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GREEN INNOVATION AND CHINA'S SYNERGISTIC GOALS OF POLLUTION AND CARBON REDUCTION: THE MODERATING ROLE OF GREEN FINANCE

Yaning Wang[1], Shenglin Ma[2*]

[1]*School of Public Administration and Policy, Renmin University of China, Beijing, China*
[2]*School of Economics and Management, North University of China, Taiyuan, China*

Abstract

China is confronted with the dual challenges of pollution control and greenhouse gas management, necessitating a synergistic reduction of pollution and carbon emissions (SRPC) to achieve ecological sustainability. Although global attention has been directed towards green innovation (GI) and green finance (GF) as critical components of sustainable development, their roles in promoting SRPC in China remain underexplored. This study examines data from 278 Chinese cities (2006-2021) to analyze the impact of GI on SRPC and the moderating role of GF. The findings indicate that GI significantly enhances SRPC by reducing energy intensity and consumption while improving efficiency. Furthermore, GF can amplify the effect of GI on SRPC and strengthen its influence on total energy consumption, energy intensity, and efficiency. The impact of GI on SRPC varies according to resource endowment, location, urban clustering, and human capital. Additionally, SRPC in Chinese cities exhibits significant spatial correlation. GI generates spillover effects that enhance SRPC in neighboring cities.

Key words: carbon reduction, coupling coordination, green finance, green innovation, pollution reduction, spatial effects

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* Author to whom all correspondence should be addressed: e-mail: sz202209002@st.nuc.edu.cn