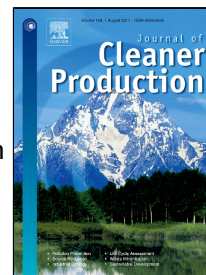


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The interaction effects of environmental regulation and technological innovation on regional green growth performance

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Highlights

Relationships among technological innovation, environmental regulation and regional green growth performance are investigated.

Empirical study of 30 Chinese provincial regions during 2011-2012 is conducted.

Environmental regulation has a negative effect on regional green growth performance.

Regional green growth performance is improved by technological innovation driven environmental regulation.

Technological innovation plays a bridge role between environmental regulation and regional green growth performance.

ABSTRACT

As green growth is considered an effective method to save energy and reduce emissions, the questions of how to achieve it and which factors drive green growth have become hot topic. Although there are some studies on the factors impacting the achievement of green growth, they are limited in quantity. Moreover, most of them are primarily focused on specific influencing factors, such as political factors, environmental regulation (ER), technological innovation (TI), and so on; while there is little discussion of the interaction effects in an integrated methodological framework. Accordingly, this paper develops an integrated model to investigate the relationships among ER, TI and regional green growth performance (RGGP). The model is tested using empirical data on 30 provincial administrative regions in China during 2011-2012 by employing structural equation modeling (SEM) approach that can effectively investigate the relationships between observed and latent variables and the relationships among latent variables simultaneously. **The hypothesis H₁ of this paper is not confirmed, and the results show that ER has a significant negative effect on RGGP. Both the hypotheses H₂ and H₃ are confirmed, namely, ER significantly positively influences TI, and TI has a positive impact on RGGP. This finding provides empirical evidence to support the Porter Hypothesis that properly designed ER may positively affect RGGP through motivating TI. According to the results of hypotheses H₁, H₂ and H₃, we find that ER couldn't directly promote RGGP, but RGGP will be positively impacted by TI driven ER. The finding supports the view of ecological modernization theory that green growth practices may be promoted by TI driven ER, but whether ER can bring green growth practices is uncertain. Furthermore, the finding indicates that TI is a bridge for linking ER and RGGP. Based on our findings, we present some important implications that can be useful for policy-makers and enterprise managers to promote green growth practices in China.**

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