FORECASTING THE GROSS DOMESTIC PRODUCT (GDP) OF MALAYSIA

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This project is submitted in partial fulfillment of the requirement for the degree of Bachelor of Economics with Honours (International Economics)

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UNIVERSITI MALAYSIA SARAWAK
2011
ABSTRAK

MERAMAL KELUARAN DALAM NEGERI KASAR (KNDK) DI

MALAYSIA

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Kajian ini bercadang untuk mengkaji penentu keluaran dalam Negeri kasar (KNDK) di Malaysia dan kemudian menggunakankannya untuk meramal KNDK Malaysia. Ujian empirikal yang digunakan termasuk ujian kepegunan, ujian kopengamiran Johansen dan pekali korelasi. Model yang digunakan untuk meramal KNDK ialah model *Autoregressive Integrated Moving Average (ARIMA)*, model asas dan model Random Walk. Keputusan daripada kajian ini mengesahkan bahawa bekalan wang, pengeluaran perindustrian, eksports dan perbelanjaan penggunaan isi rumah mempunyai perkaitan yang kuat dengan KNDK. Seterusnya, kajian ini juga mengesahkan bahawa untuk meramal KNDK tepat, semua pembolehubah yang mempunyai perkaitan dengan KNDK perlulah dimasukkan kerana persamaan yang hanya ada satu pembolehubah atau yang hanya melibat KNDK sahaja akan lebih kepada menghasilkan ramalan yang kurang tepat.
ABSTRACT

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This study intends to examine the determinant of Gross Domestic Product (GDP) of Malaysia and use them to forecast the GDP of Malaysia. The empirical test that is used in this study includes unit root test, Johansen cointegration test and correlation test. The models that are employed are Autoregressive Integrated Moving Average (ARIMA), fundamental models and Random Walk Model. The results state that money supply, industrial production, exports and household consumptions have strong relationship with GDP and in order to forecast the GDP of Malaysia, all variables that are important and could impact the GDP should be included. Single equation model tends to produce less accurate forecast.
Acknowledgement

I would like to grab the opportunity to offer special thank to the organization and all the people involve that had assisted me in complementing this paper.

First and foremost, I would like to say thank you to my university, University Malaysia Sarawak (UNIMAS) for their support and also effort in ensuring that all of the third year students would be able to take their final year project as it is one of the prerequisites in order to enable the students to qualify for their graduation. I would also like to thank my faculty, Faculty of Economics and Business (FEB) for all their support and also the resources that they had provided in order for me to successfully complete my paper.

Secondly, a warm thank you also to my supervisor, Associate Professor Dr Venus Khim Sen-Liew for the time and patient that he had invested in supervising me all the way until the completion of this paper is made possible. This paper would not be able to be completed without his guidance and advices.

Not forgetting also the lecturers of Faculty of Economics and Business (FEB) that had teaches me all the fundamental knowledge and concept of economics from scratches as it was my first time learning economics. The knowledge that I learn all the while had help me in completing my paper.

Lastly, I would also like to thank all my friends, course mates and family that always by my side to motivate me and offer encouraging words to me that help me overcome all the difficulties and tension during the process of doing this paper, without their motivation and trust, I would not be able to complete this paper.
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Chapter One

Introduction

1.0 Introduction

This study attempts to forecast the Gross Domestic Product (GDP) of Malaysia. Forecasting is a process to estimate the future value and it could be done by a lot of agents which include individual, businesses, financial institution and even government. The objectives in this study are to determine the determinant of GDP, to forecast the GDP and later to evaluate the forecast accuracy. The factors considered include money supply in which according to theory is positively related to GDP (Arnold, 2008), interest rate which has a theoretically negative relation with GDP (Obamuyi, 2009), exchange rate which is negatively related (Rodrik, 2008), household consumption expenditure, industrial production and also exports which these three factors according to theory are all positively related the (Kogid, Mulok & Lim, 2010; Fama, 1981; Fama, 1982; Keynes, 1936).

To forecast Malaysia GDP with good accuracy Autoregressive Integrated Moving Average (ARIMA) time series models, fundamental models and random walk model are estimated. Then, the best forecasting model that could accurately forecast the GDP will be identified.

To preview this study results, the major finding is that broad money, household consumption expenditure, industrial production and exports are very important to the economy growth of Malaysia. Moreover, fundamental models performed the best
from ARIMA time series model and random walk model. Random walk model performed the worst among the three models. However, this is against the spirit of parsimony that state simple model specification is better (Gilbert, 1995).

Chapter 1 is organized as below. Section 1.1 discuss briefly on the concept of study. Then, Section 1.2 gives a brief overview on the background of study. Section 1.3 discusses the significant of the study. This is followed by Section 1.4 which states the motivation of doing the study. After that, Section 1.5 will discuss the problem statement in the study and Section 1.6 lists out the objectives of doing this study. Finally, Section 1.7 provides the organisation of the study.

1.1 Concept of Study

Forecasting in general is the process of estimating the future value of a variable. Forecasting is an extremely complex activity that could influence the setting up of an organization. Forecasts of macroeconomic variables are also crucial to many agents of the economy and that include Central Bank, commercial banks, investors, speculators, government, policy maker and individual which includes household. As forecast it is important to most of the agents of the economy thus there are a number of studies done to forecast the economic performance. This includes studies to forecast the inflation (Serrato, 2006; Mehrotra & Sanchez-Fung, 2008; Beechey & Osterholm, 2010), GDP (Krajewski, 2009; Mittnik & Zadrozny, 2004; Lu, 2009; Gupta, 2006), national accounts (Angeline, Banbura & Runstler, 2008), interest rate (Bidarkota, 1998; Fletcher & Gulley, 1996; Byers & Nowman, 1998)), exchange rate (Grossmann & McMillan, 2010; Carriero, Kapetanios &
Marcellino, 2009) and some other kinds of forecasts. The importances of economic forecasting in general are discussed below:

1.1.1 Importance of Economic Forecasting

1.1.1.1 Individual

For individuals, economic forecast helps them connect to the economic affairs as they will get brief and fair ideas on how the things are going to be in the future. Forecasting could help people to be in charge of the economic affairs and make better decision that may help them to avoid losses.

1.1.1.2 Business

As the business environment is constantly changing, forecast could help company to foresee the future which is important in enabling the management to change operation at the right time in order to reap greatest benefit. In addition, forecasting could also avoid the company from losses by making a proper decisions based on relevant information. This is done by forecasting the economy and market to establish the pattern of the market, the size and its growth potential. Besides, forecasting could give them a brief idea on the kinds of government policy that would be used as businesses performance are also sometimes ties to the policy introduced by the government.
1.1.1.3 Financial Institution

Forecasting could help anchor the expectation of the firms and households which could help financial institution to become more effective in fulfilling the demand of the individual and businesses. Besides, forecast publications could also prevent them from making wrong investment that could result in great losses.

1.1.1.4 Government

Forecasting also plays an important role especially for Government strategic planning and when it is required to do certain long term projects and evaluation of the economy. Most of the time, forecasting is carried out when there is a need to seek for aid to decision making and certain planning in the future. Especially when Government intend to introduce new economic policy, it is important to know the trend for the country economy in order to make sure that the policy introduced is suitable with the country’s economy situation.

1.1.2 Forecasting Gross Domestic Product (GDP) in Malaysia

The aim of this study is to forecast the GDP of Malaysia. There are a lot of agencies in Malaysia that forecast GDP. These agencies include Malaysia Institute of Economic Research (MIER), Bank Negara Malaysia (BNM), Amanah Mutual Berhad (AMB) and other commercial banks. Producing accurate forecast in Malaysia is important.

This is important as the forecasted value of the Gross Domestic Product can give an overview on how the economy would be behaving in the future and enable
the policymaker to come up with policies that would suit the economic condition in the future. This eventually could prevent Malaysia to encounter any kind of crisis as we would already have an overview on the country economy and policy could be implemented earlier as to counter these problems. For example the financial crisis in 1997 to 1998 where with forecasting the effect of debt if Malaysia borrow from International Monetary Fund (IMF) it is found out that Malaysia would not be able to finish paying it for a very long time as the interest is very high thus capital control and fixing the currency is adopted. This action shows that by forecasting the effect of a policy then unnecessary policy could be prevented from being implemented.

As for individuals, forecasting GDP could expose to the individual the trend of the GDP which could represent how well and how the country income is doing. An early sign of a decreasing trend could signal an individual to be more careful in their investment or some other activities that they are doing. For example, if each individual has been exposed to the GDP forecast publication then they would know that Malaysia is not doing so well between 1997 and 1998 thus can tell them to sell their stocks so that they will not encounter high losses during the financial crisis.

1.2 Background of Study

1.2.1 History and Governance of Malaysia

Before the Malay Peninsula gained its independence in 1957, Malaysia was initially ruled by Great Britain in the late 18th and 19th centuries. Later, Japan began to occupy Malaysia from 1942 to 1945. Malaysia’s first prime minister, Tunku Abdul Rahman Putra (1957-1970) has brought Malaysia from colonialism to
independence and he also proposed the idea of Malaysia. Malaysia was officially formed in 1963 when the British colonies in Singapore and the East Malaysian states of Sabah and Sarawak joined the Federation. In the beginning of the several years, Malaysia was marred by a communist insurgency, confrontation with Indonesia, The Philippines’ claim to Sabah and Singapore withdrawal in 1965. Malaysia’s second prime minister, Tun Abdul Razak Bin Dato’Hussein (1970-1976) launched New Economic Policy (NEP) in 1971 which consists of two basic goals which are to eradicate poverty and eradicate identification of economic function with race.

Malaysia third prime minister, Tun Hussein Onn (1976-1981) stressed on the issue of unity through policies aimed at rectifying economic imbalances between communities which result in the launching of National Unit Trust Scheme in 1981. He also took a serious consideration in the concept of Rukun Tetangga and against drug. Malaysia’s fourth prime minister, Tun Dr. Mahathir bin Mohamad (1981-2003) also had successful diversified Malaysia economy from dependence on exports of raw materials to expansion in manufacturing, services and tourism during his reigns (Central Intelligence Agency (CIA, 2010).

The fifth prime minister, Tun Abdullah Ahmad Badawi (2003-2009) tried to move the economy up the value chain by trying to attract investor in high technology industries and also in pharmaceuticals. The current Prime Minister, Najib Razak (2009-present) then continues the hard work of Tun Abdullah Ahmad Badawi. He tried to boost the domestic demand and lower the dependencies toward export. However, export remains significant especially on oil and gas. New Economic
Model (NEM) was also launched in 2010 to encourage more entrepreneurs to do business in Malaysia (CIA, 2010).

Malaysia is adopting constitutional monarchy which nominally headed by the Yang di-Pertuan Agong or also could be regarded as the king. Each sultan among the nine peninsular states would take turns to be the king and each elected king has 5 year term. The king is also the leader of the Islamic faith in Malaysia. On the other hand, the executive power is vested in the cabinet that normally led by the prime minister.

Apart from that, the legislative power in Malaysia is divided into two which are the federal and state legislatures. In addition, Malaysia legal system is based on English common law. Federal court reviews decision made by court of appeal. Besides that, Peninsular Malaysia and East Malaysia each has their own high court. In Malaysia, the federal government has authority in all matters for example external affairs, federal citizenship, defence, finance, internal security, commerce and others except for civil law cases among Malays or other Muslims which is under the Islamic Law (U.S. Department of State, 2010).

1.2.2 Geography

Malaysia is located in South-eastern Asia where the peninsula is bordering Thailand while one-third of the island in Borneo is bordering Indonesia, Brunei, the South China Sea and the South of Vietnam (CIA, 2010). This detail is shown in the map below.
The map above shows that the area in a lighter colour of brown is Malaysia. Malaysia consists of two parts which are Peninsular Malaysia and East Malaysia. East Malaysia consists of Sabah and Sarawak while the other states in Malaysia are in Peninsular Malaysia. The two parts of Malaysia is divided by South China Sea.

1.2.3 Economy

Malaysia is a high middle income country that had encounter transformation from just being a producer of raw material into an emerging multi-sector economy since 1970. The contribution of the other four former prime minister of Malaysia was already stated previously where it had clearly explained that Tun Dr. Mahathir bin Mohamad (1981-2003) had contributed highly to Malaysia economy.
In the recent years, the fifth prime minister, Tun Abdullah Ahmad Badawi (2003-2009) tried to move the economy up the value chain by trying to attract investor in high technology industries and also in pharmaceuticals. The hard work of the former Prime Minister was then continued by the current Prime Minister, Najib Razak (2009-present). He tried to boost the domestic demand and lower the dependencies toward export. However, export remains significant especially on oil and gas. In order to encourage more entrepreneurs to do business in Malaysia, the New Economic Model (NEM) was launched in 2010 where its main motive is to attract foreign direct investment then under NEM there is the Tenth Malaysia Plan which outlines new reforms (CIA, 2010). Figure 2 below show the trend in the Gross Domestic Product (GDP) of Malaysia:

Figure 2: Trend of GDP in Malaysia from 1980-2009

Source: International Financial Statistic (IFS), IMF, Various Issues
In overall, the Gross Domestic Product (GDP) of Malaysia had increased in value from RM 53308 million in 1980 until RM 679687 million in 2009. From Figure 2, The GDP of Malaysia increases only about 8.1% from 1980 to 1981 and also only about 8.6% from 1981 to 1982 compare to the increase of 12.6% from 1982 to 1983 and 12.9% from 1983 to 1984 which clearly show that from 1980 to 1982 the growth of GDP was lower. This is because Malaysia experienced high prices in 1980 and 1981 that were due to external factors. Oil prices increase from 47 percent during 1979 to 66 percent in 1981 and simultaneously the prices of industrial raw materials also increased rapidly. The increase price of oil by Organization of the Petroleum Exporting Countries (OPEC) causes powerful pressure on the consumer prices that was only affected Malaysia in the latter part of the years (Cheng and Tan, 2002).

The GDP of Malaysia slumped in 1985 where it decreased about 2.6% compared to 1984 and decreased further about 7.6% in 1985. This is mainly because of the international economic recession during the early 1980s. Because of the moderate increase in demand and also the tight liquidity position, the capacity of plants and labour forces are not utilize and as a result prices in 1985 increased at a slower rate. Inflation rate in Malaysia decelerates and Consumer Price Index (CPI) is less than 1 percent from 1985 to 1987. This marks a weaker demand condition and also as a result of the world economic recession, exports and private sector income depressed as a whole (Cheng and Tan, 2002).

However in 1990s Malaysia economy recovered and GDP began to grow rapidly where it increased from RM 119081 million in 1990 to RM 300764 million