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Carbon Dioxide Emissions, Economic Growth, Trade and Investments: the Asean Experience

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Abstract

This study examines the effects of economic growth (which is represented by GDP per capita and GDP per capita squared), trade (using trade openness), and Foreign Direct Investments (FDI) on the carbon dioxide emissions on member countries of Association of Southeast Asian Nations (ASEAN), namely: Brunei, Cambodia, Laos PDR, Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam for the period 1970–2011 using unbalanced panel data and the Panel Corrected Standard Errors (PCSE) as estimation method.

The results support the Environmental Kuznets Curve (EKC) hypothesis with the signs of the coefficients of GDP per capita and the squared of GDP per capita being significantly positive and negative, respectively. This implies that during the early stage of economic growth in the ASEAN, an increase in income brings about more carbon dioxide emissions. However, after a particular income threshold is attained, further development is accompanied by lower carbon dioxide emissions. Using the estimated coefficients from the regression, the turning point is calculated to be \$20,017 per capita. On the other hand, the coefficients of trade openness and FDI are both insignificant implying that the Pollution Haven Hypothesis (PHH) does not apply in the region.

The results of the study mean that ASEAN member countries should promote growth with conscious effort on curbing the level of carbon dioxide emissions. Moreover, ASEAN countries may continue to encourage more trade and FDI to enter the region. The results of the study have shown that these trade and capital flows do not have serious repercussions on carbon dioxide emissions.

Keywords: ASEAN, carbon dioxide emissions, Environmental Kuznets Curve, Panel Corrected Standard Errors