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An econometric study of the impact of foreign direct investment and energy consumption on the environment of China

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The massive economic growth in China in recent years has generated into an upsurge in demand for energy and a tumultuous rise in carbon dioxide emissions. Yet, precise estimation of economic and energy impact of environmental pollution remains at the edge of extant studies. Though several scholars have struggled to reveal the main factors accounting for environmental degradation; most these studies utilized common econometric models such as

vector auto regression and aggregate the variables, which for the most part prompts however contradictory and mixed results. Thus, there is an exigent need for precise study of the economic and energy efficiency of environmental degradation whilst applying strong econometric models and disaggregating the variables into its separate individual variables to explicate their respective effects on the environment. This help to provide robust results and advances the debate for better policy formulation and guidelines to mitigate carbon dioxide emissions especially in China. This study, therefore, seeks to examine the causal effect of Foreign Direct Investment and energy consumption on the environment of China using a robust and recent econometric approach such as Dynamic Ordinary Least Squares (DOLS) and bootstrapped Granger

causality. Our study impanels and tests an ensemble of a group of vital variables predominant in recent studies on environment-energy-economic causality: economic growth, energy consumption, Foreign Direct Investment, international trade, and carbon dioxide emission. Our study further disaggregated energy consumption by their sources to identify their respective influence on the environment. Our results showed that the Dynamic Ordinary Least Squares method provide accurate statistical inference regarding the direction of the causality among the variables than the conventional method such as OLS and Granger Causality predominantly used in the literature as it is more robust and provide accurate critical values.

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