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## **EVOLUTION OF ENVIRONMENTAL REGULATION STRATEGY AMONG LOCAL GOVERNMENTS AND ITS IMPACT ON REGIONAL ECOLOGICAL EFFICIENCY IN CHINA**

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### **Abstract**

An evolutionary game of environmental regulation among local governments in China was established in this paper, and we analyzed the dynamic evolution rules of the environmental regulation strategy among local governments as well as the impact of environmental regulation on regional ecological efficiency in China by using the spatial panel simultaneous equations based on the panel data of various regions in China from 2007 to 2014. The research results show that the local government will adjust their own strategies during the environmental regulation strategy game constantly, and the external effect does not affect the choice of government's environment regulation strategy, and the government will choose their environmental regulation strategy by measuring the gain and cost of the environmental regulation under the condition with no constraint mechanism, and the government will not be intent to perform the environmental regulation, and it will lead to the phenomena of "prisoner's dilemma". And the empirical research result shows that there exists the behavior of mutual imitation during the process of establishment and implement of environmental regulation and the environmental regulation has obvious restrictive function on the local ecological efficiency in China.

*Keywords:* ecological efficiency, environmental regulation, evolutionary game, local government

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