ABSTRACT

As a product of financial innovation and technology, digital finance can promote high-quality economic development and green societal transformation, which is crucial for achieving China's "dual carbon" goal (carbon peaking and carbon neutrality). This paper empirically analyzes the relationship between digital finance development and carbon emissions, along with its underlying mechanisms, using panel data from 278 prefecture-level cities in China from 2011 to 2020. The study finds that digital finance development has a significant inhibitory effect on carbon emissions. The mechanism analysis reveals that digital finance contributes to this reduction by promoting green development, enhancing technological innovation, advancing marketization, and upgrading the industrial structure. Furthermore, a heterogeneity analysis reveals that the effect is heterogeneous across regions: a significant inhibitory effect is observed in the east, a promotional effect on carbon emissions in the west and northeast, and no significant effect in the central region. The paper concludes with policy recommendations, such as strengthening digital infrastructure, integrating digital and green finance, and promoting coordinated regional development to achieve the national "dual carbon" goal

Keywords: Digital finance; carbon emission reduction; green finance; technological innovation