



Unveiling the non-linear impact of sectoral output on environmental pollution in Malaysia

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Abstract

This paper investigates the non-linear impacts of the agricultural, industrial, financial, and service sectors on environmental pollution in Malaysia during the 1980–2018 period. It employs the extended STIRPAT model and two indicators of environmental pollution (carbon dioxide emissions and ecological footprints). It uses the autoregressive distributed lag (ARDL) technique to estimate the parameters. Evidence from the study indicate that the agricultural, industrial, and service sectors have inverted U-shaped non-linear impacts on carbon dioxide emissions and ecological footprints, while the financial sector has a U-shaped non-linear relationship with carbon dioxide emissions and ecological footprint. These empirical outcomes are robust to diagnostic tests, structural breaks, and alternative estimation technique and proxies. The economic implication of this paper is that, at the early stage of sectoral growth, the pollution intensity of sectoral output increases, but after a certain turning point, a further increase in sectoral output will reduce environmental pollution. Precisely, environmental pollution will reduce if the agricultural, industrial, and service sectors exceed threshold levels of 11%, 44%, and 49% of GDP, respectively, while environmental pollution will be aggravated if financial sector exceeds a threshold level of 94%. Therefore, efforts to mitigate environmental pollution in Malaysia should integrate sectoral growth to attain sustainable development.

Keywords Environmental pollution · Agriculture · Industry · Financial system · Service

JEL classification Q53 · O13 · O14 · O16 · O44

Introduction

The need to mitigate environmental pollution in developing countries cannot be overemphasized due to the mounting level

of carbon dioxide emissions and other greenhouse gases that exacerbate global warming and climate change. Carbon dioxide emissions is considered as one of the largest contributors to environmental degradation that have detrimental effect on human existence (Ehigiamusoe et al. 2020). Thus, the identification of policy options to abate environmental pollution has received considerable attention of scholars and policy makers because of the need to accelerate economic expansion without aggravating environmental sustainability. The issue is more severe in many developing countries who strive to boost economic growth without giving adequate attention to the environmental consequences. Hence, a recognition of the environmental costs of economic expansion in developing countries is essential for the realization of sustainable development. One of such developing countries is Malaysia.

This study focuses on Malaysia because of the rising level of environmental degradation in the country which constitutes a serious concern to policy makers. The control of environmental pollution should be prioritized in the development agenda of Malaysia due to the soaring levels of carbon dioxide

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