THE DETERMINANTS OF ENVIRONMENTAL DEGRADATION IN MALAYSIA

Aireen Azraai Samin

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AIREEN AZRAAI SAMIN

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Statement of Originality

The work described in this Final Year Project, entitled “The Determinants of Environmental Degradation in Malaysia” is to that best of the author’s knowledge that of the author except where due reference is made.

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(Date submitted)                                                                 Aireen Azraai Samin

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Environmental degradation is downturn of the environment through the depletion of resources such as air, water and soil. This can lead to the destruction of ecosystems and extinction of the threatening wildlife, loss of biodiversity, depletion of ozone layer and economic impacted throughout of it. In this study, carbon dioxide emission react as the dependent variable while agriculture value added, manufacturing value added, service value added and gross fixed capital accumulation are the independent variables. This study aiming to find the determinants of environmental degradation in Malaysia by using the data between the year of 1970 until 2013, found out that all the dependent variables has one long run effects towards the dependent variables through econometric analysis. However, there is no short-run relationship between the dependent and independent variables.
ABSTRAK

PENENTU PENCENMARAN ALAM SEKITAR DI MALAYSIA

Oleh

Aireen Azraai Samin

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CHAPTER ONE
INTRODUCTION

1.1 Introduction

This study is about the determinants of environmental degradation in Malaysia. Malaysia is the fastest growing nation in the Southeast Asia region. Malaysia economy system under mixed economy country which private sector and government sector work together in order to develop its economy. As far as the country keep developing, forest and river are not well manage due to de high demand in agriculture sector and urbanization. Level of deforestation areas is rapidly increases as this will give a stress on the resources. We know that Malaysia have a large area of tropical forest as it consumes 60% of the land itself. But, in order to fulfill the requirement of becoming developed country, we need to change the forest into agriculture sector and urbanization to generate the job opportunities which leads to the environmental degradation.

In the year of 1993, Malaysian was shocked by the news of highland tower collapse at Hulu Klang due to the ‘East Creek’ or small stream behind the tower that flowed down the hill yet, still the project developed around the hill without taking any consideration on what had happened previously. In addition, deforestation keep going around the hills and the housing area keep developing.

Environmental degradation is focusing on land, air and water through pollution (Wilson, Furniss & Kimbowa, 2010). These three are the most important
sources in daily life and what would happen if these important sources are not well managed and is it affected in economy as a whole? The effect can be seen by the eyes and also through the health problem, climate changes and natural disaster. Pollution was occurred because of economy rises, everything is affected negatively towards environment. For instance, the ecosystem affected when the deforestation happened in one place to develop a new project.

Furthermore, water pollution is a great concern here. This is because when the factories produce a harmful chemical substances and toxic waste into the water or river stream, it will give a bad impact on human health. From the factories waste we moved to agriculture crops, the use of pesticides and fertilizers indirectly get into the water. When the water got contaminated, this will be bad health effect on the user. The economy can be troubled when there is a problem with the main resources.

In addition, the greenhouse gas emission can lead to the global warming which could lead to environmental degradation also. The greenhouse gas is mainly consists of a large portion of carbon dioxide emission. This greenhouse gas effect can lead to the heated surface of the Earth which can change the habitat for the ecosystem as the temperature is changing. It’s occurred when the heat radiation cannot be get out of the atmosphere and trap in the atmosphere and it leads to the increase in temperature.

In the chase of modern technology, much deforestation occurred. It disturbed the habitat of the flora and fauna also the ecosystem. After all, human tend to forget that the Mother Nature can express their angriness towards the natural disaster like flood, land slide and typhoon which something that rarely happened on certain area.
1.2 Background Study

Malaysia is a country that rich with its natural resources. Thousands of species of flora and fauna can be found in Malaysia. Some of the herbs that existed in our forest can be a great medicine for anti-cancer compound which is tongkat ali (Anti-cancer compound found in Aphrodisiac plant, 2002). Malaysia divided into two regions; peninsular Malaysia and Borneo which is Sabah and Sarawak.

Air pollution index (API) in Malaysia still under control. Although in certain area the API is a little bit high especially around the industrial area. However, carbon dioxide (CO$_2$) emissions in Malaysia are increasing since the year of 1970 until 2010 as shown in Figure 1.1. Based on Saidur et al.(2007) from the year of 1988-1998 the CO$_2$ emissions is widely contribute from the food sector industry. However, the CO2 emissions decreasing from the year of 1997 until year of 1999 due to the Asian financial crisis, the production in Malaysia and all the neighborhood country reduced. Many factories were failed to continue producing and closed down the business. After the recovering from Asian Financial crisis Malaysia is continuing producing and the carbon dioxide emissions in Malaysia is increasing.

Malaysia CO2 emission is at the high rate according to the World Bank as the CO2 emission at the year of 2010, the data shows that there are as much as 7.67 tons metric per capita. The high emission of carbon dioxide is usually causes from the burning fossil fuels, coal and other sources. The high emission is due to the increasing in the manufacturing sector.
Malaysia is still mainly depends on agriculture sector although we have implemented Industrial Master Plan (IMP) plan to increase in the manufacturing sector of the country. As shown in Figure 1.2 pointed out that the agriculture sector in Malaysia continuously decreasing from year to year. The main factor of increasing in the agriculture production is due to the method that previously used for harvest by using the animal power but nowadays it has been replaced by the advanced machinery (Lesi, 2006). The sector of agriculture could be increase as the proportion of the living population is increase to support the food stock. Although the data is rising up but, towards the contribution on each sector, agriculture has contributed the less portion of GDP in Malaysia.
The manufacturing value added rapidly increasing from year to year based on Figure 1.3. This is because Malaysia currently now moving in the Third Industrial Master Plan (IMP3) which is one of the main targets is to increase the manufacturing sector as much as 5.6 per cent annually and contribute 28.5 per cent to gross domestic product (GDP) by the year 2020 (MITI, 2010). According to Ang (2008), Malaysia is heavily depends on the industries manufacturing which lead to the high energy use and increase in the CO2 emission of the country. The Malaysia government needs to look extra cautious in the health of the environment of the country because increase in the GDP alone would not make the only indicator of country’s development.
Moreover, the largest proportion of the contribution to GDP in Malaysia is from the service sector. There are many activities that falls under service sector for instance tourism, education, communication, transport and so forth (MITI, 2013). This each of sector has their own categories under the World Trade Organization (WTO) for the investment purpose. Having said that, the Malaysia is moving towards developed country so, moving on to the focus of service sector become main priority as what has been done by other developed nation.

However, there was a shock in 1998 and 2009 based on Figure 1.4 due to the Asian financial crisis and global financial crisis respectively. During the Asian financial crisis most of the Asia country affected and it makes the economic downturn very bad all over the Asia countries. In 2009, the global financial crisis started in
Denmark which causes most of the world financial crisis and good still the economic become stable in a short period of time not as long as the Asian financial crisis.

Source: The World Bank

Figure 1.4: Service value added (constant 2005 US$)

Gross fixed capital formation is the gross way of measuring the country’s investment yet, it is not the total investment measurement. As we focus on the Figure 1.5 shows that the investment trend in Malaysia. In the year 1997 Malaysia has the peak of investment due to the Wawasan 2020 that has been introduce by Tun Dr Mahathir Mohamad which listed Malaysia in the fast growing era and there are a lot of investment on the making of it conversely, Malaysia was hit on 1997 Asian Financial Crisis. Due to that Malaysia need to stop the investment and focus on economy recovery and as soon as economy recovered Malaysia continuously to increase their investment as what has shown in the Figure 1.5.
1.3 Problem Statement

In general, as economy activities expend the environment faces the bad impact by increasing in the pollution (Hitam & Borhan, 2012). However, based on Mugableh (2013), when the emission of carbon dioxide increased take as the indicator of environment, show that there was a reduced on gross domestic product (GDP).

In addition, the study that conducted by Miketa (2001) shows that the decrease in the CO2 emission could lead to increase the investor to invest and carried the knowledge on producing a better production in efficient ways.

The environmental degradation shows a positively related on agriculture. According to Jalil & Habibullah (2013), as the agriculture increase, the CO2 emissions
increase. This is due to the chemical substances used for agriculture such is pesticides that could affect the green environment also the chemical substances that used to enhance the soil for crops.

In addition, environmental degradation giving a bad impact towards the health and one of the biggest concern is public have little knowledge about the green environment although Malaysia is one of the country that supports a green project (Abdul Wahid, Rahbar & Tan, 2011).

1.4 Objective of The Study

1.4.1 General Objective

The general objective of the study is to find out the determinants of environmental degradation in Malaysia.

1.4.2 Specific Objectives

1. To examine the determinant of environmental degradation in Malaysia;

2. To study the relationship between environmental degradation in Malaysia and the agriculture sector in Malaysia.

3. To find out which sector contribute the most towards the environmental degradation in Malaysia.
1.5 Significance of The Study

Environment plays an important role in long run effect as it is contribute in every single activity. Pollution is a disease that can be affected on our daily life. Malaysia once became the most low air pollution but it turns out to be different when Malaysia tried to achieve a developed country in year 2020. Malaysia needs to well manage the ecosystem to well preserve the biodiversity and forest as we do not want it to be wasted and much polluted as it has a great potential on becoming a developed country. This is because it can affect the health quality of the people and this could lead to low productivity country.

On the other hand, government needs to put extra precaution on developing in a new area. Government can make a strategy on boosting an economy without disturbing too much of habitat of flora and fauna. For instance, government could mark or give limitation on certain area that we could preserve and conserve the forest and river to keep the ‘oxygen producer’ place, where these places are avoided to be developed. This is because only government has the power to draw the future economy and decision.
1.6 Scope of The Study

This study is emphasizes on the determinants of environmental degradation in Malaysia based on the data collected from the year of 1970 until 2013.

The study is organized as following: The next chapter which is chapter two will be discussed about the previous studies that have been conducted by researches. Chapter two will be diverge into four sections which included theoretical framework, empirical testing procedures, empirical evidence and summary of previous studies. After that, chapter three will be focused more on data and method that has been used in the study and it will be divided to three subsections which are theoretical framework, data description and empirical models. Subsequently, chapter four will be discussed on data analysis and interprets the empirical result. Lastly, chapter five concludes the overall finding and provides the policy recommendation.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This study is about the determinants of environmental degradation in Malaysia. The purpose of this research is to study the relationship between the independent variables which is agriculture value added, manufacturing value added, service value added, and gross fixed capital formation then, the dependent variable is carbon dioxide emissions.

This chapter will be divided into two sections. The first section will be discussed on literature review of theoretical framework of agriculture value added, manufacturing value added, service value added, gross fixed capital formation and the dependent variable is carbon dioxide emissions as the indicator on environmental degradation. On the second section of this chapter will conclude the literature reviews as a whole.

2.2 Theoretical Framework

Based on the study, this research is about the relationship between agriculture values added, manufacturing value added, service value added, gross fixed capital formation, and carbon dioxide emissions in Malaysia. The agriculture value added, manufacturing value added, service value added, and gross fixed capital formation are
the independent variables while a carbon dioxide (CO2) emission is the dependent variable. The determinants can be described as following:

2.3 Literature review

The dependent variable will be affected towards the dependent variables. Numerous studies gave been done to estimate the relationship between CO2 emission and agriculture value added, manufacturing value added, service value added, and gross fixed capital formation.

Panel root data regressed by Perman and Stern (2003) indicated that there is no relationship of environmental degradation and income as the model of EKC cannot be used in this data. Plus, having the panel root data to regress in the 74 countries also is not valid as the data itself has problem. The series used is from 1960 until the year 1990. The data of the time series is used to support the study on non-existing EKC function and there is no EKC long run relationship in this data.

Paul & Bhattacharya (2004) carried out the study of the of the decomposition analysis on reducing the CO2 emission. The yearly data used from the year 1980 until 1996 in India. As the result of the study reported that the agricultural sector has no drop on CO2 emission through the time as the declining of CO2 emission could leads to the reduction on agriculture production. However, the CO2 emission in industrial and transportation sector shows the positive reduction by time as the energy efficiency show in that sector.
The research made by Lise (2006) illustrated that there is no related on energy intensity towards CO2 emission. However based on the decomposition analysis make in this research shows that the main driven sector that contributes to the CO2 emission is services sector as compared to agriculture, industrial and transport sector. The research is using the main sector in Turkey as mechanism such as transport, agriculture, industrial and service sectors. The data series used in this study from the year 1980 to 2003. In this research also shown that the economic expansion of the country contributes the higher CO2 emission as Turkey is still in the transition towards the modern economy.

According to Hitam and Borhan (2012) the progress of foreign direct investment may lead to the economic growth but it causing the environment became worse as the increasing in the carbon dioxide emissions. Increasing in CO2 emission contributes from the gross domestic product counted in all the sectors that donated to GDP. The study suggest that the strong policy should be implemented, enforcement on environment protection and increase the control of foreign direct investment. This study based from the year 1965 until 2010 in Malaysia. They also agree on the research because it is follows the Environmental Kuznets Curve, when the increase of environmental degradation skyward until particular level of income, there will be helping hand of the environment.

Tunc, Turut-Asik, Akbostanci (2009) studied the LMDI between the CO2 emission and economic activity in Turkey by using yearly data from the year 1970 until 2006. The LMDI shows that the increase in the energy intensity by each of the
sectors; agriculture, service and industry will eventually increase the CO2 emission of the country. As reported in the study, the main contribution in the CO2 emission of the economic activity in Turkey is industry and service sector. The agriculture sector in Turkey is still in the traditional way and did not contribute much in CO2 emission of the country.

Additionally, Shahiduzzaman, Layton, & Alam (2015) investigated found that by having structural changes in the economy can reduce the CO2 emission in each of the sectors. This studied using the data series from the year 1978 to 2010 running under the decomposition LMDI methods and it shows the positive impact when the changes in structural economy reduced as much as 36% and having that the reducing in total CO2 emission as much as 64% in period of 2006 until 2010. Improvement in this efficiency can be affected towards the wealth and the population effects in Australia. The changes on the policy giving out the major reduction based on land-sector such as agriculture and manufacturing industry as the main aim of Australia to kerb CO2 energy production in the sectors.