

Research on the Spatial Effect of Environmental Regulation on Green Total Factor Productivity of Construction Industry in China

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Abstract

As a pillar industry of China, the construction industry must coordinate with the environment in the process of its vigorous development. Energy saving, emission reduction and pollution control have become urgent problems for the construction industry. Based on the panel data of 30 provinces in China from 2010 to 2021, this paper first calculates the green total factor productivity (GTFP) and environmental regulation intensity of China's construction industry. Then, the threshold effect model (PTRM) is used to test the nonlinear effects of environmental regulations on GTFP in the construction industry. On this basis, the spatial panel threshold Durbin model (SPDM-PTRM) is used to analyze the spatial threshold spillover effect of environmental regulations on GTFP in the construction industry under the condition of spatial-temporal consistency. The empirical results show that: 1) The GTFP of China's construction industry has increased steadily, and the technological progress index and technical efficiency index have also increased accordingly. 2) There is an obvious nonlinear constraint on GTFP of the construction industry due to the intensity of environmental regulation, which is in line with the "Porter hypothesis". 3) Environmental regulation has nonlinear spillover effect on GTFP, and there is a spatial decay boundary of spillover effect. Only when the intensity of environmental regulation is within a certain range can it affect the GTFP of construction industry in neighboring provinces.

Keywords

Construction Industry, Environmental Regulation, Green Total Factor Productivity, Nonlinear Constraint, Spatial Threshold Spillover Effect