EFFECTS OF ENERGY CONSUMPTION, RENEWABLE ENERGY AND ECONOMIC GROWTH ON CO_2 EMISSIONS IN THREE SELECTED ASEAN COUNTRIES

IZYAN NAZIRAH BINTI WAHID

MASTER OF SCIENCE UNIVERSITI MALAYSIA TERENGGANU

2016

EFFECTS OF ENERGY CONSUMPTION, RENEWABLE ENERGY AND ECONOMIC GROWTH ON CO_2 EMISSIONS IN THREE SELECTED ASEAN COUNTRIES

IZYAN NAZIRAH BINTI WAHID

Thesis Submitted in Fulfilment of the Requirement for the Degree of Master of Science in the Faculty of Social Science and Economic Development Universiti Malaysia Terengganu

May 2016

TABLE OF CONTENTS

Abstract of thesis presented to the senate of University Malaysia Terengganu
in fulfilment of the requirement for the degree of Master of Science

EFFECTS OF ENERGY CONSUMPTION, RENEWABLE ENERGY AND ECONOMIC GROWTH ON CO_2 EMISSIONS IN THREE SELECTED ASEAN COUNTRIES

IZYAN NAZIRAH BINTI WAHID

May 2016

Main Supervisor : Associate Professor Azlina Abd Aziz, Ph.D

Co-Supervisor : Associate Professor Nanthakumar Loganathan, Ph.D

School : School of Social and Economic Development

Development and urbanization in a country has shown that economic growth is very important for developing countries, but rapid economic activity in a country is not an indicator of the development of a dynamic and sustainable economy. Recently, studies on the linkages between energy consumption, economic growth and climate change revealed that environmental degradation occurs in tandem with energy use and economic growth. Therefore, this study aims to investigate the causal relationship between energy consumption, economic growth, carbon dioxide emissions and renewable energy by using time series data from 1980-2011 in three selected ASEAN countries namely Malaysia, Indonesia and Singapore. In addition, this study aims to investigate the existences of EKC hypothesis in Malaysia, Indonesia and Singapore. The method of Vector Error Correction Model (VECM) is used to examine the causality between the variables. The causality result shows evidence of unidirectional causality from energy consumption to carbon dioxide emissions, from carbon dioxide emissions to economic growth, from economic growth to renewable energy and from energy consumption to renewable energy in Malaysia. Meanwhile, the results of causality in Indonesia show that there were

unidirectional causality runs from renewable energy to carbon dioxide emissions, economic growth and energy consumption. In Singapore, there are unidirectional causality runs from economic growth to carbon dioxide, energy consumption and renewable energy. Besides, there is unidirectional causality runs from energy consumption to renewable energy. In addition, the findings also indicated that EKC hypothesis is not valid in this study. These findings suggest the needs for alternative energy use in order to reduce the carbon dioxide emissions. Therefore, the improvements of policy implications are very important to ensure sustainable economic growth that does not adversely affect the environment.