The Association between Government Expenditure and Economic Growth in Malaysia

by

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Preface

Government expenditure and economic growth are both subjects of public attention and inquiry. It is because, in many countries, the source of government expenditures is mainly from public taxes. Therefore, in general, the public would expect high economic growth as a whole in return. Absolutely as tax payers, they would expect that their tax contributions be spent wisely by the government. At the same time, every government also hopes to return the favor of their peoples by giving the best that they probably could. However, the subject of the association between government expenditure and economic growth has been widely debated for centuries. The proponents of government expenditure have been divided into two groups which are the big and small government.

There are several reasons that led me to focus my research and study on this topic. My first position as a government official was at a state hospital where I was responsible for managing the hospital operations and its development expenditures. I was later reassigned to the federal level and became responsible for assisting the ministry's top level management in structuring and implementing the government policies particularly during the Ninth Malaysia Plan. Throughout

this process, I learnt the importance of government policy in shaping the future prospect of the country. I also learnt how government policy and government expenditure can work together for the country's economic growth. Therefore, I decided to conduct this study for a better understanding of how the government expenditures are associated with economic growth, in the case of Malaysia. At the same time, I hope that the findings of this paper would shed some light on the debates about the association between these two subjects and would provide some clear ideas that could help the government in structuring their future policies.

The empirical results, discussions and conclusions of this study are solely based on the limited scope of this research which deems to be bound with certain incomprehensiveness. Needless to mention that any discrepancy in the facts presented in this work that may lead to any sort of confusion or different opinions, is my sole responsibility.

Khairul Shahril Bin Hamzah

Acknowledgement

The completion of this thesis has been possible through the guidance and helps from several individuals and organizations, either directly or indirectly. First and foremost, I would like to take this opportunity to express my gratitude to my supervisor, Professor Nader Ghotbi who continuously encouraged, guided and helped me with patience on this study. Not to forget my heartiest thanks to the late Professor Dipendra Sinha for his teaching and guidance especially during the beginning of this study. Both of them will always be in my thoughts. My deepest sympathy is extended to the wife of the late Professor Dipendra Sinha for her loss. Also thanks to Tejo Birowo, my classmate, for his altruistic sharing of his valuable ideas relevant to the study. Moreover his full support made the completion of this study possible. I would also like to thank my lovely wife, Hasreen Halil and my two lovely daughters, Khaira Sofiya and Khaira Syahmeen for their understanding, support and for being my inspirations as I hurdled through all the difficulties for the completion of this study. Many thanks to all the staff of the APU Ritsumeikan University especially Ms. Emiko for her helps on my queries concerning to the requirements of this study. Also many sincere thanks to the World Bank, the Economic Planning Unit, Malaysia, the Ministry of Finance, Malaysia, and the

International Monetary Fund and any other organizations or individuals that I may

not have mentioned their names here, for their valuable contributions to this study.

Last but not the least, the one above all others, Allah, the Almighty God, for

extending His grace and bless, and for giving me the strength to deliver this

achievement, thank you so much my Dear God.

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List of Abbreviations

ADRL	Auto Regressive Distributed Lag
ACA	Anti Corruption Agency
AIC	Akaike's Information Criteria
ASN	Amanah Saham Nasional
BLUE	Best Linear Unbiased Criteria
CICU	Central Information Collection Unit
CPI	using Corruption Perception Index
DAP	Democratic Action Party
DARA	Lembaga Kemajuan Pahang Tenggara
DB	Durbin Watson
EPU	Economic Planning Unit
ERL	Express Rail Links
FAMA	Federal Agriculture Marketing Authority
FDI	Foreign Direct Investment
FELCRA	Federal Land Consolidation and Rehabilitation Authority
FELDA	Federal Land Development Authority
GDP	Gross Domestic Product

HICOM	Heavy Industry Corporation of Malaysia
ICT	Information and Communication Technology
IFS	International Financial Statistics
IIM	Integrity Institute of Malaysia
IMF	International Monetary Fund
INTAN	Institute of Public Administration
Iskandar Malaysia	Southern Development Region
KADA	Kemubu Agricultural and Development Authority
KEJORA	Lembaga Kemajuan Johor Tenggara
KESEDAR	Lembaga Kemajuan Kelantan Selatan
KLIA	Kuala Lumpur International Airport
MADA	Muda Agricultural Development Authority
MAMPU	Malaysian Administrative Modernization and Planning Unit
MARA	Council of Trust for the Indigenous People
MP	Malaysia Plan
NDP	New Development Policy
NEAC	National Economic Action Council
NEP	New Economic Policy

NERP	National Economic Recovery Plan
NVP	National Vision Policy
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Square
OPP	Outline Perspective Plan
PAS	Pan-Malaysian Islamic Party
PCB	Public Complaints Bureau
PERNAS	Perbadanan Nasional Berhad
PETRONAS	Petroliam Nasional Berhad
PKR	People's Justice Party
PNB	Permodalan Nasional Berhad
R&D	Research and Development
RM	Ringgit Malaysia
S&T	Science and Technology
SEDC	Corporations Economic Development
TI	Transparency International
VIF	Variance Inflation Factor

Abstract

This study attempts to investigate the association between government expenditure and economic growth in Malaysia from 1970 to 2007. Malaysia is a developing country with upper middle income status. Malaysia has set its target to achieve the status of a fully developed nation by 2020. Since independence of the country in 1957, several of policies have been implemented as tools for the economic direction of the country. These policies have had a big influence in shaping the trend of the government expenditures. To focus on the effectiveness of the policies towards economic growth and to avoid any bias from unproductive expenditure, this study employs only governmental development expenditure instead of government consumption. This study employs OLS regression for the empirical analysis. Surprisingly, this study finds that the rising of the total government development expenditure has a significant and negative relationship with economic growth. Similar results apply to the total government development expenditure in economic services. However, this study finds no relationship between total governmental development expenditure in social services and economic growth. In addition, this study finds a mix of results for the association between government development expenditure by sectors and

economic growth. Out of eleven sectors, only three sectors which are transport, public utilities and health have a positive and significant relationship towards economic growth. The author concludes that all the policies that have been introduced by the government starting with the NEP can be considered as reasonable, reliable and positive to obtain a balance economic growth for their peoples. However, there is a possibility of the existence of crowding out effect, rent-seeking activities, cronyism, corruption and skilled brain drain that lead to the negative relationship. Therefore, the authors' recommendations include that the government could work on strengthening and increasing the efficiency of the implementation of the policies. At the same time, the government could encourage and increase the efficiency of anti-corruption activities in order to resolve the corruption problem which can cost huge loss to the national economic growth.

Chapter One

1. Introduction

1.1. Background

The subject of the relationship between government expenditure and economic growth has created a lot of interest among economists and policy makers for centuries. It has also stimulated controversy in macroeconomic studies. The interest has led to many empirical works to attempt to furnish several economic questions particularly about the role of government expenditure or size towards economic growth. Several recent studies extend their scope on the direction of causality. Landau (1983), Slemrod et. al (1995), Abizadeh and Yousefei (1998), Sinha (1998), Dakurah et. al (2000), Albatel (2000), Al-Faris (2002), Al-Hakami (2002), Abu-Bader and Abu-Qarn (2003), Muhlis and Hakan (2003), Kolias et. al (2004), Tang (2006), Samudram, Nair and Vaithilingam (2009), Kalam and Aziz (2009) and Wu et. al (2010) for instance have performed studies which are related to this subject matter. Gwartney, Holcombe and Lawson (1998) reported that while countries have moved towards economic freedom and open markets, government expenditure has increased more and more. Wu et. al

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(2010) state that the relationship between government expenditure and economic growth has been an ongoing issue in debates on economic development. In the literature review they did, they found that many empirical studies were carried out to examine the affect of economic growth on government expenditure. However the results had mixed interpretations and conclusions. In some countries government expenditure contributes positively towards the economic growth while some others show opposite results and some do not show any relationship. Samudram, Nair and Vaithilingam (2009) state a similar finding based on several studies regarding the relationship of government expenditure and economic growth and the results are mixed. Landau (1983) studies the effect of government expenditure on economic growth in 96 countries and finds a negative relationship between government spending and economic growth. On the other hand, Sinha (1998) finds the existence of a long run positive relationship between economic growth and government expenditure in Malaysia for the period of 1950-1992. These results are examples of two main arguments between two concepts which are the concepts of big government and small government.

The concept of big government stresses that government programmes contribute precious public goods such as education, health, defense and security,

and infrastructure. Grossman (1988) and Dalamagas (2000) highlight several main ways on how governments could facilitate economic growth. The government could be a provider for defense, social security, judiciary, property rights, regulations, infrastructure development, workforce productivity, community services, economic infrastructure, regulation of externalities, and pleasure marketplace. In addition, Taylor (1988) and Lindauer & Valenchik (1992) state that when both public and private capital formations are complementing to each other, government activities may encourage the private sector to increase their investment which consequently boost economic growth.

On the other hand, the concept of small government argues that government activities will distort economic growth due to their inefficient operations and not meeting up with public demands. There are several potential factors that could cause government inefficiencies such as bureaucracy in public sector, political patronage and rent-seeking activities. In addition, Ram (1986) states that poor government's fiscal and monetary policies of the country may also impede economic growth.

In terms of the direction of causality, there are two schools of thought called Wagner's law, named after the nineteenth century German Professor Adolf

Wagner, and the other one the Keynesian views which were suggested by the 20th century British economist John Maynard Keynes. It would be easier to understand these theories by using a simple conceptual framework called the circular flow. The circular flow is developed based on these two famous economic views. For Wagner's law, Sinha (1998) reported that *"Adolf Wagner was probably the first scholar to recognize a positive correlation between economic growth and the growth of government activity"*. In addition, Henrekson (1993) pointed out from Wagner's law three main reasons for the increase in the government's role. First, Industrialization and modernization would lead to a substitution of public for private activities and result in increasing government expenditures on law and order as well as on contractual enforcement. Secondly, an increase in real income would lead to an expansion of the income elastic *"cultural and welfare"* expenditures. Wagner cited two areas which are education and culture in which the government could be a better provider than the private sector. Thirdly, natural monopolies such as railroads had to be taken over by the government because the running cost of such kind of activities are too expensive and the private sector would be unable to obtain such huge investment to finance the development of these activities. In addition, he suggests that the private sector would be also

unable to operate these activities efficiently. Slemrod et. al (1995) conclude that Wagner's law is 'the law of expanding state activity, which in modern terminology, posits that citizens' demand for government-provided goods and services is income-elastic, due to the *"pressure for social progress"* and the need for infrastructure investments'. In a simple way, Wagner's law is interpreted as to say that government expenditure is a consequence of a growing economy. Thus, the theoretical model for the general functional relationship between growth of government activity (government expenditure, G) and economic progress (GDP growth) within a country can be described as follows:

G=f(GDP)……………………………………………………………..(1)

Thus the circular flow for the above equation can be drawn as below.
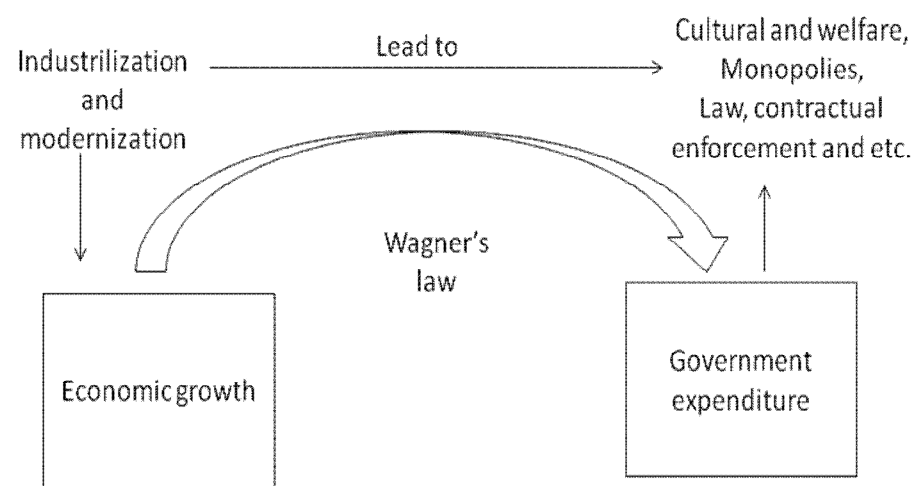
Figure 1.1: The circular flow of Wagner's law (drawn by author)

On the other hand, the other economic interpretation for government expenditure and growth is explained by the Keynesian view. This view suggests that government expenditure contributes positively to economic growth through the multiplier effect on aggregate output; a high level of government consumption is likely to increase employment, profitability and private investment. Branson (1989) states that government expenditure raises aggregate demand that will lead to an increase in output. However, this situation depends on the multiplier effect which in this case is the expenditure multiplier. In scientific notation, the Keynesian formula consists of the following composition:

$$Y = C + I + G + Xn…………………………..(2)$$

Where, Y is the aggregate output (GDP), C is the consumption, I is the investment, G is the government expenditure and Xn is the net exports (exports-imports).

As mentioned above, the government expenditure influences the changes in aggregate output through the changes of expenditure multiplier. Therefore, it is very important to understand what actually the make-up of the expenditure multiplier is. Hence, several steps as shown below are required in order to identify

the expenditure multiplier. The expenditure multiplier can be observed from the

simple formation of Consumption, C as follows:

$$C = c_0 + c_1 Y^d$$

Where C is total consumption, c_0 is the autonomous consumption, c_1 is the

induced consumption and Y^d is the disposable income.

By differentiating equation (2) the equation becomes as follows:

$$dY = dc_0 + b dY + dI + dG + dXn$$

$$dY - b dY = dc_0 + dI + dG + dXn$$

Taking ceteris paribus on dc_0, dI and dXn:

$$dY - b dY = dG$$

$$dY (1 - b) = dG$$

$$dY = (\quad 1 / (1 - b) \quad) dG$$

$$dY / dG = (\quad 1 / (1 - b) \quad) = m \text{ (expenditure multiplier)}$$

Furthermore, based on the Keynesian framework, Edward (2009) summarizes

three suggestions to see how government expenditure influences the changes in

aggregate output. The three suggestions are as follows:

i.   Aggregate output will be rising by an increase in government expenditure. However, the rising effect will depend on the changes of the expenditure multiplier.

ii.   Aggregate output will rise by a reduction in tax. The rising will be measured by the magnitude of the expenditure multiplier.

iii. Aggregate output will rise at either one of the above conditions with taking ceteris paribus to the other conditions, or at both conditions together. The rising level will depend on the magnitude of the expenditure multiplier.

The comparison between increasing government expenditure with reduction in tax is to show how tax cut can promote more private investment for economic growth. At the same time the government expenditure through its activities can promote economic growth through other economic activities such as by creating more employment. The rule of thumb for this condition is that both activities should complement, instead of competing with, each other for economic growth. This rule is to avoid the argument on crowding-out effect theory. By complying to this rule, the function of the government expenditure can be through government activities such as providing education, healthcare, infrastructure development, defense, social security, judiciary, regulate externalities, pleasure

marketplace and others which complement the private sector and support the whole system for economic growth.

As a result, it will ensure a stable environment which will motivate investment in hopes of higher returns. Thus for the Keynesian views, the circular flow can be drawn as below.
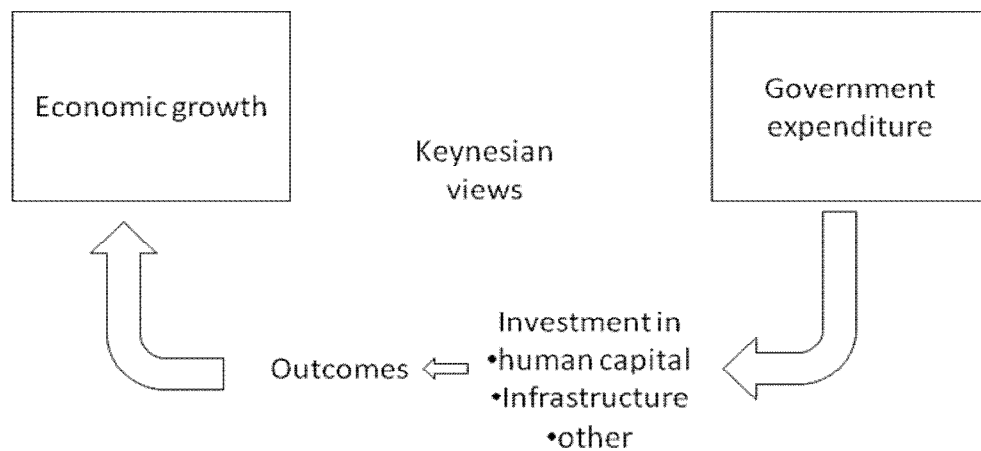
Figure 1.2: The circular flow of Keynesian views (drawn by author)

From the combination of the above two main economic views, this study develops a circular flow as below.
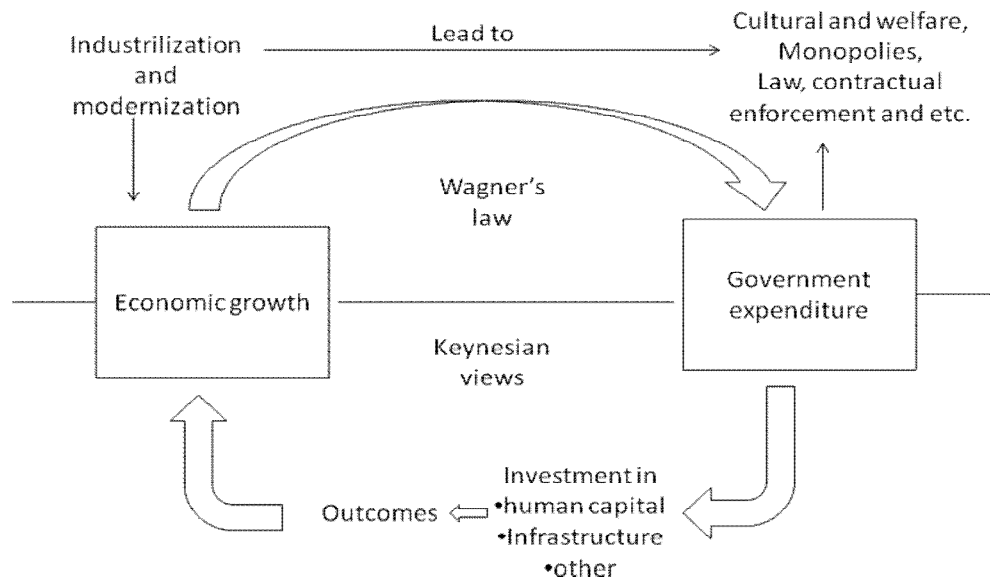
Figure 1.3: The combination of Wagner's law and Keynesian views circular flows
(drawn by author)

By looking at the combined circular flows above, we can suggest that there is

a linkage between these two views where the dependent variable for the

Keynesian views equation becomes the independent variable in the Wagner's law

equation and vice versa. As we have mentioned earlier, this topic has created

enormous attention among researchers with many extensive empirical works that

have been carried out to test these theories but unfortunately the outcome of these

studies has been of a mixed conclusion. The causation of economic growth and

government expenditure can be unidirectional, bidirectional or no causality.

Unidirectional causality can be running from government expenditure to

economic growth and vice versa.

In the case of Malaysia, several studies on causality have been carried out with several conclusions. Sinha (1998) using augmented Granger causality test finds no evidence of causality between GDP and government expenditure in Malaysia for the time period 1950-1992. Again later, Dogan and Tang (2006) find no empirical evidence to support either of the two theories for Malaysia. The study covers annual data from 1960 to 2002. Tang (2001) finds a short-run causality that runs from national income to government expenditure using data from 1960-1998. While Samudram, Nair and Vaithilingam (2009) using Auto-Regressive Distributed Lag (ADRL) with the bound test and Gregory-Hansen's cointegration with structural break find that bidirectional causality holds in Malaysia in the long-run. The study covers data from 1970 to 2004. In all the studies that have been carried out so far, the outcomes are still open for debate.

1.2. Problem statement

A report from OECD (1997) shows that between the years 1960 and 1996 the

size of government expenditures have increased in all OECD member countries.

Even though Malaysia is not an OECD member, its government expenditures

during this period showed the same trends as OECD countries. Statistics from

Economic Planning Unit of Malaysia and International Financial Statistics of

International Monetary Fund prove that the Malaysian government expenditure's

trend shows almost a consistent increase throughout the period of 1970 until 2007.

At the same time its real GDP per capita also shows the same trend.[1]

Malaysia is a federation of a central government and 13 states. At the national

level, the federal government is responsible to a large degree for taxation and

spending. In addition, the federal government handles substantial transfers to the

lower levels of government in financing their operations and development budgets.

Starting with the New Economic Policy (NEP) in the 1970's with its objective to

restore the ethnic balance of the Bumiputera population through investment in

human capital, the Malaysian government was directly and heavily involved in

economic activity. This involvement or the so called government intervention in

the economy has led the Malaysian federal government expenditure to increase

steadily. The percentage of total expenditure relative to GDP in 1970 to 1980

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[1] Refer figure 2.4 in chapter 2. Data collected from Economic Planning Unit, Malaysia

hiked from for about 25% to 33%[2]. Particularly in 1981, statistics from Economic

Planning Unit, Malaysia (EPU) show that the total Malaysian federal government

expenditure has jumped about 41% from its previous year total expenditure while

the development expenditure growth percentage of that year compared to the

previous year hiked about 52%. In general, the ratio of development expenditure

on total expenditure is about 1:3. In 1981, the ratio peaked at 1:2. In 1982, the

total government expenditure showed about the same trend. In 1983, the

Malaysian government endorsed its privatization policy as one of the national

policies. This policy shifted the latter approach from government led growth to

private sector led growth. This policy represents a new approach in policy

development and at the same time complements other policies introduced by the

government. This policy was developed to focus on increasing the role of the

private sector in economic development. At the same time it attempted to facilitate

the development of county's economy, to reduce financial and administrative

burden of the government, to reduce government intervention in the economy,

lowering the level and scope of public spending and allowing market forces to

determine economic activity in line with the National Development Policy. During

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[2] Source: Ministry of Finance, Malaysia, several years of economic reports.

the implementation of this policy, the private sector was regarded as the engine of growth. As a result of this policy, the Malaysian government has successfully reduced its expenditure particularly in the development sector. In 1987, the percentage of development expenditure of total expenditure was marked lowest at about 20%. In general, it is believed that the Malaysian economic policies have had a big influence on the trend of the government expenditures for economic growth. However, this policy leads the policy makers to become divided as whether the expansion of government promotes or impedes economic growth.

As we have mentioned in an earlier section, there are several studies on the direction of causality between government expenditure and economic growth in Malaysia and the results are mixed, with some conclusions consisting either of unidirectional causality or bidirectional causality between government expenditure and economic growth. However, we presume that the outcome of the same study will possibly lead to either one of the existing results. Furthermore the causality test was unable to identify the degree of change or effect from one variable to another; for this reason this study has no interest in testing for causality.

On the other hand, as highlighted in an earlier section regarding the two sides

of arguments which are the proponents of big and small governments, at this point, the attention is given to identify the right side of these two arguments. In addition we would also like to identify the degree of association between the government expenditure particularly by its sectors and economic growth. To our knowledge, no such study exists for Malaysia so far. Thus this study attempts to investigate the association between government expenditure and economic growth in Malaysia from 1970 to 2007.

1.3. Objectives

The aim of this study is to evaluate empirically the association between the government expenditure and economic growth. Specifically, the objectives of this study are:

i. To identify the association, between government development expenditures and economic growth, and its significance by the services and sector;

ii. To discuss and interpret the effect of government development expenditure on economic growth in Malaysia.

1.4. Research questions

To meet the above objectives, several research questions have been developed to operationalize the objectives. Answering the below research questions will fulfill the objectives of this study. The research questions are as follows:

1. What is the status of government expenditure particularly development expenditure relative to economic growth in terms of size and sector?

2. What is the relationship between government expenditure towards economic growth in Malaysia?

3. Does government development expenditure significantly affect the economic growth in Malaysia?

4. Which service has the most significant effect on economic growth in Malaysia?

5. Which sector has the most significant effect on economic growth in Malaysia?

6. How efficient is the government expenditure particularly the development expenditure towards economic growth for the achievement of the national policies?

1.5. General hypothesis

Ideally, based on the concept of big and small government and in conjunction with the Keynesian views and Wagner's Law, this study defines the general hypothesis as that government expenditure has a relationship towards economic growth.

Ho: there is no relationship between government expenditure and economic growth (Ho: $\beta = 0$)

Ha: there is a relationship between government expenditure and economic growth (Ha: $\beta = 0$)

1.6. Scope of research

This study focuses on hypothesis testing about the association between government expenditure and economic growth in Malaysia over the period 1970 to 2007. The government of Malaysia consists of the federal government and 13 state governments. The federal government plays a major role at the national level in the taxation process and spending responsibilities, thus this study limits its study on federal government expenditure for the aforementioned relationship testing. Furthermore this study is focused on the development expenditure by its

services and sectors towards economic growth.

In order to determine the association between government expenditure and economic growth, this study employs time series regression analysis in order to produce the results for the association between the total government development expenditure and economic growth. In addition, the regression analysis is also expected to show the degree of association between each of the services and sectors of expenditure on economic growth. Thus this study may identify the significance level of each service and sector. Prior to the time series regression analysis, this study conducts statistical tests on the data to ensure the data is valid and the models are reliable. This is very crucial as to avoid spurious results and to fulfill the assumption. The first phase of statistical tests will begin with model specification test and stationarity test. The tests later are followed by the linearity test, multicollinearity test, heteroscedasticity test and autocorrelation test.

In addition to all the aforementioned tests, this study will define the suitable form of variables that will be used in the analysis. This stage will be carried in pre-analysis. Economic growth will be represented by the absolute value of real GDP while the government expenditure will be represented by the absolute value of government development expenditure in a form of total government

development expenditure, total development services expenditure and development expenditure by sectors.

1.7. Limitations of the study

There are several limitations in this study. This study finds that time series data on government development expenditures available online are very limited. Furthermore, it is impossible to obtain data on the percentage of government development expenditure relative to economic growth from online databases. To make things even more difficult, it is also impossible to obtain data on the percentage of government development expenditure by its services or sectors relative to economic growth. The only data on government development expenditure that this study could obtain was the raw data taken from EPU. This shortage was experienced more intensely, because to our knowledge no similar study was conducted by any organization prior to this study.

This study uses the absolute value of real GDP as a proxy of economic growth. However, data on GDP is gathered from other sources as similar data from EPU databases is not appropriate because of using several deflators in one time series

data. This study finds that online data are not sufficient for literature reviews. We could not make any field research due to funding constraints. For the control variables, this study also obtains the data from other sources as none of databases contain all types of data needed for this study. The inherent problem related to this study is its difficulty to directly associate economic growth and government expenditure. Economic growth and government expenditure have several instruments which are complex to proxy. Therefore, the result deduced here, cannot be generalized for the entire economic growth and government expenditure instruments. Lastly, this study finds limited literature reviews on national policy to support the regression results of the study.

1.8. Outline of the study

The following chapters in this study will explain the research process in better details. The structure of this study starts with chapter one focusing on the introduction and research proposal. Chapter two describes the economic status of Malaysia, the government roles and functions in the economy, the trend of government expenditure, and economic growth and details of economic policies

and its achievements in Malaysia. This chapter will also discuss the criticisms concerning national economic policies. The issues discussed there are related to an emphasis on government actions which distort economic growth. Chapter three focuses on theory, model and methodology. Chapter four conducts the empirical tests of a time series regression analysis from year 1970 to 2007 and describes the outcome of the regression analysis. Chapter five focuses on a discussion of the empirical results and finally chapter six will discuss conclusions and recommendations based on the study.

Chapter Two

2. Government expenditure, economic growth and economic policies

2.1. Overview of Malaysia's current economic status and its recent history

In general, the government in all countries plays a vital role in influencing the level of aggregate economic activity; Malaysia is not an exception. Malaysia declared its independence in 1957. After the independence, Malaysia had a consistent form of economic growth in GDP over the period 1970-2008, averaging an annual rate of about 7%. Overall, the percentage of growth of Malaysia was higher than other developed countries. Malaysia practices an open economy and owing to this, disturbance in various external factors may cause a deterioration of the growth potential of Malaysia. Examples of deteriorations are such as the oil crises in the 1970's, the downturn in the electronics industry in the mid 1980's and the most deteriorating effect from the Asian financial crisis of 1997 the consequences of which can still be felt in the early years of the 21st century.

Figure 2.1: Percentage of growth of Malaysian economy compared to
developed countries
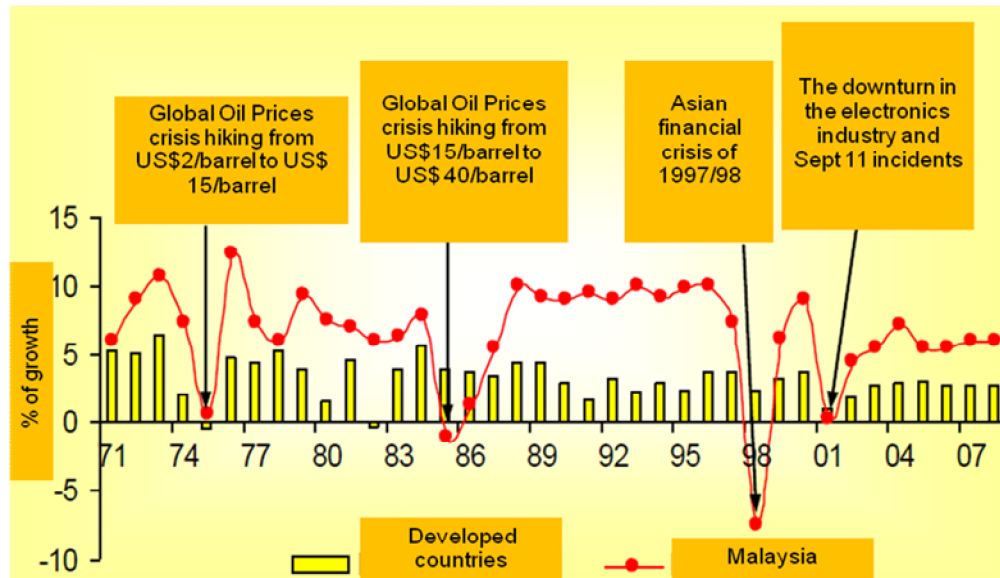
As shown in the figure 2.1, economic growth has been averaged at 7.5% in

1970's. For the period of 1980 to 1989, the average growth rate slightly declined

to 5.8%; while in the 90's, it was at 7.1%. In this period, Malaysia would have a

higher average growth rate if the financial crisis had not happened in 1997. At this

time, the growth rate declined to a size less than -7%. In 2001, Malaysian

economic growth again experienced a massive drop due to the downturn in the

electronics industry and the tragedy of September 11. The average growth rate

from the period of 2001 to 2005 was at 4.5%; while from 2006 to 2008, its growth

rate averaged an annual rate of about 6%.

Figure 2.2: Structural transformation of Malaysian economy by Ringgit Malaysia

Source: Department of Statistic, Malaysia and Economic Planning Unit of Malaysia
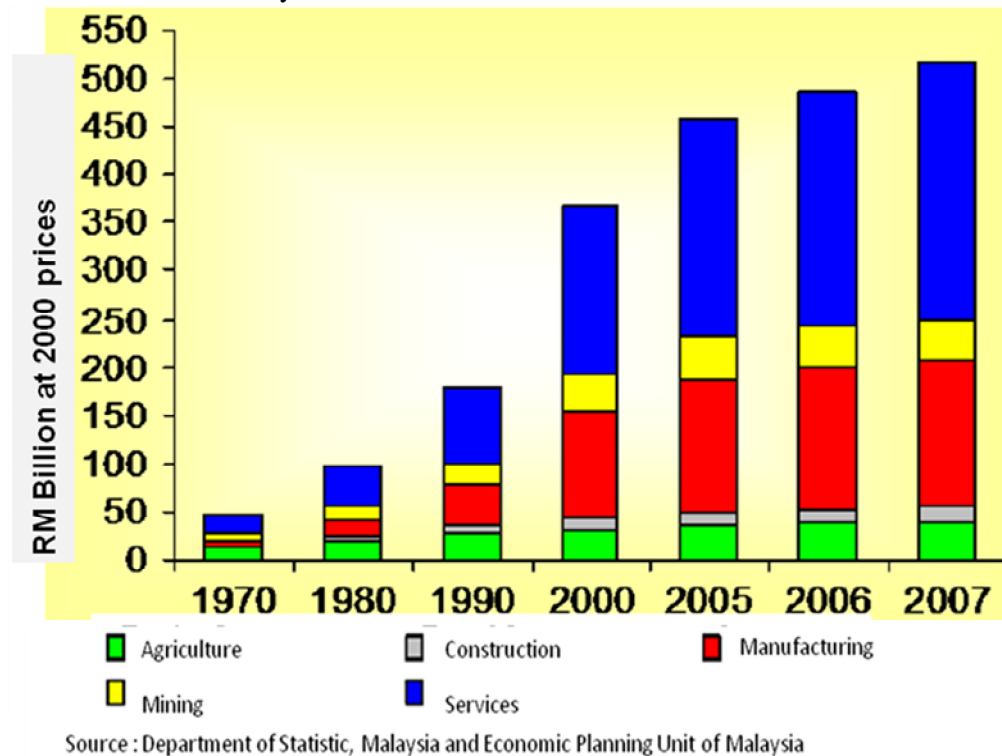
Source: Department of Statistic, Malaysia and Economic Planning Unit of Malaysia

After its unification in 1963, Malaysia's economy underwent a significant structural transformation. Early after independence, the commodity-based economy was prominent in Malaysia. Starting in 1970, Malaysia began to witness a transition from being reliant on mining and agriculture to an economy that depends more on manufacturing and services with a more multi-sector economy. In 1970, agriculture contributed to about one-third or 28% of GDP but in 2007 its contribution declined heavily to only 7%.The same pattern happened

in the mining sector which declined from 18% to 8%. Since then, manufacturing

and services sectors have led Malaysia's growth. However, throughout the years,

sectors shares in utilities, transport and communication have also grown steadily.

These sectors later became more prominent compared to the manufacturing

sector. The contribution of manufacturing is no longer increasing and there are

signs of a maturing economy in which services such as finance and business

services are becoming more prominent.

Figure 2.3. Structural transformation of Malaysian economy by percentage
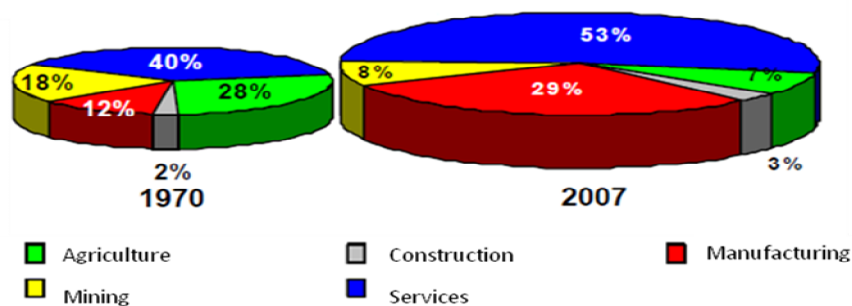
Source: Department of Statistic, Malaysia and Economic Planning Unit of Malaysia

Source: Department of Statistic, Malaysia and Economic Planning Unit of Malaysia

As a result of the central planning by the federal government of Malaysia,

and supported by its 13 states governments, Malaysia is currently categorized as

an upper middle income country by the World Bank. Its number of poor people

(those consuming less than the purchasing power parity US$1 per day metric) has

fallen drastically to 3.6 percent of the population of 27.5 million of people in 2007

(compared to about half of the population in 1970). Based on monthly household

income, Malaysia reached a remarkable achievement at RM 3,617 in 2007

compared to RM 678 in 1980 which shows about 6.4% annual increment

accompanied with the inflation rate (consumer prices) at an average of 2% per

year.

2.2. Overview of Malaysian government's expenditure for economic growth

In Malaysia, government expenditure is an important fiscal instrument

divided into two categories which are operational expenditure and development

expenditure. The operating expenditure is divided by objects such as emoluments,

pension and gratuities, debt service charges, supplies and services, subsidies,

grants and transfer, and others. On the other hand, the development expenditure

includes expenditure for economic services, social services, defense, security and

general administration. Economic services are from several sectors which are

agriculture and rural development, trade and industry, transport, public utilities

and others. While social services are services that consist of education, health, housing and social community services sectors. On top of these sectors, there are two more important sectors which do not fall into any of these services categories; they are defense and security sector and general administration sector. Appendix 1 shows the federal government operating expenditure and the federal government development expenditure by its sectors for the year 1970-2007. The federal government expenditures have kept on increasing and become a major concern of the government. In general, as shown in Appendix 1, in 1970, the federal government's operating expenditure and development expenditure were 2,163 million and RM725 million respectively. In 2007, both of them hiked to RM 123,084 million and RM 40,564 million respectively. This is in line with the progress of the economic growth and shows why it is believed that the government is playing a prominent role in economic growth through its expenditures. See figure 2.4.

Figure 2.4: Real GDP per capita and government expenditures in Malaysia from 1970 to 2007
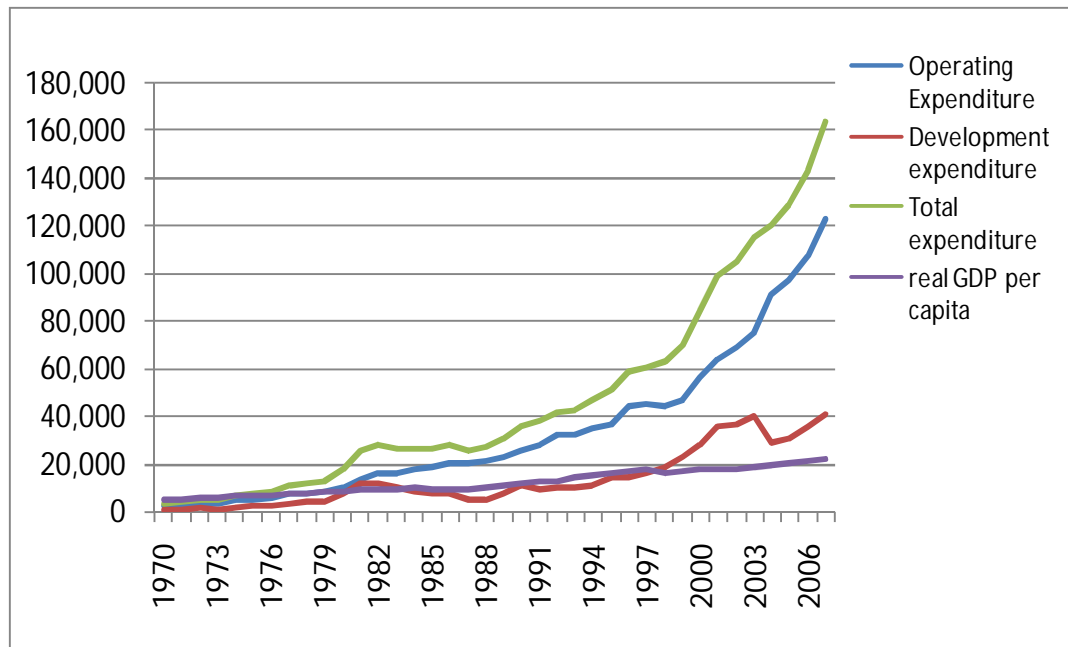
Data Source: Economic Planning Unit of Malaysia and International Financial Statistics of International Monetary Fund

In 1983, a new policy of Malaysia Incorporated was introduced by the government. The new policy was to make a shift in strategy for financial growth from the public sector to the private sector. This approach enables the private sector to participate extensively in the economy while the government changed its function by providing the favorable regulatory framework, facilities and other fiscal incentives. As a result, the government expenditures particularly in development expenditure declined in 1980 but then increased back in 2000.

Subsequently in 2007, the government expenditures percentage again jumped with the growth rate at 6.3%. Viewing this high proportion of the public expenditure, it seems that the government plays a crucial role in influencing the economic growth by its expenditures. It also seems that government expenditures have a relationship with economic growth.

2.3. Role of government

In general, role of government can be classified as any exercise that should be carried out under the responsibilities of the government such as activities related to public safety, education, public systems, well-being, sustainability, economic opportunity and prosperity, and efficiency and effectiveness. However, the issue of role of government has been widely discussed and still gets the attention of many scholars. One of the reasons is because there is no exact definition of government role functions and the role acceptance is different from one country to another. Even though many of countries have a similarity in geographical and natural resources aspects, they show differences in economic growth achievement because of having different levels of acceptance and practice

in government functions. There are several views of role of government on economic growth; for example as pointed out by Holcombe, R. G (2004), Thomas Hobbes stated that life without government was "nasty, brutish and short" and argued that law and order provided by the government was a necessary component of civilized life. This view has been opposed by an interesting argument by Rothbard as pointed out by Holcombe, R. G (2004) who stated that *"the private sector could do more effectively all the functions which normally were carried out by the government"*.

Regardless of the debate of what activities make up the government role functions and the concerns of the importance of government role functions on economic growth, Gwartney, Lawson and Holocombe (1998) stated that there are two broad categories of government core functions which are protective functions and the provision of a limited set of collective goods. They described that the protective functions includes protection of individuals and their property and establishment of the rule of law to resolve any disputes. The provision of a limited set of collective goods which some economist called as *"public goods"* is an involvement of government in producing goods which is by nature difficult to be established by the private sector such as defense, roads, education and public

affairs because of the high cost incurred. They believe that the protective function and the provision of these goods as the government core function will promote economic growth. Their view was also supported by Burda and Wyplosz (2001).

In most aspects, the roles of Malaysian government have an almost similar function to this view. However in terms of government delivery system, several transformations have been introduced throughout the years. As policies changed, the same went to the role of the Malaysian government to ensure that the policy was being executed optimally.

Figure 2.5: The Malaysian government delivery system (drawn by author)
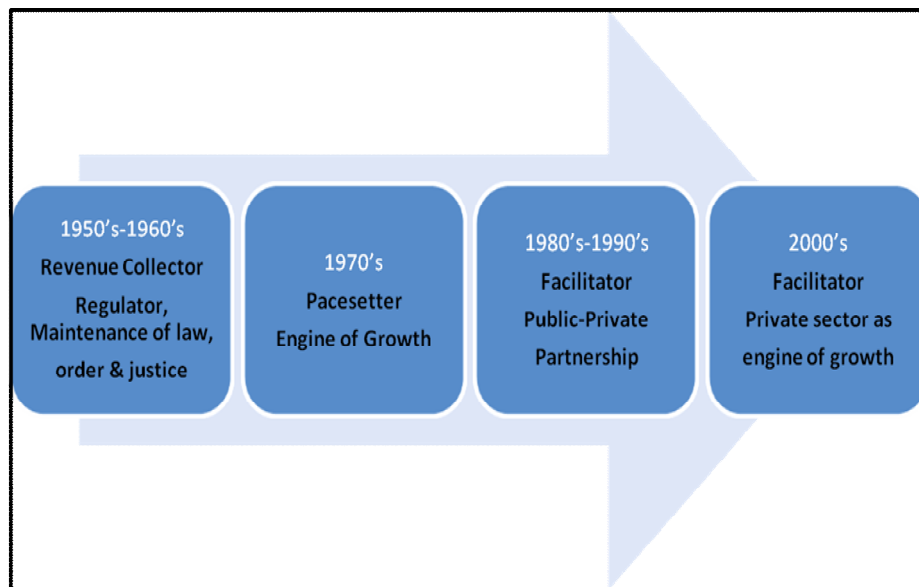
Source: based on several Malaysia Plans[3]

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[3] *Retrieved from www.penerangan.gov.my*

Figure 2.5 above shows the transformation of the Malaysian government executive system from 1950's until 2000's. In 1950's to 1960's, the government was the major revenue collector and regulator and played a crucial role in maintaining the law, order and justice. This executive system was much influenced from the British during the colonial period. However, Malaysian government system faced a major transformation during 1970's when the government acted more as a pacesetter in determining the direction of country's economic growth. As national policies changed, the same happened to its executive system. During 1980's and 1990's, the government played more of a facilitator as the government practiced public-private partnership policies. During the 2000's, the government maintained its system as a facilitator as the government practiced privatization policy.

2.4. The growth of Malaysian government size and its revenue

The source of Malaysian government revenue is from three main categories which are tax revenue, non-tax revenue and non-revenue receipts. Tax revenue consists of direct taxes (the income taxes from individuals, companies, petroleum

income tax, stamp duties and others) and indirect taxes (taxes from import duties, export duties, excise duties, sales tax, service tax and others). Tax revenue forms the largest portion in government revenue, averaging about 95%. The remaining two categories are non-tax revenue and non-revenue receipts consisting of license and permits, petroleum royalty, interest and returns on investments, and others.

Figure 2.6: Government expenditure and revenue in RM millions (1970-2007)
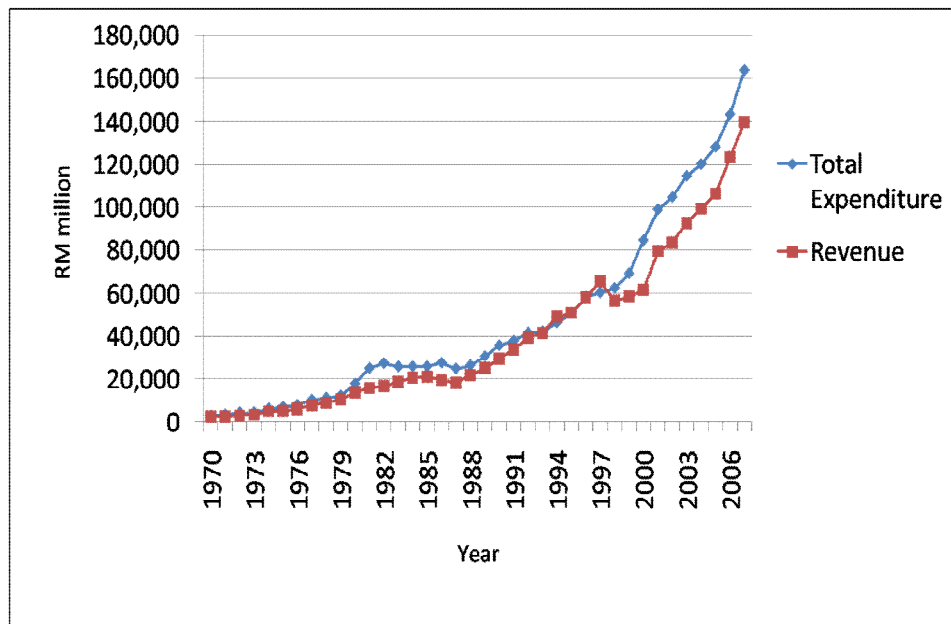
Source: Data from Economic Planning Unit of Malaysia

Figure 2.6 displays how total government expenditures and its revenue changed over nearly four decades. As mentioned earlier, government expenditure

has kept increasing since 1970 and jumped tremendously from RM 2.89 billion in 1970 to RM 163.65 billion in 2007. Government revenue also experienced the same trend which started with RM 2.4 billion in 1970 and increased to RM139.89 billion in 2007. The government faced a budget deficit almost every year through the period of 1970 to 2007. There were several years that the government experienced a surplus budget which was from 1993 to 1997. In 1997, the overall surplus was about RM 6.6 billion. However, due to the financial crisis in 1997, the impact could be seen in 1998 and 1999 which resulted in a budget deficit of about RM 5.0 billion and RM 9.5 billion, respectively. In general, the government budget deficits were bearable as most of the expenditures were spent to deal with severe recession, public investment and other activities with the intention to promote its economic growth. In general, the curve for revenue shows that it is highly correlated with the curve for total expenditure which gives a favorable first impression of government's national account.

2.5. Malaysia's economic policies

Since 1957, the government of Malaysia has formulated several policies and

plans as a tool of guidance for national development. Generally, the policies are categorized into core national policies, long term, middle term, annual and specific development plans, and sectoral and industry-specific plans.

Figure 2.7: Major economic policies in Malaysia
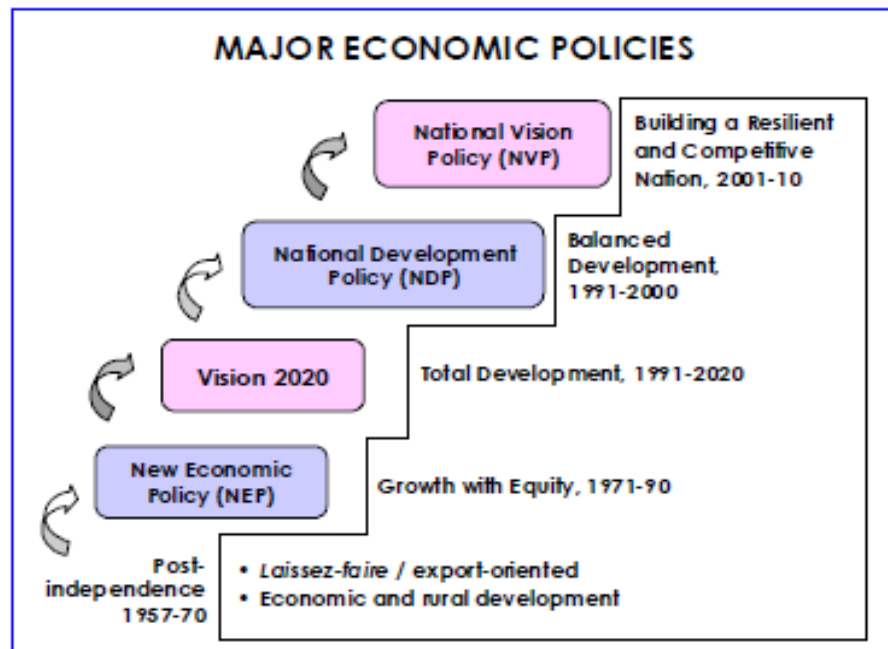
Source: Development Planning in Malaysia (2004)

As shown in figure 2.7, the major economic policies can be more easily understood by looking at five different key stages as follows:

Stage I : Post-independence (from 1957 to 1969)

Stage II : The New Economic Policy (from 1970 -1990)

Stage III   :   Vision 2020 (from 1991 to 2020)

Stage IV   :   The New Development Policy (from 1991-2000)

Stage V   :   The National Vision Policy (from 2001-2010)

2.5.1. Stage I: Post independence (from 1957 to 1960)

Malaysia received its independence from the British in 1957, and as a result, Malaysia is influenced by the British style of administration. During the British colonial rule, rubber and palm oil trees were introduced for commerce. Over the time, Malaya became the world's largest producer of tin, rubber and palm oil. These three commodities together with other raw materials help Malaya's economy at the firm level which was then inherited by the later Malaysian government. Prior to its independence, the government began implementing its five years plan through the First Malayan Plan in 1955. Only in August 31, 1963, the Federation of Malaysia was formed consisting of State of Malaya, North Borneo (later renamed as Sabah), Sarawak and Singapore. The First Malayan Plan was then renamed and re-titled to First Malaysia Plan in 1965. While adopting the laissez-faire economic system, the government focused on a development strategy

specifically targeted on substantial economic growth. Many efforts were taken by the government at that time to strengthen their export economy by expanding the rubber, tin and palm oil industries. However, the laissez-faire practice created problems to the government. Because of the little government intervention in business, the enjoyment of the economy favored the established business interest which resulted in unbalanced shares among races. Chinese capitalists became dominant in ownership of share capital in public listed companies compared to other races especially Malays and Bumiputera (aboriginal people). Although the government implemented the First Malaysia Plan which was to address on welfare issues of the citizens, especially to improve the low- income group mainly in rural areas, the overall inequality especially between urban and rural became more significant. Obvious was the issue of the income gap between Malays (majority lives in rural areas) and Chinese (majority lives in urban areas). During this period, Malaysia enjoys an average 4.1% of growth with its construction output growing from RM801 million in 1965 to RM980 million in 1970. This shows that the government strategy to strengthen the economy through investment in agriculture, exports and rural development works has accelerated the economic growth. However, as a result of the positive economic growth, inequality and perception

that the benefits of development were unequally shared, riots incidents between these two races occurred on May 13, 1969 and became one of the most memorable lessons to the government owing to the inability in resolving the social and economy imbalance in the Malaysian society.

2.5.2. Stage II: The New Economic Policy (from 1970-1990)

Despite the success in terms of growth achieved from the last Malaysia Plan, Malaysia was still facing problems with poverty and an imbalance of economic influence among the ethnic groups. These problems particularly hit the Bumiputera people who did not enjoy the fruits of development as they expected when compared in absolute terms or relative to other races. According to information from Department of Information, Malaysia states population census in 1970 about 49.3 percent of all households in Peninsular Malaysia suffered from living with income below the poverty line. Out of this percentage, about 86 percent of the poor families came from rural areas, which most were Malays. While the other 14 percent came from urban areas. On top of that, the Department of Information, Malaysia also highlights about the Annual Review on Limited

Companies Report conducted by Department of Statistics, Malaysia and Record of Registrar Companies, Malaysia. From the report, they found that the ownership and control of the economy in the nation between the races, domestic and foreign investors were not balanced. These shortcomings inevitably lead to the events of May 13, 1969 where race riots occurred. To respond to the incidents, the government launched the New Economic Policy (NEP) to force an integrated policy set by the second Malaysia Plan (MP 2). The NEP was announced in 1970 with two main objectives, to eradicate poverty regardless of races and to restructure the society with the goal to eliminate the racial discrimination in economic function. The NEP was associated with the First Outline Perspective Plan (1st OPP from 1970-1990) which covered four Malaysia Plans starting from the Second Malaysia Plan (MP-2) 1971-1975, followed by the Third Malaysia Plan (MP-3), 1976-1980, the Fourth Malaysia Plan (MP-4) 1981-1985 and ending with the Fifth Malaysia Plan (MP-5), 1986-1990. The first two Malaysia Plans have been carried out in the first decade of the NEP while the remaining was carried out in the next decade.

2.5.2.1. The Second Malaysia Plan, MP-2 (1971-1975)

The Implementation Programs of the MP 2

The MP-2 was launched aiming to overcome and rectify the imbalance between regions and socioeconomic groups of people in this country. A total of RM 7,484 million has been allocated under the MP-2.[4] The MP 2 can be described as a tool for the NEP to achieve its main goal which is to realize a national unity through a two-pronged strategy, namely the eradication of poverty among Malaysians irrespective of race and to restructure Malaysian society so as to reduce and eventually eliminate the racial discrimination in economic function. In the Second Malaysia Plan, industrial sector has been identified as a key sector for the economic development. This sector plays a strategic role for achieving the objectives of the NEP, in terms of employment expansion, increasing revenues and restructuring of society, especially in developing commercial and industrialism in the Malay community. In addition, the MP-2 was also aimed to increase export by 15 percent per annum and at the same time creating jobs with a rate of 7 percent a year, promoting small-scaled industries and manufacturing activities in the less developed area.

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[4] See data appendix

The achievements of the MP-2

During the implementation of the MP-2, several efforts have been taken by the government to achieve its objectives. Various government agencies have been set up such as Council of Trust for the Indigenous People (MARA), Federal Agriculture Marketing Authority (FAMA), Agriculture Bank, Federal Land Consolidation and Rehabilitation Authority (FELCRA), Federal Land Development Authority (FELDA), Muda Agricultural Development Authority (MADA), Kemubu Agricultural and Development Authority (KADA) and many others. On top of that, the formation of several Institutes of Regional Development such as Lembaga Kemajuan Kelantan Selatan (KESEDAR), Lembaga Kemajuan Pahang Tenggara (DARA) and Lembaga Kemajuan Johor Tenggara (KEJORA) were some of the efforts to integrate rural development activities.

The MP 2 has also set an objective to achieve a certain percentage for the capital ownership by the Bumiputera in the corporate sector. The MP-2 sets the target at 9% for 1975, 16% for 1980, 23% for the year 1985 and 30% for 1990.[5] In fact, the MP-2 has also succeeded in promoting greater participation by

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[5] The Malaysia Plans retrieved from *www.penerangan.gov.my*

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the public sector in economic activities, especially those related to trade and industry. Significantly, in 1974, the Government of Malaysia established the Petroliam Nasional Berhad (PETRONAS) Malaysian-owned oil and gas company. As a result of the implementation of the MP-2 and its subsequent Malaysia Plans, the number of rural poverty has dropped to 21.6% and the participation of Bumiputera in the urban area has increased to 30%.[6]

2.5.2.2. The Third Malaysia Plan, MP 3 (1976-1980)

The Third Malaysia Plan is a second stage of the implementation of the NEP. This plan was prepared based on the achievement of economic and social progress in previous years, especially during the Second Malaysia Plan. It was also based on the experiences gained from the economic and social development stimulation processes which were carried out in the previous plan.

The Implementation Programs of the MP-3

The MP-3 has implemented many new programs and regional development

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[6] The Malaysia Plans retrieved from *www.penerangan.gov.my*

plans to continue the success gained from the previous Malaysia Plans. The government has made a complete analysis on the distribution of allocations to the states to ensure the continuous success. Based on data from the Economic Planning Unit, Malaysia, the amount allocated under the MP-3 was RM 21,128 million.[7] Efforts were made to develop the agricultural and industrial sectors in order to raise revenue, productivity and employment opportunities. The strategy of the industrial sector in the MP-3 was still focusing on the objectives of the NEP to promote efficiency, provide jobs, and increase the participation of the Bumiputera in manufacturing sectors. The strategies under the MP-3 have been carried out based on views of differences economic characteristics of the urban poor households. The first strategy was to promote the development of manufacturing and construction sectors particularly those sectors with manufacturing techniques that are more labour-intensive. The second strategy was assisting the small-scaled industries with more credit facilities and enhancing the relationship between these small producers that use a lot of labour to the modern sectors, through small project facilities. The third and fourth strategies were developing new urban centers across the country with the purpose to reduce

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[7] See data appendix

congestion in major cities and increase the housing facilities and public transport

particularly in poor areas in major cities. In terms of socioeconomic development,

the MP-3 set its strategy to increase the role of agriculture and industrial sectors

so that it can provide opportunities and involvement of peoples from all races. For

optimum benefits from the industrial development, the government has reviewed

the related policies which could encourage investment from time to time. This is

to ensure that those policies could foster the development of employment and the

use of natural resources so as to promote efficient production in

the industry that would later control costs of the industrialization in the

society. Furthermore, efforts to improve the living standards of the poor in urban

areas and rural areas were carried out simultaneously with efforts to

expand employment and income. Both of these measures were one of the

government's strategies to eradicate poverty problems. Other programs included

Food and Nutrition Practice Project and community development in urban and

rural areas.

The achievements of the MP-3

The Department of Information, Malaysia stated that in terms of

performance, the MP-3 has resulted in a total gross investment of RM 48,449 million for development.[8] The Economic Planning Unit, Malaysia reported that for the first 10 years of the NEP (1971-1980), the Malaysia's economy has grown in average at a rate of 7.5% per annum. The average rate was slightly lower than the goal of 8% per annum. Among the major factors causing low growth rate was the slow growth rate in the agricultural sector at a rate of 4.3% per annum. Other sectors had mostly with a growth rate of 8% per annum. Among all sectors, industrial sector showed a prominent achievement in economic growth. It contributed about 20.5% to GDP in 1980 and its contribution to employment and export earnings were 24.5% and 25.2% respectively.[9] For agriculture, although its contribution to GDP was larger than the industrial sector, its overall contribution to GDP declined to 22.8 percent in 1980.[10] In terms of employment percentage among the Malays in the economic sectors, the results show a lot of improvement even though the numbers were still lacking, particularly in management and executive level. Overall, the MP-3 has helped the government to be more assertive in eradicating poverty and restructuring the society over the years 1976-1980.

[8] See data appendix

[9] The Malaysia Plans retrieved from *www.penerangan.gov.my*

[10] The Malaysia Plans retrieved from *www.penerangan.gov.my*

2.5.2.3. The Fourth Malaysia Plan, MP 4 (1981-1985)

The Fourth Malaysia Plan implemented from 1981 to 1985 was another major step taken by the government towards achieving the long-term goals of economic development and national unity. The MP-4 was structured by various programs as an effort to accelerate and improve the income and living standards of people in this country. The MP-4 was actually launched during the country's economic recession mainly due to falling world market prices of tin and rubber. This phenomenon caused the country to experience several economic problems such as deterioration in the balance of payments, falling prices and decreased exports of the commodity sector, the slowdown of private sector activities and rising rate of unemployment. However, the government maintained its economic development strategy by allocating about RM 48, 062 million under this plan.[11]

Privatization Policy

Privatization in Malaysia began to receive attention in the mid- 1983 emphasizing on private sector development and management of the country. The

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[11] See data appendix

rationale for privatization in Malaysia is due to the efficiency factor of the private

sector as the need to control the growth size of the public sector particularly in the

financial aspects. The objectives of privatization are as follows:

1. To reduce the financial burden of government

2. To enhance the efficiency and all production

3. To promote economic growth

4. To increase efficiency in resource allocation

5. To accelerate the NEP progress

Among the privatization projects that were carried out under this policy

were the North South Expressway given to UEM Bhd., TV3 by Television

Malaysia Berhad, telephone services to Syarikat Telekom Malaysia and the

Department of Post, Malaysia.

The Implementation Programs of the MP-4

Under this plan, the national economy continued to experience growth and

diversification. The essential elements for the development strategies were to

increase agricultural productivity, increase and diversify its industrial sectors, the

modernization of the financial sectors and services and to diversify sources of

growth. The MP-4 also gave attention to the heavy industrial sector particularly in aspects that were related to capital investment, technology and skilled manpower. To ensure the success of this heavy industrial development program, the government has established the Heavy Industry Corporation of Malaysia (HICOM) as one of its efforts. Notable projects under the supervision of HICOM were such as the cement plant, which is managed by the Kedah Cement Limited, hollow steel mills and steel production by Perwaja Sri Dungun, Terengganu and manufacturing of the Proton Saga car by the National Automobile Company Limited.

On top of all these, the government made efforts to attract more foreign investors to open up new industrial areas such as in Senawang, Skudai, Bintulu, Menggatal and Likas. A free trade zone is opened on the same pattern as in Bayan Lepas, Penang. In addition, the government has also launched reserve properties and industrial stocks among the Bumiputera and non-Bumiputera formed by Permodalan Nasional Berhad (PNB) and Amanah Saham Nasional (ASN) in 1981.[12] At the same time, the MP-4 has also emphasized the strategic aspects of poverty eradication and restructuring of the people. The employment

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[12] The Malaysia Plans retrieved from *www.penerangan.gov.my*

restructuring was through educational programs and training, with hopes to increase the number of educated Bumiputera, particularly at higher education level. The government continued with its strategies to ensure the achievement of Bumiputera ownership of at least 30% of the total capital stock in the companies through the purchase of capital stock of trust agencies. The trust agencies included PNB, MARA, the Perbadanan Nasional Berhad (PERNAS) and the Corporations Economic Development (SEDC).

The achievements of the MP-4

In terms of poverty eradication, data from Department of Information, Malaysia shows that through the implementation of this plan, the poverty rate dropped from 49.3% in 1970 to 29.2% in 1980. This achievement was contributed by the rapid economic and social development progress during the period of 1971-1980 which saw greater employment opportunities and productivity in agricultural and industrial sectors. In general, the implementation of this plan has witnessed the growth of GDP at an average rate of 5.8% per annum with per capita income growing by 4.4% annually.

2.5.2.4. The Fifth Malaysia Plan, MP-5 (1986-1990)

The Fifth Malaysia Plan set a new phase in the national development strategies. This plan emphasized on a moderate, sustainable and stable economic growth. One of the most significant agenda emphasized by this plan was the national unity which was the main objective and represented the overall structure of the social economic development that eventually aimed for economic stability of the country. The Economic Planning Unit, Malaysia reported that the total allocation under the MP-5 was RM 35,916 million.[13]

The Implementation Programs of the MP-5

In the MP-5, the government has created and implemented a number of strategies. Among the strategies were the deregulation action (deregulation and control) in terms of property rights, licensing and other economic activities to encourage healthy competition and improve efficiency. The main purpose of this action was to increase the role of private sector in economic growth. The government has also reviewed the term of foreign capital investment to encourage

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[13] See data appendix

investment particularly investment related to export-oriented industries. Several

requirements and conditions for use of land were also reviewed to allow appropriate

cultivation in abandoned lands. To promote the industrial sector, the government

introduced a discount in electricity, water and telephone bills, and many others

incentives.

The MP-5 also emphasized on research and development (R&D) activities to

enhance the productivity, capacity and efficiency of local employment. Efforts on

human resource development were also covered, such as skills training in

management, entrepreneurship, construction, hospitality and shipping. Planning

and development at regional and area level, and also the development of new towns

were also emphasized in the MP-5. It aimed to reduce duplication of investment

and infrastructure, and to expand the benefits of development to all regions. Some

cities that were inherent in backward areas were developed to reduce the migration

of workers to urban areas. The tourism sector was also focused by encouraging the

involvement of private sector in hotel construction. To support this measure, the

government established the Corporation of Tourism Malaysia and launched the

Visit Malaysia Year 1990.

The government through the Institute of Public Administration (INTAN) and

the Malaysian Administrative Modernization and Planning Unit (MAMPU) has

conducted several studies on performance and productivity. The implementation of

the MP-5 witnessed the establishment of two new ministries at the federal levels

and 46 departments, agencies and offices. The new ministries were the Ministry of

National and Rural Development and Ministry of Justice. In addition, a total of 48

ministries, departments and federal and state agencies have been reorganized. Apart

from the above policies and values, a number of new administrative measures have

been introduced to ensure the design and implementation of the government

organization to be more efficient and productive. These new measures consisted of

a public service code of ethics, leadership by example, value added quality of work,

manual working procedures and desk files, local payment center, open office

concept, time recording systems, sign your name, suggestion box, managing the

meetings and the use of postcode system for the whole country.[14]

The achievements of the MP-5

Overall, the Malaysian GDP has grown at 6.7 percent annually compared with

the initial MP-5 goals at the rate of 5.0 percent. A strong performance since

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[14] The Malaysia Plans retrieved from *www.penerangan.gov.my*

1983 came through the successful implementation of adjustment measures which were to strengthen the public sector and to reduce the budget deficit. In addition, the policy of trade and investment liberalization that was introduced during the recession in 1985-86 encouraged the confidence of private sectors and eventually increased its investment. The combination of these factors with the improvement of external environment, has allowed the economy to recover quickly. Implementation of policies and strategies that were created to achieve a more equitable income distribution coupled with rapid economic growth, particularly in the second half of the MP-5 has produced a significant progress in the pattern of income distribution among the ethnic groups. As a result, the growing number of educated Bumiputera workforces and the emergence of Bumiputera entrepreneurs and businesses, together with the increase in their participation in modern economic activity, have led to the increase in the number of Bumiputera in the high income group.

2.5.3. Stage III: Vision 2020 (from 1991-2020)

In 1991, the government officially announced Vision 2020 as the nation's objective to become a developed nation in its own mould by 2020. There are nine

challenges set under this vision that need to be overcome. Its focus is to attain the

role of an industrialized and a fully developed country. The challenges are as

follows:

i. Establishing a united Malaysia nation made up of one *Bangsa* [15] Malaysia

ii. Creating a psychologically liberated, secure and developed Malaysian society,

iii. Fostering and developing a mature democratic society,

iv. Establishing a fully moral and ethical society,

v. Establishing a scientific and progressive society,

vi. Establishing a fully caring society,

vii. Ensuring an economically just society, in which there is a fair and equitable distribution of the wealth of the nation, and

viii. Establishing a prosperous society with an economy that is fully competitive, dynamic, robust and resilient.

The Vision 2020 acts as a framework to guide the whole activities towards a

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[15] In English is Ethnic.

developed nation. The implementations are to be realized through the New Development Policy (NDP) and the National Vision Policy (NVP).

2.5.4. Stage IV: The New Development Policy (from 1991-2000)

The NDP was declared in the same year of Vision 2020. It was the replacement for the latter NEP and was represented by the Second Outline Perspective Plan consisting of the Sixth Malaysia Plan (MP-6) and the Seventh Malaysia Plan (MP-7). Under the NDP, several policies from the NEP have been improvised. The NDP has provided a new dimension in bringing more balanced development while at the same time maintaining the basic policies of the NEP. For example, the focus of the anti poverty strategy under the NEP has changed to the eradication of hardcore poverty. To visualize the Vision 2020, the NDP has implemented several new large-scale infrastructure projects consisting of housing, schools, hospitals, commercial and industrial buildings mainly funded by the government. The government has also strengthened the tourism and manufacturing industries with the aim of supporting the industry's growth momentum.

2.5.4.1. The Sixth Malaysia Plan, MP-6 (1991-1995)

The Sixth Malaysia Plan covered the period 1991-1995 and was considered

as the first phase of the Second Outline Perspective Plan (OPP2), 1991-2000. This

plan was also considered as a tool of strategies, programs and projects to achieve

the objectives of NDP. The main thrust of this plan was to maintain economic

growth at a high level and manage it effectively in order to achieve a more

balanced economic development. The 'balanced development' is based on the

realization that although there is a progress in economic growth and distribution, a

strong growth still requires a broader economic base. Balanced development

strategy includes policies to diversify its industrial base, enhance human resource

development, and promote the improvement of technology and reduce the

structural imbalance between sectors and between regions in the country. The total

development allocation for the entire program is RM 54,705 million.[16]

 The Implementation Programs of the MP-6

Several strategies have been developed to achieve the objectives of the

MP-6. Among the strategies were to enhance the efficiency of economic

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[16] See data appendix

competitiveness and to encourage private sector to continue its major role in the development of national economy. At the same time the government will increase revenue and reduce unproductive spending and accelerate the privatization program. More active measures have been put in place by the government to strengthen financial and capital market development in order to increase domestic savings and distribute capital efficiently to productive sectors, particularly the manufacturing sector.

The achievements of the MP-6

Malaysia's economic performance in the Sixth Malaysia Plan was positive. With strong economic fundamentals followed by the implementation of sound macroeconomic policies and high competitiveness of the country, achievement of high economic growth at a relatively more stable degree has become possible. The national economy has been driven by a high rate of private investment, spurred by large foreign investment inflows, high domestic savings and rapid implementation of the privatization program. The export sector has performed well even though several major industrial countries suffered a slow growth in the first half of this plan period.

In the assessment of the macroeconomic performance, the economy has registered an average growth of 8.7 percent annually, surpassing the 8.1 percent and 7.5 percent targeted by the midterm review and the original plan respectively. This rapid growth has been achieved along with macroeconomic stability. It was also contributed from the domestic demand which grew at 11.3 percent per annum and was further strengthened by the global economic recovery at the end of the plan period. This rapid growth has increased its per capita income of RM 6, 099 in 1990 to RM 9, 786 in 1995 and has attracted high foreign investments. The private sector plays a key role in economic development while the public sector continues to play an active supportive role.

Under the MP-6, the pragmatic macroeconomic management has helped to increase the Malaysian production capacity and its competitiveness. In addition, Malaysia's success in achieving high economic growth and price stability was the result of sound macroeconomic policies and effective strategies. The ongoing liberalization of the rules and procedures, supported by a stable political environment has created a conducive and pleasant environment for private investment. Malaysia has managed to finance this investment through its domestic savings and from the high entry of foreign direct investment (FDI).

Efforts made towards industrial development have resulted in better quality

products, enhanced efficiency, and competitiveness of Malaysian exports.

Resources have been allocated for the development of science and technology

(S&T), research and development (R&D) and human resources to increase

productivity. Financial markets have been strengthened and have facilitated the

mobilization of domestic savings. In addition, the capital market has been

developed to meet the growing needs of an economy toward industrial standards.

The agricultural sector recorded an average growth rate of 2.0 percent per

year though its share of GDP decreased to about 13.6 percent at the end of this

plan. The rising productions of oil palm sub-sector, livestock and fisheries have

contributed to the growth of this sector. Mining sector achieved an

average growth of 2.9 percent annually, higher than the 1.1 percent target.[17]

Real economic output has grown in the MP-6 and is predominantly derived

from investment in physical infrastructure, R&D, education and skills training

accompanied by large FDI inflows. The last year of the MP-6 led to the eight

consecutive years of great achievement in economic growth, making the most

rapid growth period and the longest ever rapid economic growth enjoyed by the

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[17] The Malaysia Plans retrieved from *www.penerangan.gov.my*

country. More important, these high growth rates were achieved in an environment of relatively stable prices.

2.5.4.2. The Seventh Malaysia Plan, MP-7 (1996-2000)

The MP-7 was carried out from 1996 to 2000, covering the second phase of OPP2. This plan was prepared based on the successful implementation of the Sixth Malaysia Plan, which aimed to bring the country into the 21st century effectively. This plan was designed based on new strategies to address the challenges and changes faced by the society and economy. The MP-7 maintained the emphasis on the concept of balanced development set by the NDP. This plan tried to ensure that economic growth was equally distributed to all ethnic groups. Among the new strategies that were implemented was the strategy of economic growth driven by investment or priority input from the previous Malaysia plans. In addition, a transition to a large-scale production for the export of Malaysian industries was also put in place. This plan also emphasized the importance of human resources by increasing the area of training and education. A new strategy was also implemented to enhance science and

technology. In addition, the MP-7 also continued to highlight the role of the private sector in promoting economic growth. Although the MP-7 was launched at the time of country's rapid growing economy in 1996, the implementation of this plan was actually facing a difficult period due to the economic downturn, especially in 1998.

The financial crisis that began in July 1997 has affected much on the economic plans. Several steps have been taken by the government to ensure the stability of the country's economy. The government established the National Economic Action Council (NEAC) on January 7, 1998 and the National Economic Recovery Plan (NERP) on 23rd July 1998 to respond to the financial crisis problems. The total allocation for the development expenditure for this plan was RM 99,035 million.[18]

The Implementation Programs of the MP-7

During the implementation of the MP-7, attention was given to maintain high stable economic growth in order to facilitate the achievement of socio-economic objectives. At first, the implementation of the MP-7 was aimed at

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[18] See data appendix

an economic growth at an average rate of 8.0 percent per annum with low inflation level. Therefore, the first step taken by the government was to fight the inflation through fiscal and monetary policies and also through appropriate administrative measures and adjustment of supply. On top of this strategy, the government also made several other strategies to achieve this target such as developing modern services that were dynamic and open-oriented not just as a major catalyst for growth but also its potential for export market. The government also made efforts to strengthen the S&T sector together with the R&D and to fully utilize the technological capabilities as well as Information and Communication Technology (ICT) to ensure that the country will be able to shift from just a consumer to a developer of IT and supplier of multimedia products. In addition, this plan also tried to ensure a sustainable development through a greater awareness of environmental conservation and integrated consideration of environment in the process of economic and social development. This plan was attempted to ensure a fair distribution of income and wealth of the country among the people to continue the socio-economic stability.

The achievements of the MP-7

In terms of economic growth, the achievement of the MP-7 was not prominent. The earlier economic growth target at an average rate of 8.0 percent per annum set by this plan was much affected by the financial crisis. In 1998, the national growth rate deteriorated to about -7.1 percent. However, with quick recovery measures taken by the government, the economic growth rose back about to 8.8 percent at the end of 2000. Under this plan, the country enjoyed its economic growth at an average of 4.9 percent per annum.

2.5.5. Stage V: The National Vision Policy (from 2001-2010)

The National Vision Policy was announced in 2001 with its objective to build a resilient and competitive nation. At the same time the policy aimed to encourage the creation of a just society, maintain sustainable economic growth, build a knowledge based economy, strengthen human resource development and maintain sustainable environment development. This policy consisted of two Malaysia plans which are the Eight Malaysia Plan (MP-8) and the Ninth Malaysia Plan (MP-9). These plans outline all the strategies, programs and projects to

increase the nation's economic growth. The optimum aim of this policy was to develop Malaysia as a developed nation based on its own mould.

2.5.5.1. The Eight Malaysia Plan, MP 8 (2001-2005)

The Eight Malaysia Plan covered the period from 2001 to 2005. This plan was the phase of the Third Outline Perspective Plan (OPP3) from 2001 to 2010. The OPP3 carries the NVP which determines the direction of development for the country. The MP-8 is a plan structured by a combination of strategies, programs and projects which were designed for the achievement of the NVP. The strategies and policies of the MP-8 focused on achieving sustainable and resilient growth. And the main strategy of the MP-8 was to shift from input-driven strategies to knowledge-driven strategies. The MP-8 emphasized more on the role of private sector while the public sector provides for conducive policy frameworks and institutional quality service to assist in the development of private sector. To improve the competitiveness of the country, special emphasis has been given to increase productivity and efficiency through human resource development, R & D activities and the use of new technologies, especially ICT. The total allocation for

the MP-8 was RM 169,964 million.[19]

The Implementation Programs of the MP-8

The MP-8 continued to aim at rapid economic growth with low inflation. The MP-8 set its economic growth target at 7.5 percent per annum. Several efforts were made by the government such as to improve the efficiency of capital usage, implementing quality and productive investment and increasing labor and total factor productivity of the country. Efforts were also made to encourage more domestic investment and attract FDI. The government also expanded the usage of ICT in all sectors of the economy to accelerate the growth process. To strengthen the linkages between multinational companies and the local industries, the government took a measure by encouraging the use of more local inputs.

Through the MP-8, privatization was continued to facilitate economic growth. During the period of this plan, a total of 98 projects were privatized consisting of 47 existing projects and 51 new projects. Out of these numbers, 49 projects were in construction, transport and electricity and gas. Projects that have been completed were the Damansara-Puchong Highway, Sungai Besi road and

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[19] See data appendix

three upgrading projects of Private Electric Power Plant in Sandakan, Batu Sapi and Karambunai in Sabah, the monorail system in Kuala Lumpur, the Express Rail Links (ERL) from Kuala Lumpur to Kuala Lumpur International Airport (KLIA), the 10,000 units of teachers' quarters and the Phase III water supply project in Selangor.

The achievements of the MP-8

Throughout the implementation of the MP-8, the country managed to attain a growth rate average at of 4.7 percent per annum. The percentage would be better if there was no world economic downturn in 2000 which saw the fall of the electronics prices. The problem became more terrible when the tragedy of Sept 11, 2001 occurred in the United State of America which had many impacts on the whole world. As a result of these impacts, the country's economic growth in 2001 was set at about 0.52 percent. However, the country managed to recover with the measures taken through the MP-8 and resulted in the return of e economic growth at about 6.8 percent in the end of 2004. All the economic sectors have made positive progress, including the development of new economic sectors such as S&T and Information and Communication Technology (ICT). Social development sectors

also continued to make progress. The poverty rate declined from 22.8 percent in 1990 to 5.7 percent in 2004. Basic needs such as health, education and housing became more available, as well as the development of infrastructure and utilities.

2.5.5.2. The Ninth Malaysia Plan, MP 9 (2006-2010)

The Ninth Malaysia Plan was officially issued in March 2006 which covered for the period of 2006 to 2010. Among the main objectives of the MP-9 was to strengthen national unity accompanied by excellence, glory and distinction. Under the MP-9, the government established several strategies emphasizing on services, manufacturing and agriculture. The strategies were particularly to enhance all those sectors throughout the period of this plan. At the same time, the MP-9 was also emphasizing on human capital development as a valuable asset for the development of the country. The aim was to have good and quality human capitals that can shape the country towards excellence. The government allocated about RM 200 billion under this plan. Out of the total budget allocation, 44.9 percent was allocated to development projects under the economic sector, 37.5 percent for the social services sector, 10.6 percent under the defense and security

sector, and 6.9 percent under the general administration. In terms of sub-sectors, the largest percentage of budget allocation, about 20.6 per cent, has been allocated for education and training, in line with government's determination to improve the quality of human capital. The remaining, 15.9 percent was allocated for transport sector, 10.9 percent for public utilities, 9.9 percent for trade and industry, 5.7 percent for agriculture, 5.4 percent for health and 5.0 percent for the housing. Under the MP-9, a National Mission consisting of five thrusts were established by the government.[20]

Thrust One: to move the economy up the value chain.

Under this thrust, the government aimed to increase the value added and total factor productivity of every economic sectors particularly manufacturing, services and agriculture. The plan gave serious attention to human capital development and enhancing job creation. At the same time the government maintained and enhanced the previous plans strategy of creating a pleasant environment for private sector to lead the economic development.

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[20] The Malaysia Plans retrieved from *www.penerangan.gov.my*

Thrust Two: To raise the capacity for knowledge and innovation and nurture 'first class mentality'.

The MP-9 aimed to develop quality human capital for the nation. The quality covers all aspects from intellectuals to characters. For this thrust the strategy of improving the whole national educational system was put in place by the government. An environment suitable and encouraging for research and development (R & D) has been created and at the same time, emphasis was given to cultivate a civilized society with high moral strength.

Thrust Three: To address persistent socio economic inequalities constructively and productively.

The Government strongly believes in eradicating poverty, generating more balanced growth and ensuring the benefits of development that can be enjoyed fairly and equitably by the people.

Thrust Four: To improve the standard and sustainability of quality of life.

The Government continued to provide basic needs such as water, energy, housing, transportation and other amenities but had more emphasis on issues

related to maintenance, upgrading and efficiency usage of resources.

Thrust Five: To strengthen the institutional and implementation capacity.

Under this thrust the government aimed to improve the whole public service delivery system. In addition, the government also emphasized on issues related to corruption and integrity in the public and private sectors, and among the general public.

The achievements of the MP-9 (2006 and 2007)

Under this plan, the government initiated the regional development program for the country. This program consisted of three regional development corridors from three different territories involving the Northern Corridor Economic Region, the Southern Development Region (Iskandar Malaysia), and the Eastern Corridor Economic Region. The initiative of the regional development regions attracted high domestic investment and foreign direct investment. A total of RM 56.5 billion domestic investment and foreign direct investment was generated for the first seven months in 2008. In terms of economic growth, the MP-9 managed to set the country's GDP growth for 2006 and 2007 at 5.85 percent and 6.48 percent

respectively.

2.6. Criticism issues on Malaysian National Policies

They are a number of criticisms since the government introduced and implemented its national policies. Starting with the NEP until its recent policies, the government has been pressed to defend and to prove the effectiveness of all its policies. Many of the criticisms were made by the proponents of the left-wing political parties such as the Pan-Malaysian Islamic Party (PAS), the Democratic Action Party (DAP) and the People's Justice Party (PKR). However, those criticisms were made under the weighting factor of opposition political views which may create biased views. Therefore this study will only refer to criticisms that were made by nonpartisan intellectuals, scholars or organizations to avoid any bias in political party affiliation. There are several prominent reports and journals related to this subject such as Milne (1976) Jomo (1989, 2001, 2004 and 2003), Mansor (2000), Siddiquee (2006), Jeff (2008), John (2011), and the World Bank (2011). Under this subchapter, this study looks on economic discrimination, crowding out effect owing from government activities, rent-seeking activities and

issues related to the public sectors such as corruption and inefficiency.

2.6.1. Economic discrimination and crowding out

As we have explained earlier, the NEP was introduced mainly to respond to

the race riots that occurred in 1969 due to the imbalance of economic distribution

among the people particularly for the Malays at that time.   Therefore the main

objective of the NEP was to balance the economic distribution emphasizing on

Malays economic development. John (2011) states that this objective has lead to

the economic discrimination among other races in Malaysia. The ideology of the

NEP was the root cause of the present shortcoming of economic discrimination in

Malaysia. In terms of the objectives of national unity and eradication of poverty,

he states that these objectives sounded plausible and promising in handling the

problems. However, the implementation and interpretation was biased and only

favored to the Malays, and later was considered as a cancer of the later

shortcoming situations among races in Malaysia. Jomo (2003) states that the

ethnic affirmative action programs carried out under the NEP brought several

complicated economic consequences such as generating the resentment from

those races that were denied certain privileges offered by the government. John

(2011) further states that even though there has been no recurrence of the tragedy

in May 1969, the resentment among other races particularly Chinese and Indians

from the government affirmative action policies remained widespread and

profound. He also states that one of the indications of the resentment is shown by

the huge numbers of migration or the so called *'brain drain'* by the non-Malays.

This argument was supported by the World Bank Report (2011) which states that

the implementation of the national policies has caused a 'brain drain' of about one

millions of Malaysians and one third of this number are skilled people. The report

also states that "for every ten skilled Malaysians born in Malaysia, one of them

elects to leave the country"

The government also tried to eradicate poverty and to restructure the society

with more balanced economic function through the NEP, by increasing the equity

shares among the Malays. The government aimed to achieve at least of 30%

control of corporate assets by the Malays. John (2011) highlights several ways

that have been carried out by the government for this purpose. Using government

ability and resources, the government acquired large firms owned by foreign

entities and then positioned and recruited the Malays in the management. The

other way was by practicing joint ventures between the government entities and the foreign firms. One of the regulations of this practice was that the foreign firms had to put aside at least 30% of its shares to be sold and owned by the Bumiputera the majority of which is the Malays. The other way was by setting up a new government owned company which had the monopoly capacity in certain business such as the Petronas. At one side, this affirmative action may have helped the government in achieving the objective of the NEP. On the other side, John (2011) highlights that this practice led to a huge increase in public investment and at one time investment made by the public sectors exceeded the investment made by the private sector which then contributed to a big impact to the economy particularly in crowding out private sector opportunity, investment and more efficient employment. He also highlights that through the NEP, a total of 1,133 government- owned companies were set up and out of this number, 286 were either closed, inoperative and under receivership. Furthermore, in 1987, the PNB through its Central Information Collection Unit (CICU) reported that in 1987, out of 1,148 government-owned companies that were set up under the NEP, only 446 companies were able to make profits, the remaining 562 companies suffered from losing and 140 companies were either inactive or in the process of closing down.

In terms of the function of tertiary education in eradicating the poverty problems, the NEP has emphasized on developing educated Bumiputera which later could increase the economic status of this group and subsequently contributed to the economic growth of the country. However, John (2011) argued that the result through this approach did not meet the real expectation because of two major problems which are quality and outcomes, and cost. In terms of quality and outcomes, he states that the implementation of the NEP which he believes was favored to the Malays has screwed up the entire tertiary education system. This is because through the NEP, the scholarship and tertiary education enrolments were awarded primarily based on races instead of merit. As the Bumiputera peoples were mostly less competitive compared to the Chinese- and Indian- Malaysian, thus the government has lowered the entry point qualification and the assessment standards to comply with the ability of the Bumiputera at that time. At the same time, to support this practice, the government allocations for Malays-dominated public universities, Bumiputera scholarships and grants have been rising enormously. As a result of this, he states that the products developed by the tertiary education system were less capable and slowed down the growth in technological capability.

2.6.2. Rent-Seeking

Rent-seeking is believed to exist in Malaysian economic activities. John (2011) suggests that a rent-seeking activity was derived from the implementation of the NEP. Jeff (2008) and Jomo (2004) state that the privatization policy introduced in 1980 contributed to the rent-seeking behavior in Malaysia.

Initially the thought which came from the criticism of the NEP is that, this policy which was introduced in 1970 was specially designed to give more wealth to Malays. John (2011) states that initially the government initiated special trusts that were meant only for Malays to help them in gaining economic wealth. He reports that "at the period of late 1970's to early 1980's, about 70% of corporate assets designated for Bumiputera were held in trust agencies, with the remainder 30% held by Bumiputera individuals". However, starting from 1980, the government put emphasis on individual acquirement which resulted in the other way percentage in 1990 and kept rising to about 91.2% in 2002. John (2011) argues that the Malays were not able to gain that prosperous percentage in acquisition of corporate assets without the help by the government. This practice has led the Malays to be much dependent on the government through political and business connection instead of merit or business proficiency. John (2011) also

highlights the example of the implementation of the ASN scheme. This scheme is offered to all Malay individuals, however out of all the ASN shares, 75% of it are owned by about 26,000 individual Malays whom are believed to have special connections with the government.

In addition he states that the rent-seeking activities can be clearly seen during the implementation of the privatization policy. Under this policy, many of government assets were privatized and resulted in transferring a large amount of wealth to a small number of well-connected Malays which didn't really improve the productivity and efficiency. This action also led to the rising of Malays control in government-owned entities which resulted in jeopardizing the career pathway of the entities. He states that the destruction is because "the path leading to executive appointment in these firms is based largely on connections to politicians, senior bureaucrats or UMNO party officials, current state-owned management staff, or other government entities. Therefore, this practice did not contribute to the development of corporate skilled professionals or capable entrepreneurs that could help in promoting the economic growth. Furthermore he stresses that only the well-connected entrepreneurs and companies would be well rewarded under this policy.

2.6.3. Issues related to public sector

There are several issues related to the public sector such as corruption and inefficiency. These issues have been debated for many years since the implementation of the first national policy of the country. Many actions pertaining to these issues were done by the government to improve the overall performance of the country, yet they are still considered as unresolved issues. Siddiquee (2006) highlights that the ideology of the New Public Management assumes that the root cause of the inefficiency and poor performance of the public service is the existing structures and policies. It is well known that public service is haunted with its red tape procedures. To respond to this matter, the government has adopted the NPM approaches by taking several profound transformations to the public service to cope with the global demand throughout the years.[21] Since the issue of inefficiency is very subjective, it creates room for criticism. Siddiquee (2006) reported that although several transformations have been made to the public service, the impacts so far are still average.

Corruption is a big issue and receives a global concern. The cases of corruption are not exceptions and have long been debated in Malaysia. Several

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[21] As explained in subchapter 2.3

profound measures have been taken by the government to fight the corruption. Examples of the actions that have been taken by the government to fight corruption were initially the setting up of the Prevention of Corruption Act in 1961 and the establishment of Anti Corruption Agency (ACA) as an agency to implement the act. The act was then revised into Anti Corruption Act 1997. With the intention to improve the status of corruption, the government established the Public Accounts Committee, the National Integrity Plan and the Integrity Institute of Malaysia (IIM), the public Complaints Bureau (PCB) and the Royal Commission on Police. Even though many actions have been taken by the government to fight against the corruption, the problem still exists and remains high. Siddiquee (2006) reports that although transformation and improvement in service provisions have been carried out, the impacts of these actions are still not clear. Furthermore the Malaysian public service still suffers from corruption. To look at the corruption status of Malaysia, this study refers to data captured from Transparency International (TI) which uses the Corruption Perception Index (CPI). The CPI is the best known tool developed by the TI which was launched in 1995. This tool is widely used by many researchers and organization especially for policy purposes. The CPI indicates a value that when near to ten shows less

corruption exists in the country (highly clean), while a value less than five and near to zero means that the country is perceived to have a highly corrupt environment particularly among public officials and politicians.

Figure 2.8: Graph of Corruption Perception Index and Ranking for Malaysia from 1995 to 2010
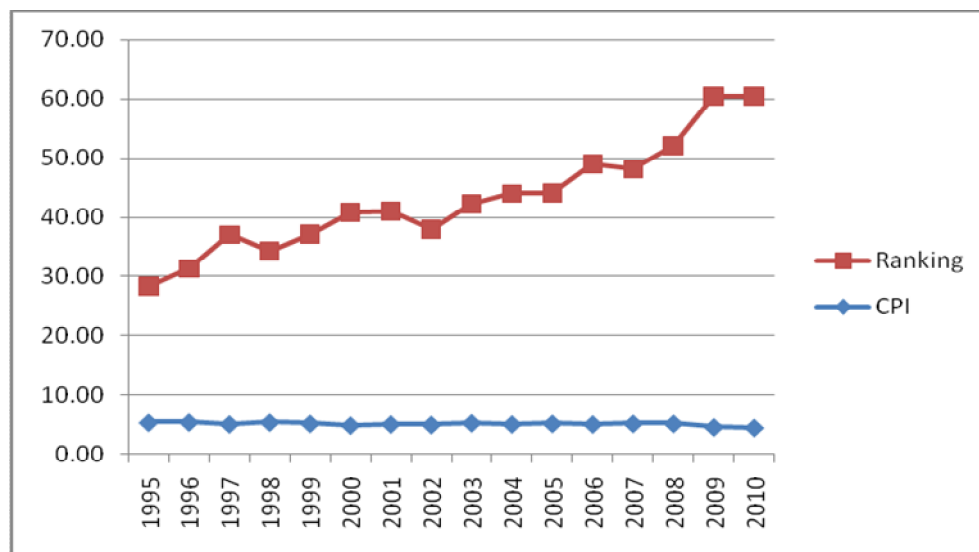
Figure 2.8 shows the trend of Malaysia's CPI and its ranking since 1995 to 2010. In general, the graph for CPI in Malaysia shows a little decreasing trend while the graph for Malaysian ranking shows an increasing trend.

Table 2.1: Corruption Perception Index and Ranking for Malaysia from 1995 to 2010

Year	CPI	Ranking	Total countries
1995	5.28	23	41
1996	5.32	26	54
1997	5.01	32	52
1998	5.30	29	85
1999	5.10	32	99
2000	4.80	36	90
2001	5.00	36	91
2002	4.90	33	102
2003	5.20	37	133
2004	5.00	39	146
2005	5.10	39	158
2006	5.00	44	163
2007	5.10	43	179
2008	5.10	47	180
2009	4.50	56	180
2010	4.40	56	178

Table 2.1 shows detailed data about Corruption Perception Index and Ranking for Malaysia from 1995 to 2010. Since 1995, the values of CPI for Malaysia have not surpassed more than six. In fact, the values have kept decreasing throughout the years. Out of 16 years of evaluation, Malaysia experienced four times CPI values below five, showing a high degree of corruption existed during these years. As a result, the ranking of Malaysia in corruption status has also been affected which saw the performance of the

country fall from 23 to 56. At the ranking of 56 in 2009 and 2010, the CPI value was marked at 4.50 and 4.40 respectively. These were among the worst ever performance experienced by the country. This finding support the findings made by Siddiquee (2006). However, there are two possible explanations about this finding. The CPI level maintained an average of five throughout the years because the measures taken by the government were not able to cope with the rising of corruption activities level, this means that the government needed to put up more emphasis in fighting the problems. Furthermore, the other possibility is that all the actions pertaining to this issue were not strategic and ineffective. At any possibilities, it shows that the expenditures spent under this matter did not respond positively in return. Finally, the unresolved issues could cause a negative impact on other sectors.

Chapter Three

3. Theory, Model and Methodology

3.1. Theory

Economic performance of a country is often explained by economic growth and economic development. Both of these are closely related but are significantly different. Generally, economists define and measure economic growth as either an increase in real GDP occurring over some time period or an increase in real GDP per capita occurring over some time period. However, economic development is defined as a qualitative change and restructuring in a country's economy in connection with technological and social progress.

Economic growth is defined as "the steady process by which the productive capacity of the economy is increased over time to bring about rising levels of national output and income" while economic development is defined as *"the process of improving the quality of all human life"*[22]. From these descriptions it shows that economic growth is primarily a quantitative measure based on the rate of change of real GDP while economic development is a combination of

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[22] Todaro and Smith (2003).

quantitative and qualitative measures. Due to limitations in getting the data and for easier measurement, this paper will focus on economic growth and how government expenditure could influence the economic performance of Malaysia.

There are several economic theories related to economic growth. The concept of big and small government, Keynesian views and Wagner's law are examples of economic theories that are related to economic growth. For the concept of small government, two theories that are most relevant are the rent-seeking and crowding out theories. However, Edward (2009) states that *"there are no generally accepted economic theories capable of explaining, with any degree of success, the process of economic growth"*. Carr (1989) reports that theory is unable to settle the debate about the precise role of the government sector in the process of economic growth. In addition, Landau (1983) states that economic theory does not give a clear prediction about the impact of an increase in government expenditure on economic growth. Thus this paper is based on the theory of big government and Keynesian views. Generally in order to analyze how government expenditure could affect economic growth, a number of major variables such as government consumption, government investment, interest rates and government transfers are considered. Government consumption is for instance,

salaries paid to government employees and the purchase of goods and services. Investments are related with acquiring and constructing long term assets such as buildings, roads and machinery. Interest is mainly about government debt. Transfers are the reallocation of resources from public sector to other sectors in the society such as pension systems and business subsidies. As we have discussed in an earlier chapter, Malaysia government expenditure is divided into two sector categories which are operational expenditures and development expenditures. Similar to other countries, Malaysia operational expenditures also consist of objects such as transfers that many economists agree does not contribute to GDP. Allocation of transfers in Malaysia government expenditure contributes to about 16% of its total operating expenditures. At the same time many economists agree that investment has a positive role on economic growth. Burda and Wyplosz (1997) state that firm purchases of new buildings, equipment, machinery and inventories are referred as investments. All of these add to the capital stock. Piana (2001) states that investment plays six macroeconomic roles as follows:

1. It contributes to current demand for capital goods;

2. It increases the production base and hence, future production capacity;

3. It modernizes the production process and improves cost effectiveness;

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4. It leads to higher productivity;

5. It allows for the production of new and improved products;

6. It incorporates innovations and quality standard.

However, allocation of investment in government operational expenditure only has a contribution of about 1.7%. This is because a huge amount of investment has been allocated under the government development expenditure in line with its function as a supportive tool and as a fund for the national economic policies. In 2007 allocation for the government development expenditure was about RM 40.6 billion which made about 25% of total government expenditure. This huge amount is believed to have a significant role in Malaysia economic growth. Thus this study will focus on the effect of government development expenditure (measured by the absolute value of government development expenditure, RM) on economic growth (measured by absolute value of real GDP, RM).

3.2. Data Collection

This study utilizes data from both quantitative and quantitative data resources. In addition both are secondary data. Pannerselvam (2006) states that secondary data is data collected from sources that have already been created for the purpose of first time use and future uses. The quantitative data are displays in the form of absolute real GDP for the economic growth and absolute value of government expenditure. The data are structured annually from a period of 1970 to 2007 (38 years). The sample was chosen mainly on the basis of data availability. These quantitative data were collected from various reliable sources mainly from the Economic Planning Unit of Malaysia, Ministry of Finance, Malaysia, World Bank, Penn World Table and International Monetary Fund, while the qualitative data are mainly based on literature reviews from published journals and working papers, and books. Basically, all of these literatures are generated from EBSCO and JStor. Generally, quantitative data is used in the regression process while the qualitative data helps with the understanding and generating of the analytical framework and the model. In addition, qualitative data about government policies are utilized in this study to explain how the development expenditures have been

utilized under these policies.

3.3. The Model

As this study is concerned with the government expenditure towards economic growth, equation (3) shows the function for economic growth and is expressed as:

$\Delta Y = F (GE, PVTC, INV, NX)$………………………………………………..(3)

The dependent variable is the real GDP, denoted by ΔY. Where: Total development expenditure (GE), private consumption expenditure (PVTC), investment (INV) and net export (NX).

As we have discussed in chapter 2, the Malaysia government development expenditure consists of two main services which are economic services and social services.

Equation (4) and (5) display the function for economic growth by economic services and social services respectively.

$\Delta Y = F (ECONSVC, PVTC, INV, NX)$……………………………………(4)

$\Delta Y = F (SOCSVC, PVTC, INV, NX)$……………………………………(5)

Where: Economic services expenditure (ECONSVC) and social services expenditure (SOCSVC).

As economic services and social services consist of agriculture and rural development, trade and industry, transport, public utilities, education, health, housing, social community services and others, this study will further examine the effect of government expenditures by all of these sectors toward economic growth. In addition, there are two more sectors that fall under neither economic services nor social services but will be also counted in this examination. These sectors are the defense and security sectors and general administration sector.

Equation (6) displays the function for economic growth as below:

$\Delta Y=F$ *(AGRIRURAL, TRADEIND, TRANS, PUBITI, OTHERS, EDU, HEALTH, HOUSING, SOCCOM, DEFSEC, GENADMIN)*……………...…….............. (6)

Where: Agriculture & rural development expenditure (AGRIRURAL), trade & industry expenditure (TRADEIND), transport expenditure (TRANS), public utilities expenditure (PUBITI), others expenditure (OTHERS), education expenditure (EDU), health expenditure (HEALTH), housing expenditure (HOUSING), social community services (SOCCOM), defense & security

(DEFSEC) and general administration expenditure (GENADMIN).

All the independent variables are categorized as investment. Based on previous theories, studies and logical assumption, their expected sign in the regression must be positive. The same case applies to the control variables with an expected positive sign. In this case, ordinary least square (OLS) is used to estimate the coefficients of the variables in equation (3), (4), (5) and (6). Equation (7), (8), (9) and (10) display the growth regression as follows:

$$\Delta Y = \alpha + \beta_1 GE + \beta_2 PVTC + \beta_3 INV + \beta_4 NX + \mu \ .....\dots\dots\dots\dots\dots\dots\dots\dots.(7)$$

$$\Delta Y = \alpha + \beta_1 ECONSVCS + \beta_2 PVTC + \beta_3 INV + \beta_4 NX + \mu \ \dots\dots\dots\dots\dots\dots\dots.(8)$$

$$\Delta Y = \alpha + \beta_1 SOCSVCS + \beta_2 PVTC + \beta_3 INV + \beta_4 NX + \mu \ \dots\dots\dots\dots\dots\dots\dots.(9)$$

$$\Delta Y = \alpha + \beta_1 AGRIRURAL + \beta_2 TRADEIND + \beta_3 TRANS + \beta_4 PUBITI + \beta_5 OTHERS$$
$$+ \ \beta_6 EDU + \beta_7 HEALTH + \beta_8 HOUSING + \beta_9 SOCCOM + \beta_{10} DEFSEC +$$
$$\beta_{11} GENADMIN + \beta_{12} PVTC + \beta_{13} NV + \beta_{14} NX + \mu\dots\dots\dots\dots\dots.(10)$$

Based on equation (7), (8), (9) and (10), the constant is denoted by α while the coefficients of the independent variables are denoted by β_n. The estimates obtained for each coefficient show how much a unit increase in each sector will

affect the growth rate in national output.

3.4.   Methodology

3.4.1.   Data processing

This study conducts a time series regression analysis by employing the Ordinary Least Square (OLS) method. OLS regression test is to explain the behavior of the dependent variables ΔY by changes in the explanatory variables. For easier understanding, it is a method to estimate the relationship between the variables. Mason (1996) states that regression analysis is a technique for developing or modeling several variables into a linear equation and later used for prediction or forecasting. In this case the OLS regression is to estimate the association between government expenditure and economic growth in Malaysia. The time series data in the regression will be processed by using Stata version 10.0. Prior to the regression process, this study will conduct data processing consisting of determination of variables and data testing. The most important test employed in data testing is the unit root test which will be explained in the next section below. The explanations of detail data processing are as follows:

a. Determination of variables

Determination of variables is an important subsequent step after the data collection process has been carried out. This step will help to determine and to define the most suitable form of variables to be used in the regression analysis. As mentioned earlier, this study will utilize two major variables and several control variables for the model construction. The two main variables are economic growth as dependant variable and government expenditure as independent variable. While for control variables, this study utilizes private consumption, investment and net export. According to McConnell ad Brue (2008, p. 303), *"Economic growth consists of six main ingredients and can be grouped as supply, demand and efficiency factors. Four of the ingredients are grouped as supply and relate to the physical ability of the economy to expand. They are increase in the quantity and quality of natural resources, increase in the quantity and quality of human resources, increase in the supply of capital goods, and improvements in technology. The fifth ingredient is classified as the demand factor and described as one to achieve a higher production potential by the supply factors, households, businesses, and government who purchase the economy's expanding output of goods and services. The last remaining ingredient of economic growth is the*

efficiency factor; to reach its production potential, an economy must achieve economic efficiency as well as full employment". For easier definition, economic growth is described as a value increment of goods and services that are produced by an economy. Most of literatures employed GDP as a proxy of economic growth. Examples of related literatures are Tang (2006), Sinha (1998), Albatel (2000) and Mukhlis & Hakan (2003). Therefore based on these literatures, this study will also use the absolute value of real GDP as a proxy of economic growth. For government expenditure variables, this study employs the absolute value of government development expenditure in Ringgit Malaysia as a proxy. There are several justifications why this study uses the absolute value of government development expenditure instead of using other forms of expenditure while most previous literatures used government consumption expenditure and others. Government consumption expenditure is defined as a final general government consumption expenditure which includes all government current expenditures for purchases of goods and services. As this study only focuses on development expenditure therefore using government consumption will lead to an irrelevant study. In addition, the limitation of available time series data on government development expenditure from online databases also contributes to this matter.

As we know government expenditure is not the only variable that has effect on economic growth. Therefore, other variables must be also considered in the equation as control variables. However, the control variables must be constant so that we can just study on the relationship between the independent and the dependent variables. On top of that, it is desired to ensure that this study is fair and able to capture the finest and powerful result. In this case, we utilize private consumption, investment and net export as control variables. The selection of these variables is based on the formulation of GDP and the Keynesian view.

b. Data testing

Prior to the regression process, this study will conduct two major tests which are model specification test and unit root test on the data. The purpose of these tests is to make sure that the data is valid and reliable for the next analysis. The model specification test is a test to detect the existence or the absence of irrelevant or relevant variables in the data series. While the unit root test is a test to determine the existence of unit root in the data and clarify the stationary status of the data. One of the ways to detect specification errors is by using ovtest commands. Ovtest creates

new variables based on the predictors and refits the model using those new variables to see if any of them would be significant.

For model specification test, this study employs omitted variable test. Statistically, this test will detect the existence of omitted variable bias where a model specification error occurs when one or more important relevant variables are incorrectly omitted from the specification model. It could also be when one or more irrelevant variables are incorrectly included in the model. If the model specification compensates for the omitted variable by over or under estimating, it will result in biases. Moreover, if the relevant variable is omitted from the model, the consequences will be that the common variance they share with other inclusive variables may be incorrectly attributed to those variables. Furthermore, the error term will be inflated. On the other hand, if the irrelevant variable is included in the model, the common variance shared by the relevant and irrelevant variables may also be wrongly attributed to them. In addition, the model specification errors could substantially affect the estimate of the regression coefficients.

For the unit root test, Granger and Newbold (1974) state that a spurious regression could exist with the presence of non-stationary variables. Samudram et. al (2009) state that if the series are non-stationary, the OLS model will lead to

spurious estimates. For easier understanding, a spurious regression has a high R^2 and its t-statistic shows as significant; however, this result doesn't bring any economic meaning. For this purpose, Phillip and Perron (1988) unit root test will be carried out. Instead of using Augmented Dickey Fuller test this study chose to use PP test because for a series with high degree of auto regression, the ADF tests are unable to discriminate well between non-stationary and stationary series. It is said that the PP test has an advantage over the ADF test as it provides robust estimation especially when the series contains serial correlation and heteroscedasticity. The lag length in the test is determined by Akaike's Information Criteria (AIC), Akaike (1973). This is to ensure that the serially uncorrelated residuals are decided accordingly to Newly-West's suggestions, Newly & West (1987). In PP test, the null hypothesis of non stationary is tested by the t-statistic with critical value. By rejecting the null hypothesis based on this calculation, it is suggested that the series is stationary. The hypothesis is as follows:

Ho : Series contains a unit root

Ha : Series is stationary

3.4.2. Diagnostic Testing

The OLS regression test will be conducted only after the non-stationary data is differentiating into stationary. According to Gujarati (2004), in order to have a good econometric model for OLS regression, the model must meet up with certain econometric assumptions such as: the variables must be linear, the residuals must be normally distributed, there must be no multicollinearity among the variables, there is no correlation between the variables, and the disturbance must be constant. Therefore, owing to the need of the econometric assumption, this study conducts the linearity test, multicollinearity test, autocorrelation test and heteroskedasticity test, respectively. In addition, all these tests are also conducted to ensure this study will gain the finest results and conclusions. Explanations of the importance of these tests are as follows:

a. Linearity test

The assumption of linearity states that the relationship between the response variable and predictor variable is linear when a linear regression process is being carried out. Agresti and Finlay (2007) state that if this assumption is violated, the linear regression will try to fit a straight line to the data that does not follow a

straight line. A linearity problem will usually exist when the predictor variable is not normally distributed. To correct this, the non-normally distributed variable must be detected and corrected by transforming the non-normally distributed variable into a normally distributed variable. Tukey (1977) suggested a subset of the ladder of power to transform the variable into a normally distributed variable. In addition, Hamilton (1992) also suggested an optional way by drawing a graphic *"acprplot"* to detect the existence of nonlinearity. The graph of *"acprplot"* will show the augmented component plus residual against the particular examined variable and when the result departs away from the linear line, it indicates the existence of the nonlinearity problem. In addition, there are several ways to fix the nonlinearity problem. Transformation of data series is the most common way. The suggestion of transformation can be find from linearity test result. One of the famous transformations used in many previous studies is a log transformation. Hamilton (1992) also suggested a log transformation method to fix the linearity problem.

b. Multicollinearity test

Multicollinearity is a statistical phenomenon in which two or more independent variables in a multi regression model are highly correlated. In this case, the coefficient estimates may change erratically in response to small changes in the model or the data. Multicollinearity may give an invalid result for any individual independent variables which will lead to invalid explanation. The independent variables must have no linear relationship between each other. Agresti and Finlay (2007) state that the estimates for a regression model cannot be uniquely computed if there is a perfect linear relationship between the predictors or independent variables. This is because as the degree of multicollinearity increases, the regression model estimates of the coefficients become unstable and the standard errors for the coefficients can get wildly inflated. Gujarati (2004) highlights several statistical consequences due to muliticollinerarity problems. The consequences are as follows:

i. Even though BLUE (Best Linear Unbiased Estimator), the OLS estimator has large variances and covariances that will lead to difficulty in making precise estimation.

ii.   Owing to the above consequence, the confident intervals tend to be much wider. This will lead to the acceptance of the "zero null hypothesis" more readily.

iii. Also due to the first consequence, the t ratio of one or more coefficients tends to be statistically insignificant.

iv.   At the same time, even though the t ratio of one or more coefficients is statistically insignificant, the indicator measure for goodness of fit, R^2 can be very high.

v.   The OLS estimators and their standard errors can be very sensitive to small changes in the data.

Thus to detect the multicollinearity problem, this study employs Variance Inflation Factor (VIF) as an indicator for the existence status of multicollinearity. The VIF suggests that if the values are greater than 10, they may require further investigation. For checking the degree of multicollinearity, many researchers have adopted 1/VIF as tolerance value. If the tolerance value is lower than 0.1 compared to a VIF of 10, it means that the variable could be considered as a linear

combination of other independent variables. In addition, this study also employs

the pair wise correlation test to ensure the VIF suggestion.

Gujarati (2004) also suggests that to address the multicollineraity problems

successfully, one should first understand the most severe problems of

multicollinearity. The following are several conditions that can lead to severe

multicollineraity problems that require attention and consideration.

i.   A priori information

ii.   Combining cross-sectional and time series data

iii. Dropping a variable(s) and specification bias

iv.   Transformation of variables

v.   Additional or new data

vi.   Reducing multicollinearity in polynomial regressions

vii. Employing multivariate statistical techniques such as factor analysis

      principal components or techniques such as ridge regression.

c. Autocorrelation test

Autocorrelation is common when using time series data in regression. It

occurs when the residual does not form a random trend around the regression line.

The positive autocorrelation exists when the trend of the residuals is formed systematically above or below the line. One of the ways to eliminate autocorrelation is by identifying the factors responsible for the autocorrelation and extending the regression accordingly. This study conducts the Durbin Watson (DB) test to detect the autocorrelation problem. If the DB test statistic t shows 2, it means that there is no autocorrelation. If there is an autocorrelation, then it needs to be corrected. To correct the autocorrelation problem, this study employs Prais Winston regression with specifying the Cochran Orcutt option. The Prais Winston is to correct for first order serially correlated residuals by transforming the regression estimator while the Cochran Orcutt option is to estimate the equation. With this option, the Prais Winston transformation of the first observation is not performed and the first observation is dropped when estimating the transformed equation.

d. Heteroscedasticity test

One of the classical assumptions of the ordinary regression model is that the disturbance variance is constant across observations. If this term is violated, it means that the error terms are heteroscedastic. Heteroscedasticity often arises in

the analysis of cross sectional data. If heteroscedasticity is present it is said that

the inferences from the standard errors are likely to be misleading. This study uses

Bruce Pagan heteroscedasticy test to determine the present of heteroscedasticty. If

the p value is high at a chosen level of significance then the null-hypothesis is

accepted.

3.5. Hypothesis testing

There are two important steps after the goodness of test process and OLS

regression analysis. They are hypothesis testing and result interpretation of the

regression model. Gujarati (2004) states that one of the common hypothesis tests

is t test. The explanations of the t test are as follows:

i. t test is used to test the significance of regression coefficient. The test aims

to understand the effect of each independent variable to dependent variable.

This test can be written in the following equation:

H_0: $\beta_1 = \beta_{2,n} = 0$

Ha: $\beta_1 \neq 0$; $\beta_{2,n}$ is constant.

This study employs two-sided tail hypothesis based on equation (7), (8), (9) and (10) to look at their significance relationship between government expenditure towards economic growth. The construction of the hypothesis can be described as follows:

Hypothesis

H_0: There is no relationship between government development expenditures and economic growth, H_0: $\beta_1 = \beta_{2,n} = 0$

Ha: There is a relationship between government development expenditures and economic growth, Ha: $\beta_1 \neq 0$; $\beta_{2,n}$ is constant

In order to proceed with the interpretation of regression analysis, a significance level should be first considered. The significance level can be set at three different levels which are 1%, 5% and 10%. This paper will look at all significance levels. At each significance level, if the *p* value of variables indicates less than the significance level, it means that H_0 is rejected and H_a is accepted. Thus, the independent variable has significant relationship with dependent variable at that significance level. For instance, at 10% significance level, only if

the p value of variables indicates less than 0.10, then H_0 can be rejected and H_a will be accepted. On top of the significance level, a strength and direction of relationship should also be considered. The direction of relationship can be interpreted by identifying the sign (+ or -) on the result of correlation test or coefficient of independent variable in the regression model. The sign (+) means that it has positive relationship while the sign (-) means it has negative relationship. The strength of relationship is determined by measuring the number indicated from correlation test result which ranges from 0 to 1. If the result indicates near to 1, it means that the correlation between variables is strong. If the result indicates near to 0, it means that the correlation between variables is weak.

Chapter Four

4.   Empirical Results

The result of this study will be based on the aforementioned models and methods described in chapter three. For better understanding about the association of government expenditure on economic growth and based on the research questions that have been developed, this study structures the empirical results into four categories which are (1) The association between total government development expenditure and economic growth, (2) The association between government expenditure in economic services and economic growth, (3) The association between government expenditure in social services and economic growth and (4) The association between government expenditure by sectors and economic growth. In these categories, we shall explain in detail the omitted variable test, unit root test, descriptive and statistical summary, regression diagnostics and regression estimation. Particularly, the regression diagnostic will show the results of four special tests that have been conducted to make the result free from bias. The tests are linearity test, multicollinearity test, homoscedasticity test and autocorrelation test. Generally, this study utilizes three kinds of variables

to test all the constructed hypotheses. They are the dependant, independent and control variable. The dependant variable is represented by GDP while the independent variable is represented by government expenditure. For the control variable, this study utilizes private consumption, investment and net exports to ensure the test is fair. In addition, it is important to ensure that no error exists in the model specification. Therefore, this study conducts ovtest prior to the regression analysis.

4.1. The association between total government development expenditure and economic growth

To test the above relationship, this study employs 5 variables consisting of GDP as dependant variable, total development expenditure as an independent variable and control variables consisting of private consumption, investment and net export.

a. Omitted variable test

The ovtest has been conducted to examine the existence of error in the model specification as it may incorrectly leave out one or more relevant variables or one or more irrelevant variables may be included in the model. The ovtest suggests the null hypothesis is that the model has no omitted variables. From the ovtest, we found the result that Prob >F=0.1713. Hence, the probability is greater than F at 0.1713 or we can describe that the p-value of ovtest is greater than 0.05, therefore it fails to reject the null hypothesis to assume that there is no error in the model specification.

b. Descriptive and statistical summary

Table 4.1.1: Descriptive statistics of GDP, GE, PVTC, INV and NX

Variable	Obs	Mean	Std. Dev.	Min	Max
GDP	38	179931.40	175231.30	11829	642049
GE	36	12139.42	10840.14	725	39353
PVTC	38	83289.68	77249.66	7095	293040
INV	38	23.87263	5.708425	16.93	37.04
NX	38	24392.53	41935.52	-8754	132210

Notes: GDP, GE, PVTC and NX are in RM million while INV is in share of real GDP percapita

The descriptive and statistical summary from Table 4.1.1 show that GDP

was in average positive at RM 179,931.40 million with minimum and maximum at RM 11,289 million and RM 642, 049 million respectively. At the same time, government expenditure was also in average positive at 12,139.42 with minimum and maximum at RM 725 million and RM 39, 353 million, respectively. If we look at the ratio of minimum GE on GDP, interestingly both ratios show at 1:16.31. The ratio of GE was maintained at average 1:14.82 which is close to the minimum and maximum ratio. In general, it showed that with several transformations of government policies being put in place from 1970 to 2007, the policies managed to maintain the share of GE on GDP successfully. The minimum and maximum ratio of PVTC on GDP showed at 1:1.67 and 1:2.2 respectively. We can assume that the increase of the ratio might be possibly because of the introduction and implementation of privatization policy and national development policy by the government. At the same time the share of investment on real GDP per capita also increased from minimum 16.93 to 37.04 in line with the expansion of other variables. For NX, the minimum showed at RM -8,754 million due to the excess of import on export. However, it climbed back reaching a maximum at RM 132,210.

c. Unit root test

This study conducts the Phillip Perron unit root test with Stata, version 10.0 to examine whether there is any unit root in the time series data. Phillip Perron test suggests that the null hypothesis is the series of data has a unit root while the alternative hypothesis is that the series of data has no unit root. This study employs significance value at 1%. If the p-value of Phillip Perron test shows below than 0.01 of the significance value, it means that it rejects the null hypothesis and accepts the alternative hypothesis that data series is stationary.   In addition the statistic value of the series data must be also smaller than the critical value based on its significance level. The result of the p values and the test statistic value in the Phillip Perron test is summarized as in the table below:

Table 4.1.2: Results of Phillip Perron test for unit root on GDP, GE, PVTC, INV and NX for the period 1970-2007

Variable	Unit root statistic level		First difference		Second difference		Degree of integration
	Test Statistics	Critical value	Test Statistics	Critical value	Test Statistics	Critical value	
GDP	10.291	-3.668	-1.622	-3.675	-12.801	-3.682	I(2)
GE	0.660	-3.668	-4.663	-3.675	-	-	I(1)
PVTC	8.759	-3.668	-1.698	-3.675	-9.164	-3.682	I(2)
INV	-2.232	-3.668	-5.421	-3.675	-	-	I(1)
NX	1.228	-3.668	-4.710	-3.675	-	-	I(1)

Variable	P value		
	Level	First difference	Second Difference
GDP	1.0000	0.4717	**0.0000**
GE	0.9890	**0.0001**	-
PVTC	1.0000	0.4320	**0.0000**
INV	0.1950	**0.0000**	-
NX	0.9962	**0.0001**	-

Sources : See Data Appendix.

Notes: All critical values are at 1% significance level based on MacKinnon's critical values.

All lag length is set at 3 as suggested by Newey-West method, $q=4(T/100)^{2/9.}$

From table 4.1.2, we find that all the test statistic values are greater than the critical values at level data. Furthermore, all the variables p values in the level data are insignificant at 1% significance level. Therefore, in level data, we fail to reject the null hypothesis and accept there is a unit root in the data. In first difference, we find that, three of the data series are with significance p value and test statistic value. They are GE, INV and NX. Therefore, we reject the null hypothesis and accept that data series are integrated of order I(1) and data series are stationary. The other two data series which are GDP and PVTC are only stationary at second difference and we conclude the data series are integrated of order I(2). As such we utilize the stationary data of GE, INV and NX at first

difference and at the same time we utilize the stationary data of GDP and PVTC at second difference for the interest of unbiased regression analysis.

d. Linearity test

After successfully going through the omitted variable test, descriptive statistic summary and unit root test, this study conducts the regression diagnostic starting with the linearity test.   As we have mentioned the importance of linearity in our earlier chapter, after conducting the linearity test, we found that there was no linearity problem in the data. All data series were linear and normally distributed. By this way it fits the linear regression. Table 4.1.3 shows the linearity test results of GDP, GE, PVTC, INV and NX. The respective identity *p value of chi square* for GDP, INV and NX is 0.0000, similar to other possible transformation. For PVTC, its identity *p value of chi square* shows 0.006 higher than any other possible transformation. However, this study finds that identity *p value of chi square* for variables GE is a little lower than inverse transformation. Its *p value of chi square* is 0.000 compared to *p value of chi square of* inverse transformation at 0.008. This study further checked on the linearity graph by

employing *gladder* command in Stata version 10.0 and found from the histogram

graph results that this data series is normally distributed similar to the inverse

transformation. In addition, no skewness exists in the histogram lines. Therefore,

this study concludes that the data series is linear and normally distributed. The

respective histogram graph for GE is shown along with the linearity results.

Table 4.1.3: Linearity test results of GDP, GE, PVTC, INV and NX.

GDP

```
. ladder  ddgdp

Transformation          formula          chi2(2)      P(chi2)

cubic                   ddgdp^3          48.85        0.000
square                  ddgdp^2          42.06        0.000
identity                ddgdp            17.43        0.000
square root             sqrt(ddgdp)          .            .
log                     log(ddgdp)           .            .
1/(square root)         1/sqrt(ddgdp)        .            .
inverse                 1/ddgdp          36.44        0.000
1/square                1/(ddgdp^2)      53.81        0.000
1/cubic                 1/(ddgdp^3)      55.07        0.000
```

GE

```
. ladder  dttlexp

Transformation          formula          chi2(2)      P(chi2)

cubic                   dttlexp^3        48.48        0.000
square                  dttlexp^2        39.89        0.000
identity                dttlexp          16.17        0.000
square root             sqrt(dttlexp)        .            .
log                     log(dttlexp)         .            .
1/(square root)         1/sqrt(dttlexp)      .            .
inverse                 1/dttlexp         9.56        0.008
1/square                1/(dttlexp^2)    25.59        0.000
1/cubic                 1/(dttlexp^3)    15.40        0.000
```

Histograms by transformation
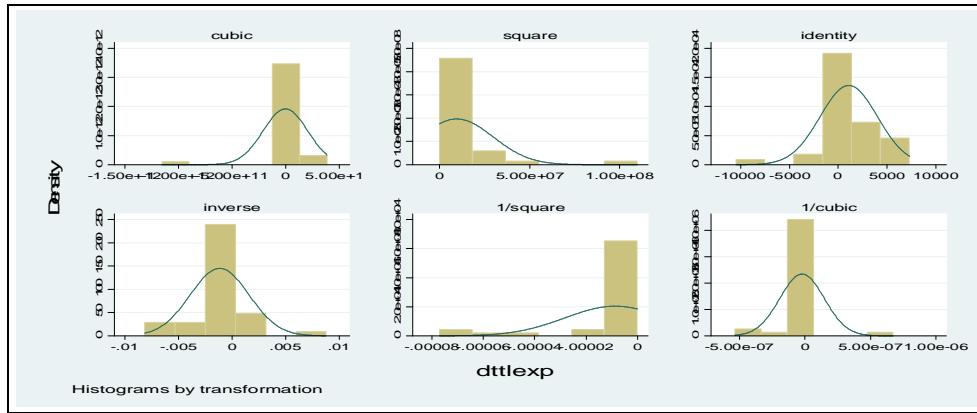
PVTC

```
. ladder  ddpvtc

Transformation         formula            chi2(2)      P(chi2)

cubic                  ddpvtc^3            15.60        0.000
square                 ddpvtc^2            26.07        0.000
identity               ddpvtc              10.24        0.006
square root            sqrt(ddpvtc)          .            .
log                    log(ddpvtc)           .            .
1/(square root)        1/sqrt(ddpvtc)        .            .
inverse                1/ddpvtc            29.53        0.000
1/square               1/(ddpvtc^2)        50.04        0.000
1/cubic                1/(ddpvtc^3)        53.74        0.000
```

INV

```
. ladder  dInv

Transformation         formula            chi2(2)      P(chi2)

cubic                  dInv^3              56.22        0.000
square                 dInv^2              54.10        0.000
identity               dInv                25.32        0.000
square root            sqrt(dInv)            .            .
log                    log(dInv)             .            .
1/(square root)        1/sqrt(dInv)          .            .
inverse                1/dInv              30.94        0.000
1/square               1/(dInv^2)          42.52        0.000
1/cubic                1/(dInv^3)          48.07        0.000
```

NX

```
. ladder  dNetExport

Transformation         formula            chi2(2)      P(chi2)

cubic                  dNetEx~t^3          56.42        0.000
square                 dNetEx~t^2          54.99        0.000
identity               dNetEx~t            35.52        0.000
square root            sqrt(dNetEx~t)        .            .
log                    log(dNetEx~t)         .            .
1/(square root)        1/sqrt(dNetEx~t)      .            .
inverse                1/dNetEx~t          51.68        0.000
1/square               1/(dNetEx~t^2)      56.55        0.000
1/cubic                1/(dNetEx~t^3)      56.63        0.000
```

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e. Multicollinearity test

The next assumption for OLS regression analysis on the time series data is that the independence variables should not be strongly correlated, Corr(Xi,Xj)≠strong. In other words, there should be no multicollinearity among the variables. To test this assumption, this study employs pair wise correlation test and VIF command using Stata version 10.0. For the pair wise correlation test, many literatures suggest that correlation should not exceed 0.8. While the rule of thumb for VIF result is that the VIF value for the all the variables must not exceed 10 in order to be accepted as no multicollinearity. From the pair wise correlation test, this study finds no correlation above 0.8 and therefore, we assume there is no multicollinearity. To support this assumption, this study employs the VIF command, and confirms no multicollinearity problem exists among the variables as the result from the multicollinearity test shows at 2.05. Hence, all the variables can be considered in the model with their stationary and linear data. Table 4.1.4 and 4.1.5 show the results of multicollinearity test.

Table 4.1.4: Results of multicollinearity test for GE, PVTC, INV and NX using pair wise correlation

```
. pwcorr dttlexp ddpvtc dinv dnetexport

             |  dttlexp    ddpvtc      dinv dnetex~t

    dttlexp  |   1.0000
     ddpvtc  |  -0.0861    1.0000
       dinv  |   0.0129    0.4794    1.0000
  dnetexport |  -0.0807   -0.2767   -0.7798    1.0000
```

Table 4.1.5: Results of multicollinearity test for GE, PVTC, INV and NX using VIF command

```
. vif

    Variable |       VIF       1/VIF

        dinv |      3.16    0.316366
  dnetexport |      2.66    0.376106
      ddpvtc |      1.35    0.740400
     dttlexp |      1.02    0.978982

    Mean VIF |      2.05
```

f. Autocorrelation test

In time series data, autocorrelation is a problem where correlation exists between the errors in different time periods. If the autocorrelation exist, then it needs to be corrected. Autocorrelation test is a measure to ensure that Cov (e_t, e_{t-i})$\neq$0. The existence of autocorrelation can lead to less efficiency in OLS regression analysis and therefore computation of confidence intervals and hypothesis tests using OLS may be wrong. This study employs Durbin Watson

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test (DW d-statistic) to test the autocorrelation. The Durbin Watson suggest the

equivalent test is d-statistic $= 2(1-\hat{p})$ where $\hat{p}$ is a correlation between error in

different time period and the value should be below 0.5 in order for insignificance

autocorrelation. The best value for $\hat{p}$ is 0, which makes up the d-statistic = 2. The

rule of thumb for the Durbin Watson test is that the d-statistic should be close to 2

for no major autocorrelation problem. After conducting the Durbin Watson test,

this study finds the d-statistic = 2.71432 which is within the allowable range of

Durbin Watson table. Therefore, we conclude that there is no autocorrelation.

Table 4.1.6 shows the result of autocorrelation test carried out using Durbin

Watson test.

Table 4.1.6: Result of Durbin Watson test for GDP, GE, PVTC, INV and NX.

```
. dwstat

Durbin-Watson d-statistic(  5,     36) =   2.71432
```

g. Heteroscedasticity test

As we have mentioned in an earlier chapter, this study conducts the

heteroscedasticity test to check whether the variance of the error terms is constant

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or not. Heteroscedasticity test suggests that the null hypothesis is that the series has homoscedasticity. This study uses Breusch-Pagan test for this analysis. From the result, this study finds that the p value is significant and rejects the null hypothesis, thus resulting in that there is a heteroscedasticty problem. Therefore, the heteroscedasticty problem needs to be corrected and this study corrects it by improving robustness of the regression. Table 4.1.7 shows the result of Breusch-Pagan test.

Table 4.1.7: Result of Breusch-Pagan test for GDP, GE, PVTC, INV and NX.

```
. bpagan  ddgdp dttlexp ddpvtc dinv dnetexport

Breusch-Pagan LM statistic:  37.89956  Chi-sq( 5)  P-value =  4.0e-07
```

h. OLS regression estimation

In the previous Breusch Pagan test, this study captured the presence of heteroscedsaticity problem. Therefore, to proceed with the final OLS regression result, this study corrects the heteroscedsaticy problem by improving robustness of the regression. The OLS result before and after improving robustness are shown accordingly in table 4.1.8 and 4.1.9 below.

Table 4.1.8: OLS result between GDP and GE, PVTC, INV and NX before improving robustness

Variables	Coefficients	t-Statistic	P>[t]
GE	-0.8864678	-2.10	0.044
PVTC	1.622979	8.94	0.000
INV	588.2728	0.96	0.346
NX	0.2347357	1.38	0.179
Constant	407.2636	0.28	0.785
Prob > F	0.0000		
R squared	0.7987		
Adj R squared	0.7727		

Table 4.1.9: OLS result between GDP and GE, PVTC, INV and NX after improving robustness

Variables	Coefficients	t-Statistic	P>[t]
GE	-0.8864678	-2.35	0.025
PVTC	1.622979	7.94	0.000
INV	588.2728	1.17	0.250
NX	0.2347357	1.25	0.219
Constant	407.2636	0.34	0.737
Prob > F	0.0000		
R squared	0.7987		
Adj R squared	0.7727		

In terms of goodness of fit of the model, the indicator to measure the goodness of fit is by looking at the R square and the adjusted R square. This study finds that the model is good and fit because the R square and the adjusted R square are 0.7987 and 0.7727, respectively. In overall, we can explain that the GDP performed very well because there is a 79.87% variation of dependant variable by the variation of independent variables. In other words, the variances of the independent variables successfully explain the variance of dependent variable. Looking at the p value of F at table 4.1.9, it shows that the p value is 0.0000, and significant. Therefore, the possibility of the R square arising by chance is rejected and the relationship is considered true. Based on these entire indicators, we can write down the regression estimation as follows:

$$Growth = 407.2636 - 0.8864678GE + 1.622979PVTC + 588.2728INV + 0.2347357NX\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(11)$$

Table 4.1.10: Partial correlation of GDP with GE, PVTC, INV and NX

Variables	Correlation	Sig.
GE	-0.3526	0.044
PVTC	0.8489	0.000
INV	0.1694	0.346
NX	0.2400	0.179

Table 4.1.10 above shows the total government development expenditure has a negative and weak correlation with economic growth. The correlation is significant at five percent level. All control variables have a positive correlation. However, only private consumption is significant at one percent.

4.2. The association between government development expenditure in economic services and economic growth

To test the above relationship, this study employs 5 variables consisting of GDP as dependant variable, government development expenditure in services as an independent variable and control variables consisting of private consumption, investment and net export. To test the above relationship, this study starts with model specification test.

a. Omitted variable test

The result from ovtest shows that the Prob>F = 0.0983. Hence, the probability is greater than F at 0.0983 or we can describe that the p-value of ovtest

is greater than 0.05, therefore, it fails to reject the null hypothesis and assumes that there is no error in the model specification.

b. Descriptive and statistical summary

Table 4.2.1: Descriptive statistics of GDP, ECONSVCS, PVTC, INV and NX

Variable	Obs	Mean	Std. Dev.	Min	Max
GDP	38	179931.4	175231.3	11829	642049
ECONSVCS	36	5744.5	3994.356	451	14956
PVTC	38	83289.68	77249.66	7095	293040
INV	38	23.87263	5.708425	16.93	37.04
NX	38	24392.53	41935.52	-8754	132210

Notes: GDP, ECONSVCS, PVTC and NX are in RM million while INV is in share of real GDP per capita.

As previously this study carried out the descriptive and statistical summary for GDP, PVTC, INV and NX, therefore, for this testing, this study will only focus on descriptive and statistical summary of government development expenditure in economic services, ECONSVCS. The descriptive and statistical summary from Table 4.2.1 shows that ECONSVCS was in average positive at RM 5,744.50 million with minimum and maximum at RM 451 million and RM 14, 956 million, respectively. Referring to the Appendix 1, the minimum expenditure was in 1970 while the maximum expenditure was in 2005. Looking at the ratio of

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average ECONSVCS on GDP, the ratio was set at 1:31.32. On the other hand, the

minimum ratio of ECONSVCS on GDP and maximum ratio of ECONSVCS on

GDP were set at 1: 26.22 and 1: 42.92. From this ratio, this study finds that the

ratio has increased tremendously which was due to the decreasing of budget in

economic services throughout the years. Since economic services expenditure is

formed by sectors of agriculture and rural development, trade and industry,

transport, public utilities and others, this study assumes that as the role of

government services has shifted from pacesetter for economic growth in 1970 to

facilitator or provider in 2000's, hence the decreasing of budget in economic

services is justified.

c.   **Unit root test**

For the unit root test, this study employs significance value at 1%. If the

p-value of Phillip Perron test shows below 0.01 of the significance value, it means

that it rejects the null hypothesis and accepts the alternative hypothesis that data

series is stationary.   In addition the statistic value of the series data must be also

smaller than the critical value based on its significance level. The result of the p

values and the test statistic value in the Phillip Perron test are summarized as in

the table below:

Table 4.2.2: Results of Phillip Perron test for unit root on GDP, ECONSVCS,
PVTC, INV and NX for the period 1970-2007

Variable	Unit root statistic level		First difference		Second difference		Degree of integration
	Test Statistics	Critical value	Test Statistics	Critical value	Test Statistics	Critical value	
GDP	10.291	-3.668	-1.622	-3.675	-12.801	-3.682	I(2)
ECONSVCS	1.905	-3.668	-5.629	-3.675	-	-	I(1)
PVTC	8.759	-3.668	-1.698	-3.675	-9.164	-3.682	I(2)
INV	-2.232	-3.668	-5.421	-3.675	-	-	I(1)
NX	1.228	-3.668	-4.710	-3.675	-	-	I(1)

Variable	P value		
	Level	First difference	Second Difference
GDP	1.0000	0.4717	**0.0000**
ECONSVCS	0.9985	**0.0000**	-
PVTC	1.0000	0.4320	**0.0000**
INV	0.1950	**0.0000**	-
NX	0.9962	**0.0001**	-

Sources: See Data Appendix.

Notes: All critical values are at 1% significance level based on MacKinnon's
critical values.

All lag length is set at 3 as suggested by Newey-West method, $q=4(T/100)^{2/9.}$

As this study carried out the unit root test on GDP, PVTC, INV and NX in the previous relationship testing, therefore, for this relationship testing, this study will only focus on ECONSVCS. However, this study keeps together all the results of the unit root test in the same table for better understanding. From table 4.2.2, this study finds that the test statistic values for ECONSVCS are greater than the critical values at level data. Furthermore, the p value for ECONSVCS is insignificant in level data at 1% significance level. Therefore, in level data, it fails to reject the null hypothesis and assumes there is a unit root in the data series for ECONSVCS. After first difference, this study finds that, the data series comes with a significant p value and test statistic value. The p value is 0.0000 and the test statistic value is -5.629. Therefore we reject the null hypothesis and assume that data series for ECONSVCS is integrated of order I(1) and data series is stationary. As such we utilize the stationary data of ECONSVCS, INV and NX at first difference and at the same time we utilize the stationary data of GDP and PVTC at second difference for the interest of unbiased regression analysis.

d. Linearity test

Since this study has carried out linearity test on GDP, PVTC, INV and NX, therefore for this relationship testing, this study will only carry out the linearity test on data series of ECONSVCS. The linearity test result for ECONSVCS shows that there is no linearity problem. The data series of ECONSVCS is linear and normally distributed. By this way it fits the linear regression. Table 4.2.3 shows the linearity test results of ECONSVCS. The respective identity *p value of chi square* for ECONSVCS is 0.890, greater than any other possible transformations.

Table 4.2.3: Linearity test results of ECONSVCS

ECONSVCS

```
. ladder  deconsvcs

Transformation        formula              chi2(2)      P(chi2)

cubic                 decons~s^3           19.11        0.000
square                decons~s^2           12.27        0.002
identity              decons~s              0.23        0.890
square root           sqrt(decons~s)          .            .
log                   log(decons~s)           .            .
1/(square root)       1/sqrt(decons~s)        .            .
inverse               1/decons~s           34.15        0.000
1/square              1/(decons~s^2)       52.20        0.000
1/cubic               1/(decons~s^3)       55.07        0.000
```

e. Multicollinearity test

The results from pair wise correlation test and VIF command show that there is no multicollenearity in the data series. In detail, the pair wise correlation results confirm the data series are free from any bias caused by multicollinerity problem as there is no strong correlation among independent variables. All correlations are less than 0.8. The result from VIF command supports the same finding. The VIF test result is 2.08 far smaller than 10. Hence, all the variables can be considered in the model with their stationary and linear data. Table 4.2.4 and 4.2.5 show the results of multicollinearity test.

Table 4.2.4: Results of multicollinearity test for ECONSVCS, PVTC, INV and NX using pair wise correlation

```
. pwcorr  deconsvcs ddpvtc dinv dnetexport

               decons~s   ddpvtc      dinv dnetex~t

   deconsvcs    1.0000
      ddpvtc    0.0209   1.0000
        dinv   -0.0289   0.4794   1.0000
  dnetexport    0.1483  -0.2767  -0.7798   1.0000
```

Table 4.2.5: Results of multicollinearity test for ECONSVCS, PVTC, INV and
NX using VIF command

```
. vif

    Variable |      VIF     1/VIF
-------------+----------------------
        dinv |     3.21    0.311887
   dnetexport|     2.74    0.365240
       ddpvtc|     1.34    0.746094
    deconsvcs|     1.04    0.959458
-------------+----------------------
    Mean VIF |     2.08
```

f.   Autocorrelation test

From the result of Durbin Watson test, this study finds that the d-statistic for

this relationship testing is 2.908. The result is within the allowable range of

Durbin Watson table. Therefore, we conclude that there is no autocorrelation.

Table 4.2.6 shows the result of autocorrelation test carried out by Durbin Watson

test.

Table 4.2.6: Result of Durbin Watson test for GDP, ECONSVCS, PVTC, INV and
NX

```
. dwstat

Durbin-Watson d-statistic( 5,   36) =    2.908
```

g. Heteroscedasticity test

For the heteroscedasticity test, the result of Breusch-Pagan test shows that the p value is significant and rejects the null hypothesis. Therefore, there is a heteroscedasticty problem. Hence, this study corrects the heteroscedasticty problem by improving robustness of the regression. Table 4.2.7 shows the result of Breusch-Pagan test.

Table 4.2.7: Result of Breusch-Pagan test Result of Durbin Watson test for GDP, ECONSVCS, PVTC, INV and NX

```
. bpagan ddgdp   deconsvcs ddpvtc dinv dnetexport

Breusch-Pagan LM statistic:   16.24532  Chi-sq( 5)  P-value =  .0062
```

h. OLS regression estimation

Since this study has captured the presence of heteroscedsaticity problem from the previous test, therefore, this study corrects the heteroscedsaticy problem by improving robustness of the regression analysis. The OLS result before and after improving robustness of the regression are shown accordingly in table 4.2.8 and 4.2.9 below.

Table 4.2.8: OLS result between GDP and ECONSVCS, PVTC, INV and NX before improving robustness

Variables	Coefficients	t-Statistic	P>[t]
ECONSVCS	-1.852446	-1.84	0.075
PVTC	1.657597	9.03	0.000
INV	776.7678	1.24	0.225
NX	0.3332851	1.90	0.067
Constant	33.38243	0.02	0.982
Prob > F	0.0000		
R squared	0.7927		
Adj R squared	0.7660		

Table 4.2.9: OLS result between GDP and ECONSVCS, PVTC, INV and NX after improving robustness

Variables	Coefficients	t-Statistic	P>[t]
ECONSVCS	-1.852446	-2.03	0.051
PVTC	1.657597	6.19	0.000
INV	776.7678	1.49	0.147
NX	0.3332851	1.92	0.064
Constant	33.38243	0.02	0.982
Prob > F	0.0000		
R squared	0.7927		
Adj R squared	0.7660		

From table 4.2.9., this study finds that the model is good and fit because the

R square and the adjusted R square are 0.7927 and 0.7660 respectively. Overall,

we can explain that the GDP is performed very well because there was a 79.27%

variation of dependant variable by the variation of independent variables. In other

words, the variances of the independent variables have successfully explained the

variance of dependent variable. Looking at the p value of F at table 4.2.9, it shows

that the p value is 0.0000, and significant. Therefore, the possibility of the R

square arising by chance is rejected and the relationship is considered true. Based

on these entire indicators, we can write down the regression estimation as follows:

Growth = 33.38243 -1.852446ECONSVCS + 1.657597PVTC + 776.7678INV

+ 0.3332851NX………………………………………………(12)

Table 4.2.10: Partial correlation of GDP with ECONSVCS, PVTC, INV and NX

Variables	Correlation	Sig.
ECONSVCS	-0.3139	0.075
PVTC	0.8513	0.000
INV	0.2169	0.225
NX	0.3227	0.067

Table 4.2.10 above shows the government development expenditure in economic services has a negative and weak correlation with economic growth. The correlation is significant at ten percent level. All control variables have a positive correlation. However, only private consumption and net export are significant at one percent and ten percent respectively.

4.3. The association between total government development expenditure in social services and economic growth

To test this relationship, this study employs 5 variables consisting of GDP as dependant variable, government development expenditure in social services, SOCSVCS as an independent variable and control variables consisting of private consumption (PVTC), investment (INV) and net export (NX). This study starts the test with model specification test.

a. Omitted variable test

From the result of ovtest, this study found that Prob>F = 0.050. Hence, the probability is greater than F at 0.050 or we can describe that the p-value of ovtest

is not significant and therefore it fails to reject the null hypothesis and assume that there is no error in the model specification.

b.   Descriptive and statistical summary

Table 4.3.1: Descriptive statistics of GDP, SOCSVCS, PVTC, INV and NX

Variables	Obs	Mean	Std. Dev.	Min	Max
GDP	38	179931.4	175231.3	11829	642049
SOCSVCS	36	3936.08	4831.683	81	18043
PVTC	38	83289.68	77249.66	7095	293040
INV	38	23.87263	5.708425	16.93	37.04
NX	38	24392.53	41935.52	-8754	132210

Notes: GDP, SOCSVCS, PVTC and NX are in RM million while INV is in share of real GDP per capita.

Since the descriptive and statistical summary for GDP, PVTC, INV and NX were carried out in the previous subchapter, therefore, for this test, this study will only focus on the descriptive and statistical summary of government development expenditure in social services, SOCSVCS. Table 4.3.1 shows that SOCSVCS was average positive at RM 3936.08 million with minimum and maximum at RM 81 million and RM 18,043 million, respectively. Referring to the Appendix 1, the minimum expenditure was in 1970 while the maximum expenditure was in 2002.

Looking at the ratio of average for SOCSVCS on GDP, the ratio sets at 1:45.71.

On the other hand, the minimum ratio for SOCSVCS on GDP and maximum ratio

for SOCSVCS on GDP were set at 1:146.03 and 1:35.58. From this ratio, this

study finds that the ratio has decreased tremendously. This was due to the

increasing of budget relatively to GDP in social services throughout the years.

Since social services expenditure is formed by sectors of education, health,

housing and social communities, this study assumes that as the role of government

services has shifted from pacesetter for economic growth in 1970 to facilitator or

provider in 2000's, hence the increasing budget relatively to GDP in social

services is justified. In general, owing to the privatization policy and the new

development policies, the government has managed to reduce its expenditure on

sectors related to these policies. As a result from this, the expenditure reduced

from those sectors shifted to sectors that lie under the social services.

c.   Unit root test

For the unit root test, the result of the p values and the test statistic value

from the Phillip Perron test are summarized as in the table below:

Table 4.3.2: Results of Phillip Perron test for unit root on GDP, SOCSVCS, PVTC,
INV and NX for the period 1970-2007

Variables	Unit root statistic level		First difference		Second difference		Degree of integration
	Test Statistics	Critical value	Test Statistics	Critical value	Test Statistics	Critical value	
GDP	10.291	-3.668	-1.622	-3.675	-12.801	-3.682	I(2)
SOCSVCS	-0.852	-3.668	-3.214	-3.675	-5.135	-3.682	I(2)
PVTC	8.759	-3.668	-1.698	-3.675	-9.164	-3.682	I(2)
INV	-2.232	-3.668	-5.421	-3.675	-	-	I(1)
NX	1.228	-3.668	-4.710	-3.675	-	-	I(1)

Variables	P value		
	Level	First difference	Second Difference
GDP	1.0000	0.4717	**0.0000**
SOCSVCS	0.8034	0.0192	**0.0000**
PVTC	1.0000	0.4320	**0.0000**
INV	0.1950	**0.0000**	-
NX	0.9962	**0.0001**	-

Sources: See Data Appendix.

Notes: All critical values are at 1% significance level based on MacKinnon's
critical values.

All lag length is set at 3 as suggested by Newey-West method, $q=4(T/100)^{2/9.}$

This study will only focus on SOCSVCS since the unit root test for GDP,

PVTC, INV and NX were carried out in our previous relationship testing.

However, for better understanding, this study keeps together all the results of the

unit root test in the same table. From table 4.3.2, this study finds that test statistic values for SOCSVCS are greater than the critical values at level data. Furthermore, the p value for SOCSVCS is insignificant in level data at 1% significance level. Therefore, in level data, it fails to reject the null hypothesis and accept there is a unit root in the data series for SOCSVCS. After first difference, this study finds that the p value and test statistic value are still insignificant. The p value is 0.0192 and the test statistic value is -3.214. The p value and test statistic value are only significant after second difference at 0.0000 and -5.135 respectively. Therefore, we reject the null hypothesis and assume that data series for SOCSVCS is integrated of order I(2) and data series is stationary. As such, we utilize the stationary data of INV and NX at first difference and at the same time we utilize the stationary data of GDP, SOCSVCS and PVTC at second difference for the interest of unbiased regression analysis.

d. Linearity test

Since this study carried out linearity test on GDP, PVTC, INV and NX, therefore for this relationship testing, this study will only carry out the linearity

test on data series of SOCSVCS.   The linearity test result for SOCSVCS shows that no linearity problem occurs in the data. The data series of SOCSVCS is linear and normally distributed. By this way it fits the linear regression. Table 4.3.3 shows the linearity test results of SOCSVCS. The respective identity *p value of chi square* for SOCSVCS is 0.004, greater than any other possibly transformations.

Table 4.3.3: Linearity test results of SOCSVCS

SOCSVCS

```
. ladder  ddsocsvcs

Transformation         formula              chi2(2)      P(chi2)
-----------------------------------------------------------------
cubic                  ddsocs~s^3           44.92        0.000
square                 ddsocs~s^2           38.60        0.000
identity               ddsocs~s             11.21        0.004
square root            sqrt(ddsocs~s)          .            .
log                    log(ddsocs~s)           .            .
1/(square root)        1/sqrt(ddsocs~s)        .            .
inverse                1/ddsocs~s           37.96        0.000
1/square               1/(ddsocs~s^2)       42.77        0.000
1/cubic                1/(ddsocs~s^3)       45.64        0.000
```

e.   Multicollinearity test

For the emulticollinearity test, the results show that no multicollenearity problem exists in the data series. In detail, the pair wise correlation results confirm the data series are free from any bias caused by multicollinerity problem

as there is no strong correlation among independent variables. All correlations are less than 0.8. The result from VIF command supports this finding by showing the same result. The VIF test result is 2.03 far smaller than 10. Hence, all the variables can be considered in the model with their stationary and linear data. Table 4.3.4 and 4.3.5 show the results of multicollinearity test.

Table 4.3.4: Results of multicollinearity test for SOCSVCS, PVTC, INV and NX using pair wise correlation

```
. pwcorr ddsocsvcs ddpvtc dinv dnetexport

             |  ddsocs~s   ddpvtc      dinv dnetex~t
-------------+----------------------------------------
   ddsocsvcs |   1.0000
      ddpvtc |   0.0224   1.0000
        dinv |   0.0598   0.4794   1.0000
  dnetexport |  -0.0434  -0.2767  -0.7798    1.0000
```

Table 4.3.5: Results of multicollinearity test for SOCSVCS, PVTC, INV and NX using VIF command

```
. vif

    Variable |      VIF      1/VIF
-------------+----------------------
        dinv |     3.16    0.316225
  dnetexport |     2.63    0.379782
      ddpvtc |     1.34    0.746056
   ddsocsvcs |     1.00    0.996327
-------------+----------------------
    Mean VIF |     2.03
```

f.   Autocorrelation test

The result from the Durbin Watson test shows that the d-statistic for this relationship testing is 2.991152. The result is within the allowable range of Durbin Watson table. Therefore, we conclude that there is no autocorrelation. Table 4.3.6 shows the result of autocorrelation test carried out using Durbin Watson test.

Table 4.3.6: Result of Durbin Watson test for GDP, SOCSVCS, PVTC, INV and NX

```
. dwstat

Durbin-Watson d-statistic(  5,    36) =  2.991152
```

g.   Heteroscedasticity test

Heteroscedasticity test suggests that the null hypothesis is that the series is homoscedasticity. This study uses Breusch-Pagan test for this analysis. From the result, this study finds that the p value is significant and rejects the null hypothesis, thus resulting that there is a heteroscedasticty problem. Therefore, this study corrects the heteroscedasticty problem by improving robustness of the regression. Table 4.3.7 shows the result of Breusch-Pagan test.

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Table 4.3.7: Result of Breusch-Pagan test Result of Durbin Watson test for GDP, SOCSVCS, PVTC, INV and NX

```
. bpagan  ddgdp  ddsocsvcs ddpvtc dinv dnetexport

Breusch-Pagan LM statistic:  16.35872  Chi-sq( 5)  P-value =  .0059
```

h.   OLS regression estimation

In the previous Breusch Pagan test, this study captured the presence of heteroscedsaticity problem. Therefore, to proceed with the final OLS regression result, this study corrects the heteroscedsaticy problem by improving robustness of the OLS regression.. The OLS result before and after improving robustness are shown accordingly in table 4.3.8 and 4.3.9 below.

Table 4.3.8: OLS result between GDP and SOCSVCS, PVTC, INV and NX before improving robustness

Variables	Coefficients	t-Statistic	P>[t]
SOCSVCS	-1.162014	-1.83	0.077
PVTC	1.653525	9.01	0.000
INV	680.1301	1.09	0.284
NX	0.2720677	1.58	0.124
Constant	-627.0994	-0.45	0.657

Prob > F	0.0000
R squared	0.7925
Adj R squared	0.7657

Table 4.3.9: OLS result between GDP and SOCSVCS, PVTC, INV and NX after improving robustness

Variables	Coefficients	t-Statistic	P>[t]
SOCSVCS	-1.162014	-1.57	0.127
PVTC	1.653525	6.20	0.000
INV	680.1301	1.35	0.188
NX	0.2720677	1.50	0.143
Constant	-627.0994	-0.44	0.666
Prob > F	0.0000		
R squared	0.7925		
Adj R squared	0.7657		

In terms of goodness of fit of the model, the indicator to measure the goodness of fit is looking at the R square and the adjusted R square. This study finds that the model is good and fit because the R square and the adjusted R square are 0.7925 and 0.7657, respectively. In overall, we can explain that the GDP has performed very well because there was a 79.25% variation of the dependant variable by the variation of independent variables. In other words, the

variances of the independent variables have successfully explained the variance of

the dependent variable. Looking at the p value of F at table 4.3.9, it shows that the

p value was 0.0000, and significant. Therefore, the possibility that the R square

has arisen by chance is rejected and the relationship is considered true. Based on

these entire indicators, we can write down the regression estimation as follows:

Growth = - 627.0994 - 1.162014SOCSVCS + 1.653525PVTC + 680.1301INV

+ 0.2720677NX……………………….……(13)

Table 4.3.10: Partial correlation of GDP with SOCSVCS, PVTC, INV and NX

Variables	Correlation	Sig.
SOCSVCS	-0.3119	0.077
PVTC	0.8506	0.000
INV	0.1921	0.284
NX	0.2729	0.124

Table 4.3.10 above shows the government development expenditure in

social services has a negative and weak correlation with economic growth. The

correlation is significant at ten percent level. All control variables have a positive

correlation. However, only private consumption is significant at one percent.

4.4. The association between government development expenditure by sectors and economic growth

To test the above relationship, this study employs 15 variables. The dependant variable is represented by GDP as a proxy for economic growth, while government expenditure by sectors consisting of agriculture and rural development (AGRIRURAL), trade and industry (TRADEIND), transport (TRANS), public utilities (PUBITI), others (OTHERS), education (EDU), health (HEALTH), housing (HOUSING), social and community services (SOCCOM), defense and security (DEFSEC), and general administration (GENADMIN) represent the independent variables. For control variables, the variables are private consumption (PVTC), investment (INV) and net export (NX). This study starts to test the above relationship with model specification test.

a.   Omitted variable test

The result form ovtest shows that Prob >F = 0.2144. Hence, the probability is greater than F at 0.2144 or we can describe that the p-value of ovtest is not significant and therefore it fails to reject the null hypothesis and we assume that

there is no error in the model specification.

b.   Descriptive and statistical summary

Table 4.4.1: Descriptive statistics of GDP, AGRIRURAL, TRADEIND, TRANS, PUBITI, OTHERS, EDU, HEALTH, HOUSING, SOCCOM, DEFSEC, GENADMIN, PVTC, INV and NX

Variables	Obs	Mean	Std. Dev.	Min	Max
GDP	38	179931.4	175231.3	11829	642049
AGRIRURAL	36	1090.528	547.4104	198	2881
TRADEIND	36	1390.611	1262.164	93	4830
TRANS	36	2271.556	2090.18	80	7660
PUBITI	36	773.3333	530.2118	20	1968
OTHERS	36	218.4722	242.5117	11	925
EDU	36	2221.583	3070.61	44	12436
HEALTH	36	485	660.0084	20	2681
HOUSING	36	593.25	592.0885	11	1928
SOCCOM	36	636.25	754.1963	6	2905
DEFSEC	36	1689.194	1488.033	110	6029
GENADMN	36	769.6389	1119.136	19	3839
PVTC	38	83289.68	77249.66	7095	293040
INV	38	23.87263	5.708425	16.93	37.04
NX	38	24392.53	41935.52	-8754	132210

Notes: GDP, AGRIRURAL, TRADEIND, TRANS, PUBITI, OTHERS, EDU, HEALTH, HOUSING, SOCCOM, DEFSEC, GENADMIN, PVTC and NX are in RM million while INV is in share of real GDP per capita.

As the earlier descriptive and statistical summary were carried out for GDP,

PVTC, INV and NX, therefore, this study will only focus on descriptive and statistical summary of government development expenditure by its sectors. The descriptive and statistical summary from Table 4.4.1 shows that all these sectors have a positive average. If we look at the ratio of minimum and maximum between government expenditure by sectors on GDP, this study finds that only two sectors experienced increasing in ratio. It means that these two sectors experienced decreasing in budget relative to GDP which was in line with overall economic services expenditure relative to GDP. These sectors are AGRIRURAL and TRADEIND. The minimum expenditure for AGRIRURAL is RM 198 million which was in 1970 and its maximum expenditure is RM 2,881 million in 2004. Ratios for minimum and maximum expenditure relative to GDP are 1:59.74 and 1:222.85. For TRADEIND, the ratio doesn't change much. It moves from 1:127.19 in 1970 to 1:132.92 in 2001. However, there are sectors in that experience the other way around. They are TRANS, PUBITI, and OTHERS. This is a very interesting matter to be pondered. This is because as the government policies moves to give way to private sector as an engine of growth, the government expenditure relative to GDP still kept increasing which was not in line with the policies. For social services sectors, DEFSEC and GENADMIN,

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they experienced a decreasing of ratio relative to GDP. In general their expenditures relative to GDP were increased which supports the shift of government role towards social services provider.

c. **Unit root test**

The result of the p values and the test statistic value in the Phillip Perron test are summarized as in the table below:

Table 4.4.2: Results of Phillip Perron test for unit root on GDP, AGRIRURAL,TRADEIND, TRANS, PUBITI, OTHERS, EDU, HEALTH, HOUSING, SOCCOM, DEFSEC, GENADMIN, PVTC, INV and NX for the period 1970-2007

Variables	Unit root statistic level		First difference		Second difference		Degree of integration
	Test Statistics	Critical value	Test Statistics	Critical value	Test Statistics	Critical value	
GDP	10.291	-3.668	-1.622	-3.675	-12.801	-3.682	I(2)
AGRIRURAL	0.733	-3.668	-7.425	-3.675	-	-	I(1)
TRADEIND	-1.445	-3.668	-8.055	-3.675	-	-	I(1)
TRANS	1.896	-3.668	-7.221	-3.675	-	-	I(1)
PUBITI	-0.780	-3.668	-6.060	-3.675	-	-	I(1)
OTHERS	-2.591	-3.668	-6.647	-3.675	-	-	I(1)
EDU	-1.404	-3.668	-3.355	-3.675	-4.830	-3.682	I(2)
HEALTH	-0.984	-3.668	-5.747	-3.675	-	-	I(1)

Variables	Unit root statistic level		First difference		Second difference		Degree of integration
	Test Statistics	Critical value	Test Statistics	Critical value	Test Statistics	Critical value	
HOUSING	-0.024	-4.259	-5.876	-3.675	-	-	I(1)
SOCCOM	-0.268	-3.668	-4.630	-3.675	-	-	I(1)
DEFSEC	-0.053	-3.668	-7.713	-3.675	-	-	I(1)
GENADMN	-1.740	-3.668	-7.652	-3.675	-	-	I(1)
PVTC	8.759	-3.668	-1.698	-3.675	-9.164	-3.682	I(2)
INV	-2.232	-3.668	-5.421	-3.675	-	-	I(1)
NX	1.228	-3.668	-4.710	-3.675	-	-	I(1)

Variables	P value		
	Level	First Difference	Second Difference
GDP	1.0000	0.4717	**0.0000**
AGRIRURAL	0.9905	**0.0000**	-
TRADEIND	0.5608	**0.0000**	-
TRANS	0.9985	**0.0000**	-
PUBITI	0.8249	**0.0000**	-
OTHERS	0.0948	**0.0000**	-
EDU	0.5805	0.0126	**0.0000**
HEALTH	0.7589	**0.0000**	-
HOUSING	0.9565	**0.0005**	-
SOCCOM	0.9299	**0.0001**	-
DEFSEC	0.9627	**0.0000**	-
GENADMN	0.4107	**0.0000**	-
PVTC	1.0000	0.4320	**0.0000**
INV	0.1950	**0.0000**	-
NX	0.9962	**0.0001**	-

Sources: See Data Appendix.

Notes: All critical values are at 1% significance level based on MacKinnon's critical values.

All lag length is set at 3 as suggested by Newey-West method, $q=4(T/100)^{2/9.}$

For testing this relationship, the study focuses on all variables except for GDP, PVTC, INV and NX. This is because those variables were tested with their unit root test in our previous relationship testing. However, this study keeps together all the results of the unit root test in the same table for better understanding. From table 4.4.2, this study finds that test statistic values for all these variables are greater than the critical values at level data. Furthermore, the p value for all these variables is insignificant in level data at 1% significance level. Therefore, in level data, it fails to reject the null hypothesis and accept there is a unit root in the data series for all variables. After first difference, this study finds that all data series except EDU come with a significant p value and test statistic value. Therefore we reject the null hypothesis and accept that data series for all the variables are integrated of order I(1) and stationary. For EDU, its p value and test statistical value become significant after second difference. As such we utilize the stationary data of all the variables except EDU together with INV and NX at first difference and at the same time we utilize the stationary data of GDP, EDU and PVTC at second difference for the interest of unbiased regression analysis.

d. Linearity test

For linearity test, this study focuses on all variables except GDP, PVTC, INV and NX. This is because those variables were tested with their linearity test in our previous relationship testing.   The linearity test result for all the variables shows that there is no linearity problem in all the series data. Therefore all the variables data series are linear and normally distributed. By this way it fits the linear regression. Table 4.4.3 shows the linearity test results of all those variables. The respective *p value of chi square* for AGRIRURAL, OTHERS and GENADMIN is 0.000, similar to any other possibly transformations. Therefore we maintain the existing formation. For TRADE, TRANS, PUBITI, EDU, HOUSING, SOCCOM and DEFSEC, their *p value of chi square* are 0.332, 0.018, 0.132, 0.004, 0.006, 0.008 and 0.141, respectively. Since these values are greater than any other possible transformation, therefore the variables are linear in their existing formation. However, this study finds that the *p value of chi square* for HEALTH is a little lower than inverse transformation. Their *p value of chi square* is 0.001 compared to *p value of chi square of* inverse transformation at 0.035. This study further checks on the linearity graph by employing *gladder* command in Stata version 10.0 and finds from the histogram graph results that the data series

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are normally distributed similar to the inverse transformation. In addition, there is

no skewness from the histogram line. Therefore, this study concludes that the data

series is linear and normally distributed. The respective histogram graph for

HEALTH is shown along with the linearity results.

Table 4.4.3: Linearity test results of AGRIRURAL, TRADEIND, TRANS, PUBITI, OTHERS, EDU, HEALTH, HOUSING, SOCCOM, DEFSEC and GENADMIN

<u>AGRIRURAL</u>

```
. ladder  dagrirural

Transformation        formula           chi2(2)    P(chi2)
_____
cubic                 dagrir~l^3        45.36      0.000
square                dagrir~l^2        42.80      0.000
identity              dagrir~l          29.27      0.000
square root           sqrt(dagrir~l)      .          .
log                   log(dagrir~l)       .          .
1/(square root)       1/sqrt(dagrir~l)    .          .
inverse               1/dagrir~l        29.47      0.000
1/square              1/(dagrir~l^2)    45.02      0.000
1/cubic               1/(dagrir~l^3)    49.13      0.000
```

<u>OTHERS</u>

```
. ladder  dothers

Transformation        formula           chi2(2)    P(chi2)
_____
cubic                 dothers^3         51.84      0.000
square                dothers^2         46.09      0.000
identity              dothers           16.74      0.000
square root           sqrt(dothers)       .          .
log                   log(dothers)        .          .
1/(square root)       1/sqrt(dothers)     .          .
inverse               1/dothers           .          .
1/square              1/(dothers^2)       .          .
1/cubic               1/(dothers^3)       .          .
```

GENADMIN

```
. ladder  dgenadmin

Transformation        formula            chi2(2)     P(chi2)
─────────────────────────────────────────────────────────────
cubic                 dgenad~n^3          39.60      0.000
square                dgenad~n^2          35.37      0.000
identity              dgenad~n            17.56      0.000
square root           sqrt(dgenad~n)         .          .
log                   log(dgenad~n)          .          .
1/(square root)       1/sqrt(dgenad~n)       .          .
inverse               1/dgenad~n          34.65      0.000
1/square              1/(dgenad~n^2)      53.57      0.000
1/cubic               1/(dgenad~n^3)      56.10      0.000
```

TRADEIND

```
. ladder  dtradeind

Transformation        formula            chi2(2)     P(chi2)
─────────────────────────────────────────────────────────────
cubic                 dtrade~d^3          11.25      0.004
square                dtrade~d^2          10.24      0.006
identity              dtrade~d             2.21      0.332
square root           sqrt(dtrade~d)         .          .
log                   log(dtrade~d)          .          .
1/(square root)       1/sqrt(dtrade~d)       .          .
inverse               1/dtrade~d          37.63      0.000
1/square              1/(dtrade~d^2)      53.32      0.000
1/cubic               1/(dtrade~d^3)      55.67      0.000
```

TRANS

```
. ladder  dtrans

Transformation        formula            chi2(2)     P(chi2)
─────────────────────────────────────────────────────────────
cubic                 dtrans^3            36.23      0.000
square                dtrans^2            30.90      0.000
identity              dtrans               8.04      0.018
square root           sqrt(dtrans)           .          .
log                   log(dtrans)            .          .
1/(square root)       1/sqrt(dtrans)         .          .
inverse               1/dtrans            56.19      0.000
1/square              1/(dtrans^2)        56.63      0.000
1/cubic               1/(dtrans^3)        56.63      0.000
```

PUBITI

```
. ladder  dpubiti

Transformation        formula            chi2(2)     P(chi2)
─────────────────────────────────────────────────────────────
cubic                 dpubiti^3           17.83      0.000
square                dpubiti^2           21.75      0.000
identity              dpubiti              4.05      0.132
square root           sqrt(dpubiti)          .          .
log                   log(dpubiti)           .          .
1/(square root)       1/sqrt(dpubiti)        .          .
inverse               1/dpubiti              .          .
1/square              1/(dpubiti^2)          .          .
1/cubic               1/(dpubiti^3)          .          .
```

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HOUSING

```
. ladder  dhousing

Transformation        formula              chi2(2)      P(chi2)

cubic                 dhousing^3           45.65        0.000
square                dhousing^2           38.83        0.000
identity              dhousing             10.19        0.006
square root           sqrt(dhousing)          .            .
log                   log(dhousing)           .            .
1/(square root)       1/sqrt(dhousing)        .            .
inverse               1/dhousing           44.75        0.000
1/square              1/(dhousing^2)       56.19        0.000
1/cubic               1/(dhousing^3)       56.60        0.000
```

DEFSEC

```
. ladder  ddefsec

Transformation        formula              chi2(2)      P(chi2)

cubic                 ddefsec^3            16.08        0.000
square                ddefsec^2            24.23        0.000
identity              ddefsec               3.91        0.141
square root           sqrt(ddefsec)           .            .
log                   log(ddefsec)            .            .
1/(square root)       1/sqrt(ddefsec)         .            .
inverse               1/ddefsec               .            .
1/square              1/(ddefsec^2)           .            .
1/cubic               1/(ddefsec^3)           .            .
```

EDU

```
. ladder  ddedu

Transformation        formula              chi2(2)      P(chi2)

cubic                 ddedu^3              34.81        0.000
square                ddedu^2              34.70        0.000
identity              ddedu                11.11        0.004
square root           sqrt(ddedu)             .            .
log                   log(ddedu)              .            .
1/(square root)       1/sqrt(ddedu)           .            .
inverse               1/ddedu              21.78        0.000
1/square              1/(ddedu^2)          50.05        0.000
1/cubic               1/(ddedu^3)          53.98        0.000
```

SOCCOM

```
. ladder  dsoccom

Transformation        formula              chi2(2)      P(chi2)

cubic                 dsoccom^3            35.53        0.000
square                dsoccom^2            29.18        0.000
identity              dsoccom               9.74        0.008
square root           sqrt(dsoccom)           .            .
log                   log(dsoccom)            .            .
1/(square root)       1/sqrt(dsoccom)         .            .
inverse               1/dsoccom            11.51        0.003
1/square              1/(dsoccom^2)        35.95        0.000
1/cubic               1/(dsoccom^3)        17.78        0.000
```

HEALTH

```
. ladder  dhealth

Transformation          formula                chi2(2)      P(chi2)
───────────────────────────────────────────────────────────────────
cubic                   dhealth^3               20.53        0.000
square                  dhealth^2               39.90        0.000
identity                dhealth                 14.42        0.001
square root             sqrt(dhealth)             .            .
log                     log(dhealth)              .            .
1/(square root)         1/sqrt(dhealth)           .            .
inverse                 1/dhealth                6.70        0.035
1/square                1/(dhealth^2)           26.61        0.000
1/cubic                 1/(dhealth^3)           15.39        0.000
```


Histograms by transformation
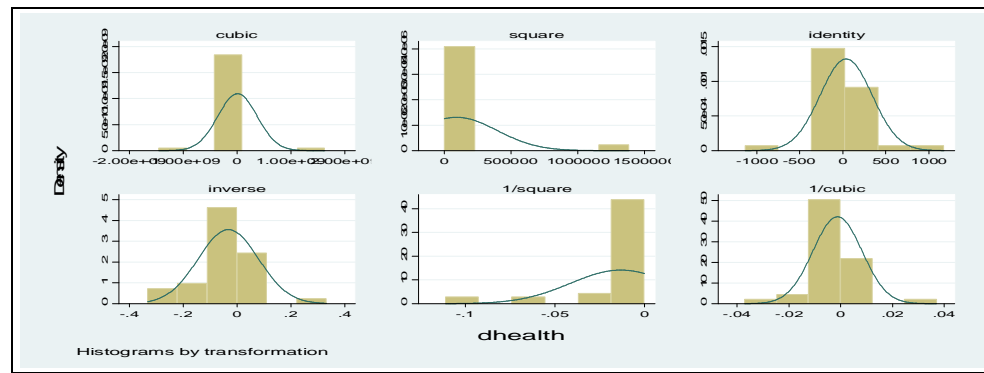
e.   Multicollinearity test

The result for the multicollinearity test shows that no multicollenearity problem exists in the data series. In detail, the pair wise correlation results confirm the data series are free from any bias caused by multicollinerity problem as there is no strong correlation between independent variables. All correlations are less than 0.8 except GENADMIN and EDU which is 0.825. However, when we conduct the VIF command, the result shows at 3.89 which is far smaller than 10. Therefore we assume that the correlation between GENADMIN and EDU is

bearable. Hence, all the variables can be considered in the model with their

stationary and linear data. Table 4.4.4 and 4.4.5 show the results of

multicollinearity test.

Table 4.4.4: Results of multicollinearity test for AGRIRURAL, TRADEIND, TRANS, PUBITI, OTHERS, EDU, HEALTH, HOUSING, SOCCOM, DEFSEC and GENADMIN using pair wise correlation

```
. pwcorr dagrirural dtradeind dtrans dpubiti dothers  ddedu dhealth dhousing dso
> ccom ddefsec dgenadmin

             | dagrir~l dtrade~d   dtrans  dpubiti  dothers    ddedu  dhealth
-------------+------------------------------------------------------------------
  dagrirural |  1.0000
   dtradeind | -0.2178   1.0000
      dtrans | -0.1080   0.1978   1.0000
     dpubiti |  0.0649   0.0380  -0.4182   1.0000
     dothers | -0.1634   0.0348   0.2137   0.0393   1.0000
       ddedu | -0.1999   0.4492   0.0610   0.4334   0.0429   1.0000
     dhealth |  0.1029   0.0096   0.3171  -0.5284   0.1915  -0.5620   1.0000
    dhousing |  0.0996   0.1048   0.1826   0.1007   0.4429  -0.0778   0.2617
     dsoccom | -0.1671   0.2625   0.3998  -0.2606   0.3877  -0.1049   0.7156
     ddefsec | -0.2169   0.1178   0.3335  -0.1809   0.2565  -0.0166   0.2578
   dgenadmin |  0.2791   0.0452  -0.2151  -0.1905  -0.1744   0.0825  -0.0208

             | dhousing  dsoccom  ddefsec dgenad~n
-------------+------------------------------------
    dhousing |  1.0000
     dsoccom |  0.4966   1.0000
     ddefsec |  0.2469   0.4934   1.0000
   dgenadmin | -0.4362  -0.2542  -0.0042   1.0000
```

Table 4.4.5: Results of multicollinearity test for AGRIRURAL, TRADEIND, TRANS, PUBITI, OTHERS, EDU, HEALTH, HOUSING, SOCCOM, DEFSEC and GENADMIN using VIF command

```
. vif

    Variable |       VIF       1/VIF
-------------+----------------------
     dsoccom |      9.93    0.100709
     dhealth |      8.55    0.116976
  dnetexport |      6.31    0.158415
        dinv |      4.67    0.214020
      dpubiti |     4.12    0.242637
        ddedu |     3.90    0.256643
   dgenadmin |      2.90    0.344497
      dtrans |      2.67    0.374730
    dhousing |      2.36    0.423277
   dagrirural |     2.10    0.477251
      ddefsec |     1.85    0.540867
       ddpvtc |     1.82    0.550099
    dtradeind |     1.78    0.560327
      dothers |     1.54    0.648699
-------------+----------------------
    Mean VIF |      3.89
```

f.   Autocorrelation test

After conducting the Durbin Watson test, this study finds that the d-statistic for this relationship testing is 2.361273. The result is within the allowable range of Durbin Watson table. Therefore, we conclude that there is no autocorrelation. Table 4.4.6 shows the result of autocorrelation test carried out using Durbin Watson test.

Table 4.4.6: Result of Durbin Watson test for GDP, AGRIRURAL, TRADEIND, TRANS, PUBITI, OTHERS, EDU, HEALTH, HOUSING, SOCCOM, DEFSEC, GENADMIN, PVTC, INV and NX

```
. dwstat

Durbin-Watson d-statistic( 15,    36) = 2.361273
```

g. Heteroscedasticity test

As we have mentioned in our earlier chapter, this study conducts the heteroscedasticity test to check whether the variance of the error terms are constant or not. Heteroscedasticity test suggests that the null hypothesis is that the series is homoscedasticity. This study uses Breusch-Pagan test for this analysis. From the result, this study finds that the p value is insignificant and fails to reject the null hypothesis, thus concluding that there is no heteroscedasticty problem. In other words, the series is homoscedasticity. Therefore, this study proceeds with OLS regression. Table 4.4.7 shows the result of Breusch-Pagan test.

Table 4.4.7 : Result of Breusch-Pagan test Result of Durbin Watson test for GDP, AGRIRURAL, TRADEIND, TRANS, PUBITI, OTHERS, EDU, HEALTH, HOUSING, SOCCOM, DEFSEC, GENADMIN, PVTC, INV and NX

```
. bpagan  ddgdp dagrirural dtradeind dtrans dpubiti dothers ddedu dhealth dhous
> ing dsoccom ddefsec dgenadmin ddpvtc dinv dnetexport

Breusch-Pagan LM statistic:  21.47836  Chi-sq(15)  P-value =  .1222
```

h. OLS regression estimation

In the previous Breusch Pagan test, this study found no heteroscedsaticity problem. Therefore, this study proceeds with the present OLS regression result.

The OLS result is shown in table 4.4.8

Table 4.4.8: OLS result between GDP and AGRIRURAL, TRADEIND, TRANS, PUBITI, OTHERS, EDU, HEALTH, HOUSING, SOCCOM, DEFSEC, GENADMIN, PVTC, INV and NX

Variables	Coefficients	t-Statistic	P>[t]
AGRIRURAL	-0.2832806	-0.10	0.919
TRADEIND	-2.497901	-2.73	0.013
TRANS	3.036949	1.78	0.090
PUBITI	13.13492	3.11	0.005
OTHERS	-5.004914	-1.19	0.246
EDU	-0.3277391	-0.36	0.723
HEALTH	16.58197	2.56	0.018
HOUSING	-1.036034	-0.44	0.667
SOCCOM	-15.50755	-2.09	0.049
DEFSEC	-0.1794066	-0.14	0.893
GENADMN	-6.004554	-4.04	0.001
PVTC	1.486203	12.92	0.000
INV	90.99165	0.22	0.826
NX	0.671291	0.47	0.645
Constant	-225.007	-0.29	0.777
Prob > F	0.0000		
R squared	0.9593		
Adj R squared	0.9322		

In terms of goodness of fit of the model, the indicator to measure the goodness of fit is looking at the R square and the adjusted R square. This study finds that the model is good and fit because the R square and the adjusted R square are 0.9593 and 0.9322, respectively. In overall, we can explain that the GDP has performed very well because there was a 95.93% variation of the dependant variable by the variation of independent variables. In other words, the variances of the independent variables have successfully explained the variance of dependent variable. Looking at the p value of F at table 4.4.8, it shows that the p value is 0.0000, and significant. Therefore, the possibility of the R square arising by chance is rejected and the relationship is considered true. Based on these entire indicators, we can write down the regression estimation as follows:

Growth =   - 225.007 - 0.2832806AGRIRURAL - 2.497901TRADEIND

+ 3.036949TRANS + 13.13492PUBITI - 5.004914OTHERS - 0.3277391EDU + 16.58197HEALTH - 1.036034HOUSING - 15.50755SOCCOM - 0.1794066DEFSEC - 6.004554GENADMIN + 1.486203PVTC + 90.99165INV + 0.671291NX…………………..(14)

Table 4.4.9: Partial correlation of GDP with AGRIRURAL, TRADEIND, TRANS, PUBITI, OTHERS, EDU, HEALTH, HOUSING, SOCCOM, DEFSEC, GENADMIN, PVTC, INV and NX

Variables	Correlation	Sig.
AGRIRURAL	-0.0224	0.919
TRADEIND	-0.5113	0.013
TRANS	0.3615	0.090
PUBITI	0.5621	0.005
OTHERS	-0.2522	0.246
EDU	-0.0782	0.723
HEALTH	0.4877	0.018
HOUSING	-0.0948	0.667
SOCCOM	-0.4153	0.049
DEFSEC	-0.0298	0.893
GENADMN	-0.6610	0.001
PVTC	0.9425	0.000
INV	0.0486	0.826
NX	0.1016	0.645

Table 4.4.9 above shows the correlation between GDP and government development expenditure by sectors. From the table, for the independent variables, this study finds that TRADEIND, TRANS, PUBITI, HEALTH, SOCCOM, and GENADMIN are significant. All of these variables have positive correlation except TRADEIND, SOCCOM, and GENADMIN.

Chapter Five

5.   Discussion of results

This chapter will discuss the hypotheses testing and interpretation of the results. The discussion will be based on the constructed hypotheses in chapter 3. As mentioned in chapter 3, the hypothesis is to test the significance of the relationship between government expenditure and economic growth. There are two ways to specify this hypothesis. The first one is by looking at the p value of the independent variable. If the p value is less than the significance value, it means that it is significant and therefore rejects the null hypothesis. The second way is by comparing the t-statistic value with the critical values from t distribution table. The t-statistic value must lie outside of the critical value in order to be significant and reject the null hypothesis. This study utilizes both ways to ensure a validity of result. The direction and the strength of the relationship will be obtained from the correlation coefficient conducted in the previous chapter. This chapter structures the discussion into four categories which are (1) The association between total government development expenditure and economic growth, (2) The association between government expenditure in economic

services and economic growth, (3) The association between government expenditure in social services and economic growth, and (4) The association between government expenditure by sectors and economic growth.

5.1. The association between total government development expenditure and economic growth

For this hypothesis testing, the null hypothesis suggests that there is no significant relationship between total government development expenditure and economic growth. The alternative hypothesis states that there is a significant relationship between total governmental development expenditures and economic growth. From table 4.1.9 this study finds the p value of t-test for total government expenditure is 0.025 which is significant at 5%. Therefore it rejects the null hypothesis and accepts that there is a negative relationship between total government expenditures and economic growth. To ensure this result, this study compares t-statistic of total government expenditure from table 4.1.9 and critical value from t-distribution table. Critical values in this case are 1.697 and 2.042 for the ten percent and five percent significance level, respectively. Since we employ

two tailed test, the significance level at five will be -2.042 and +2.042. This study

finds that the t-statistic of total government expenditure is -2.35 which lies outside

of these significance levels and therefore the variable is significant and confirms

the earlier assumption. Therefore, the coefficient of total government development

expenditure indicates that by taking ceteris paribus on other variables, a 1%

increase in total government expenditure will be accompanied by a decrease of

RM 0.8864678 million in economic growth.

The empirical results of the time series analysis indicate surprising results.

First, it shows that the correlation between total government development

expenditure and economic growth is also very weak. Secondly, the total

government development expenditure does not has a strong significant towards

economic growth. Moreover, it shows that it has a negative influence on economic

growth. These findings contrast with the earlier assumption that government

expenditure has a positive influence on economic growth. It shows that the concept

of big government does not apply for the case of Malaysia. These results could be

possibly because of the influence of the country's pattern of expenditure. As

Malaysia was practicing the five years development plans, a huge budget was

allocated to fund this plan which could lead to a high deficit in government budget

and increase its foreign debt. By this way it could negatively influence the economic growth. These results could also be because of the crowding out effect, inefficiency of the public service, rent-seeking activities, cronyism, corruption, brain drain and lack of prioritization of government development projects as highlighted by as Milne (1976), Jomo (2003), Mansor (2000), Siddiquee (2006), Jeff (2008), John (2011), and the World Bank (2011). However, the findings cannot exhibit the specific conclusion due to the scope limitation of this study. On the other hand, as the relationship does not have a strong significance level, it could be said that the problems that cause the negative influence are not severe and could be corrected with more pleasant policies and actions.

5.2. The association between government expenditure in economic services and economic growth

From table 4.2.9 this study finds the p value of t-test for government development expenditure in economic services is 0.051 which is significant at ten percent. Therefore it rejects the null hypothesis and accepts that there is a negative relationship between government expenditures in economic services and

economic growth. To ensure this result, this study compares the t-statistic of government development expenditure in economic services from table 4.2.9 and its critical value from t-distribution table. Critical value in this case is 1.697 for ten percent significance level. Since we employ the two tailed test, the significance level will be -1.697 and +1.697. From table 4.2.9, it shows that the t-statistic value for government development expenditure in economic services is -2.03 which lies outside of the critical value. Therefore the variable is significant and confirms the earlier assumption. Since government development expenditure in economic services has a negative relationship with economic growth, the coefficient of government development expenditure in economic services indicates that by taking ceteris paribus on other variables, a 1% increase in government development expenditure in economic services will be accompanied by a decrease of RM 1.852446 million in economic growth.

The empirical results of the time series analysis indicates almost similar surprising results just like the results of the total government development expenditure towards economic growth. First, it also shows that the correlation between government development expenditure in economic services and economic growth is very weak. Secondly, the total government development expenditure does

not have a strong significance towards economic growth. Moreover, it shows that it has a negative influence on economic growth. These findings contrast with the earlier assumption which supposedly, government development expenditure as a component of total government expenditure should have a positive influence on economic growth. It shows that the concept of big government does not apply for these services for the case of Malaysia. The reason could be the same as the reason for the total government development expenditure.

5.3. The association between government expenditure in social services and economic growth

From table 4.3.9, this study finds the p value of t-test for government development expenditure in social services to be 0.127 which is insignificant at any levels. Therefore it fails to reject the null hypothesis and accepts that there is no relationship between government expenditures in social services and economic growth. To ensure this result, this study compares the t-statistic of government development expenditure in social services from table 4.3.9 and its critical value from t-distribution table. Critical value in this case is 1.697 at ten percent

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significance level. Since we employ the two tailed test, the significance level will be -1.697 and +1.697. From table 4.3.9, it shows that the t-statistics value for government development expenditure in social services is -1.57 which lies within the critical value. Therefore the variable is insignificant and rejects the earlier assumption.

The empirical results of this analysis do not show any evidence of relationship between the social services and economic growth. The government expenditure in social services is expected to contribute to the economic growth through an indirect channel. Therefore the impact could be only seen in the long run. However, the empirical result is unable to show either a short-run or long-run relationship due to the limitation of this study. Therefore, a specific test such as the Granger causality test might be useful to help in specifying this matter.

5.4. The association between government expenditure by sectors and economic growth

From table 4.4.8 this study finds that out of eleven independent variables, only six variables are significant at least at ten percent. They are TRADEND,

TRANS, PUBITI, HEALTH, SOCCOM and GENADMIN. Out of these six variables, three variables have a positive and significant relationship with GDP. They are TRANS, PUBITI and HEALTH. On the other hand, TRADEIND, SOCCOM and GENADMIN have a negative and significant relationship with GDP. Two variables which are PUBITI and GENADMIN show the most significant variables at one percent. To confirm this result, this study compares t-statistic of all these six variables from table 4.4.8 and critical value from t-distribution table. Critical value in this case is 1.697 for the 10% significance level. Since we employ the two tailed test, the significance level will be -1.697 and +1.697. From table 4.4.8, it shows that the t-statistic values for government development expenditure in TRADEND, TRANS, PUBITI, HEALTH, SOCCOM and GENADMIN are -2.73, 1.78, 3.11, 2.56, -2.09 and -4.04. All of the t-statistics for these variables lie outside the critical value. Therefore the variables are significant and confirm the earlier assumption.

Since TRANS, PUBITI and HEALTH have a positive and significant relationship with economic growth, the coefficient of government development expenditure in these sectors indicate that by taking ceteris paribus on all other variables, a 1% increase in government development expenditure in transport will

be accompanied by an increase of RM 3.036949 million in economic growth. A 1% increase in government development expenditure in public utilities will be accompanied by an increase of RM 13.13492 million in economic growth and a 1% increase in government development expenditure in health will be accompanied by an increase of RM 16.58197 million in economic growth.

On the other hand, for TRADEIND, SOCCOM and GENADMIN, the coefficient of government development expenditure in these sectors indicate that by taking ceteris paribus on all other variables, a 1% increase in government development expenditure in trade and industry will be accompanied by a decrease of RM 2.497901million in economic growth. A 1% increase in government development expenditure in social community services will be accompanied by a decrease of RM 15.50755 million in economic growth. And finally a 1% increase in government development expenditure in general administration will be accompanied by a decrease of RM 6.004554 million in economic growth.

From the empirical analysis result, it shows that even though the overall government development expenditure has a negative influence on economic growth, its sectors show some encouraging results. Three sectors show a positive and significant relationship towards economic growth. They are transport, public

utilities and health. The most significant among these three is public utilities. It is well accepted that spending on the development of public utilities such as road, telecommunication, water supply and electricity could improve the standard of life of the people. It could also improve the environment for business purposes. This sector involves the people directly; it means that people could get an immediate impact from the development of this sector. Therefore, the possibility of the projects under this sector being affected with issues such as corruption, rent-seeking, inefficiency and other might be little. Thus the allocation under this sector is wisely utilized and the relationship between these sectors and economic growth is in line with the big government concept.

On the other hand, three other sectors which are trade and industry, social community and general administration show a negative relationship with economic growth. The reason could be the same as we have mentioned earlier. For example, sector of trade and industry has a big potential in promoting economic growth. However, it could also work oppositely if surrounded with unpleasant policy and business environment. Furthermore this sector is handled by government agencies that have a high risk of involvement with corruption activities, thus the economic growth could also be discouraged by such wrong activities. For general

administration sector, it is associated much with efficiency factor. If the public

service is not efficient, therefore the allocation spent under this sector would end up

as waste and may discourage the economic growth. For the social community

sectors, it consists of programs such as welfare services, village and rural

development, culture, youth and sport, and museums. The reason why the

relationship is opposite to the earlier assumption might be the same reasons with the

total government expenditure. Moreover, this sector involves a great deal with

national unity factor which is a sensitive issue in Malaysia.

Chapter Six

6.   Conclusion

The main objective of this study was to specify the association between government expenditure towards economic growth in Malaysia. The study initially did an empirical testing with the total government development expenditure on economic growth and subsequently with the government development expenditure by services (economic services and social services) and finally with its sectors consisting of agriculture and rural development, trade and industry, transport, public utilities, others, education, health, social communities, defense and security and general administration. At the same time, the study employed private consumption, investment and net export as control variables for improving the reliability and a fair testing.

Based on an empirical time series analysis of the findings, this study discovered a statistically significant and negative relationship between total governmental development expenditure towards economic growth. The study also illustrated a similar result on government development expenditure in economic services towards economic growth. In terms of government development by sectors,

this study demonstrated three sectors with a statistically significant and negative relationship with economic growth which are trade and industry, social community and general administration. This study therefore may conclude that the small government concept applies to total government expenditure, economic services expenditure, expenditure in trade and industry, social community and general administration in the case of Malaysia instead of the big government concept. Unfortunately, the study cannot provide comprehensive evidence for the specific conclusions over the findings due to the limited scope of this study. However, based on literature reviews, the possible reasons of these findings could be the influence of the country's pattern of expenditure due to practicing the five year development plans which led to a huge budget allocation and later resulted in high deficit in government budget and increasing its foreign debt. In addition, other causes could be issues such as a crowding out effect, rent-seeking activities, cronyism, corruption and skilled brain drain.

This study found no relationship between governmental development expenditure in social services and economic growth. The study found similar results for expenditure on agriculture and rural development, education, housing and defense and security, and other sectors. As these sectors are commonly

expected to contribute to the economic growth indirectly, therefore the impact could only be seen in the long run. Due to the limited scope of this study, the empirical methods that this study has employed are unable to specify either short-run or long-run relationship. Therefore, specific tests such as the Johansen co-integration test and Granger causality test might be useful to help in clarifying this matter.

This study faced a few difficulties to evaluate the impact of government expenditure on economic growth due to several limitations. At the same time this study managed to highlight several disagreements in terms of concepts, theories, arguments and findings from previous studies.

From the empirical results, this study concluded that government expenditure has a big potential in influencing the economic growth, either by promoting or distorting the economic growth. However, this potential may be subject to several factors and the conditions that the government must be able to provide such as a pleasant economic policy, an efficient government system, a quality human capital, a pleasant business environment and highly competitive public and private sectors. Moreover, the government must be able to handle issues such as the crowding out effect, rent-seeking activities, cronyism, corruption,

skilled brain drain and lack of prioritization of government development projects in order to ensure that government expenditure brings a positive influence on economic growth.

Finally this study demonstrated three sectors of transport, public utilities and health to have a statistically significant and positive relationship towards economic growth. The impact of all of these sectors on economic growth is expected to be seen immediately. Public utilities came up as the sector with the most significant positive impact. This could be contributed by pleasant policies and efficient public services. Moreover, it could possibly be related to suffering only a little corruption and a rent-seeking activity in this sector which does not really bring any significant effects on the efficiency of the policy implementation. For these sectors, the findings are in line with the big government concept.

Therefore, this study may recommend that the government could increase its investment in development of transport and public utilities as these sectors are crucial in enabling a pleasant environment for the private sector activities. The government could also increase the growth of health sector as this sector is important in accommodating the high labor productivity and economic growth. At the same time, the government should ensure the budgets allocated for these sectors

are managed properly for maximum utilization.

Finally this study concludes that since Malaysia has a very different composition and environment compared to most other countries, all the policies that have been introduced by the government starting with the NEP can be considered as reasonable, reliable and pleasant in obtaining a balanced economic growth for their peoples. However, weakness in its implementation may result in corruption, rent-seeking activities, cronyism and political patronage that could have a negative influence on economic growth.

Therefore, this study suggests that more emphasis is needed on these issues in order to gear up the country's economic status and help the country to achieve its Vision 2020 so as to move from upper middle income country to high income country by 2020.

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Appendices

Appendix 1: Government development expenditures, Real GDP per capita and Real GDP in Malaysia from 1970 to 2007

Year	Government Operating Expenditure (RM mil.)	Government development expenditure (RM mil.)	Total government expenditure (RM mil.)	real GDP per capita (RM)	GDP (RM mil.)
1970	2163	725	2888	4864	11829
1971	2398	1085	3483	5220	12955
1972	3068	1242	4310	5570	14220
1973	3342	1128	4470	6071	18723
1974	4318	1878	6196	6421	22858
1975	4900	2151	7051	6322	22332
1976	5529	2378	7907	6892	28085
1977	7098	3217	10315	7259	32340
1978	7391	3782	11173	7568	37886
1979	7890	4281	12171	8085	46424
1980	10292	7470	17762	8481	53308
1981	13686	11358	25044	8849	57613
1982	15922	11485	27407	9144	62579
1983	16124	9670	25794	9465	70444
1984	17506	8407	25913	9930	79550
1985	18766	7142	25908	9551	77470
1986	20075	7559	27634	9389	71594
1987	20185	4741	24926	9610	81085
1988	21212	5231	26443	10260	92370
1989	22982	7696	30678	10871	105233
1990	25026	10689	35715	11524	119081
1991	28296	9565	37861	12288	135124
1992	32075	9688	41763	13036	150682
1993	32217	10124	42341	13967	172194
1994	35064	11277	46341	14873	195461
1995	36573	14051	50624	15927	222473
1996	43865	14628	58493	17078	253732
1997	44665	15750	60415	17870	281795
1998	44584	18103	62687	16147	283243
1999	46699	22614	69313	16733	300764
2000	56547	27941	84488	17808	356401
2001	63757	35235	98992	17526	352579
2002	68699	35977	104676	18106	383213
2003	75224	39353	114577	18794	418769
2004	91298	28864	120162	19703	474048
2005	97744	30534	128278	20382	522445
2006	107694	35807	143501	21192	574441
2007	123084	40564	163648	22173	642049

Appendix 2: Government development expenditure by services and sectors in Malaysia from 1971 to 2007

Year	Economic services (million RM)					Subtotal of Economic services (RM mil.)	Social services (million RM)				Subtotal of Social services (RM mil.)	Defence and security (RM mil.)	General administraion (RM mil.)	Total Development Expenditure (RM mil.)
	Agriculture and rural development	Trade and industry	Transport	Public utilities	Others		Education	Health	Housing	Social and community services				
1970	198	93	80	20	60	451	44	20	11	6	81	172	21	725
1971	228	251	148	41	37	705	86	23	27	8	144	217	19	1085
1972	300	171	234	51	82	838	112	27	24	6	169	211	24	1242
1973	326	174	191	51	46	788	142	34	12	10	198	110	32	1128
1974	436	455	314	55	53	1313	187	42	33	15	277	242	46	1878
1975	506	315	486	118	71	1496	212	57	47	12	328	229	98	2151
1976	514	294	561	133	48	1550	227	47	29	13	316	435	77	2378
1977	591	409	652	250	227	2129	274	44	122	12	452	470	166	3217
1978	715	665	637	339	247	2603	252	48	294	20	614	491	74	3782
1979	906	361	670	406	247	2590	339	59	419	74	891	713	87	4281
1980	1147	1567	1031	665	446	4856	558	80	295	240	1173	1222	219	7470
1981	1481	3170	1272	748	237	6908	791	118	1231	297	2437	1839	174	11358
1982	1487	1138	1970	856	457	5908	1082	150	1658	396	3286	2065	226	11485
1983	1156	1299	1650	1027	671	5803	983	156	552	274	1965	1722	180	9670
1984	1122	689	1193	1132	925	5061	1009	125	908	181	2223	1005	118	8407
1985	1190	531	1126	789	615	4251	868	112	976	183	2139	627	125	7142
1986	1147	504	1397	683	778	4509	1064	118	1047	317	2546	384	120	7559
1987	919	629	955	650	11	3164	810	53	79	91	1033	333	211	4741
1988	991	838	1065	656	14	3564	865	69	58	197	1189	360	118	5231
1989	1140	956	1506	993	35	4630	1242	218	182	339	1981	842	243	7696

Continued Appendix 2: Government development expenditure by services and sectors in Malaysia from 1971 to 2007

Year	Economic services (million RM)					Subtotal of Economic services (RM mil.)	Social services (million RM)				Subtotal of Social services (RM mil.)	Defence and security (RM mil.)	General administraion (RM mil.)	Total Development Expenditure (RM mil.)
	Agriculture and rural development	Trade and industry	Transport	Public utilities	Others		Education	Health	Housing	Social and community services				
1990	1298	2726	1845	798	34	6701	1634	461	43	479	2617	1061	310	10689
1991	1126	969	1897	681	11	4684	1285	572	66	503	2426	2211	244	9565
1992	1098	648	1896	834	28	4504	1205	602	94	752	2653	2173	358	9688
1993	1276	660	2678	610	41	5265	1117	425	167	511	2220	2258	381	10124
1994	1342	961	2158	790	38	5289	2010	354	359	562	3285	2360	343	11277
1995	1360	1218	3151	654	57	6440	2044	388	403	678	3513	2888	1210	14051
1996	1182	1212	4530	733	36	7693	2091	459	501	933	3984	2438	513	14628
1997	1105	1285	3578	1496	37	7501	2521	449	735	1214	4919	2314	1016	15750
1998	960	3227	3062	1968	26	9243	2915	716	1030	1122	5783	1380	1697	18103
1999	1088	2798	2893	1850	340	8969	3865	836	1081	1154	6936	3122	3587	22614
2000	1183	3667	4863	1517	408	11638	7099	1272	1194	1511	11076	2332	2894	27940
2001	1394	4830	5042	1092	367	12725	10363	1570	1269	2183	15385	3287	3839	35236
2002	1364	3474	5401	1808	387	12434	12436	1503	1808	2296	18043	4333	1168	35978
2003	1620	3456	7354	920	443	13793	10193	2681	1928	2905	17707	6029	1824	39353
2004	2881	1201	6630	945	193	11850	4316	2352	1593	1999	10260	4133	2620	28863
2005	2482	3221	7660	1481	112	14956	3736	1220	1082	1412	7450	4803	3325	30534
2006	3999	3389	7751	2244	21	17404	5349	1298	1347	1531	9525	4803	4076	35808
2007	3842	4904	8500	2358	512	20116	6271	1496	2947	2178	12892	5702	1853	40563

Appendix 3: Private consumption, Investment and Net export in Malaysia from 1970 to 2007

Year	Net Export (RM mil.)	Investment share of real GDP	Private consumption (RM mil.)
1970	501	16.93	7095
1971	186	17.61	7911
1972	-192	17.53	8613
1973	1055	19.95	10308
1974	54	24.3	12776
1975	101	18.84	13086
1976	2934	18.78	14715
1977	2428	21.41	16812
1978	2108	21.68	19584
1979	4120	22.39	22406
1980	1334	24.69	26946
1981	-3563	27.22	30594
1982	-5454	29.44	33226
1983	-3495	29.81	36458
1984	1518	29.16	39594
1985	3976	23.54	40283
1986	4364	20.2	36499
1987	11246	18.61	39063
1988	9428	20.9	45444
1989	6382	22.61	52619
1990	2434	25.11	61687
1991	-4946	29.78	70501
1992	2044	28.15	75749
1993	-172	31.64	83144
1994	-3134	33.87	94088
1995	-8754	36.95	106613
1996	3515	35.53	116794
1997	2575	37.04	127783
1998	62300	21.94	117718
1999	75347	19.62	125056
2000	68474	23.22	155941
2001	61491	20.98	162618
2002	66121	21.47	172485
2003	82463	19.96	186674
2004	96575	19.85	208571
2005	119280	18.31	234234
2006	130062	19.28	258280
2007	132210	18.86	293040