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CAUSAL LINKS BETWEEN ENVIRONMENTAL REGULATION AND ECO-EFFICIENCY IN CHINA'S IRON AND STEEL INDUSTRY

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Abstract

This paper analyzes the causal relationship between environmental regulation and eco-efficiency in China's understudied iron and steel industry over 2006-2019. After reviewing relevant theories and context, we construct a model assessing economic performance, sewage fees, administrative penalties, and eco-efficiency indicators using Granger causality tests on time series data. The results suggest economic performance causes tighter administrative regulation, while improved eco-efficiency reduces the need for regulatory enforcement. These findings imply environmental policy should account for feedback effects in the steel industry. Specifically, our study helps policymakers optimize regulations balancing environmental and economic objectives for sustainable development.

Key words: eco-efficiency, environmental regulation, Granger causation, steel industry

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