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Trade Openness and Environmental Degradation in Asean-5 Countries

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Abstract

This study investigates the relationship between trade openness and carbon dioxide (CO₂) emissions among ASEAN-5 countries (Indonesia, Malaysia, Philippines, Singapore, and Thailand) during the period from 1995 to 2014. The variables used are trade openness, carbon dioxide emissions, gross domestic product, energy consumption, and foreign direct investment. Methodologies applied in this study are Panel Unit Root test, Pedroni Co-integration test, and Panel Granger Causality. The results of this study show there is a long-run relationship between the variables in ASEAN-5 countries. The results further show there is a bidirectional causal relationship between carbon dioxide, economic growth, and energy consumption in the short-run. The results of this study imply that ASEAN policy makers should focus on the implementation of carbon tariff and promote the energy efficiency usage.

Keywords: Environmental Degradation, Trade Openness, Cointegration, Granger Causality.

Introduction

Trade openness enables domestic industrial sector of a country to expand more rapidly as compared to a closed economy. Economic growth can be accelerated by trade openness with the agreement of trade among countries (Sulaiman & Abdul-Rahim, 2017). There are number of agreements on international trade among the countries about tariffs, imports and exports such as General Agreement on Tariffs and Trade (GATT) and World Trade Organisation (WTO). A bilateral and multilateral Free Trade Agreement (FTA) among countries can minimize the trade barrier in their economic relationship. Trade liberalization is good for economy in terms of prices, investments, productivities and so on. On contrary, trade openness causes policy of aggressive market entry, intricacy of the system of international trading, and structural unemployment (Drozd & Miskinis, 2011).

Emphasizing on the gains from trade towards the environmental quality is referred as the hypothesis of gain-from-trade while race-to-the-bottom hypothesis is referred for the nation's racing to the bottom of environmental quality in aiming for the development of trade-led (Ibrahim & Rizvi, 2015).

Furthermore, based on Managi (2004), there will be both positive and negative impacts on the environment when trade openness occurred internationally. The effects of scale, technique, and composition are the three pieces of impacts that can be decomposed. When there is a development on trade-led, an increasing of income can be seen. It is because trade involves import and export that need the calculation of exchange rates for the price and so on. After raising the income, the people or public start to demand a cleaner environment for living. In addition, the technology of the production that has the concept of environmentally friendly are vastly used especially in a developed country. Therefore, some of the industries that practices an environmentally unfriendly production are shifting their plan from a developed country to any developing countries. A richer country advocates a strict environmental regulation in order to produce a greener goods and services that do not harm the environment.

Pollution haven hypothesis (PHH) which under the free trade usually assert that the poor or developing countries may customize in the productions or sectors of pollution intensive as of their comparative advantages (Loi, 2010). Multinational firms normally opted to shift their environmentally harmful production to any of the least developed countries (LDC) or developing countries due to its lax of environmental regulation and monitoring activities (Ibrahim & Rizvi, 2015). Environmental degradation are the common issues for any countries that practices open economy. Study by Oktavilia and Firmansyah (2016) shows that trade openness in Indonesia has not only improve their international trade and foreign demand, but also increase the CO₂ emission of the country between the year 1976 to 2014.

Environmental issues are reported in global especially the air and water pollution which are becoming the most concern to human being. The natural ecosystems and the health of living beings are affected by air pollution (Sepideh, 2015). Globalization worsen the environmental problems faced globally. The reallocation of environmentally unfriendly industrial activities to any of the LDC and developing countries has encouraged deforestation. With the production in place and no proper monitoring form the government, more CO₂ will be emitted to the atmosphere.

These leads to more carbon dioxide are released to the atmosphere. Carbon dioxide emissions become greenhouse gas (GHG) that is harmful to human being. GHG keeps increasing due to the activities of globalization and industrialization. According to World Trade Organization (2010), annual world carbon dioxide (CO₂) emissions from combustion of fuel rise from 14.1 billion tonnes to 28.9 billion tonnes from 1971 – 2007.

According to Prasad and Asafu-Adjaye (2003), the positive link between the trade openness and environmental degradation require a distinct and proper agreement between the trading countries. In addition, the international trade especially in trade of agriculture will have the impacts on the quality of environment in ASEAN members' countries and its partners of trade when the flow of the agriculture trade increase (Atici, 2011). Indonesia has been dealing with "carbon sinks" environment since the economic liberalization took place in mid 1980s due to human activities and deforestation (Ubaidillah et al., 2013).

According to Neil (1998), regime switch in Thailand has encourages an economic shift of the country onto an export-oriented industrializing economy. Thus, during the 11th National Economic and Social