THE RELATIONSHIP BETWEEN INFLATION, POPULATION, ARABLE LAND AND AGRICULTURAL PERFORMANCE IN MALAYSIA

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THE RELATIONSHIP BETWEEN INFLATION, POPULATION, ARABLE LAND AND AGRICULTURAL PERFORMANCE IN MALAYSIA

WEE POK HSIEN

This project is submitted in partial fulfillment of
the requirements for the degree of Bachelor of Economics with Honours
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2015

Statement of Originality

The work described in this Final Year Project, entitled

"THE RELATIONSHIP BETWEEN INFLATION, POPULATION, ARABLE LAND AND AGRICULTURAL PERFORMANCE IN MALAYSIA"

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ABSTRACT

THE RELATIONSHIP BETWEEN INFLATION, POPULATION, ARABLE LAND AND AGRICULTURAL PERFORMANCE IN MALAYSIA

By

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The main purpose of this study is to investigate the relationship between the inflation, population, arable land and agricultural productivity in Malaysia from the period of 1963 until 2012. The variables that included in this study are inflation rate, percentage of population with age group of 15-64 years, arable land in hectares, and value added in agriculture sector in current USD. The resource of data is solely extracted from World Bank. The used research methodologies are Augment Dickey-Fuller (ADF), Phillip-Perron (PP), and Kwiatkowski, Phillip, Schmidt and Shin (KPSS) unit root tests, Johansen and Juselius cointegration test, and Vector Error Correction Model (VECM) Granger causality test. The findings of this study identified that there is one cointegrating vector in the estimated model and inflation rate is the most endogenous variable in both short run and long run relationship while agricultural productivity is the most exogenous variable in the short run relationship.

ABSTRAK

HUBUNGAN ANTARA INFLASI, POPULASI, TANAH PERTANIAN, DAN PRESTASI HASIL KELUARAN PERTANIAN DALAM NEGARA MALAYSIA

Oleh

Wee Pok Hsien

Tujuan kajian ini adalah untuk menyiasat hubungan antara inflasi, populasi, tanah pertanian dan prestasi hasil keluaran pertanian dalam negara Malaysia daripada tempoh 1963 hingga 2012. Pemboleh ubah yang digunakan dalam kajian ini termasuk kadar inflasi, populasi kalangan penduduk yang berumur 15-64 dalam peratusan, tanah pertanian dalam hektar, dan nilai tambah dalam sektor pertanian dengan unit harga semasa USD. Sumber data untuk kajian ini adalah datang daripada Kumpulan Bank Dunia. Kaedah penyelidikan yang digunakan dalam kajian ini ialah ujian punca unit ADF, PP, dan KPSS, ujian kointegrasi Johansen dan Juselius, dan ujian penyebab Granger dalam VECM. Keputusan kajian ini mengenal pasti satu vector kointegrasi dalam model yang dijangka dan mendapati kadar inflasi merupakan pemboleh ubah yang paling endogen dalam hubungan jangka pendek dan jangka panjang manakala hasil keluaran pertanian merupakan pemboleh ubah yang paling eksogen dalan hubungan jangka pendek.

Acknowledgement

I would like to give my greatest appreciation to my current supervisor, Madam Dayang Haszelinna Binti Abang Ali, for her willingness to accept and guide me in this research study. It is my token of appreciation to my supervisor upon your willingness to read and correct my research study in details. With that, I would like to say a thousand word of delighted thank you to Madam Dayang Haszelinna. It is my honour to be able to become your supervisee.

In second, I wish to thank my previous supervisor, Miss Rosita Hamdan, for her kindness of willing to accept my request to be her supervisee on the first time but unfortunately it is the problem of timing that Miss Rosita has to further study to Phd which caused her guidance on me is force to be terminated.

Third, I would like to say special thanks to my modelling lecturer, A. P. Dr Evan Lau, for his kindness of giving his best effort to influence his students to be interested with empirical testing procedure of causality study. A. P. Dr Evan had paid a lot of attention and effort in teaching the testing steps and in the same time influences me to read more journals. It is my great pleasure to have A. P. Dr Evan as my modelling lecturer.

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

Food security is a global issue that should be concern with because this issue is related with primary sector performance. This sector is slowly decreasing it contribution to the economic growth especially in developed countries due to the transformation of economy from primary to secondary or tertiary sector. However, agriculture productivity stills a major concern in some developing countries which there are a lot of previous studies that investigated the impact of several economic indicators on agricultural output growth. This study is trying to investigate the relationship between inflation, population, and arable land with agricultural performance in Malaysia.

Xin and Wang (2008) stated the relationship between inflation and agricultural price is bilateral. When inflation happens, the prices of agricultural products rise and motivated the supplier to supply more agricultural products. In vice versa, when agricultural output decrease, it causes the price of agricultural products to increase and then cause inflation happen. Similar argument had being made and supported by Durevall, Loening, and Birru (2013) and Olantunji, Omotesho, Ayinde, and Adewumi (2012).

Boserup (1975) explained that population growth could lead to more workers supply in the market which labour force may increase their skill intensity when competition happened in job market. The labour intensity contributed to the growth of agricultural output which leads to a better agricultural performance. Boserup's thesis

was later examined by Turner, Hanham, and Portararo (1977) and Josephson (2013) who supported population growth can granger cause agricultural output growth.

Odhiambom, Nyangito, and Nzuma (2004) examined that arable land is viewed as one of the most important factors of input which could be applied in Cobb-Douglas production function. The main input factors for agricultural production are land, labour, and capital which the availability of land brings the opportunities of cultivation of land.

1.2 Background of study

1.2.1 The agriculture performance of Malaysia

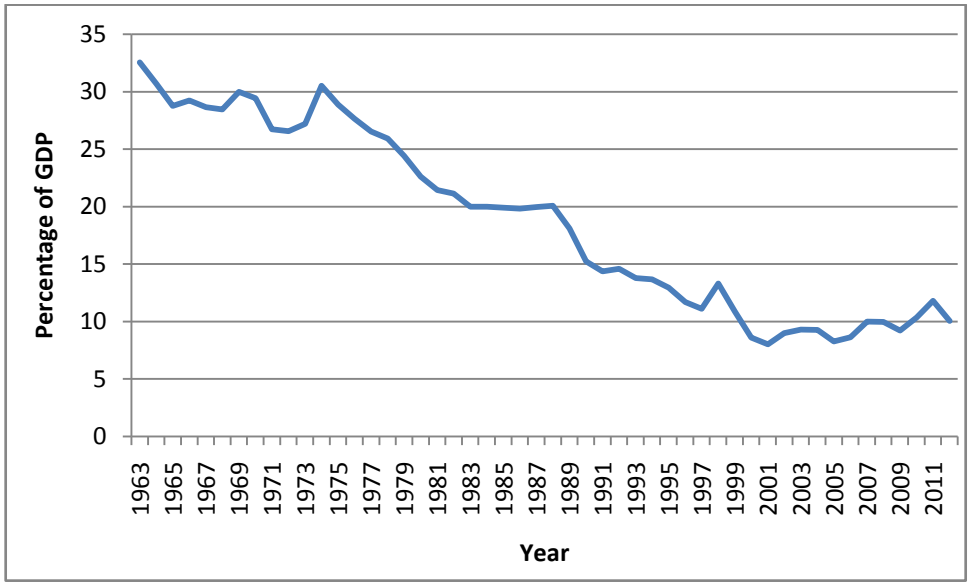
Figure 1.1 shown the value added in agriculture measure in percentage contributed to the GDP from year 1963 to 2012 resources from World Development Indicators.

Base on the Figure 1.1, we could clearly observed that there is a significance downtrend in the percentage contributed to GDP by the value added of agriculture. In 1963, value added of agriculture was 32.55% but the figure drop until 10.05% in year 2011 which show that the economy of Malaysia is not longer focusing on agriculture sector at now.

Base on the significance downtrend shown in Figure 1.1, the down curve trend significant the past and current situation of agriculture sector in Malaysia. In the past, agriculture sector plays an important role in Malaysia because the value added of

agriculture achieved one third of the GDP in Malaysia but according to time, even though the actual amount of value added of agriculture in current time is higher than before but the portion of contribution is only reach 10.05% of GDP in year 2012. This figure bring the information about the current economy of Malaysia is not depending on agricultural sector.

Figure 1.1: Agriculture, Value Added in Percentage of GDP



Source: World Development Indicators, 2014.

1.2.2 The Population of Work Force in Malaysia

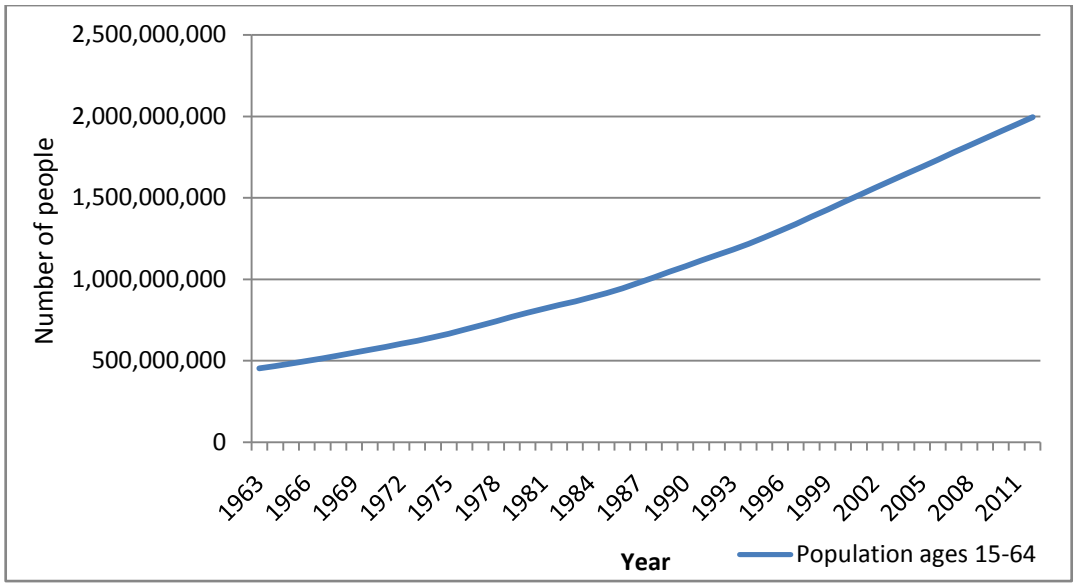
Figure 1.2 shows the population of Malaysia who are in between the age of 15-64 from year 1963 to year 2012, resources from World Development Indicators.

The age of people who is in between the age of 15-64 is referring as a workforce in Malaysia. Base on Figure 1.2, the figure shows a clear uptrend of work force in

Malaysia from year 1963 to 2012. By compare with the past, the population of workforce is increase for 339.76% from year 1963 to year 2012 which such increase of workforce population is crucially need for the development of Malaysia.

However, Malaysia is still demand for more population as to meet the need of the labour force market. Even though the amount of workforce population is increased simultaneously but the population growth rate of Malaysia is decreasing since the year of 2000 until now which cause Malaysia demand for foreign workers as to fulfil the need in labour market.

Figure 1.2: The Population of Malaysia in between the age of 15 – 64



Source: World Development Indicators, 2014.

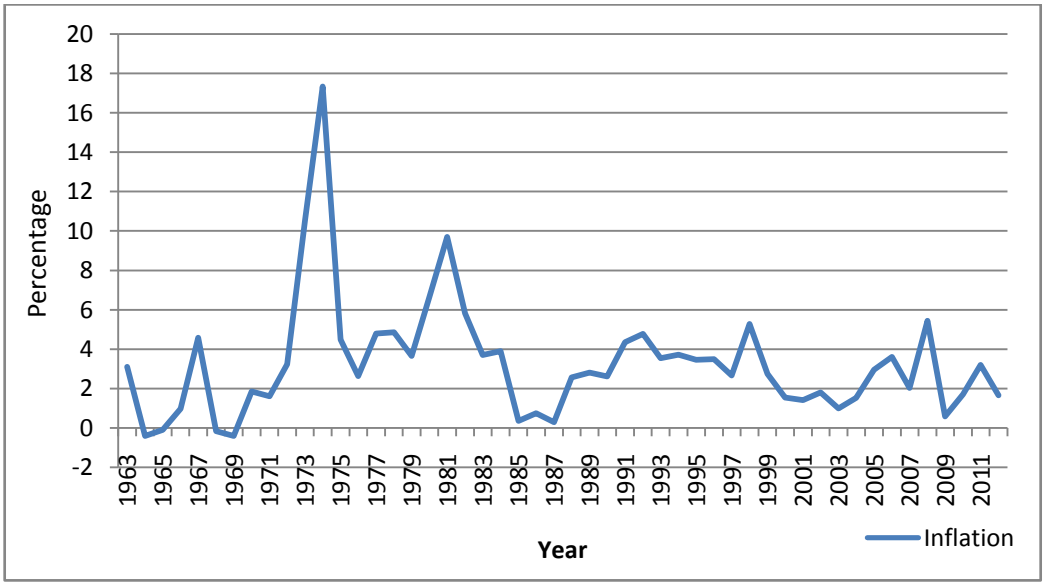
1.2.3 The inflation rate of Malaysia

Figure 1.3 shows the inflation rate of Malaysia from year 1963 to year 2012 resources from World Development Indicators.

Base on Figure 1.3, Malaysia was facing a very high inflation in the year 1974 which the inflation rate achieved 17.33% which growth from -0.16% in year 1968. After the year 1974, the inflation rate decreased until 2.63% in year 1976 and continues to grow again and reach 9.7% in year 1981.

After that, the inflation rate are always lower than 5% except in year 1998 which achieved 5.27% and year 2008 which achieved 5.44%. The events that should be notice are there are economy crisis happened in 1997 and 2008 which the inflation rate is seem to react actively with the crisis.

Figure 1.3: The Inflation Rate of Malaysia



Source: World Development Indicators, 2014.

1.3 Motivation of study

Base on Figure 1.1, the contribution of GDP by the agricultural sector is not longer being focus in Malaysia because the total percentage to influence is not as much as before. Such situation may due to several reasons which include the transformation of economy in Malaysia which Malaysian is now paying more attention on secondary sector such as manufacturing sector and third sector such as service sector rather than focusing in primary sector especially agriculture. However, Malaysia still rich in producing certain agricultural commodities such as palm oil, rubber, paddy, pepper, timber, coconuts, etc which all this commodities have high value to export and may contribute a higher figure to Malaysia GDP. It will be a waste if the agricultural sector in Malaysia is left behind and let this sector growth weaker in future. This sector brings the potential to supply the local food need without exceed demand on the imported food. Other than that, agricultural sector able to develop Malaysia because the sustainable of this sector bring the chance to increase the standard living of Malaysian due to the strategic location of Malaysia. So, the agricultural sector should be given certain space of priority which allows this sector to be able to develop. This study is important as to explain the unclear relationship between the selected economics indicators with the agricultural sector performance. The outcome of this research able to be one of the supports for further study on the determinants of agriculture output in Malaysia because this research is basically seeking with the clear relationship between the selected economics indicators with agriculture output in the case of Malaysia with empirical evidence.

1.4 Problem Statement

The productivity of primary sector is a key element that could ensure our country is not too depend on foreign country base on the aspect of food security and fulfil local demand function. If less attention is given to the primary sector especially agriculture sector, it could be a threat in future which our country might face the problem excess demand of consumption or sectoral inflation due to lack of supply of agricultural products. Base on figure 1.1, the graph showed that our country is potentially facing the mentioned threat. So, it is a need for people especially policy marker to realize this issue and prepared the possible actions to avoid getting into the threat. However, before policy marker start to plan for the potential actions, it is another basic needed to study the current economic situation of our country which a few economic variables are selected in order to examine the relationship of the selected variables with agricultural performance in Malaysia. The selected economics indicators are population, inflation rate and arable land. The reason for seeking the relationship between the selected indicators with the agriculture output will be mentioned below.

The growth of population group of age 15-64 growth means the number of workforce in our country increase. Base on assumption, when the population of workforce is increase, it significant that more people are going to be productive in the market which the agriculture output should be increase by following with the growth of this population. However, we cannot confirm this assumption because it is possible that the citizen involve themselves in other sector rather in agricultural sector which the increase of workforce population do not necessary increase the agriculture output. By

examining this indicator, we could know that whether the new workforce still involved in agriculture sector or not in the current era.

For inflation rate, the economy situation is assume that when price of agriculture goods is increase, it will stimulate the supply side of agriculture goods which farmers is motivated to plants more because of the good market situation. However, this indicator do not take into account for the price of agriculture goods only which maybe the increase of price is due to the goods and service from other sectors. The examining of this indicator able to identify whether rise of price in Malaysia is fairy distribute or just cause by a specific side other than agricultural sector. Lastly, arable land is another economic indicator which could explain how the management of land could affect the agricultural performance.

1.5 Objective of study

1.5.1 General Objective

To study the relationship between inflation, population, and arable land with the agricultural sector performance in Malaysia.

1.5.2 Specific objectives

There are several specific objectives that need to be achieved in this research which are:

i. To find the relationship between inflation rate and agricultural sector performance in Malaysia.

ii. To explain the relationship between population and agricultural sector performance in Malaysia.

iii. To interpret the relationship between arable land and agricultural sector performance in Malaysia.

1.6 Significant of the study

The empirical result of this research is important for further study of the determinants of agricultural sector performance in Malaysia because this research specified to explain the relationship between the selected economic indicators with the agricultural output which could be one of the supporting findings for certain literature argument. The empirical results of this research are potentially important for the policy marker to make decision if the nature of the decision is to increase the productivity in agricultural sector.

1.7 Scope of Study

This research will study the relationship between inflation rate, population, and arable land with the agricultural sector performance in Malaysia. The sample period of study will be from 1963 year to 2012 year. The reason to start the research from the year 1963 is because of Malaysia if formally form in year 1963 which the data is included the data from Sabah and Sarawak. The frequency of the data used in this research is

annually time series data which the data is obtained from World Bank, under World Development Indicators.

1.8 Organization of study

This study consists of five chapters. The first chapter will be the introduction part about this study, chapter two is the literature review, chapter three is the research methodology, chapter four is the empirical result and findings, and chapter five is the conclusion and policy recommendation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This research aimed to study the relationship between inflation, population, arable land and agricultural performance in Malaysia. This chapter consists of theoretical framework and empirical findings from several prior studies which explained the relationship between the selected independent variables with agricultural performance. The last part of this chapter is the conclude remark and follow by the summary table of literature review.

2.2 Theoretical Framework

2.2.1 The relationship between inflation and agricultural performance

Xin and Wang (2008) mentioned that the relationship between inflation and agricultural prices could be unilateral or bilateral because the lack of consistent results base on prior studies in before. There are a few versions of argument happened which one of the arguments is that decline of agricultural output could led to the rise of agricultural price and then led to inflation. However, there is an argument about inflation could lead to the rise of agricultural prices and then driven the agricultural output which the relationship between inflation and agricultural should be bilateral in assumption.