

Asymmetric Effects of Green Credit Policies on Green Innovation in Heavily Polluting Firms

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Abstract

Green finance acts as a core driver for enterprises to advance green innovation and achieve green development. While existing studies mainly focus on the overall relationship between green finance and green innovation, they overlook structural changes in green innovation across different fields. Using the International Patent Classification Green List, this paper collects and sorts green patent data of China's A-share listed companies, and divides green innovation into two types: source control and end-of-pipe treatment. Regarding the implementation of the Green Credit Guidelines in 2012 as a quasi-natural experiment, this study employs the difference-in-differences method to investigate the asymmetric effects of green credit policies on the two innovation categories. The empirical outcomes confirm that the policies generate obviously different impacts on heavily polluting enterprises, creating a clear gap between end-of-pipe treatment innovation and source control innovation. Mechanism analysis shows that tightened formal credit supply and higher financing costs form distinct transmission paths for the two types of green innovation. This asymmetric effect turns out to be more significant among non-state-owned enterprises, small firms and those trapped in severe financing constraints. By differentiating source control from end-of-pipe green innovation, this research reveals how green credit policies exert asymmetric influences on heavily polluting enterprises, and provides valuable empirical references for improving green financial policies.

Keywords

Green Credit Policy, Green Innovation, Heavily Polluting Firms, Asymmetric Impacts