



*“Gheorghe Asachi” Technical University of Iasi, Romania*



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## **EXAMINING THE THRESHOLD EFFECTS OF GREEN TECHNOLOGY INNOVATION EFFICIENCY IN CONSTRUCTION INDUSTRY UNDER ENVIRONMENTAL REGULATION**

**Jiawei Luo**

*School of Civil Engineering and Architecture, East China Jiaotong University, Nanchang 330013, China  
E-mail: [ljw67056296@163.com](mailto:ljw67056296@163.com); Phone: +86-19179949030*

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### **Abstract**

Green technology innovation is a key tool for fostering green technology innovation, which is a fundamental element of superior economic development. This paper establishes a threshold model and a robustness test model based on balanced data from 31 Chinese provinces from 2017 to 2021 to analyze the "cost of compliance effect", "Porter's hypothesis effect," and the existence of non-linear relationships between environmental regulations at different intensities on green technology innovation in the construction industry in each province of China. The goal is to increase the efficiency of green technological innovation in the construction industry and help it thrive in the sector.

The results of the study show that there is a double threshold and a significant "V" shape of environmental regulation on green technology innovation in the construction industry in each province of China. Labour force and industry size have a facilitating effect on green technology innovation in the construction industry, capital investment has a positive but insignificant effect on green technology innovation in the construction industry. The degree of foreign trade development has an inhibiting effect on green technology innovation in the construction industry. Therefore, the government should flexibly adjust the threshold value of environmental regulation according to the actual situation of each province and region, so that it can be located in the optimal range to promote green technology innovation in the construction industry, and ultimately achieve high-quality economic development.

*Key words:* construction industry, environmental regulation, green technology innovation, threshold effect

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