"Gheorghe Asachi" Technical University of Iasi, Romania

INDUSTRIAL INTELLIGENCE AND ENTERPRISE POLLUTION REDUCTION: EMPIRICAL EVIDENCE FROM CHINESE POLLUTION ENTERPRISES

Zehao Li[1], Wenhui Liu[2], Minji Hu[3], Wenqi Niu[1]*

[1]School of International Trade & Economics, Anhui University of Finance & Economics, Bengbu, Anhui, China
[2]School of Economics, Ocean University of China, Qingdao, Shandong, China
[3]Chinese Academy of Fiscal Sciences, Beijing, China

Abstract

Intelligent manufacturing is the main direction of building a manufacturing power in China, and an important path to reduce the emissions of polluting enterprises. The objective of this paper is to provide a more comprehensive elucidation of the microscopic mechanism underlying the application of industrial intelligence in pollution mitigation, building upon existing research. This paper constructs an indicator system of industrial intelligence from four aspects to calculate the level of industrial intelligence in 30 provinces in China, and empirically examines the intensity of enterprise pollution emissions affected by industrial intelligence. The results show that the level of industrial intelligence apparently reduces the emission intensity of polluting enterprises. This conclusion pasts endogenous treatment and robustness test. Heterogeneity analysis shows that the influence of industrial intelligence on enterprise pollution reduction is mainly reflected in foreign-funded enterprises, private enterprises, export enterprises and non-capital-intensive industries, and the inhibition of the development of industrial intelligence on enterprise pollution emission intensity is reduced after 2008. The mechanism test shows that this mitigation effect is achieved by promoting industrial upgrading and optimization, and increasing the R&D investment of enterprises. In contrast to previous research, this study utilizes evidence from China, the world's largest industrial nation, to further elucidate the microscopic mechanism of industrial intelligence in mitigating pollution. Under the background of the goal of "reaching the peak of carbon and neutralizing carbon" and the transformation of industrial structure, this paper provides policy recommendations to accelerate the promotion of industrial intelligence and reduce the pollution emissions of enterprises.

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* Author to whom all correspondence should be addressed: e-mail: 1405773167@qq.com