

# Study on the Impact of Green Finance on Urban Economic Low-carbon Transformation

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## **Abstract**

Green finance has been regarded as a crucial tool for transitioning to a low-carbon economy; however, whether the development of green finance can indeed reduce carbon emissions or lead to more carbon liabilities remains a question. In the context of China's goals of "peak carbon emissions" and "carbon neutrality," a thorough examination of the impact of green finance on economic low-carbon transition is not only a test of the effectiveness of China's green finance policies but also an investigation into the low-carbon effects of green finance market instruments. Clearly defining the levels and characteristics of economic low-carbon transition in different regions, and clarifying the role and impact mechanisms of green finance at various levels on economic low-carbon transition, is of significant theoretical and practical importance for China to formulate rational carbon reduction plans and determine the future development direction of green finance. Therefore, based on panel data from 281 prefecture-level and above cities in China from 2006 to 2022, this paper employs fixed effects (FE) models, difference-in-differences (DID) models, and mediation effect models to empirically examine the impact of green finance on carbon emissions and its mechanisms from both market and policy perspectives. The results reveal that green finance significantly promotes carbon reduction, and this promotion effect persists even after robustness tests. Regarding regional heterogeneity, the study finds that green finance has a restraining effect on carbon emissions in China's central and western regions, while its impact on eastern provinces is not significant. Furthermore, the results of policy intervention effects confirm that the carbon reduction effect of green finance reform and innovation pilot zones is more pronounced than in other areas. Finally, the mediation effect indicates that green innovation serves as the core conduit through which green finance influences carbon reduction. These research findings are of crucial significance for formulating rational carbon reduction plans, thereby facilitating urban economic low-carbon transition and determining the future development direction of green finance, thus contributing to the achievement of carbon peak and carbon neutrality goals.

## **Keywords**

Green Finance, Low Carbon Development, Regional Economy Low Carbon Transformation