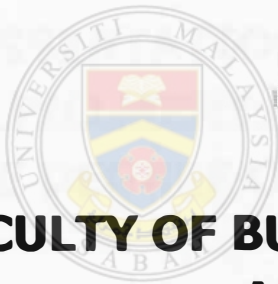


**THE RELATIONSHIP BETWEEN LAND USE  
CHANGE OF PALM OIL PLANTATION, GROSS  
DOMESTIC PRODUCT AND POPULATION IN  
MALAYSIA**

**ZULAIKHA BINTI JAMIR**



**FACULTY OF BUSINESS, ECONOMICS AND  
ACCOUNTANCY**

**UNIVERSITI MALAYSIA SABAH**

**2015**

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CHANGE OF PALM OIL PLANTATION, GROSS  
DOMESTIC PRODUCT AND POPULATION IN  
MALAYSIA**

**ZULAIKHA BINTI JAMIR**

**DISSERTATION SUBMITTED IN PARTIAL  
FULFILLMENT OF THE REQUIREMENT FOR  
THE DEGREE OF MASTER OF ECONOMICS**

**FACULTY OF BUSINESS, ECONOMICS AND  
ACCOUNTANCY**

**UNIVERSITI MALAYSIA SABAH**

**2015**

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JUDUL KAJIAN: THE RELATIONSHIP BETWEEN LAND USE CHANGE OF PALM OIL PLANTATION, GROSS DOMESTIC PRODUCT AND POPULATION IN MALAYSIA

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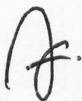
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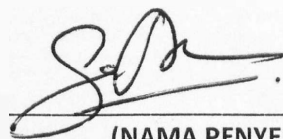


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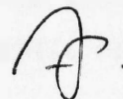
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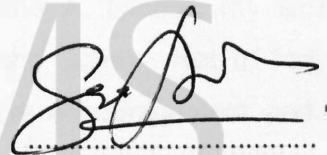
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### DECLARED BY

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DR. SARMA HJ. IMRAN ARALAS

A handwritten signature in black ink, appearing to be 'Sarma', is written over a horizontal line.

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## THANK YOU

**Zulaikha Binti Jamir**

## **ABSTRACT**

### **THE RELATIONSHIP BETWEEN LAND USE CHANGE OF PALM OIL OVER GROSS DOMESTIC PRODUCT AND POPULATION IN MALAYSIA**

The environment has been explore by human causing land use change such as in agriculture. It contribute to environmental changes itself. It is to produce food and needs of human daily life. Land use change is due to some causes, population or even economic growth in a country. However, land use change is causing deforestation. Moreover, Malaysia is one of a country that active in land use change especially for palm oil. The past few decades have seen the rapid growth of the palm oil industry in Malaysia, in terms of cultivated area and volume of production. This study is investigating dependent variable of land use change of palm oil and independent variable of gross domestic product and population in Malaysia.



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## **ABSTRAK**

*Persekitaran yang telah diterokai oleh manusia menyebabkan penggunaan tanah berubah seperti dalam bidang pertanian. Ia menyumbang kepada perubahan alam sekitar itu sendiri. Ia adalah untuk menghasilkan makanan dan keperluan hidup harian manusia. Perubahan penggunaan tanah adalah disebabkan oleh beberapa sebab, penduduk atau pertumbuhan ekonomi di sesebuah negara. Walau bagaimanapun, perubahan penggunaan tanah menyebabkan penebangan hutan. Malaysia adalah salah satu negara yang aktif dalam penggunaan tanah perubahan terutamanya bagi minyak kelapa sawit. Beberapa dekad yang lalu telah menyaksikan pertumbuhan pesat industri minyak kelapa sawit di Malaysia, dari segi kawasan tanaman dan jumlah pengeluaran. Kajian ini menyiasat pembolehubah bersandar penggunaan tanah perubahan minyak kelapa sawit dan pembolehubah bebas daripada keluaran dalam negeri kasar dan penduduk di Malaysia.*



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## LIST OF ABBREVIATIONS

<b>ADF</b>	Augmented Dickey-Fuller
<b>AIC</b>	Akaike Information Criterion
<b>CLRM</b>	Classical Linear Regression Model
<b>DW</b>	Durbin-Watson
<b>GDP</b>	Gross Domestic Product
<b>HQ</b>	Hannan-Quinn Information Criterion
<b>LR</b>	Sequential Modified LR Test Statistics
<b>LUCPO</b>	Land use change of Palm oil
<b>MPOC</b>	Malaysia Palm Oil Council
<b>OLS</b>	Ordinary Least Squares
<b>POP</b>	Total populations
<b>R<sup>2</sup></b>	R-square or goodness of fit
<b>SIC</b>	Schwartz Criterion
<b>TCM</b>	Total cases of malaria
<b>VAR</b>	Vector Auto Regression
<b>VEC</b>	Vector Error Correction
<b>VECM</b>	Vector Error Correction Model
<b>WHO</b>	World Health Organization

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Introduction**

Economics is the study of how individuals and groups make decision with limited resources as to best satisfy their wants, needs, and desires. Limited resources lead to opportunity cost in our decision that is forgone, meaning that when resources is use in one way it prevent us to use it in another way. A wisely decision has to be made in regards to using and allocating resources in the most useful ways. According to Hanley,N., Shogren, J. and White, B. (2001), economics is not only useful to describe financial and commercial, but is as much about Main Street as it is about Wall Street. Economic arguments can often be used to help protect the environment rather than harm it. It is not only just about financial comings and goings within markets, the non-market services that the natural environment provides us with are equally its concern.

#### **1.2 Overview of Land Use Change and Palm Oil**

The environment provides economic systems and activities with inputs of raw material and energy resources, including minerals, hydrocarbons, food, and fibres- such as wood and cotton. For thousands of years, the environment has been exploited by human beings that causes changes towards the environment itself. An exploited increase in population, migration, and accelerated socioeconomic activities has contributed to environmental changes over the past millenia. As time goes by, human beings started to learn and use the environment to produce food, necessities and needs, and build shelter for their families. It involves corresponding crucial changes of the livelihood strategies of the people who are still by majority residing in rural areas.

According to Gunarson, P., Haryoto, M.E., Agus, F. and Killen, T.J. (2013), land use and land cover change in palm oil producing countries is cited as one of the main drivers of deforestation, particularly in Indonesia and Malaysia which produce approximately 85% of the world's palm oil. The past few decades have seen a rapid growth in the palm oil industry in Malaysia, in terms of cultivated area and volume of production (Hai, 2000). During the 1997/1998 Asian financial crisis, palm oil dominated the landscape throughout the country and the industry has become a major contributor to Malaysia's export earnings until today. A strong and increasing demand for oils and fats became the major reason of increasing in palm oil production.

### **1.3 Overview of Gross Domestic Product and Population**

The health of a country's economy is measure by their Gross Domestic Product, whereby domestic product is an indicator of overall production activity. It examines the size of the economy and represents the value of all goods and services produced over specific period of time. Thus, the latest gross domestic product outcome would be compared to the previous quarter or year. It would show whether the economy is doing well by its growth or worse by decreasing. Therefore, the level of production determines how much the country can afford to consume, and it also impacts the level of employment in a country. The welfare of a community is influenced by the consumption of goods and services both individually and collectively.

Population growth in a country can impact a country's economic performance. According to Yee, B.L.F., Furuoka, F., Mansur, K. and Mahmud, R. (2010), the relationship between population growth and economic performance could be regarded as positive, where demographic trends stimulate economic development and lead to a rise in living standards. Thus, increasing population can affect business activities. New business might be set up as the increasing population grows the size of a market, which encourages entrepreneurs to set up a new business. In contrast, the writers also mention whether population growth and economic performance could be described as negative. It is because they

population growth is can become an impediment to the country's economic development due to rapid expansion of the population increases dependency burden.

#### **1.4 Background of Study**

Malaysia is a federal constitutional monarchy located in Southeast Asia. Malaysia had a total landmass of 329,758 square kilometres (127,350 square miles). It consists of two similarly sized regions, peninsular Malaysia and East Malaysia, separated by the South China Sea which has thirteen states. East Malaysia is also known as the Borneo consisting of Sabah and Sarawak. The total population of Malaysia in 2014 is approximately 30 million, and of this number, 50.7% is male population and the remaining 49.3% is female. It is a slightly increase in population from the year of 2013, which was around 29.7 million people.

The palm oil industry makes a significant contribution to the Malaysian economy. The value of palm oil has been increasing ever since the import tariffs for palm oil were reduced and the hectares for palm oil plantation were increased. According to Ching (2008), Malaysia is the largest contributor of palm oil in the global market. The overall annual average price of palm oil changes due to market forces and economy fluctuation. Nevertheless, the average price of palm oil product has been declining gradually after 1998.

#### **1.5 Problem Statement**

This study is to know whether Gross Domestic Product and population does contribute to land use change. Land use change in Malaysia nowadays is increasing every year. It is for the purpose for agriculture as population growth. Furthermore, when gross domestic product is rising , an increase in demand is needed to be accounted for but it is not supposed to exploited the environment in harmful way. However, land use change is impacting not only our daily lives but also the environment. Many environmental factors such as infection, are affected

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by industrial activities. Not only is this harmful to us, but the environment also impacts other deadly factors such as pollution.

Land used change was not done in an optimal manner considering welfare of the people. Furthermore, it does not count the cost and benefit the way it supposed to be. Thus, land use change activities actually presents a higher cost from the beginning to cleared up these places and many more. Because of that, large amounts of money is needed to solve this problems. And if that can be reduced, the money sources can be used to manage other activities that have cost. The cost not only in the beginning but also the consequences years after that as it gave negative impact without we noticing it. However, in saying that, it is not that we should stop these activities but find a solution to increase productivity in order to lessen the effect of land use change activities.

## **1.6 Research Questions**

The purpose of this study is to examine the relationship between land use change of palm oil, Gross Domestic Product and population in Malaysia. The research question of this study is as follow:

- a) What are the most significant variables that contributes to the level of land use change of palm oil?
- b) What is the long-run and short-run empirical relationship between land use changes of palm oil with Gross Domestic Product and population?
- c) Does the relationship between land use change of palm oil and Gross Domestic Product support the "land use change of palm oil" or the "Gross Domestic Product"?
- d) Does the relationship between land use change of palm oil and population support the "land use change of palm oil" or the "population (POP)"?

## 1.7 Research Objectives

The objectives of this study are the following:

- a) To study whether Gross Domestic Product and population contribute to the level of land use change of palm oil.
- b) To determine the long-run and short-run empirical relationship between land use change of palm oil with Gross Domestic Product and population.
- c) To examine the direction of causality, from land use change of palm oil to Gross Domestic Product or Gross Domestic Product to land use change of palm oil.
- d) To examine the direction of causality, from land use change of palm oil to population (POP) or population (POP) to land use change of palm oil.

## 1.8 Significance of Study

This study aims to find the relationship between land use change of palm oil, the dependent variable and Gross Domestic Product and population, the independent variables. Therefore, the findings would provide theoretical as well as practical contribution.

In terms of theoretical contribution, the purpose of this study is to determine whether Gross Domestic Product would affect the land use change of palm oil. Thus, it is also to determine the effect of population to land use change of palm oil.

Meanwhile, the practical contribution would be useful to look further into land use change of palm oil activities whether it is giving a positive or negative impact to our environment and society itself. Thus, the federal or state planners can come up with better planning and development and also policy to control land use activities.

## 1.9 Scope of Study

The purpose of this study is to investigate the relationship between land use change in palm oil, Gross Domestic Product and population in Malaysia. To determine the relationship between the variables, a time series regression would be used in this study over the period of years 1976 to 2012 (37 observations) due to the availability of data for all the variables. This study uses three variables, including the dependent variables. The annual data for Gross Domestic Product and population is the indicator of total land used change in palm oil. The Ordinary Least Square (OLS) estimation is used to test the time series data in this study. It is to determine the elasticity of the gross domestic product and population and land use change in palm oil. The stationarity of all the variables were tested by using Unit Roots Test and Augmented Dickey-Fuller (ADF) test. Co-integration analysis is used to explore the long run relationship among the variables, while Vector Error Correction Model (VECM) is used to determine the short run relationship of the study. The casual link between the variables were tested. Granger Causality test was conducted to see the direction of the variables to determine whether it holds the existence of long run relationship.

## 1.10 Definition of Terms

The variables used in this study were separated by two group, dependent and independent variables. The definition of terms for each variables is as follow.

- a. Land use change of palm oil (Dependent Variable)  
A change of a land use either from different agriculture purpose to oil palm plantation or a change of land from forest to plantation of palm oil.
- b. Gross Domestic Product (Independent Variable)  
It is a total income that a country gained annually.
- c. Population (Independent Variable)  
A number of people or citizen of a country that being collected each year.



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A number of people or citizen of a country that being collected each year.

### **1.11 Organization of Study**

Chapter 1 in this study provides the introduction of the study, which includes background of study, problem statement, scope of study, research question and research objectives, and significance of study. Chapter 2 will discuss the literature reviews related to the study. Chapter 3 introduces the data and methodology of the study. Meanwhile, chapter 4 would provided the data analysis, and is followed by a conclusion in chapter 5 that would include and identify the limitations of the study and the direction for future research.



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