growth and achievement of the targets of economic reform in Malaysia. The uncertainties regarding national debt service obligations discourage people from seeking economic change in Malaysia.

This research investigates the relationship between government debt and economic growth in Malaysia using quarterly observations from 2010Q1 to 2019Q4. The dependent variable is the Real Gross Domestic Product (GDP) of Malaysia, while the independent variables include budget deficit, government expenditure, and external debt. In order to fulfill the research objective, an ordinary least-square (OLS) model will be applied to determine the relationship between government debt and economic growth. The results show the negative impacts of the budget deficit and external debt on the Real GDP, while government expenditure has a positive impact on the real GDP. The findings determine that huge government expenditure could lead to higher economic growth but not spending greater than government revenue, as a deficit leads to economic contraction. Higher external debt also negatively affects economic growth as well. In addition, the Newey-West Method is used to solve the autocorrelation issue in the model. The Malaysian government should control the usage of funds wisely, including tax revenue and internal debt, and provide more subsidies and initiatives for Malaysians to empower people and stimulate the economy.

CHAPTER 1: RESEARCH OVERVIEW

1.1 Research Background

In general, government debt, also called public debt, national debt, or sovereign debt in public finance, is the total level of debt owed to lenders by a country's government or state. Government debt can be separated into two categories, which are internal debts and external debts. Internal debt is known as debt borrowed by the country's citizens, while external debt is known as debt that is borrowed from foreign creditors. The government's budget deficit is a variable that indicates the change between government revenues and expenses over the span of a single year. A broad definition of government debt would include all government debt and all legally binding contracts for goods and services, including domestically and internationally. An example of government debt will be current pension accounts (Mckinney, 2013).
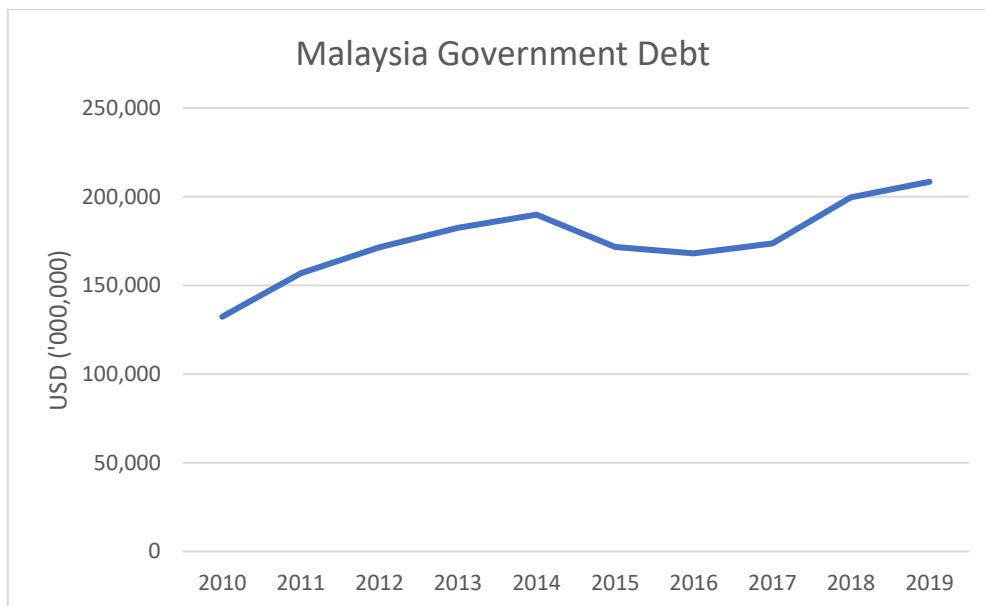
Figure 1.1.1: Malaysia Government Debt (USD)

According to Figure 1.1.1, the graph shows the upward trend since 2010 which is not a good situation for Malaysia. There is continuous increase from 2010 to 2014 and 2016 to 2019. However, there is slight decrease from 2014 to 2016.

Malaysia's government debt was RM864 billions in 2019 (USD208,435 million), rises RM36,787 million from the previous year. Overall, Malaysia Government debt has increased from 132,000 million to 208,000 million USD which is about 554,000 million to 873,000 million Ringgit Malaysia. It shows that Malaysia government debt has been increasing dramatically since 2010 to 2019.
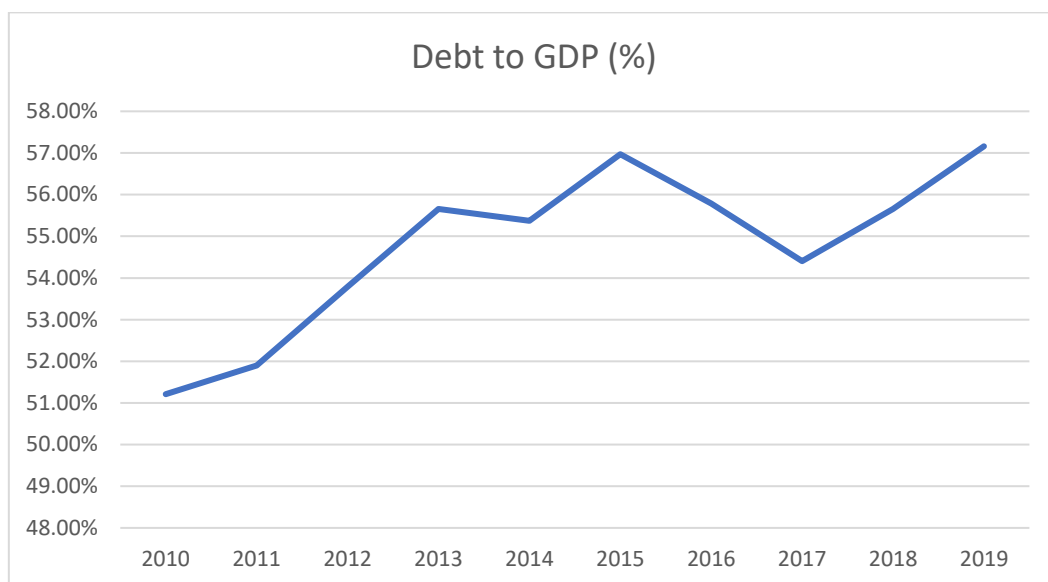
Figure 1.1.2: Malaysia Debt to GDP (%)

According to Figure 1.1.2, the graph shows the upward trend since 2010 which is not a good situation for Malaysia. There is continuous increase from 2010 to 2014 and 2016 to 2019. However, there is slight decrease from 2014 to 2016. The figure indicates that Malaysia's debt reached 57.16 percent of GDP in 2019, increased by 1.5 percentage points from 55.66 percent in 2018. It has escalated since 2010, when it was RM427 billions (USD132,346 million) in terms of government debt. Overall, Malaysia Government debt has increased from 132,000 million to 208,000 million USD which is about 554,000 million to 873,000 million Ringgits.
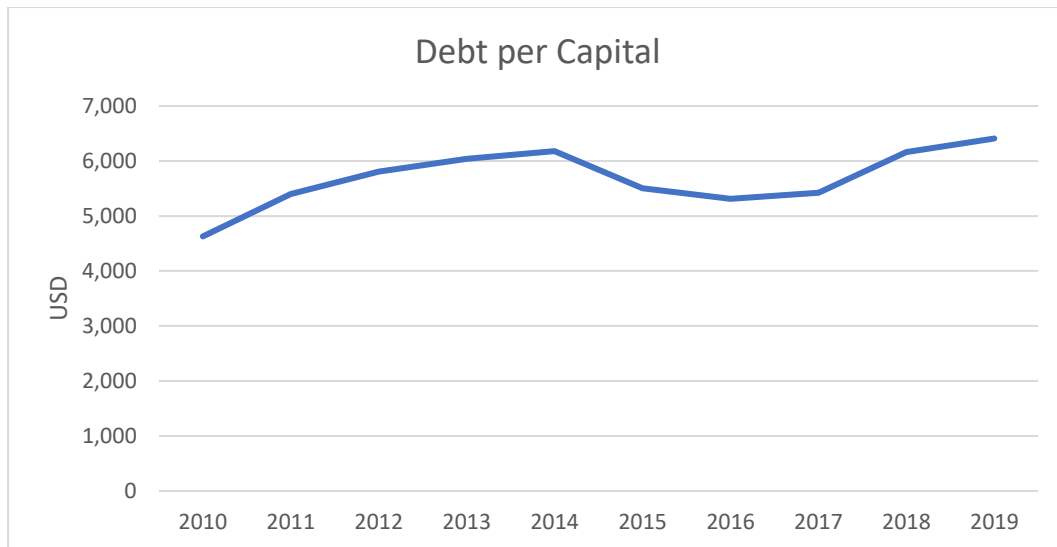
Figure 1.1.3: Debt per Capital (USD)

According to Figure 1.1.3, The graph at right side shows the debt per capital which is the debt owned by every Malaysian. It is calculated by dividing the total debt by total population. Similarly, it shows upward trend since 2010. Malaysia's per capita debt was around RM25,575 ($6,613) in 2018. In 2019, it was around RM26,596 ($6,409) per capita as a result of increase by RM1,020. If return back to 2010, the debt per capita was only RM19,214 ($4,629). From the trend, it may be expected that the government debt of Malaysia will be higher which will burden the Malaysian in long term. Overall, from 2010 to 2019, every Malaysian has to bear 4,600 to 6,400 USD dollar which converting to Ringgit Malaysia at about RM19,000 to RM26,000. This has risen Malaysian worries as their debt is getting higher.
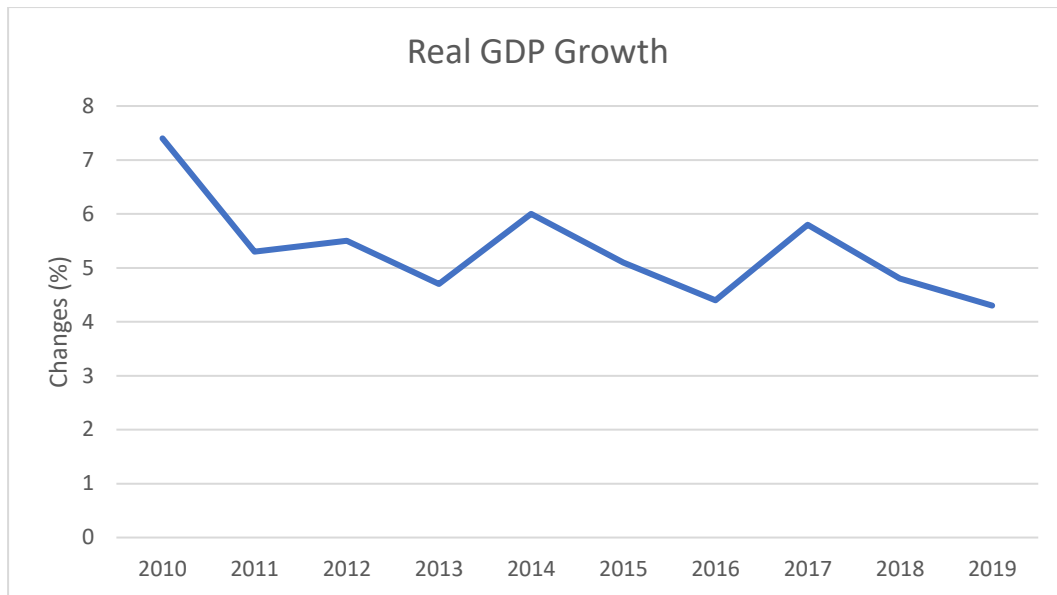
Figure 1.1.4: Real GDP Growth Data (2010-2019)

According to Figure 1.1.4, from 2010 to 2019, Malaysia GDP growth has been declining from 7.5% to 4.3%. It is clear that Malaysia is performing not very well through these 10 years. At the same time, Malaysia has been experiencing budget deficit through the 10 years from 2010 to 2019. So, Malaysia has to borrow more money to develop the more projects and activities to boost the economy. For instance, infrastructure and education.

1.2 Research Problem

Malaysia, a developing nation, has a long history of budgetary difficulties. In order to stimulate economic growth, Malaysia's government may obtain funds from local and international markets to support government expenditure and domestic investment. However, Malaysia would suffer if growing debt had a negative impact on economic growth. The previous borrowing accumulated will become a burden for the current government, and the debt includes both foreign and domestic liabilities (Lee & Ng, 2015).

According to Hashim, Ramli, Jalil, and Hashim (2019), interest rates will go up when the budget deficit grows since treasury institutions compete for the

money to cover the budget. At the same time, high borrowing rates are likely to arise, which will take away from private investment expenditure. Thus, this phenomenon is called the "crowding out effect." This will classify it as a continuous budget deficit when it is ongoing in an economy. It is critical to examine the budget deficit's behaviour and determine if it has a substantial impact on the economy, particularly in terms of national savings.

In addition, the COVID-19 pandemic has affected the economy of Malaysia since any type of movement control order is still implemented by the government and it caused most businesses and companies to be forced to suspend operations, which caused the economy to decline. Before the pandemic, the significant rise in public debt in recent years was partly owing to the current government's goal of making Malaysia a high-income and developed country by 2020. Even though the amount of public debt Malaysia owes is still judged as reasonable, it may impede the growth and achievement of the targets of economic reform in Malaysia. The uncertainties regarding national debt service obligations discourage people from seeking economic change in Malaysia (Lee & Ng, 2015).
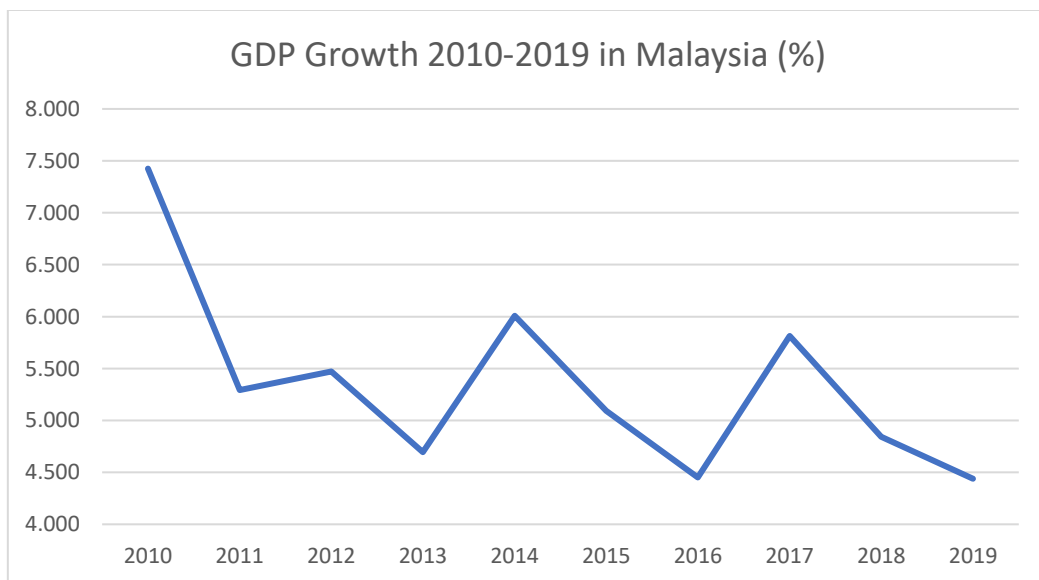
Figure 1.2.1: Malaysia GDP from 2010 to 2019

Figure 1.2.1 shows a fluctuation of GDP from 2010 to 2019 from World Bank website, which means it could be affected by other issues or factors but not the public debt alone, so the public debt may not directly affect Malaysia's GDP.

Besides, except for the years of 1993 to 1997, Malaysia has run a fiscal deficit since 1957, when Malaysia gained independence, and this has resulted in a large stock of borrowing for the government. According to Daud and Podivinsky (2015), the total federal government debt of Malaysia was RM455,745 million at the end of 2011, which is equal to 53.8% of GDP. It raised the issue of whether economic development has been supported by the debt. The impact of public debt on the economy may be beneficial or detrimental. It is based on how much debt the government has and why the government took out that debt (Rahman, Ismail, & Ridzuan, 2019).

Additionally, the total of Malaysian government expenditure in 2020 was RM314.7 billion, up from the initial estimation of the budget amounting to RM297 billion due to the crisis of the COVID-19 pandemic (Zainul, 2020). Higher expenditure may cause a negative relationship in economic growth for the nation's government. Hasnul (2015) stated that if an increase in government spending leads to more taxes or borrowing, then higher interest payments will result. Thus, government expenditure may fail to accomplish the goal of increasing economic development in Malaysia.

Besides, Malaysia has shown an increase in total outstanding external debt as an open economy with an efficient debt management strategy. While the debt can be used to invest in the country's local development, it can also stimulate long-term economic growth. It shows Malaysia's debt situation is sustainable. However, investors may question their decision to invest in a country that has a lot of external debt because the debt has not been used to help with investment or development (Dauda, Ahmad, and Azman-Saini, 2013).

On the other hand, Haris and Mohammad (2015) claimed that, because excessive debt has been linked to the quality of life, business cycle, and economic stability, and may endanger them, policymakers must study the relationship between government debt and productivity growth when developing economic policies. In the Malaysian economy, the macroeconomic impacts of government debt increases are widely undefined. Under a shroud of rising government debt, it is difficult to determine the true state of the global economy and ensure that fiscal

policies in countries are sustainable. The role of government debt in economic development has grown to be critical, even more so now that policymakers are confronted with growing fiscal imbalances.

As a result, Daud (2016) stated that the growing stock of government debt has aroused worries and raised the issue of whether a nation with such high levels of debt can still be considered sustainable. Additionally, in the case of sovereign debt crises, this issue may pose a danger to the economy of countries, particularly the banking sectors. Therefore, this scenario has raised interest rates and brought attention to the long-term consequences of policy decisions for the country's government debt status. A true image of the public debt situation in Malaysia is essential for policy formation as well as investors who are willing to strategically plan their investments. In view of the research process in developed countries, it is possible to analyse Malaysia's government debt situation as Malaysia faces high risks of fragility and unpredictability.

1.3 Research Objective

- To investigate the relationship between government debt (budget deficit, government expenditure, external debt) and economic growth of Malaysia.

1.4 Research Question

- How the government debt (budget deficit, government expenditure, external debt) related to the economic growth of Malaysia?

1.5 Research Significance

1.5.0 Introduction

The impact of government debt on Malaysian economic growth will be the focus of this study. The purpose of this study is to examine the components of Malaysia's government debt as an independent variable (government expenditure, budget deficit and external debt) and their impact on the country's GDP growth. The idea to conduct this study is due to our government debt burden keep rising up to trillions and arise in public fear towards the economic growth in Malaysia. Thus, by conducting the research will clarify the roles of government debt in stimulating a country's economic growth. This study will have findings that may provide a more accurate explanation of the relationship between government debt and the country's economic development.

1.5.1 Educational Institutions

The study is important in providing data analysis for every individual component of government debt and becoming a useful reference for other researchers who study in relevant field. The outcomes of the study may help people gain a better and more manageable knowledge of any subject and its fundamentals. It will come across new questions and conduct literature evaluations to find answers to those research gaps. Researchers will be able to learn theories in any subject using these (Kapur, 2018). Our study contains detailed and solid facts with plenty literature reviews, that might be useful for individuals who intend to study the matter of government debt and its economic roles.

1.5.2 Policymakers

Our research could be used by Malaysian policymakers to carefully plan their fiscal policy measures, taking into account the impact of excessive government debt on the country's economic growth. Our study conducted may also serve a role in informing policy begins by defining the outline of a problem, identify the critical problem in the problem statement. Our study mainly focusing on investigation in relationship of specific individual component of government debt and economic growth. Thus, our findings will provide a clear explanation and conclusion with statistical analysis conducted. The findings may assist other researchers in providing advice to policymakers. It aids the policymakers in estimating the costs and consequences of policy proposals.

CHAPTER 2: LITERATURE REVIEW

2.1 Economic Growth

The rise in the production of goods and services from one period to the next is called economic growth. Gross National Product (GNP) or Gross Domestic Product (GDP) have traditionally been used to measure aggregate economic growth. As long as capital depreciation as a percentage of GDP remained relatively constant across time, GDP was an appropriate measure of economic growth (Spant, 2003). GDP growth is the official metric of economic growth which are essential to making the decision about macroeconomic policy (Hu & Yao, 2021). Moreover, economic growth is measured in terms of physical capital, human capital, the labour force, and technology. Simply defined, increasing the quantity or quality of employees, the equipment available to them, and the techniques for mixing manpower, capital, and basic materials will lead to higher economic output.

Economic growth may be improved in a multitude of methods. First and foremost, labour productivity improves as the amount of capital in the economy is increases. With better and more inventive tools, workers can produce more output in less time. The capital could be used to purchase technological advancements to generate economic growth. With improved technology, employees can produce more output effectively, efficiently, and productively with the same quantity of capital goods. The development of new technology, goods, and processes can boost economic growth (Hanushek & Woessmann, 2020). Broadening the labour force is another strategy to accelerate economic growth. When other factors stayed ceteris paribus, more labour generated more goods and services. Most technological innovations that might increase labour productivity require the use of more capital per laborer or more innovative equipment and mechanical power (Kaldor, 1957).

Furthermore, a rise in human capital indicates workers' skill capacities and productivity growth as a result of skill training. Education and good health can boost economic growth by producing a more productive workforce (Ogundari & Awokuse, 2018). The rate of economic growth is determined by the characteristics of its technology for generating products and services, as well as the characteristics of its "technology" for developing human capital (Helpman, 2004). The lack of innovative technologies will cause economic growth to slow down (Nakamura et al., 2019). If a country has advanced technology for making goods and services and good skill training to help people become more skilled, its economy will grow faster.

2.2 Government Expenditure

2.2.0 Background

Government expenditure can be defined as money spent by the public sector to purchase goods and services which include public consumption and investment and transfer payment. For instance, education, health, national defense and so on. The formulation of government debt is due to government expenditure exceeding government revenue and the accumulated amount of borrowing. The government

will borrow funds to spend. This will cause the increase of the government debt and put pressure on the future generation's debt burden. High public debt can also limit an ability of country to implement anti-circular measures, thereby slowing growth of economy.

Increased government spending leads to increased aggregate demand, which can lead to higher growth in the short term, but also to inflation. Government spending also affects the supply to the economy. For instance, when they spend more in infrastructure segments, this will improve productivity of operation and grow the aggregate supply (Pettinger, 2019). The government will spend money on various segments. One of the segments is education and training. Government spending can increase the labor productivity. When the labor productivity is increased, it will achieve higher long-term economic growth. The result might be more remarkable when the government successfully targets skills and education. Other than that, the government will also invest their money into infrastructure. Increasing spending on roads and railroads can help alleviate supply shortages, improve efficiency and boost long-term economic growth.

2.2.1 Government Expenditure and Economic Growth

There is no clear meaning on the impact of government expenditure on economic growth. Government expenditure is one of the vital elements to stimulate economic growth of the country (Senawi & Sulaiman, 2020). There is positive relationship between government expenditure and economic growth in earlier studies like Kormendi and Meguire (1985), Ram (1986), Lin (1994), Yasin (2000), Attari and Javed (2013), Kimaro et al. (2017). According to Freeman and Webber (2009), productive expenditure on education and public health services can produce long-term economic benefits. For example, education expenditure will have a direct impact on improving social welfare. When society benefits from educational programs, it makes a significant contribution to increasing labor productivity. As a result, high economic growth has been achieved. The next study is referred to Attari and Javed (2013). The study is using Pakistan time series data with ARDL test,

Johansen cointegration test and Granger-causality test. According to the study from them, the government expenditure in short-term will not affect the economic growth but in long-term it will have a positive relationship to economic growth. One of the studies has used time series data of Malaysia which is from 1987 to 2016 with Multiple Linear Regression (MLR) to determine the relationship between government expenditure and economic growth of Malaysia. This study shows that government expenditure which are expenses on education, health, defense and security, and social services has significant relationship towards the economic growth of Malaysia (Kamis, Majid & Ramlee, 2020). According to Wahyudi (2020), the study has shown that government expenditure has a significant effect on economic growth of Indonesia which can stimulate the economic growth of a country. Okoye et al (2019) said that government expenditure will affect the output growth of Nigeria during 1981-2017. However, capital expenditure has positive effect towards economic growth of Nigeria.

But there are few recent studies like Devarajan, Swaroop and Zou (1996), Folster and Henrekson (2001), Dar and Khalkhali (2002), Romero-Avila and Strauch (2008), Afonso and Furceri (2010), Bergh and Karlsson (2009), Nurudeen and Usman (2010), as well as Sáez, Álvarez-García and Rodríguez (2017) said that there is a negative relationship between government expenditure and economic growth in the countries which have higher income. Due to uncertainty and expectations of the impact of future financial inactivation or repression, the negative impact of government debt on growth may be even greater (Cochrane, 2011). Besides, if the government spends the money on a wrong aspect, it will only cause more debt. For example, when the money is spent to improve the public transportation, but all the people have their own transportation. It just causes more and more expenses to maintain those equipment and facilities but not even help the economy or people.

Other than that, regarding to Anitasari and Soleh (2015), they had analyzed how the influence of Government Expenditures on Economic Growth in Bengkulu Province. The results of the study showed a mostly positive relationship. Bengkulu Province, Rejang Lebong and Bengkulu are the cities that have a positive impact and significant impact due to the government expenditure. While North Bengkulu

Regency has a negative influence, and the other 7 districts have positive but insignificant results. In the short-term, the government expenditure is not able to stimulate the activities of the economic sectors and spur economic growth in the area because most districts in Bengkulu Province are newly developed areas.

2.3 Budget Deficit

2.3.0 Introduction

Budget deficit occurs when the government spending is more than their income revenue, and explains the financial condition of a country (Barone, 2021). It usually refers to government spending rather than individuals and businesses. Budget deficit can also happen when public savings become negative. According to Briotti (2005), Keynesian economic theory believes that there is a positive correlation between both variables, while the neoclassical economic believes that there is a negative correlation. At the same time, Ricardian equivalent hypothesis indicated that there is a neutral relationship between budget deficits and economic growth in Ricardo's economic theory.

2.3.1 Budget Deficit and Economic Growth

Fatima, Ahmed and Rehman (2012) claimed that budget deficit has a detrimental impact on economic growth because governments lack the resources to cover their long-term expenses, since their income earnings and savings are insufficient to cover it. The government will enhance economic growth with their different development programs. However, there is also a risk which makes the administration pay the real costs including some unpredictable expenses. Moreover, according to Dao and Doan (2013), there is a finding in their paper that budget deficits have a minor detrimental impact on economic growth in Thailand. Rana and Wahid (2017) also stated in their findings that, by using ordinary least squares (OLS) for time-series analysis and other tests, there is a significant negative impact

of the government's budget deficit on the Bangladesh's economic growth. These researches had proved the Neoclassical theory in their conclusion that there is a negative relationship between budget deficit and economic growth in the countries.

However, some studies have found that the budget deficit has a positive impact on economic growth in Western countries. According to Gllogjani and Balaj (2021), the use of models in their research demonstrates a positive and statistically significant impact of the fiscal deficit on economic growth, and this conclusion supports the Keynesian theory. Additionally, another study also found that the deficit-to-GDP ratio has a positive effect on the economic growth rate for Eurozone countries (Kryeziu & Hoxha, 2021). The conclusions of this study are also consistent with previous research on Keynesian economic ideology. Furthermore, Bhari et al. (2020) discovered that Keynesian theory can be applied to the Malaysian economy because they concluded that the budget deficit has a positive impact on Malaysian GDP, particularly in 1997–1998 and 2008–2009. The budget deficit could boost Malaysian economic growth during an economic crisis.

Nevertheless, some researchers conclude that a country's economic growth also depends on the variables chosen for research. According to Ahmad and Rahman (2017), the budget deficit has important implications for all chosen macroeconomic indicators such as exchange rate, domestic debt and financing, and investments. It certainly affects a country's economic growth. In addition, Saleh (2003) stated in his or her article that budget deficits and economic variables are not explained by empirical data in the same way that theoretical analysis does. Therefore, there is no determined result to prove that the higher budget deficit will slow the economic growth of the country. According to Rahman (2012), in the short run, budget deficit can help economic growth due to excessive spending which can help to improve the level of private consumption, while deficit can help to reduce the burden of taxation. However, huge budget deficits may ruin long-term economic development in the countries as they have to struggle to repay all of their national obligations.

2.4 External Debt

2.4.0 Background

Policymakers, economists, and scholars have been debating the use of external borrowing to support economic growth. External debt, often known as foreign debt, is a global issue that now affects most countries in their current and future development. According to the major economic theories, foreign debt should have an effect on the economy in terms of investments or labour force efficiency. A quick study of the literature on the subject indicates a variety of external debt-growth correlations. As a result, it's evident that external debt has a positive, negative, or non-linear connection with economic growth (Shkolnyk & Koilo, 2018). Furthermore, emerging countries require debt financing for a variety of reasons, including inadequate national incomes, lack of foreign investments, and deficits in balanced accounts. The government's external debt is the sum owed to holders of government assets such as T-bills, T-notes, and government bonds. Planned national incomes are deficient to cover the expected spending and repay the debt at maturity, which are the two most prominent reasons for government borrowing (Babu et al. 2015). Kharusi and Ada (2018) show that government borrowing has both good and bad effects on a country's economic growth.

2.4.1 External Debt and Economic Growth

External debt has a detrimental influence on economic growth, according to the great majority of empirical studies. The second set of models investigates why a high amount of foreign debt is negatively impacting economic development. Krugman's (1988) notion of "debt overhang," which he developed in the late 1980s, provides the foundation for this series of models. Although the debt overhang hypothesis does not explicitly mention economic growth, it indicates that a high level of foreign debt decreases economic development by crowding out investments (Krugman, 1988). A recent finding of a study demonstrates that foreign debt has a detrimental impact on long-term economic development. The nonlinear model, in

particular, illustrates the uneven influence of foreign debt on economic development. The rise in external debt has a more significant negative impact on growth than the increase in domestic debt as indebtedness grows (Makun, 2021). According to the estimates, increasing external debt shock has a considerably greater negative effect on long-term growth than lowering external debt shock. Furthermore, the research revealed a 58 percent threshold level, showing that larger levels of the external debt may slow development, especially when a nation depends heavily on borrowing, and that high debt levels may restrict long-term economic potential (Mohsin et.al., 2021). Considering the notion of over-indebtedness, the variable amounts of debt produce quick unsustainability, which results in efficiency losses on the economic growth for some emerging countries (Pradhan et al., 2019).

However, there were plenty of studies argued that the negative effect of the external debt could be avoid if the country is able to repay and may bring a positive impact to the country's economic growth. The beneficial effect of foreign debt on the economy of the borrowing nation is argued in Gasparatos and Ahmed (2020), for example, where each external loan acquired represents marginal productivity larger than the principal and interest payments. In addition, if the borrowing nation has adequate productive potential, it can avoid accumulating further debt only if the present external debt is sufficient to re-establish productivity (Uche-Soria & Rodríguez-Monroy, 2020). In addition, there was evidence to support the idea that economic development and foreign debt are linked. According to the Keynesian and neoclassical growth theories, borrowing money and putting it to productive use may lead to greater levels of economic development. Many studies also indicated that there was a correlation between foreign debt and investment that was positive (Warner, 1992; Easterly, 2003; Cline, 1985 as cited in Shkolnyk & Koilo, 2018). Lastly, the significant impact of the external debt on the country's economic development has been arguing based on the findings of much research done in the past. In short, the relationship between external debt and economic growth was claimed to be either significant (Dauda, Ahmad, & Azman-Saini, 2013; Lau, Lee, & Baharumshah, 2015) or insignificant (Cordella, Ricci, & Ruiz-Arranz, 2010).

CHAPTER 3: METHODOLOGY

3.1 Research Design

The study was an exploratory research and based on a quantitative approach which involved a systematic process in which numerical data were utilized to obtain the information about the world. Research method which was used to describe and test the relationship among variables. Moreover, this research sourced the information and data by using secondary sources. Theories were vastly obtained from the literature reviewed such as books, articles, and other writings published in the databases. Next, research model was developed which consisting independent variables (budget deficits, government spending, external debt) and dependent variable (economic growth in Malaysia). Research framework was then set up after reviewing the research gap and findings of related studies. This study focused investigating the causal-effect relationship and correlational relationship between the independent variables and dependent variable. Next, hypotheses were then established and tested by using various econometric approaches. Hence, we used secondary time series data where the values of variables were taken at quarterly intervals for ten years. Our research mainly focused on the government debt and economic growth in one country, Malaysia with a timeline of 2010-2019. The timeline (2010-2019) was decided due to limited past studies on the impact of government debt on Malaysia economic growth. The study did not include the period for 2020 onwards which the COVID-19 pandemic was started. It excluded the forces and effects of the pandemic which would also impact the country's economy. Hence, the result would be more accurate and relevant for the data analysis. Ringgit Malaysia, RM would be the unit measurement of the numerical data used in the data analysis.

3.2 The Study's Theoretical Framework

Independent Variables

Government Expenditure

Budget Deficit

External Debt

Dependent Variable
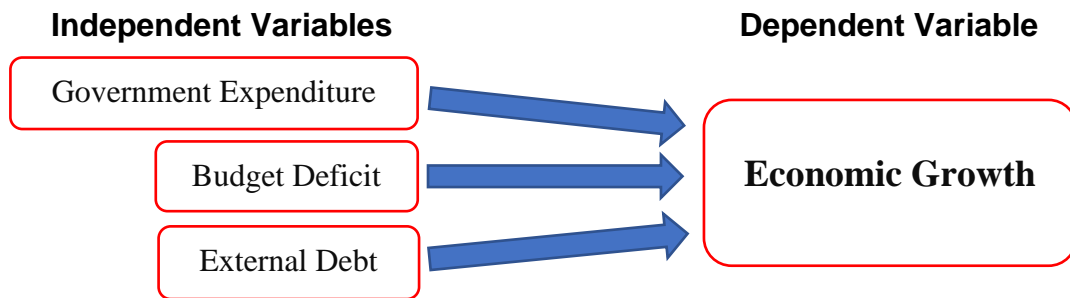
Economic Growth

Figure 3.2.1: Theorical Framework

Based on Figure 3.2.1, there are three independent variables chosen which can affect the economic growth of Malaysia. Theoretical framework is a foundation which is used to support theory of the research study. The research aim is to investigate and examine how the independent variable, including government expenditure, budget deficit, and external debt related with the dependent variable, economic growth of Malaysia respectively. The independent variables of this research are mainly based on online journal articles and some additional information from other online sources.

First of all, government expenditure is one of the important elements in Gross Domestic Product (GDP). Increment of government expenditure can stimulate the economy of a country. There are various results from a lot of studies. Some scholars, who are Kormendi and Meguire (1985), Ram (1986), Lin (1994), Yasin (2000), Attari and Javed (2013), and Kimaro et al. (2017) supported that the government expenditure has a positive impact on economic growth of the countries. But some scholars like Devarajan, Swaroop and Zou (1996), Folster and Henrekson (2001), Dar and Khalkhali (2002), Romero-Avila and Strauch (2008), Afonso and Furceri (2010), Bergh and Karlsson (2009), Nurudeen and Usman (2010), as well as Sáez Álvarez-García and Rodríguez (2017) disagreed that government expenditure influenced the economic growth positively. In addition, the relationship between government expenditure and economic growth in Malaysia was claimed to be either significant or insignificant (Anitasari & Soleh, 2015). So, this research is

to study the relationship between government expenditure and Malaysia's economic growth from 2010 to 2019.

Moreover, budget deficit is happened when the government or country expenditure is more than the government tax or other sources revenue. According to Fatima, Ahmed and Rehman (2012), with their conducted regression analysis, they found that a country's budget deficit negatively influences the growth of economic in a country. Dao and Doan (2013), as well as Rana and Wahid (2017), also discovered that there is an inverse relationship between budget deficit and economic growth. Furthermore, Saleh (2003), Rahman (2012), and Ahmad and Rahman (2017) cited Ricardian theory together, indicating that there is a neutral relationship between budget deficit and economic growth. However, Bhari et al. (2020), Gllogjani and Balaj (2021), as well as Kryeziu and Hoxha (2021), discovered that there is a positive relationship between budget deficit and economic growth. Thus, Fatima, Ahmed and Rehman (2012), and Dao and Doan (2013) recommended that government may apply their policies carefully with control budget deficit to reach a target of economic growth in a country.

Additionally, external debt as a component of government debt has been also investigated for its relationship and effect on Malaysia's economic growth. There are plenty of studies that argue the impact of external debt on the economic growth of a country. External debt, according to the vast majority of empirical studies, has a negative relationship with the economic growth (Krugman, 1988; Makun, 2021; Mohsin et.al., 2021; Pradhan et al., 2019). Despite this, it was observed in many research papers that external debt and investment has a positive impact on the countries' economic growth (Shkolnyk & Koilo, 2018; Gasparatos, 2020). In short, their studies said that when borrowed money are utilised efficiently, external debt helps to more intense economic development. In addition, the relationship between external debt and economic growth was claimed to be either significant (Dauda, Ahmad & Azman-Saini, 2013; Lau, Lee, & Baharumshah, 2015) or insignificant (Cordella, Ricci, & Ruiz-Arranz, 2010). Hence, external debt will be used in this research model to look at how it affects Malaysia's economic growth from 2010 to 2019.

3.3 Econometric Model

According to the findings of literature study, there is an uncertain relationship between government debt and economic growth. It may have a positive or negative effects on the economic growth of any country. Thus, the purpose of this research is to determine how government debt influences the economic growth of Malaysia. A model is made and used to look into how government debt affects Malaysia's economic growth, and it shows how important it is.

$$Y = \beta_1 + \beta_2 X_1 + \beta_3 X_2 + \beta_4 X_3 + \mu$$

Y: Quarterly Real GDP in t period (Malaysia's Real GDP) (RGDP)

X_1: Quarterly Government Operating Expenditure (GEXP)

X_2: Quarterly Budget Deficit (BGD)

X_3: Quarterly Changes of Cumulative External Debt (EXDT)

μ: Error term

Existence of the error term is to represent other indirect factors which can influence the economic growth of Malaysia. For example, inflation, human resources, imports and exports, direct and indirect investments, and others.

Besides, null hypothesis (H_0) and alternative hypothesis (H_1) are established and are shown as below:

H_0 : There is no significant relationship between government debt and economic growth.

H_1 : There is significant relationship between government debt and economic growth.

3.4 Data Analysis Method

This research will use inferential statistics to produce result through the whole analysis. Inferential statistics use techniques like hypothesis testing, regression and correlation analysis. It can help us to make estimates which is able to predict the future performance. This research planned to use regression analysis as one of the analysis methods. According to Corporate Finance Institute, regression analysis is a collection of statistical method to estimate the relationship between one or more independent variables and dependent variables. It may be used to determine the strength level of relationship between variables as well as to model their future relationship.

There are variety types of regression analysis, such as linear, multiple linear, and nonlinear. Multiple linear models and simple linear and are the most popular choice among the researches. By running the test, we planned to use T-test to determine the coefficient and significant relationship of each independent variables to dependent variables. Coefficient will represent the positive or negative relationship and the level of impact of independent variables to dependent variables. Meanwhile, F-test will be used to determine the significance of the model which shows the level of fitting of data to the model. When independent variables and model are proved significant, the impact or relationship between them through the 10 years will be reliable. It can help us to predict the future performance of Malaysia in terms of debt and GDP.

Besides, this research also plans to apply the Pearson's Correlation Coefficient Test in our data analysis. According to Schober et al. (2018), the sign, r, of the Pearson correlation coefficient is an indicator to show how strong the linear relationship between dependent variables and independent variables is. The Pearson's Correlation Coefficient Test will draw a best-fit line through the data scattered in the graph. Then, the Pearson correlation coefficient, r, demonstrates the level of fitting of each of these data points to the best-fit line.
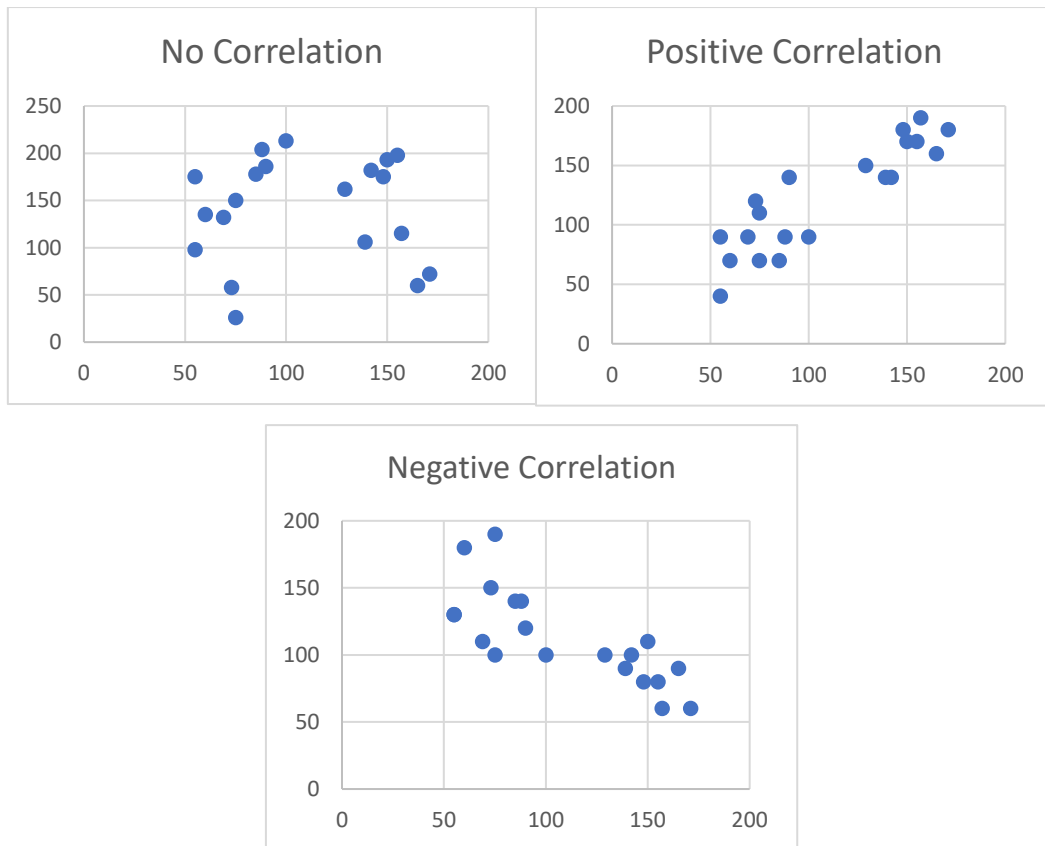
Figure 3.4.1: Sample of Pearson Correlation Coefficient Graph

In this analysis, this research is expected to obtain the first and second outcomes shown in Figure 3.4.1 (*Pearson Product-Moment Correlation*, n.d.). The Pearson correlation coefficient, r, will range between +1 and -1. There is no correlation between the dependent variable and each relevant independent variable when the number is 0. A positive sign number, which is larger than 0, indicates a positive correlation between the dependent variable and each independent variable. When one of the independent variables increases, the dependent variable will also increase. In turn, a negative sign number, which is below 0, indicates a negative correlation between both the dependent variable and each independent variable. When one of the independent variables goes up, the dependent variable will be decreased (Schober et al., 2018). For instance, government expenditure with a coefficient higher than 0 impacts positively on the economic growth of the country.

Besides, to determine the strength of the correlation between the variables, different ranges of the number define how strongly the variables are related. The number from 0.00 to 0.09 (or 0.00 to -0.09) indicates a non-correlation between the

variables. The numbers from 0.1 to 0.3 (or -0.1 to -0.3) show a weak correlation between the variables. The number between 0.3 and 0.5 (or -0.3 and -0.5) shows a moderate correlation between the variables. The number from 0.5 to 1.0 (or -0.5 to -1.0) shows a strong correlation between the variables (*Effect Size*, n.d).

There is another method to be used in this research is multicollinearity test. When two or more independent variables are high correlated with each other, multicollinearity will be occurred (Bhandari, 2020). If independent variables in our research are highly correlated, the result will become less reliable due to exists large standard errors. If correlation coefficient of the independent variables is +/- 1, the variables can be considered as perfectly collinear. If correlation between independent variables is strong, this will increase the difficulty to change one variable without changing another variable. However, this will be difficult to estimate the relationship between dependent and independent variables independently. In EViews, this study will use Variance Inflation Factors (VIF) to test the occurrence of multicollinearity. A VIF is used to measure how much the variable of the coefficient is inflated due to multicollinearity. When the VIF of independent variables is higher than 5, we need to make adjustments like dropping one of the variables that is highly correlated with another variable (Frost, 2021).

This study will use the ordinary least squares (OLS) method to indicate the relationship between independent variables with the dependent variable by estimating the coefficients of linear regression equations via Eviews. The OLS is vital since the result can determine whether the model is significant if the P-value is lower than 0.05. Moreover, the study has to reveal whether the independent variables are significant to affect the dependent variable. To fulfill the OLS assumption, the model must not consist of autocorrelation, so the OLS method will indicate the autocorrelation in the model by the Durbin-Watson test statistic. If the OLS method results there is the autocorrelation of disturbances within the model, the study has to apply the Newey-West method (HAC) in the OLS method via EViews to get the new result without autocorrelation.

3.5 Data Collection Method

Data collection is a method for acquiring and processing particular information that may be used to find solutions to issues and review the results. Data collection methods are essential because of how the data is used and what conclusions may be drawn from it are determined by the study's procedure and analytical approach (Paradis et al., 2016). The most essential purpose of data collection is to acquire information-rich and trustworthy data for a statistical assessment in order to make data-driven research decisions.

Data is gathered to be exposed to hypothesis testing, which is used to attempt to explain a phenomenon. The study applied a secondary data collection method to gather data. Secondary data is data that has already been obtained and is freely accessible from other sources. These data are less expensive and quicker to obtain than primary data, and they may be accessible when primary data is not. Secondary data analysis reduces the time spent gathering data and results in bigger and higher-quality databases than any single researcher could collect (Windle, 2010). In terms of convenience, it is cheaper and easier to obtain.

The study obtained time series data for hypothesis testing which are historical quarterly of the budget deficit, consumption expenditure, external debt, and Malaysia GDP. The purpose of this study is to examine into the link between the dependent variable and the independent variables, the historical data of budget deficit, consumption expenditure, and external debt has been collected to run hypothesis testing to obtain the result that could explain the relationship. It's vital to collect trustworthy data so that the researcher doesn't make impulsive judgments in order to limit the risk of making a mistake.

The study has collected the data from Bank Negara Malaysia which are reliable for hypothesis testing. The time series are obtained from the Bank Negara Malaysia (BNM) which provides reliable Malaysia Macroeconomic data. The historical data of budget deficit, consumption expenditure, external debt, and Malaysia GDP has been collected quarterly for 10 years from 2010 to the year

2019. Afterward, several tests will be run by using E-Views to observe the relationship between independent variables and dependent variables.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

In this research, the empirical analysis will be carried out in accordance with all of the methodologies and tests outlined in Chapter 3, and the results will be presented in an appropriate manner. Initially, the issue of multicollinearity will be investigated to determine whether or not the independent variables in the model are correlated before performing OLS regression on the selected variables. After that, Pearson's Correlation Coefficient Test will be used to determine how strong of the magnitude and the signs that a relationship exists between the dependent and independent variables. At the conclusion of the process, an ordinary least squares (OLS) regression is carried out to estimate the coefficients of the linear regression model and determine which equation best describes the relationship between the variables involved.

4.1 Variance Inflation Factors (VIF) Test

Multicollinearity will be occur when there are two or more independent variables are highly correlated with each other. However, it will increase the variance of the coefficient regression and make them become unstable and difficult to interpret. There are few method to detect the presence of multicollinearity like high R-square but there are less significant t ratio in a model.

In this research, we have used variance inflation factors (VIF) to detect the multicollinearity of our equation. VIF is used to measure the strength of

relationships of all independent variables to prevent get the repetitive result. We need variables which is not correlated with each other to get stable and reliable result.

According to an article titled *Detecting Multicollinearity* (2015), there are three guidelines to interpret VIF:

- When VIF = 1, the status of variable is not correlated.
- When VIF is 1 < VIF < 5, the status of variable is moderately correlated.
- When VIF is more than 5 to 10, the status of variable is highly correlated.

Table 4.1.1: VIF Test for Multicollinearity between Government Expenditure, Budget Deficit and External Debt

Variance Inflation Factors

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
Log (GEXP)	0.007613	4727.214	1.069557
Log (BGD)	7.87E-05	33.08942	1.037596
Log (EXDT)	6.48E-05	35.18237	1.057157
C	0.173668	4846.005	NA

The result of multicollinearity test is shown at the Table 4.1.1. The VIF of all independent variables which are Log (GEXP) (Government Expenditure), Log (BGD) (Budget deficit) and Log (EXDT) (External debt) are less than 5 which means there are moderately correlated. The VIF of Log (GEXP) is 1.069557, VIF of Log (BGD) is 1.037596 and VIF of Log (EXDT) is 1.057157. Although there exists some multicollinearity, but this is not bad enough until require additional corrective actions. If there have high VIF value which means there can be explained by other independent variable in the data, and there need to fix the multicollinearity like drop one the independent variable which has high correlated with others.

4.2 Pearson's Correlation Coefficient Test

Table 4.2.1: Pearson's Correlation Coefficient Test between RGDP and Budget Deficit, External Debt and Government Expenditure

Correlation between IV and DV	**Log (RGDP) (DV)**
Log (BGD) (IV)	-0.146300
Log (EXDT) (IV)	-0.244425
Log (GEXP) (IV)	0.767239

This study has run Pearson's Correlation Coefficient Test to determine the strength of correlation between independent variables and dependent variable. Table 4.2.1 shows the result of correlation of each independent variable to dependent variable. Correlation in positive and negative figures indicate positive and negative relationship between independent variables and dependent variable respectively. The greater value of correlation indicates changes in independent variables are more likely to impact dependent variable. Correlation of budget deficit and external debt to real GDP is at -0.1463 and -0.2444 which is categorized at low correlation. This indicates that increase in budget deficit and external debt are less likely to decrease RGDP. Meanwhile, correlation of government expenditure to RGDP is at 0.7672 which is categorized at high correlation, this indicates that increase in government expenditure are more likely to increase RGDP.
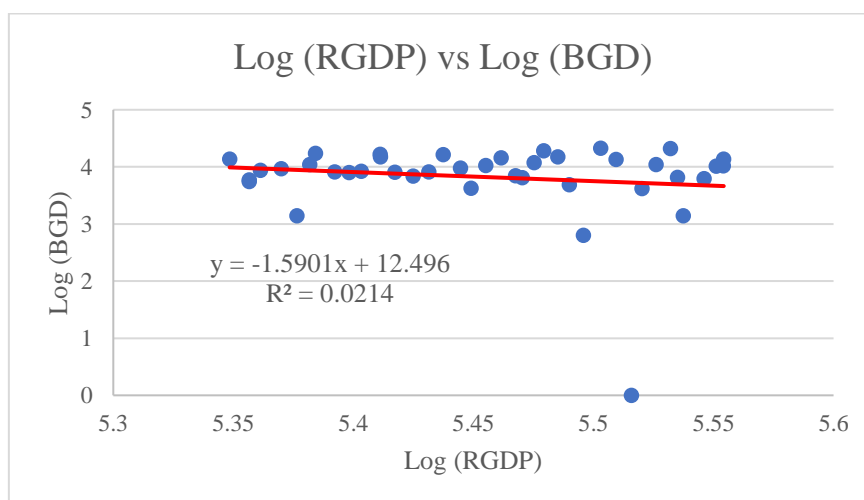
Figure 4.2.1: Correlation between Log Budget Deficit and Log Real GDP

Figure 4.2.1 shows the graph of the correlation between real GDP and the budget deficit. From the graph, it shows a downward trend line, and there is a negative relationship between both variables. Most of the data points plotted in the graph are consistent, which indicates that there is a valid correlation. However, it shows a weak relationship between Log (RGDP) and Log (BGD) as the correlation is -0.1463, which means it existed between -0.1 and -0.3.
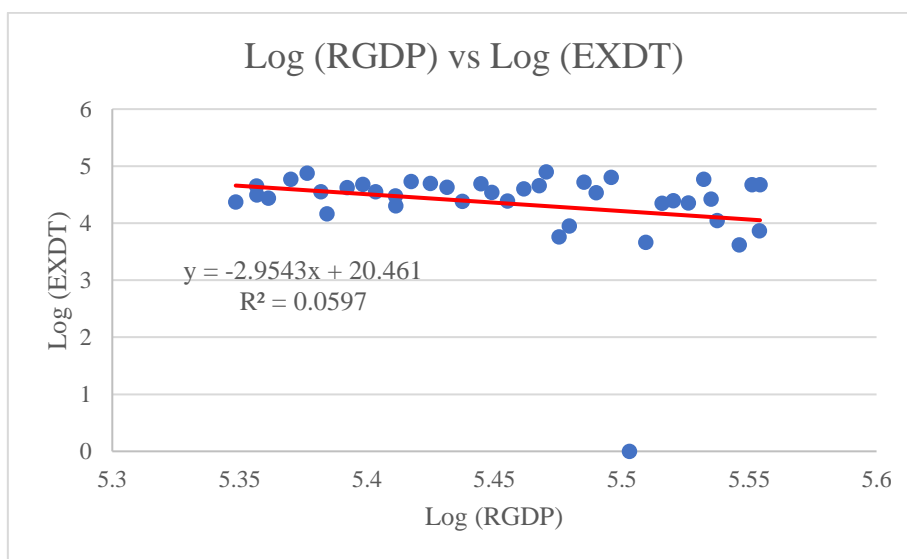
Figure 4.2.2: Correlation between Log External Debt and Log Real GDP

Figure 4.2.2 shows the graph of the correlation between real GDP and external debt. There is a downward trend line shown in the graph, which explains that there is a negative relationship between both variables. Most of the data plotted in the graph is consistent, which indicates that there is a valid correlation between independent variables and dependent variable. There is a weak relationship between the two variables since the correlation is -0.2444, which ranged between -0.1 and -0.3.
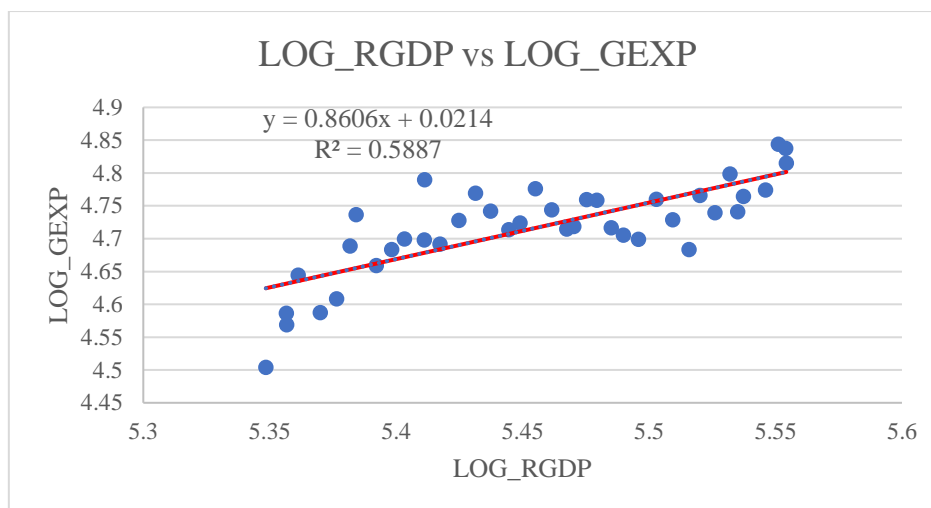
Figure 4.2.3: Correlation between Log Government Expenditure and Log Real GDP

Figure 4.2.3 shows the graph of the correlation between government expenditure and real GDP. Compared to the other two independent variables, there is an upward trend line shown in the graph, which demonstrates that there is a positive relationship between economic growth and government expenditure. Most of the data plotted in the graph is consistent, which indicates that there is a valid correlation between independent variables and dependent variable. In addition, government expenditure has a strong impact on economic growth as the correlation between both variables is 0.7672, which is higher than 0.5 to show a strong relationship.

4.3 Regression Model using Ordinary Least Square (OLS)

The OLS method will be involved in this research study to estimate the coefficients of linear regression equations that describe the relationship between independent quantitative variables such as government expenditure, budget deficit, external debt, and the real GDP as a dependent variable. The included observations result from quarterly data taken for 10 years, which is from Quarter 1 of 2010 to Quarter 4 of 2019.

Table 4.3.1: RGDP Regression using Ordinary Least Square (OLS)

Dependent Variable: LOG_RGDP
Method: Least Squares
Sample: 2010Q1 2019Q4
Included observations: 40
Hac standard errors & covariance:40
HAC Standard errors & covariance (Barlett kernel, Newey-West fixed
bandwidth=4.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Log (GEXP)	0.705687	0.096418	7.319044	0.0000***
Log (BGD)	-0.026846	0.006029	-4.452609	0.0001***
Log (EXDT)	-0.009317	0.004081	-2.282779	0.0285**
C	2.270106	0.459240	4.943182	0.0000***
R-squared	0.677556	Mean dependent var		5.455527
Adjusted R-squared	0.650685	S.D. dependent var		0.064060
S.E. of regression	0.037861	Akaike info criterion		-3.615125
Sum squared resid	0.051606	Schwarz criterion		-3.446237
Log likelihood	76.30250	Hannan-Quinn criter.		-3.554060
F-statistic	25.21574	Durbin-Watson stat		0.833121
Prob(F-statistic)	0.000000	Wald F-statistic		33.87835
Prob(Wald F-statistic)	0.000000			

Note: The asterisks *, **, *** indicate rejection of the null hypothesis at 10%, 5% and 1% level of
significance respectively.

Table 4.3.1 shows the variables in log-form for certain considerations. For instance, the dependent variable became Log (RGDP) while the independent variables became Log (GEXP), Log (BGD), and Log (EXDT). The rationale for logging the variables is to compress the large-scale data. Logarithmic scales are implemented in the EViews calculation to reduce the wide-ranging quantities to a smaller scope. Hence, the model's equation applied the logarithmic transformation to normalise the highly skewed variables. The chance of making a mistake increases when modelling variables with non-linear connections. In theory, we aim to produce predictions with the fewest possible errors while avoiding model overfitting. So, the variables are logarithmic so that the model fits better by making the distribution of features look more like a bell curve.

The coefficient statistics provided by the EViews are then used to estimate the nature of the relationships between the log independent and dependent variables. Using the coefficient figures, we will be able to construct the absolute best-

described equation for our model, as illustrated in Table 4.3.1. When assessing the presence of a statistically significant link between the log variables, the P-Value approach is employed in conjunction with this OLS method. The probability, also known as the P-Value, displayed in the Prob column of the Table 4.3.1, plays an important part in determining the statistical significance of the relationship between the independent variables and the dependent variable in the model under consideration. Because of the p-value approach used in this OLS method, it is possible to reject the null hypothesis when the p-value or probability of the independent variable is less than a significant level at 0.01, 0.05, or 0.10, indicating that the estimate is "statistically significant," or vice versa.

The final equation is established, and the calculated coefficients for the model are interpreted:

$$\log Y = 2.2701 - 0.0268 \log X_1 + 0.7057 \log X_2 - 0.0093 \log X_3 + \mu$$

β_2 = -0.0268, the elasticity of GDP growth rate with respect to log budget deficit about -0.0268, suggesting that if budget deficit decrease by 1%, on average, GDP growth rate increase by 0.0268%. Moreover, β_2 indicate a negative relationship between budget deficit with Malaysia GDP growth rate during the period of 2010-2019. Since the P-value of log budget deficit is 0.0001 which are lower than the significance level of 0.01, so it can be concluded that budget deficit is significant to affect GDP growth rate.

β_3 = 0.7057, the elasticity of GDP growth rate with respect to log government expenditure about 0.7057, suggesting that if government expenditure increase by 1%, on average, GDP growth rate increase by 0.7057%. Moreover, β_3 indicate a positive relationship between government expenditure with Malaysia GDP growth rate during the period of 2010-2019. Since the P-value of log government expenditure is 0.0000 which are lower than the significance level of 0.01, so it can be concluded that government expenditure is significant to affect GDP growth rate.

β_4 = -0.0093, the elasticity of GDP growth rate with respect to log external debt about -0.0093, suggesting that if external debt decrease by 1%, on average, GDP growth rate increase by 0.0093%. Moreover, β_4 indicate a negative relationship between external debt with Malaysia GDP growth rate during the period of 2010-2019. Since the P-value of log external debt is 0.0285 which are lower than the significance level of 0.05, so it can be concluded that external debt is significant to affect GDP growth rate.

In the OLS model, all independent variables are significant to affect the Malaysia GDP growth rate during the period of 2010-2019. R-squared is used to indicates the proportion of the variation of dependent variable which can be explained by independent variables. The higher of R-squared indicate independent variables are more fit to the dependent variable. There are 67.76% of the variation in predicted GDP growth rate is explained by the variation in budget deficit, government expenditure, and external debt. Moreover, sum square of residual is only 0.0516 which show a high accuracy in the data. The P-value (0.0000) indicates this model are significant since it was lower than significance level of 0.01.

4.4 Durbin-Watson Test

Durbin-Watson test statistic function to test whether the error term (ε) of OLS is autocorrelation. There will be positive autocorrelation if the Durbin-Watson test between 0 to 2, no autocorrelation if the Durbin-Watson test near to 2, and negative autocorrelation if the Durbin-Watson test between 2 to 4. Durbin-Watson statistic indicated d (0.8331) which show the model are positive autocorrelated between error terms.

Table 4.4.1: Hypothesis Testing for Autocorrelation

Hypothesis	H_0 = Error terms are non-autocorrelated
	H_1 = Error terms are autocorrelated
Significance level	α = 5%, Sample size is 40, k is 3 d_U is 1.338, d_L is 1.659

Decision Rule	$d < d_L$ = Reject null hypothesis
	$d_L < d < d_U$ = the test is inconclusive
	$d > d_U$ = Do not reject null hypothesis
Durbin-Watson Test	d (0.8331)
Decision Making	Reject null hypothesis since d (0.8331) $< d_L$ (1.34)
Conclusion	There is sufficient evidence to conclude the error term of OLS are autocorrelated

In order to remedy the autocorrelation, this study applied the Newey-West method (HAC) which solved the autocorrelation of disturbances. The HAC solves the time series problem related to serial correlation and heteroskedasticity with a robust approach. The HAC is able to robust the standard error of coefficient without changing the value of estimators. The coefficient of variables with applied HAC remained the same as the result without applying. It is applied HAC by adjusting the equation estimation, which swift the coefficient covariance method from ordinary to HAC on equation estimation. Afterward, the Wald F- statistic (33.87835) is indicated after the robust F-statistic on EViews. Hence, the autocorrelation between error terms has been solved since these have been corrected by applied HAC and the Durbin-Watson statistic (0.833121) can be ignored.

CHAPTER 5: DISCUSSION, CONCLUSION, AND IMPLICATIONS

5.1 Discussions of Major Findings

Based on Chapter 4, we have carried out few tests which are Pearson's Correlation Coefficient Test and Ordinary Least Square (OLS) to study the relationship between government debt (budget deficit, government consumption, external debt) and economic growth of Malaysia. With these tests, we can validate the research objective that we set in Chapter 1 of the research.

We have carried out a multicollinearity test to determine whether independent variables have correlated with each other. After performing multicollinearity test, we can get the result of Variance Inflation Factors (VIF) of all independent variables is less than 5, which means they are moderately correlated with each other. So, there are no need to fix the multicollinearity of these independent variables.

However, we also carried out Pearson's Correlation Coefficient Test to determine the strength of the correlation between independent variable and dependent variable. Correlation of budget deficit and external debt is -0.146300 and -0.244425 which means there is a negative relationship between budget deficit, external debt, and real GDP. This means both of the variables are moving at opposite sides. Correlation of government expenditure is 0.767239, which means there is a positive relationship between government expenditure and real GDP. This means both of the variables move on the same side.

Besides, we also have carried out Ordinary Least Square (OLS) to estimate the coefficients of linear equations. Based on the results of OLS, we know that the coefficient of budget deficit is -0.0268, which means budget deficit has negative impact on GDP growth rate. However, P-value of budget deficit (0.0001) is lower than significance level (0.05) which means there is significant relationship between budget deficit and GDP growth rate. Government expenditure has positive impact on GDP growth rate when its coefficient is 0.7057. Government expenditure has P-value of 0.0000, which is lower than the significance level of 0.05, which means government expenditure and GDP growth rate has significant relationship. The coefficient of external debt is -0.0093, which means external debt and GDP growth rate are negative relationship. P-value of external debt (0.0285) is lower than significance level of 0.05, which is a significant relationship. Moreover, we used Durbin-Watson test to determine whether the error term of OLS is autocorrelation. Based on the results, there are 0.8331 which is lower than 1.34, which means there are positive autocorrelated between the error terms. Despite so, the autocorrelation issue could be ignored as Newey-West method (HAC) has been applied to solve the disturbance. The HAC solve time series problem which related to serial correlation

and heteroskedasticity by robust approach. The HAC able to robust the standard error of coefficient without changes the value of estimators.

The result of our research can be proved by various previous studies. Our research has shown that government's budget deficit has significant negative impact on economic growth through Pearson's Correlation Coefficient Test and Ordinary Least Square (OLS) Method. The result of this study can be supported by Rana and Wahid (2017). However, budget deficit has a negative impact to economic growth due to government lack resources to cover the long-term expense (Fatima, Ahmed, & Rehman, 2012). In addition, high level of budget deficit may ruin long-term economic development of country because they need to repay their national obligations (Rahman, 2012).

Moreover, there is significant negative impact between external debt and economic growth of Malaysia in Pearson's Correlation Coefficient Test and OLS method. This can be proved by Krugman (1998) who said that high level of foreign debt will weaken the economic development. However, increasing of external debt shock has a great negative impact on long-term growth (Mohsin et. al., 2021). Moreover, Makun (2021) said that increasing of external debt is more significant negative impact on economic growth when compared with increasing of domestic debt.

This study also show that government expenditure has positive impact on economic growth of Malaysia. This result of research can be supported by Wahyudi (2020) who said that there is significant effect of government expenditure on economic growth which can encourage economic growth. In addition, Attari and Javed (2013) examined government expenditure has long term positive impact towards economic growth. Productive expenditure on education and public health service can produce long term economic benefits (Freeman & Webber, 2009). According to Kamis, Majid and Ramlee (2020), government expenditure on education, health, defence and security, and social services has positive impact on economic growth.

5.2 Implications of the Study

The OLS regression result has shown that the increasing budget deficit and external debt amount contributed a negative impact to the Malaysia's GDP growth in the past 10 years. Hence, some practical implications for the policy makers shall be considered. According to a research paper, it concluded that the Malaysia government mainly adopted the various implementations to finance the budget deficit. It raises an important question about the impact of the budget deficit on the balance of payments (BOP). Malaysia's trade condition has become a source of worry during the previous 15 years, since the country has become a net debtor, with imports outpacing exports. If debt creation leads to a rise in domestic interest rates, a net infusion of foreign money occurs, increasing demand for the Malaysian ringgit (RM), causing the RM to appreciate, reducing exports, and putting a burden on GDP growth. When the value of the ringgit rises, Malaysian exports are turning more costly to foreign customers, while imports from other countries become less expensive to Malaysian consumers. If the debt build-up has this impact, it would exacerbate Malaysia's already precarious trade balance. As a result, empirical study into this seeming quandary is critical to comprehending Malaysia's current and trading positions in the future (Aslam & Jaafar, 2020). Hence, government regulatory bodies shall control and reduce the deficit amount rather than financing deficits by increasing debt levels. Other than the traditional method such as increasing taxation and reducing government spending, policy practitioners should wisely manage the allocation of spending goes. With a major part of government spending going toward subsidising gasoline and other items, for example, the government should examine its subsidy policy and progressively reduce it so that resources may be reassigned to sectors that can use them more efficiently and productively. The government should increase the transparency of the policies implemented and also its procurement system in order to reduce waste, rent seeking, and corruption.

Besides, the statistical result showed a negative corelation exists between the national debt and the national economic growth. Literature reviews had stated many shortcomings which a rising national debt amount could lead to such as

crowding-out effects, investment environment tends to be discouraged, uncertainty in market or policy, and money fleeing the country due to currency depreciation fears. It acts as a reminder to policymakers or practitioners to closely monitor and limit the country's debt ratio. Malaysian officials should keep a close eye on the country's foreign debt position, with a goal of avoiding being caught in a debt overhang situation. Policymakers should reconsider their external debt management approach in particular in order to mitigate sovereign risk by diversifying external borrowing. This might be achieved by reducing the reliance on a particular debt instrument or currency. As a consequence, if utilised in conjunction with a comprehensive surveillance and debt-monitoring system, the strategy will be more successful.

5.3 Limitations of the Study

One of the limitations of this study is that data collected is limited at lower frequency data. The data collected is in quarterly instead of monthly. During collection of data, this study is expected to obtain monthly data from World Bank or other websites. Unfortunately, expectation is not achieved. So, this study uses quarterly data which there is also limited resources to refer. By using monthly data, this study can produce a higher accuracy and reliable OLS result in EViews software.

The second of the limitations if this study is that unable to obtain data for budget deficit (Independent Variable). The only data obtained is 'Budget Surplus or Deficit'. Since this study aims to do analysis about budget deficit, it is impossible that there is negative and positive value at the same time for budget deficit. This is because the term of budget deficit indicates negativity due to it occurs when 'Budget Expenditure > Budget Revenue'. The data we obtained is based on formula 'Budget Revenue (–) Budget Expenditure' which happens positive and negative value at the same time. Also, it is impossible to put 0 or blank for the quarter that occurs positive value which is budget revenue as this will cause low reliably to the result.

All in all, these limitations are acknowledged by researcher and does not detract the analysis from significance of findings when running EViews test. This study can be done at a higher accuracy level if the limitations can be solved.

5.4 Recommendation for Future Research

This study applied quarterly data instead of monthly data due to unable to obtain monthly dependence variables data. High-frequency data collections typically contain a huge quantity of data due to the vast number of ticks in a single month, allowing for high statistical accuracy. The dependent variable is only available on a quarterly basis, while others are available on a monthly or even higher basis. According to Schumacher and Breitung (2008), the mixed-frequency factor model performs somewhat better than factor models based on balanced data. As a result, a mixed frequency problem must be handled as well. The future study could provide a mixed-frequency factor model, which can compare to a quarterly single-frequency factor model to determine whether the mixed-frequency data can be more comprehensive. Expectation-maximization (EM) algorithms are suggested to deal with the missing data for low-frequency variables by providing monthly estimates data. Moreover, in a factor model framework, the EM method, together with principal components decomposition, could handle such data with different frequencies.

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