

Can the Development of Financial Technology Promote the Application of Industrial Robots in Enterprises? An Empirical Test Based on Manufacturing Enterprises in China

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Abstract

Under the national strategy of "Building China into a Manufacturing Powerhouse", the role of FinTech in driving intelligent transformation of manufacturing has become increasingly prominent. While existing studies predominantly focus on factors like labor costs and policy support, they largely neglect FinTech's impact on industrial robotics adoption. This study empirically examines the relationship between FinTech development and industrial robot application using data from Chinese listed manufacturing firms (2011-2019). Findings find that the development of regional FinTech significantly promotes the adoption of industrial robots, particularly in technology-intensive sectors, non-state-owned enterprises, firms with strong internal control, and Eastern China-based corporations. Furthermore, enterprises' financing constraint levels and the pace of social marketization progress exhibit a positive moderating effect on the relationship between FinTech development and industrial robot adoption level. The research provides empirical evidence for FinTech-enabled intelligent transformation in manufacturing, offering policy implications for deepening "technology-industry-finance" integration and optimizing resource allocation.

