

Digital Inclusive Finance and Energy Poverty: Mechanisms and Empirical Evidence from China

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Abstract

As one of the severe challenges in the global energy system, energy poverty constitutes a form of relative poverty that reflects the burden of household energy consumption quantity, quality, and expenditure. The energy poverty issue may exacerbate social wealth disparities, increase health risks among vulnerable groups, intensify social inequities, and damage natural ecosystems, thereby severely hindering economic development, social progress, environmental protection, and sustainable development. Digital inclusive finance can leverage digital technologies to achieve "targeted delivery" and "low-cost coverage" of financial services, providing more accessible, affordable, secure, and efficient financial solutions for populations traditionally underserved by conventional inclusive finance. This approach helps increase household income and alleviate energy poverty. This study constructs a multidimensional composite index for energy poverty and employs the entropy method to measure energy poverty levels across 30 Chinese provinces from 2011 to 2022, followed by spatiotemporal evolution analysis. Utilizing the Peking University Digital Inclusive Finance Index, we theoretically analyze and empirically test the impact mechanisms of digital inclusive finance development on energy poverty. Key findings include: 1) Digital inclusive finance development significantly alleviates energy poverty, with results remaining robust after rigorous testing while demonstrating regional heterogeneity; 2) The mechanisms primarily operate through household income growth and energy consumption transition. Based on these conclusions, policy recommendations are proposed: establishing long-term energy poverty alleviation mechanisms, enhancing financial literacy education and digital skills training, and optimizing regional digital inclusive finance policies according to local conditions.

Keywords

Digital Inclusive Finance, Energy Poverty, Mediation Effect Test