

The Effect of Public Debt on Energy-Growth Nexus: Threshold Regression Analysis

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Abstract

ASEAN countries are dealing with challenging external environment recently with the deterioration of the global commodity price and the volatility of oil price. Most of the developing countries rely heavily on the energy consumption for the economic development purpose especially ASEAN countries which are the major energy exporter like Malaysia and Indonesia. This study aims to examine the relationship between energy consumption and economic growth from the perspective of public debt for Indonesia and Malaysia between periods of 2000 - 2013 via the threshold regression analysis. Our empirical results indicate that there are significant relationship between energy consumption and economic growth from the public debt threshold perspective for both countries. The analysis of Indonesia shows that higher level of public debt will lead to greater impact on energy consumption and economic nexus. In contrast, the impact of the energy consumption on economic growth for the case of Malaysia indicates a diminishing trend in the energy and economic growth nexus when the public debt is above the threshold level. Important policy implication from this study suggests that Indonesia and Malaysia should be more careful in formulating the energy consumption related policy by considering different perspectives such as public debt level of the nation. Moreover, both countries should consider reducing their dependence on the non-renewable energy resources and shifting to renewable energy resources such as solar, hydro, landfill gas for their economic development in the future.

Keywords: Energy consumption; Economic growth; Public debt; Threshold regression analysis

JEL Classification: Q43; O40; H63; C32

1. Introduction

Energy is key resources that contribute to the industrial and economic development in any nation. The contribution of energy in economy of production can be viewed from demand and supply perspectives. On the demand side, electricity consumption is one of the form of energy that used by customer to satisfy their utility. Meanwhile, energy is viewed as vital factor of production from the supply side to increase the national output and stimulate the economic growth of a nation (Mathur et. al, 2016). High demand on energy which engaged in the process of economic development is rising from year to year especially in developing countries over the last 50 years (Omay et.al, 2015). Developing countries like Association of Southeast East Asian Nations (ASEAN) member countries are playing essential roles to influence the trends of world energy consumption. However, most of the ASEAN countries are dealing with challenging external environment recently with the deterioration of the global commodity price and the volatility of oil price. These countries rely heavily on the energy consumption where the energy serves as one of the driver for growth in this region especially those major fossil-fuel producer and exporter like Indonesia and Malaysia. According to World Energy Outlook Special Report (2015), energy demand of ASEAN member countries escalated over 50% between 2000-2013. Besides, this report revealed that Indonesia is the largest energy consumer among the ASEAN member countries as well as the