

Title: RENEWABLE ENERGY DYNAMICS IN EMERGING MARKET ECONOMIES: IMPLICATIONS FOR ENVIRONMENTAL SUSTAINABILITY

Rising pollution is a primary concern for emerging economies, particularly higher use of non-renewable energy sources. Moreover, these economies are importer of non-renewable energy, which hampers their balance of payment. Such circumstances call for an energy transition as a key solution to mitigate climate change. In this context, this thesis examines the impact of domestic and overseas innovations on renewable energy generation, the role of renewable energy in energy imports, and sectoral carbon emissions (electricity-heat generation, industry, and residential sectors).

For this empirical investigation, the study utilises secondary data collected from various sources, including the World Development Indicators (WDI) database of the World Bank and the International Energy Agency (IEA). This study follows the classification of Morgan Stanley Capital International (MSCI) countries while selecting 16 emerging countries. Though the study period from 1996 to 2019 used for the empirical study is uniform across the objectives, the sample countries remain the same for all objectives. This study applies various panel data econometrics approaches for empirical examination.

The findings indicate that domestic innovation promotes renewable energy generation while overseas innovation slightly hampers it. The findings suggest in promoting domestic innovation by building innovation infrastructure. The findings also postulate that renewable energy consumption decreases energy imports, suggesting that renewable energy demand is vital for reducing energy import dependency by enhancing energy transition and alternative energy adoption. The findings further reveal that renewable energy consumption is the key factor for reducing carbon emissions in the electricity and heat sector, as well as further reducing carbon emissions in the industrial and residential sectors. This study suggests that policymakers in emerging economies should support domestic innovators and build innovation hubs. The study also suggests providing more renewable energy grants and subsidies, as well as affordable loans for renewable energy initiatives, to support green producers.

Keywords: Innovations; renewable energy; energy import dependency; carbon emissions; panel data; emerging economies