

Impact of Low-carbon City Construction on Financing, Investment, and Total Factor Productivity of Energy-intensive Enterprises

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Faced with the global climate change, as a major greenhouse gas emitter, China launched a pilot policy on low-carbon city construction (LCCP policy) since 2010. The policy aims to explore the path of low-carbon economic and social development, which is believed to help reduce urban carbon emissions and promote sustainable urban development. Although literature has examined the impact of LCCP policy on various indicators of sustainable development in pilot cities, few studies have discussed how climate policies affect the investment and financing behavior of energy-intensive enterprises.

In the process of urban low-carbon transformation, technology uncertainty and market risk occur in energy-intensive industries. Enterprises in energy-intensive industries would face regulatory risk from the government or credit constraints from financial institutions if they fail to reduce their energy use or adopt clean energy. Therefore, one of the main targets of the LCCP policy should be to promote the high-quality development of energy-intensive industries, rather than move those industries to other cities.

Based on the micro data of A-share listed enterprises in China's energy-intensive industries, this study assesses the productivity effect of LCCP policy and investigates the mechanism of financing and investment. Empirical results provide evidence that the LCCP policy has significantly improved the total factor productivity of energy-intensive enterprises. In terms of the mechanisms, the LCCP policy has increased the supply of bank credit to enterprises and encouraged their long-term investment in fixed assets and R&D activities. The productivity effect of the LCCP policy is greater for state-owned enterprises and enterprises with political connection. Urban human capital, industrial agglomeration, and resource endowment contribute to the productivity effect of LCCP policy for enterprises in the energy-intensive industries.

The findings show that the LCCP is an effective comprehensive policy to promote the high-quality development of energy-intensive industries. However, the survival pressure and operational risk of energy-intensive enterprises should be considered and valued. The local governments should fully consider their increased survival cost and the decline in competitiveness caused by regulatory policies. They should provide corresponding preferential policies such as financial subsidies to encourage technological innovation and investment activities, and ultimately shift the energy-intensive industries to a low-carbon development model.

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