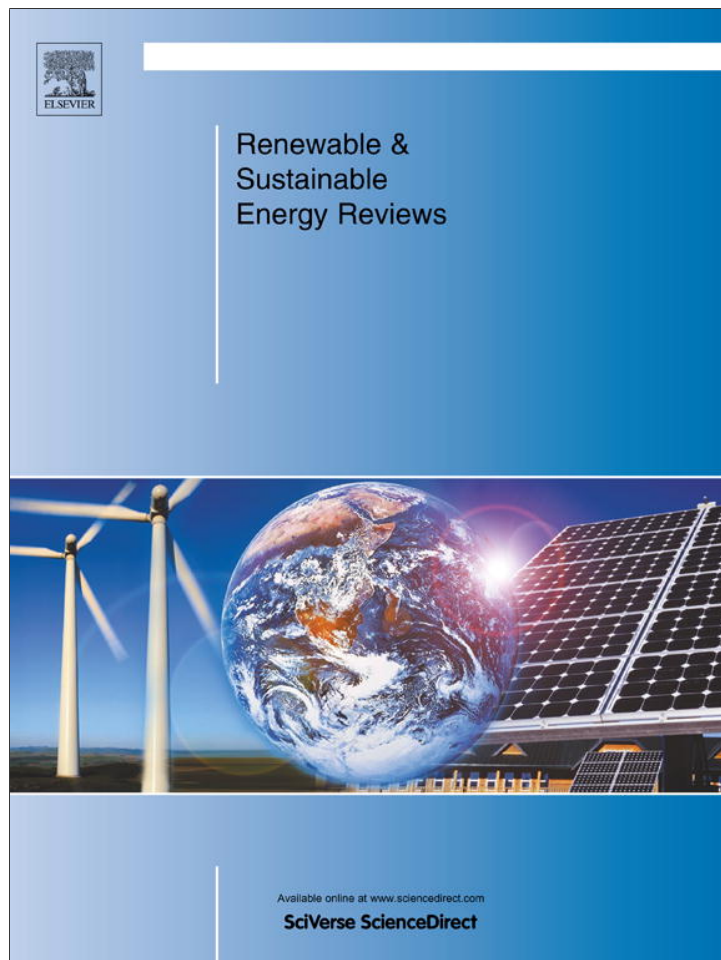


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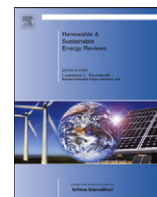
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The impacts of transport energy consumption, foreign direct investment and income on CO₂ emissions in ASEAN-5 economies

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ABSTRACT

In this study, we incorporate new variables and assess the impact of transportation sector's energy consumption and foreign direct investment on CO₂ emissions for ASEAN-5 economies using the cointegration and Granger causality methods. This study also attempts to validate the Environmental Kuznets Curve (EKC) hypothesis. Our results reveal that the CO₂ emissions and their determinants are co-integrated only in Indonesia, Malaysia and Thailand. The long-run elasticity estimation suggests that income and transport energy consumption significantly influence CO₂ emissions whereas FDI is not significant. Economic growth plays a greater role in contributing to CO₂ emission in ASEAN-5. Nonetheless, we find that the inverted U-shape EKC hypothesis is not applicable to the ASEAN-5 economies, especially in Indonesia, Malaysia and Thailand. In the long run, the bi-directional causality between economic growth and CO₂ emissions is detected in Indonesia and Thailand, while we find unidirectional causality running from GDP to CO₂ emissions in Malaysia. We also observe bi-directional causality between transport energy consumption, FDI and CO₂ emissions in Thailand and Malaysia. As an immediate policy option, controlling energy consumption in transportation sector may result in a significant reduction in CO₂ emissions. However, this may slow the process of economic growth in Malaysia and Indonesia. Alternatively, we suggest policymakers to place more emphasis on energy efficient transportation system and policies to minimise fossil fuel consumption. Thus, the quality of environment can be improved with less deleterious impact on economic growth.

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1. Introduction

Increasing concerns about the environment have turned the scholars as well as policymakers' attention to identify the determinants of environmental pollutions and the direction of their

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