

Article

Enabler or Divider? The Enabling Effects and Digital Divide Consequences of Digital Inclusive Finance on Regional Entrepreneurship

Tong Wu ^{1,*} and Chenghui Tang ²¹ School of Economics, Wuhan Business University, Wuhan 430056, China² School of Urban and Regional Science, Shanghai University of Finance and Economics, Shanghai 200433, China; chenghuitang@outlook.com

* Correspondence: 20231126@wbu.edu.cn

Abstract

This study investigates the impact of digital inclusive finance on regional entrepreneurship using panel data from 327 Chinese cities spanning 2011 to 2023. Employing bidirectional fixed effects models, mediation analysis, and heterogeneity analysis, we find that digital inclusive finance significantly boosts regional entrepreneurial activity, a result that remains robust after addressing endogeneity and replacing core indicators. Mechanism analysis reveals that digital inclusive finance promotes entrepreneurship through three primary channels: alleviating credit constraints, enhancing financial service efficiency, and fostering technological innovation. Heterogeneity tests further indicate that the promotional effect is most pronounced in economically developed large cities in eastern China, while its impact remains limited in small and medium-sized cities in central and western regions. Consequently, the development of digital finance has, to some extent, widened the regional “digital divide”. These findings suggest that while digital inclusive finance is a powerful tool for economic vitality, policymakers must implement differentiated strategies to prevent exacerbated regional imbalances and ensure coordinated entrepreneurial development.

Keywords: digital inclusive finance; entrepreneurship; financing constraints; technological innovation; digital divide; China

1. Introduction

Since the beginning of the 21st century, rapid advances in information technology have accelerated a new wave of technological and industrial transformation. The rise in emerging economies alongside the relative decline of traditional developed economies has reshaped the global economic landscape toward increasing multipolarity (S. Feng et al., 2024). As traditional growth drivers weaken and demographic dividends gradually diminish, development models reliant on conventional factor inputs have become increasingly unsustainable. In this context, transitioning toward innovation-driven growth has emerged as a critical strategy for economies such as China seeking high-quality development (X. Wang, 2019). Innovation and entrepreneurship play a central role in this transformation. For emerging economies, prioritizing resources, policy support, and institutional reforms to foster entrepreneurial activity is not only strategically important but also urgently required (X. Zhang & Zhao, 2017). Moreover, cultivating entrepreneurial capital requires institutional support across multiple levels, ranging from government policies to the education system (Teodoro & Bernadó, 2025). Meanwhile, the steady rise



Academic Editor: Angela Roman

Received: 22 June 2026

Revised: 19 July 2026

Accepted: 22 July 2026

Published: 5 August 2026

Copyright: © 2026 by the authors.

Licensee MDPI, Basel, Switzerland.

This article is an open access article distributed under the terms and conditions of the [Creative Commons Attribution \(CC BY\)](https://creativecommons.org/licenses/by/4.0/) license.

in university graduates and mounting employment pressures have intensified challenges to sustainable economic and social development (Yin et al., 2025). Against this backdrop, the Chinese government has introduced a series of policy initiatives, including the State Council's Opinions on Promoting Mass Entrepreneurship and Innovation through Several Policy Measures, aimed at stimulating entrepreneurship, encouraging innovation, and promoting industrial restructuring.

Despite these efforts, small and medium-sized enterprises (SMEs) continue to face structural financing constraints characterized by limited access to credit and high borrowing costs. Traditional financial systems, constrained by information asymmetry, risk aversion, and collateral requirements, tend to favor large firms, thereby exacerbating SMEs' financing difficulties (Sanga & Aziakpono, 2023). The digital transformation is fundamentally reshaping this landscape. Sussan and Acs (2017) introduced the digital entrepreneurial ecosystem (DEE) concept, integrating digital infrastructure and user agency into traditional institutional and agent-based frameworks. The integration of digital technologies, such as cloud computing, big data, and artificial intelligence, into financial services has, however, accelerated the development of digital inclusive finance. Owing to its low cost, broad coverage, and deep penetration, digital inclusive finance has emerged as a key mechanism for revitalizing microeconomic entities and has attracted growing attention from scholars and policymakers (F. Guo, 2020). In March 2025, China's central government further emphasized the importance of strengthening inclusive finance in the Guiding Opinions on Doing Well the Five Major Tasks in Finance, calling for enhanced financial support for SMEs to better serve the real economy.

However, existing research on the relationship between digital inclusive finance and regional entrepreneurship remains limited in several respects. First, theoretical integration remains insufficient. Existing research primarily draws on financial constraint theory to explain the entrepreneurial effects of digital finance, while few studies combine entrepreneurial opportunity theory, entrepreneurial ecosystem theory, and digital finance theory to systematically reveal how digital inclusive finance, as a digital ecosystem resource, influences the formation of entrepreneurial opportunities and the regional entrepreneurial environment (Shane, 2003; Stam & van de Ven, 2021). Second, the underlying mechanisms have not yet been fully explored. While existing research emphasizes that digital inclusive finance can alleviate financing constraints and reduce information asymmetry, there remains a lack of in-depth analysis regarding the multiple pathways through which it influences entrepreneurial activities by enhancing the efficiency of financial resource allocation, promoting technological innovation, and strengthening resource connectivity (Goldfarb & Tucker, 2019; Huan, 2025). Furthermore, regional heterogeneity and spatial boundary conditions require further exploration. Given that entrepreneurial ecosystems exhibit significant spatial embeddedness, the enabling effects of digital finance are influenced by regional economic foundations, industrial structures, digital infrastructure, and institutional environments (Yu et al., 2024). In particular, when a "shadow clustering effect" emerges in regions with strong entrepreneurial ecosystems (Leendertse et al., 2025), there remains a lack of sufficient theoretical explanations and empirical tests regarding whether digital inclusive finance can overcome spatial constraints and promote the optimization of entrepreneurial ecosystems in disadvantaged regions.

This study makes three primary contributions. **First**, existing research largely examines the socioeconomic effects of digital finance or the digital economy from a credit-capital perspective, with entrepreneurship typically framed in terms of returning migrant workers or small and medium-sized enterprises. By contrast, this study adopts a city-level perspective and employs two-way fixed effects and mediation models to examine the multidimensional impact of the Digital Inclusive Finance Index and its three components

(coverage breadth, usage depth, and digitalization level) on regional entrepreneurial activity. This approach provides systematic empirical evidence on the direct relationship between digital inclusive finance and urban entrepreneurship. **Second**, Previous studies have primarily used survey data to examine the impact of digital finance on household or individual innovation and entrepreneurship from a micro-level perspective; however, these studies generally have small sample sizes and are subject to a degree of subjectivity, making it difficult to comprehensively and accurately reveal the socioeconomic effects of digital inclusive finance. **Third**, whereas prior studies often focus on a single transmission channel, this paper investigates the underlying mechanisms through three complementary dimensions: credit supply, financial efficiency, and technological innovation. The results show that digital inclusive finance promotes regional entrepreneurship by alleviating financing constraints, improving the efficiency of financial resource allocation, and stimulating innovation. These findings deepen understanding of how digital finance shapes entrepreneurial dynamics and extend the literature on finance and innovation. **Fourth**, this study challenges the simplistic assumption that digital technologies are “inclusive” and establishes new boundary conditions for the application of entrepreneurial ecosystem theories—such as the “shadow effect” proposed by [Leendertse et al. \(2025\)](#)—in the field of digital finance. Specifically, the catalytic effect of digital finance is highly dependent on the region’s existing economic foundation, industrial infrastructure, and digital infrastructure. **Finally**, this study documents pronounced spatial heterogeneity in the effects of digital inclusive finance. Its entrepreneurial promotion effect is significantly stronger in economically developed large cities, while the impact remains relatively weak in less developed small and medium-sized cities. As a result, digital inclusive finance may inadvertently widen regional disparities in entrepreneurial activity, reinforcing the “digital divide”. These findings highlight the importance of designing differentiated policy interventions to foster balanced and coordinated regional development.

2. Literature Review and Research Hypotheses

Within the traditional financial system, SMEs have long faced structural disadvantages due to their small scale, dispersed operations, and limited risk-bearing capacity, which restrict their access to formal credit ([C. Zhang et al., 2024](#)). Recent advances in information technology, including big data, cloud computing, and digital platforms, have transformed financial service delivery. Internet-based finance has reduced transaction costs and significantly expanded both the scope and accessibility of financial services ([F. Guo & Xiong, 2021](#)). As a digitally driven extension of inclusive finance, digital finance has emerged as an important complement to traditional financial systems, providing critical capital support for entrepreneurial activities and attracting substantial scholarly attention.

[Audretsch et al. \(2015\)](#) show that digital infrastructure, such as broadband internet, can stimulate entrepreneurial activity. [X. Zhang et al. \(2019\)](#) find that the development of digital finance associated with the internet revolution narrows regional disparities linked to digital infrastructure and financial literacy. Meanwhile, the expansion of digital finance has facilitated the emergence of new business models. SMEs and individual entrepreneurs are able to respond more quickly to evolving market demand, particularly in platform-based and gig-economy contexts ([C.-Y. Zhang et al., 2024](#)). These findings suggest that digital inclusive finance may foster entrepreneurial activity. Consequently, we propose the following hypothesis:

Hypothesis 1. *Digital inclusive finance promotes entrepreneurial activity.*

Beyond its direct effect, digital inclusive finance may influence regional entrepreneurship through several transmission channels. First, by lowering financing costs and easing

access to credit, digital inclusive finance mitigates the “difficult and expensive financing” constraints embedded in traditional financial systems (J. Yang et al., 2022). For farmers, improved information access and enhanced social trust help alleviate credit constraints (C. Zhang et al., 2024). For potential entrepreneurs, digital inclusive finance lowers entry barriers and reduces capital thresholds, thereby easing financial constraints on new venture creation (D. W. Feng et al., 2020).

Second, digital inclusive finance promotes innovation by correcting financial mismatches and improving capital allocation efficiency (Zhao et al., 2021). At the firm level, digital technologies enable more accurate evaluation of research and development (R&D) projects, improving capital utilization and strengthening innovation feasibility (Huang et al., 2017). Bu et al. (2023) find that digital inclusive finance alleviates financing constraints associated with short-term borrowing for long-term investment, expands innovation investment, and curbs inefficient capital allocation. Similarly, Li et al. (2024) report that digital inclusive finance significantly enhances innovation and entrepreneurial performance among private enterprises. At the macro level, digital platforms reduce geographical barriers to the flow of knowledge and technology, facilitate cross-regional integration, and generate spatial spillovers (J. Hu et al., 2024; X. Yang et al., 2022).

Third, digital inclusive finance expands service coverage and improves financial efficiency by leveraging mobile communications, big data analytics, and digital platforms. These innovations reduce geographic constraints, lower service costs, and narrow the urban–rural financial gap (F. Wang & Wang, 2024). Using newly registered firms as a proxy for entrepreneurship, Xie et al. (2018) provide evidence that digital finance stimulates entrepreneurial activity through broader service coverage and reduced transaction costs. Moreover, improved data analytics enable financial institutions to assess borrower risk more accurately, streamline loan approval processes, and better match credit supply with entrepreneurial demand. Consequently, we propose the following hypothesis:

Hypothesis 2. *Digital inclusive finance promotes regional entrepreneurial activity by enhancing credit supply, technological innovation, and financial efficiency.*

Existing research also suggests that the impact of digital inclusive finance is heterogeneous across regions, firm types, and socioeconomic groups. Du and Zhao (2023) finds that the effect of digital finance on innovation and entrepreneurship varies regionally. J. Yang et al. (2022) show that the easing of financing constraints is more pronounced among low-income groups and in regions with underdeveloped traditional financial systems. Zhou (2023) demonstrates that the inclusive effect of digital inclusive finance strengthens as firm size decreases. In addition, digital infrastructure has a stronger positive effect on urban entrepreneurship, with the composite digital inclusive finance index playing a key mediating role (G. H. Hu & Zhao, 2022).

However, other evidence suggests that digital finance may develop more rapidly in less developed regions and significantly increase household income, particularly among low-income rural populations (X. Zhang et al., 2019). Furthermore, among the sub-dimensions of digital inclusive finance, usage depth appears to exert a stronger effect on reducing financing barriers and improving capital allocation than coverage breadth or digitalization level (J. Zhang et al., 2022). These findings imply that the entrepreneurial effects of digital inclusive finance may differ across regions and city sizes. Consequently, we propose the following hypothesis:

Hypothesis 3. *Digital inclusive finance exerts heterogeneous effects on entrepreneurial activity across regions and cities of different sizes.*

3. Model Specification and Data Sources

3.1. Model Specification

To test the theoretical framework outlined above, this study employs a two-way fixed effects model to examine the impact of digital inclusive finance on regional entrepreneurial activity. This specification controls for unobserved, time-invariant city characteristics and common time shocks, thereby mitigating omitted-variable bias and improving identification.

The baseline model is specified as follows:

$$\ln innov_{it} = \alpha_0 + \alpha_1 \ln dfi_{it} + \gamma control_{it} + \mu_i + \nu_t + \varepsilon_{it} \quad (1)$$

In Equation (1), i indexes cities and t indexes years. The dependent variable $innov_{it}$ measures regional entrepreneurial activity. The key explanatory variable dfi_{it} represents the level of digital inclusive finance. $control_{it}$ denotes a vector of control variables. α_0 , α_1 , and γ are parameters to be estimated. μ_i captures city fixed effects, ν_t captures year fixed effects, and ε_{it} is the idiosyncratic error term.

3.2. Variable Definitions

Based on the econometric framework above, this study defines the dependent variable, core explanatory variable, and control variables as follows (see Table 1 for descriptive statistics).

Table 1. Descriptive statistics.

Variable	Observations	Mean	Standard Deviation	Min	Max
Entrepreneurial activity	4251	10.44618	1.067214	3.82864	14.2448
Digital inclusive finance index	4251	5.139634	0.703655	0.182322	5.92217
Coverage breadth	4251	5.104403	0.708503	−0.16252	6.01191
Usage depth	4251	5.103999	0.610071	0.48858	5.87016
Digitalization level	4251	5.315916	0.642608	0.993252	6.36515
Industrial structure level	4251	1.177752	0.756827	0.113611	12.901
Economic development (GDP per capita)	4251	10.77268	0.557005	8.78845	12.4819
Urbanization rate	4251	4.093837	0.249658	3.1123	4.60317
Population density	4251	5.494132	1.250989	−1.20523	8.00803
Capital investment	4251	10.68652	0.922	4.68283	14.1018
Degree of openness	4251	0.16593	0.27549	0	2.4913
Disposable income	4251	10.24921	0.393341	8.08948	11.4017
Level of informatization	4251	13.21915	2.025408	0.693147	16.5473
Road density	4251	1.298465	3.369281	0.023525	65.0173
Human capital	4251	0.017829	0.018472	0	0.137303
Credit supply	4251	10.73361	0.877553	6.523959	15.23524
Financial efficiency	4251	1.001	0.327	0.027	4.277
Technological innovation level	4251	7.219616	2.018889	0	12.5396

(1) Entrepreneurial activity

Entrepreneurial activity serves as the primary dependent variable and is intended to capture regional entrepreneurial vitality. Following Xie et al. (2018), this study measures entrepreneurship using the number of newly registered enterprises in each city-year. This indicator balances data availability, comparability across regions, and conceptual relevance.

(2) Digital inclusive finance index

The core explanatory variable is the Digital Inclusive Finance Index compiled by Peking University's Digital Finance Research Center (F. Guo, 2020). The index is widely used in empirical research due to its comprehensiveness, balance, and comparability. It

consists of three sub-dimensions: coverage breadth, usage depth, and digitalization level. Coverage breadth reflects the extent of financial access (e.g., number of electronic accounts); usage depth captures the frequency and diversity of digital financial service applications; and digitalization level reflects service convenience, accessibility, and transaction efficiency.

(3) Control variables

Following the existing literature, the model includes the following control variables:

Industrial structure level, measured as the ratio of tertiary industry value-added to secondary industry value-added. Economic development level, proxied by per capita gross domestic product. Urbanization rate, defined as the share of permanent urban residents in the total population. Population density, calculated as total population divided by land area. Capital investment, measured as the ratio of total fixed-asset investment to gross domestic product. Degree of openness, measured as the ratio of total imports and exports to gross domestic product. Disposable income, calculated as the weighted average of urban and rural per capita disposable income based on population shares. Level of informatization, measured by broadband subscribers as a share of total population. Human capital, proxied by the ratio of full-time higher education students to year-end population. Highway density, calculated as total highway mileage divided by land area.

(4) Mechanism variables

To examine transmission channels, three mediating variables are introduced: Credit supply, measured as per capita loan balance, following [Zhou \(2023\)](#). Financial efficiency, measured as the ratio of total outstanding loans to total deposits at year-end, following [X. Zhang and Zhao \(2017\)](#). Because data on capital flows between cities are difficult to obtain, this study divides this ratio by the national average to construct a measure of urban financial efficiency, thereby mitigating the impact of cross-regional capital flows. Technological innovation level, measured as the ratio of patent grants to total population, following [Y. Feng and Cai \(2021\)](#).

3.3. Data Sources

To ensure data consistency and comparability, this study constructs an unbalanced panel dataset covering 327 Chinese cities over the period 2011–2023. The sample period accounts for administrative adjustments and data availability constraints. The data for the Innovation and Entrepreneurship Index and the Digital Inclusive Finance Index are relatively comprehensive, while data for other control variables are obtained from the China Urban Statistical Yearbook (2011–2023), the China Statistical Yearbook (2011–2023), the official website of the National Bureau of Statistics, and provincial and municipal statistical yearbooks, a small portion of missing data was supplemented using interpolation.

4. Empirical Analysis

4.1. Benchmark Regression Results

To ensure the reliability and validity of the benchmark regression estimates, this study conducts three standard diagnostic tests: multicollinearity, serial correlation, and heteroskedasticity. The results show that the mean Variance Inflation Factor (VIF) for the benchmark model is 1.66, with a maximum value of 3.37, both well below the conventional threshold of 10, indicating no multicollinearity concerns. The Breusch–Godfrey (BG) test yields a p -value of 0.001, rejecting the null hypothesis of no serial correlation at the 1 percent significance level. The White test produces a p -value of 0.000, rejecting the null hypothesis of no heteroskedasticity at the 1 percent level and suggesting the presence of heteroskedasticity. Accordingly, robust standard errors are employed to correct for potential estimation bias. In addition, to mitigate omitted-variable bias and endogeneity

arising from unobserved individual heterogeneity and time-varying effects, the benchmark specification incorporates two-way fixed effects. At the same time, this study employed two-way clustered robust standard errors by city and year in the baseline regression to enhance the reliability of the regression results. Column 1 reports results without control variables, Column 2 includes the full set of controls, and Column 3 further introduces both control variables and two-way fixed effects (Table 2).

Table 2. Baseline regression results: Digital inclusive finance and entrepreneurial activity.

Variable	Model 1	Model 2	Model 3
Digital inclusive finance	0.606 *** (18.55)	0.229 *** (11.38)	0.031 * (1.82)
Industrial structure level		0.068 ** (2.05)	0.056 * (1.84)
Economic development		0.06 (0.95)	0.345 *** (4.57)
Urbanization rate		0.273 *** (6.41)	−0.186 (−1.12)
Population density		0.361 *** (26.92)	0.258 (0.98)
Capital investment		−0.073 *** (−4.34)	0.046 ** (2.17)
Degree of openness		0.001 *** (−4.99)	0.001 (−0.37)
Disposable income		0.659 *** (8.80)	−0.239 (−1.25)
Level of Informatization		0.1 *** (7.18)	0.002 (0.20)
Road density		0.004 *** (2.02)	0.02 * (1.90)
Human capital		2.409 *** (3.30)	7.959 *** (3.19)
Constant	7.329 *** (43.14)	−1.905 *** (−4.93)	7.299 *** (3.74)
Observations	4251	4251	4251
Year fixed effects	No	No	Yes
City fixed effects	No	No	Yes
Adjusted R ²	0.160	0.554	0.704

Note: Robust *t*-statistics are reported in parentheses. *** $p \leq 0.01$, ** $p \leq 0.05$, and * $p \leq 0.10$.

In the two-way fixed effects model, the coefficient on digital inclusive finance is positive and statistically significant. A one-percentage-point increase in digital inclusive finance is associated with a 0.031 percentage-point increase in entrepreneurial activity, indicating that digital inclusive finance significantly promotes regional entrepreneurship. As digital technologies continue to evolve, financial services have become more diverse and accessible, enabling greater credit support for SMEs. This expansion of access helps meet financing needs and reduce transaction costs, thereby stimulating entrepreneurial activity. In particular, digital inclusive finance leverages its low-cost and wide-coverage characteristics to provide credit services that are traditionally difficult for SMEs to obtain,

such as WeBank's WeLoan, effectively lowering financial barriers to entrepreneurship. These results provide empirical support for Hypothesis 1.

With respect to the control variables in Model 3, economic development exhibits a significant positive effect, suggesting that economically advanced regions retain a strong resource advantage. Larger market scale and more complete industrial chains enable these regions to translate digital inclusive finance into higher levels of entrepreneurial activity. Human capital also shows a significantly positive coefficient, indicating that, after controlling for city and time effects, the complementarity between human capital and digital inclusive finance becomes more pronounced. By contrast, the degree of openness is not statistically significant, implying that regions with high trade dependence but less developed industrial structures may be more vulnerable to external shocks. Consequently, the effect of openness on entrepreneurial activity differs across cities with varying levels of trade integration.

4.2. Robustness Checks

Building on the benchmark regression results, this study conducts robustness tests along two dimensions. First, to address potential endogeneity concerns in the baseline specification, an instrumental variable approach is employed. To enhance the effectiveness of the instrumental variable and mitigate reverse causality issues, this study follows the approach of Feyrer (2019) by multiplying a city's historical Internet penetration rate in 1984 by the national Internet penetration rate one period behind, thereby constructing a time-varying instrumental variable at the city level. The core advantages of this strategy are as follows: (1) the historical predeterminant is independent of the current-period disturbance term, fundamentally eliminating reverse causality issues; (2) the time-varying interaction term design allows for the control of city fixed effects, thereby eliminating time-invariant omitted variable bias; and (3) the identification logic chain is clearly defined as: historical infrastructure → broadband deployment → digital financial inclusion → entrepreneurial activity, with no independent alternative impact pathways. The instrumental variable estimates yield coefficients and significance levels that are largely consistent with the benchmark results, confirming the robustness of the main findings. Moreover, the first-stage F-statistics exceed the conventional threshold of 10 by a substantial margin, indicating no weak-instrument problem. Furthermore, considering that non-financial channels—such as e-commerce and the platform economy—are conceptually inseparable from digital finance, we included e-commerce activity and the platform economy as control variables in our instrumental variable regression. The results remained robust, further indicating that non-financial channels are not independent of the primary transmission channels of digital inclusive finance. Second, the core explanatory variable is replaced with its three sub-dimensions (coverage breadth, usage depth, and digitalization level) to further assess robustness. Models 1, 2, and 3 report the regression results for these three components, respectively. The results indicate that usage depth has the strongest and most statistically significant positive effect on entrepreneurial activity. Coverage breadth also exerts a positive, though comparatively weaker, effect, while digitalization level does not show a statistically significant impact. These findings suggest that the stimulation of entrepreneurial vitality depends primarily on the effective utilization of digital financial services, particularly through expanded credit access and more efficient online financing processes, rather than on access alone. Third, since the Chinese government implemented reforms to the registered capital registration system in 2014—which significantly lowered the barriers to business establishment and had a profound impact on corporate innovation—this study conducted separate regressions on subsamples from before and after 2014 to control for the impact of this event on the regression results. Following the 2014 commercial sys-

tem reform, the entrepreneurial promotion effect of digital inclusive finance significantly strengthened (with the coefficient rising from 0.046 to 0.294). This was primarily because the reform lowered the barriers to business registration, allowing the marginal effect of digital finance in alleviating credit constraints to be fully realized. This indicates that regulatory relaxation and the enabling power of digital technology created a complementary effect, jointly driving an increase in entrepreneurial activity (Table 3).

Table 3. Regression results: Digital inclusive finance sub-indicators and entrepreneurial activity. Variable.

Variable	Model 1	Model 2	Model 3	Prior to 2014	Since 2014
Digital finance sub-indicator	0.296 *** (12.88)	0.28 *** (12.40)	0.171 *** (6.85)	0.046 * (2.69)	0.294 *** (5.25)
Industrial structure level	0.052 (1.58)	0.066 ** (1.98)	0.078 * (2.27)	0.289 (1.61)	0.043 (0.46)
Economic development	0.017 (0.27)	0.074 (1.17)	0.101 (1.61)	0.866 (2.94)	0.004 (0.02)
Urbanization rate	0.272 *** (6.40)	0.273 ** (6.41)	0.28 *** (6.54)	0.211 * (1.77)	0.242 * (1.82)
Population density	0.36 *** (27.28)	0.348 *** (26.09)	0.364 *** (26.52)	−0.015 (−0.25)	0.325 *** (6.26)
Capital investment	−0.077 (−4.52)	−0.072 (−4.27)	−0.073 * (−4.31)	−0.024 (−0.21)	−0.029 (−0.63)
Degree of openness	0.001 (−4.64)	0.012 * (−4.29)	0.0013 (−5.39)	−0.455 (−1.93)	−0.000 *** (−4.28)
Disposable income	0.611 *** (−8.37)	0.619 *** (8.36)	0.714 *** (9.51)	−0.257 (−1.87)	0.688 *** (3.75)
Level of informatization	0.094 ** (6.83)	0.1 (7.20)	0.103 ** (7.18)	0.011 (1.32)	0.197 ** (2.11)
Road density	0.004 * (1.98)	0.004 * (1.87)	0.004 (1.87)	0.002 (0.33)	0.003 (0.69)
Human capital	2.591 *** (3.58)	2.656 *** (3.59)	2.098 *** (2.80)	5.256 (1.43)	2.070 (1.08)
Constant	−1.143 *** (−2.91)	−1.839 *** (−4.80)	−2.724 *** (−7.14)	−2.774 ** (−1.72)	−3.354 *** (−2.63)
Observations	4251	4251	4251	1308	2943
Year fixed effects	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.56	0.52	0.48	0.39	0.57

Note: Robust *t*-statistics are reported in parentheses. *** $p \leq 0.01$, ** $p \leq 0.05$, and * $p \leq 0.10$.

4.3. Mechanism Analysis

Based on the preceding theoretical framework, the effect of digital inclusive finance on regional entrepreneurial activity operates through multiple transmission channels. Owing to its low cost, broad coverage, and deep penetration, digital inclusive finance not only reduces barriers embedded in traditional financial systems but also improves resource allocation efficiency through technological advancement. Considering that using current-period mediating variables may lead to unclear causal interpretations, this paper follows the approach of Cai et al. (2022) by using credit supply, financial efficiency, and technological innovation lagged by one period as mediating variables to establish the

time-series relationships among DIF, the mediating variables, and entrepreneurial activity. At the same time, we conduct Durbin-Wu-Hausman endogeneity tests on each mediating variable in the first-stage regression to enhance the robustness of the results (Table 4).

Table 4. Regression of Digital Finance’s Impact Mechanisms on Entrepreneurial Activity.

Variable	One-Period Lagged Credit Supply	Entrepreneurial Activity	One-Period Lagged Financial Efficiency	Entrepreneurial Activity	One-Period Lagged Technological Innovation	Entrepreneurial Activity
Digital inclusive finance	0.017 ** (2.53)	0.023 * (1.82)	0.086 * (1.93)	0.032 * (1.81)	0.162 ** (3.30)	0.196 *** (9.82)
Mediating variable		0.021 ** (2.19)		0.012 *** (6.04)		0.287 *** (7.83)
Industrial structure level	−0.034 (−0.99)	−0.046 (−1.84)	−0.011 ** (−2.69)	−0.056 * (−1.84)	−0.068 (−0.16)	0.088 (−0.87)
Economic development	0.231 ** (2.22)	0.364 *** (4.58)	0.027 ** (2.01)	0.344 *** (4.55)	0.991 ** (13.10)	−0.225 *** (−3.83)
Urbanization rate	0.074 (0.32)	0.168 (1.12)	0.064 (2.95)	−0.185 (−1.11)	0.343 ** (4.54)	0.175 *** (4.86)
Population density	−0.068 (−0.39)	0.238 (0.98)	−0.039 (−0.67)	0.258 (0.98)	0.746 ** (35.41)	0.146 *** (10.84)
Capital investment	0.028 ** (2.84)	0.036 ** (2.16)	0.013 * (1.95)	0.046 ** (2.16)	−0.342 (−0.85)	−0.025 (−0.87)
Degree of openness	0.011 *** (−0.99)	0.013 (−0.39)	0.011 (0.98)	0.012 (−0.37)	0.012 (0.80)	0.011 * (−1.85)
Disposable income	−0.053 (−0.33)	0.291 (−1.25)	−0.059 (−0.82)	−0.239 (−1.25)	1.016 *** (9.14)	0.367 *** (5.52)
Level of informatization	0.014 (1.19)	0.012 (0.20)	−0.063 (−0.99)	−0.002 (−0.20)	0.172 *** (8.83)	0.051 *** (4.20)
Road density	0.012 * (1.88)	0.03 * (1.90)	0.801 * (1.77)	0.02 * (1.91)	−0.011 (−0.54)	0.008 (0.96)
Human capital	2.887 * (1.53)	0.063 * (1.20)	0.077 * (2.00)	0.097 *** (3.20)	7.981 (0.40)	0.115 (0.19)
Constant	13.249 *** (6.43)	0.031 * (1.82)	0.076 (1.93)	7.306 *** (3.74)	−18.816 *** (−27.56)	3.503 *** (8.95)
Observations	4261	4261	4261	4261	4261	4261
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.41	0.56	0.47	0.53	0.38	0.64

Note: Robust t-statistics are reported in parentheses. *** $p \leq 0.01$, ** $p \leq 0.05$, and * $p \leq 0.10$.

First, when one-period lagged credit supply is introduced as the mediating variable, digital inclusive finance has a significantly positive effect on one-period lagged credit availability. In turn, one-period lagged credit supply is positively and significantly associated with entrepreneurial activity. This suggests that the development of digital inclusive finance alleviates financing constraints faced by small and medium-sized enterprises (SMEs), expands access to credit, and strengthens regional capital provision. Since capital is a fundamental input for entrepreneurial activities, improved credit access reduces information asymmetry between borrowers and lenders, diversifies financing channels, and stimulates regional entrepreneurship.

Second, when one-period lagged financial efficiency is treated as the mediator, digital inclusive finance significantly enhances one-period lagged financial efficiency. Through the application of big data analytics and artificial intelligence technologies, digital inclusive finance reduces information frictions and temporal and spatial constraints, thereby improving the efficiency of financial intermediation. One-period lagged financial efficiency, in turn, has a significant positive effect on entrepreneurial activity. Moreover, the coefficient of digital inclusive finance remains significant, indicating both direct and indirect effects. This finding supports Hypothesis 2 and confirms that improvements in financial efficiency constitute an important transmission mechanism.

Third, when one-period lagged technological innovation is included as the mediating variable, digital inclusive finance exhibits a significantly positive impact on regional innovation levels. By facilitating access to low-cost funding for research and development activities, such as technology-oriented loans and intellectual property-backed financing, digital inclusive finance enhances firms' innovation capacity. This mechanism is consistent with [H. Guo et al. \(2025\)](#), who show that digital finance strengthens corporate innovation capabilities and improves total factor productivity. Technological innovation, in turn, significantly promotes entrepreneurial activity by generating new technologies, business models, and market opportunities. These findings further expand the understanding of how digital finance influences entrepreneurship through innovation-driven channels.

4.4. Heterogeneity Analysis

(1) Regional heterogeneity

Given substantial differences in economic foundations and digital infrastructure across regions, the effect of digital inclusive finance on entrepreneurial activity may vary geographically. To examine this possibility, the sample is divided into four regions: Northeast, East, Central, and West, and separate regressions are conducted for each group (Table 5). The results indicate that digital inclusive finance promotes entrepreneurial activity in all regions, although the magnitude of the effect differs. The impact is strongest in the Eastern region and weakest in the Western region. The effect in the Northeast is significantly smaller than in the Eastern and Central regions, though slightly stronger than in the Western region. The Eastern region's more developed economic structure, mature industrial system, and favorable market environment likely enhance the effectiveness of digital inclusive finance in stimulating entrepreneurship.

In contrast, the entrepreneurial empowerment effect of digital inclusive finance in the Northeast appears relatively limited. Structural challenges in the Central and Western regions, such as fragmented industrial chains, talent outflow, weaker policy support, and lower market demand, may constrain the transmission of digital finance benefits. These disparities contribute to the widening digital divide between economically developed and less developed regions. The findings are consistent with [F. Guo \(2020\)](#) and [X. Zhang et al. \(2019\)](#), who document significant regional variation in the economic effects of digital finance. Differences in digital infrastructure and financial literacy are likely key drivers of these heterogeneous outcomes ([Ge et al., 2023](#)).

(2) Urban scale heterogeneity

In addition to regional differences, cities of varying sizes may experience heterogeneous effects due to disparities in digital penetration, entrepreneurial ecosystems, and resource endowments. Following the State Council's Notice on Adjusting the Classification Standards for Urban Sizes (2014) and the methodology of [Xu et al. \(2022\)](#), cities are classified as small (population below 1 million), medium-sized (1–3 million), and large (above 3 million) (Table 6).

Table 5. Regression results: Regional heterogeneity.

Variable	Northeast	Eastern	Central	Western
Digital inclusive finance	0.0418 * (2.47)	0.091 *** (4.07)	0.065 * (1.67)	0.022 ** (2.17)
Industrial structure level	0.164 * (1.88)	0.073 * (1.99)	0.02 (0.41)	−0.04 (−1.23)
Economic development	0.113 * (1.46)	0.363 ** (2.55)	0.257 ** (2.40)	0.278 * (1.96)
Urbanization rate	0.001 (0.01)	−0.196 (−0.61)	−0.179 (−0.95)	−0.137 (−0.60)
Population density	1.517 ** (2.34)	0.648 (0.90)	0.005 (0.01)	0.017 (0.13)
Capital investment	0.371 ** (2.55)	0.05 * (1.90)	−0.011 (−0.23)	0.004 (0.07)
Degree of openness	−0.141 (−0.39)	0.01 (0.13)	−0.278 (−1.04)	−0.02 (−0.17)
Disposable income	−0.175 (−0.52)	−0.533 ** (−2.24)	0.522 *** (4.36)	0.076 (0.33)
Level of Informatization	0.04 (1.10)	0.098 (1.57)	0.005 (1.19)	−0.032 (−0.92)
Road density	−0.998 (−1.26)	−0.268 (−1.38)	0.062 ** (2.47)	−0.014 ** (−2.18)
Human capital	31.07 ** (2.51)	6.071 * (1.62)	6.482 *** (3.80)	5.634 (1.36)
Constant	2.31 *** (3.59)	6.598 (1.40)	2.535 *** (0.88)	6.589 *** (2.75)
Observations				
Year fixed effects	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes
Adjusted R ²	0.58	0.39	0.41	0.47

Note: Robust *t*-statistics are reported in parentheses. *** $p \leq 0.01$, ** $p \leq 0.05$, and * $p \leq 0.10$.

The results reported in Table 6 show a clear declining pattern in the entrepreneurial promotion effect of digital inclusive finance as city size decreases. The positive effect is strongest and most robust in large cities, weaker in medium-sized cities, and statistically insignificant in small cities. Large cities benefit from stronger policy support, deeper markets, and more advanced digital infrastructure, which enhance the utilization and effectiveness of digital inclusive finance.

By contrast, small cities often face limited digital infrastructure, lower levels of digital literacy, fragmented demand, and less developed industrial chains. As a result, the enabling effects of digital inclusive finance are less effectively transmitted, potentially widening entrepreneurial disparities across city tiers and reinforcing the urban digital divide. These findings are consistent with observable patterns: major metropolitan areas such as Beijing, Shanghai, Guangzhou, and Shenzhen exhibit deeper usage and broader application of digital financial services, whereas smaller cities lag in digital adoption and entrepreneurial support capacity.

Table 6. Regression results: Urban scale heterogeneity.

Variable	Large Cities	Medium-Sized Cities	Small Cities
Digital inclusive finance	0.041 ** (2.03)	0.033 * (0.63)	0.018 (0.67)
Industrial structure level	−0.046 (−0.85)	0.009 (0.21)	−0.012 (−0.30)
Economic development	0.221 *** (2.86)	0.41 *** (4.39)	0.572 * (1.92)
Urbanization rate	−0.249 (−1.38)	−0.233 (−1.18)	0.474 (0.94)
Population density	0.338 (0.93)	1.059 ** (2.04)	−0.038 (−0.27)
Capital investment	0.068 ** (2.58)	0.001 (0.03)	0.027 (0.20)
Degree of openness	−0.011 ** (−2.54)	−0.105 (−1.16)	0.017 (0.10)
Disposable income	0.258 ** (−2.29)	0.137 (0.95)	−0.811 (−1.12)
Level of informatization	0.101 (1.15)	0.049 (0.41)	−0.002 (−0.22)
Road density	3.486 ** (2.02)	12.217 *** (3.25)	27.017 (1.68)
Human capital	0.041 ** (2.03)	0.033 * (0.63)	0.018 (0.67)
Constant	8.831 *** (3.39)	1.908 *** (2.70)	7.404 * (1.76)
Observations	2305	1526	
Year fixed effects	Fixed	Fixed	Fixed
City fixed effects	Fixed	Fixed	Fixed
Adjusted R ²	0.58	0.67	

Note: Robust *t*-statistics are reported in parentheses. *** $p \leq 0.01$, ** $p \leq 0.05$, and * $p \leq 0.10$.

5. Conclusions and Discussion

5.1. Conclusions

As a digitally driven extension of inclusive finance, digital inclusive finance exerts a profound influence on socioeconomic development. Using panel data from Chinese cities and applying two-way fixed effects models, mediation analysis, and heterogeneity analysis, this study examines its impact on entrepreneurial activity, the underlying transmission mechanisms, and regional variation. The findings provide empirical evidence to inform the optimization of digital inclusive finance policies and the promotion of entrepreneurial development. Three main conclusions emerge:

First, digital inclusive finance significantly enhances regional entrepreneurial activity, and this result remains robust after addressing potential endogeneity concerns. In addition, its three sub-dimensions: coverage breadth, usage depth, and digitalization level, also exert positive effects on entrepreneurial activity, further confirming the robustness of the main findings.

Second, digital inclusive finance promotes entrepreneurship through multiple transmission channels. By alleviating credit constraints and reducing information asymmetry, it lowers financing costs and improves financial efficiency, thereby expanding capital availability for entrepreneurial ventures. At the same time, it supports technological innovation by facilitating funding for research and development, which in turn stimulates new business models and market opportunities.

Third, the impact of digital inclusive finance exhibits pronounced regional heterogeneity, contributing to a widening digital divide. The entrepreneurial promotion effect is strongest in large cities within economically developed eastern regions, where mature industrial systems, larger markets, and supportive policy environments enhance the effectiveness of digital finance. In contrast, smaller cities in central and western regions face structural constraints, including weaker infrastructure and limited market scale, that dampen the entrepreneurial impact of digital inclusive finance. As a result, disparities in entrepreneurial dynamism across regions and city sizes may be further amplified.

5.2. Discussion

This study conceptualizes digital inclusive finance as a key external enabling factor and examines its differentiated role across regions at varying levels of development. This approach resonates with the concept of “external enablers” proposed by Davidsson (2015), shifting the analytical focus from the objective existence of local entrepreneurial opportunities toward how external enabling factors are differentially activated and utilized across regional contexts. Meanwhile, digital inclusive finance promotes entrepreneurship through multiple transmission channels. This provides empirical support for the spatial dimension of Leick et al. (2022) individual—opportunity nexus theory in the digital economy era. It suggests that the discovery and exploitation of entrepreneurial opportunities are increasingly dependent on cross-regional, non-local digital finance enablement, rather than being confined solely to local networks and resources. However, this study is subject to certain limitations. The analysis relies primarily on macro-level city data, which may not fully capture firm-level or individual behavioral responses. Future research could employ micro-level datasets, survey data, or big data approaches to further examine how digital inclusive finance influences entrepreneurial decision-making and innovation dynamics at the firm or household level.

5.3. Policy Implications

Based on the empirical findings, several policy implications emerge:

First, the development of digital inclusive finance should be further accelerated. Financial institutions should leverage big data and artificial intelligence technologies to design financial products tailored to the financing needs of entrepreneurial entities. Strengthening the integration of digital financial infrastructure with entrepreneurial service platforms can improve credit assessment accuracy and reduce financing frictions. Local governments may support this process by establishing integrated entrepreneurial information systems that consolidate data on firm operations, credit status, and research and development investment, thereby enabling more precise risk evaluation and more efficient credit allocation. In addition, coordinated platforms that combine financial support with incubation services and resource matching may enhance the effectiveness of entrepreneurial assistance.

Second, differentiated digital inclusive finance strategies are necessary to account for regional disparities. Large cities, with more developed digital infrastructure and stronger industrial bases, should focus on improving service precision and supporting innovation-intensive ventures. Deepening the integration of digital finance with science and technology sectors and strengthening cross-regional resource sharing may further enhance

entrepreneurial quality. Medium-sized cities may benefit from policies aligned with local industrial positioning, including the establishment of integrated digital entrepreneurship service platforms that combine financial, technological, and market resources. For small cities, targeted support for characteristic industrial clusters, such as agricultural processing or rural tourism, may improve the transmission of digital finance benefits and reduce regional disparities.

Third, strengthening cross-regional cooperation may help mitigate the digital divide. Establishing mechanisms that facilitate the transfer of digital finance technologies, products, and expertise from more developed to less developed regions could lower adoption costs and promote balanced development. Cross-regional credit funds and information-sharing platforms may improve capital allocation efficiency and enhance financial institutions' willingness to support entrepreneurial projects in central and western regions. Promoting coordinated development of characteristic entrepreneurial clusters can further facilitate the spatial diffusion of entrepreneurial resources.

Compared with prior studies, this paper provides systematic evidence on the mechanisms and heterogeneous effects of digital inclusive finance using long-term city-level panel data. By applying two-way fixed effects and mediation analysis, it demonstrates that digital inclusive finance stimulates entrepreneurship primarily by alleviating financing constraints, improving financial efficiency, and fostering technological innovation. At the same time, the results highlight that its effects differ significantly across regions and city sizes, with potential implications for widening the digital divide.

Author Contributions: Conceptualization, T.W.; Methodology, T.W.; Software, T.W.; Validation, T.W.; Formal analysis, C.T.; Investigation, T.W. and C.T.; Data curation, T.W. and C.T.; Writing—original draft, T.W.; Writing—review & editing, C.T.; Visualization, C.T.; Supervision, C.T. All authors have read and agreed to the published version of the manuscript.

Funding: This study was funded by the National Social Science Fund Youth Project [grant number 22CJY027].

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data is available from the authors upon reasonable request.

Conflicts of Interest: The authors declare no conflict of interest.

References

- Audretsch, D. B., Heger, D., & Veith, T. (2015). Infrastructure and entrepreneurship. *Small Business Economics*, 44(2), 219–230.
- Bu, J., Tang, L., & Li, G. (2023). Short-term loans used as long-term investment, digital inclusive finance and enterprise total factor productivity. *Journal of Shanghai University (Social Science Edition)*, 40(5), 120–140.
- Cai, Z., Shu, Y., Zhang, J., & Zeng, X. (2022). Research on the development dilemma and countermeasures faced by rural digital inclusive finance. *Frontiers in Business, Economics and Management*, 4(1), 110–113. [[CrossRef](#)]
- Davidsson, P. (2015). Entrepreneurial opportunities and the entrepreneurship nexus: A re-conceptualization. *Journal of Business Venturing*, 30(5), 674–695. [[CrossRef](#)]
- Du, N., & Zhao, J. (2023). Can digital finance promote innovation and entrepreneurship?—Evidence from 280 prefecture-level cities. *New Finance*, (3), 50–56.
- Feng, D. W., Gao, M. T., & Zhou, L. (2020). Digital inclusive finance and residential entrepreneurship: Evidence from the China Labor Force Dynamics Survey. *Journal of Financial Economics Research*, 35(1), 91–103.
- Feng, S., Yang, J., Huang, R., Fan, J., Yu, W., Bi, H., Ding, C., & Zhao, L. (2024). Crisis and order: Global transformation issues in the 21st century. *Russian Studies*, (3), 3–24.
- Feng, Y., & Cai, J. (2021). Can digital inclusive finance promote entrepreneurship?—Based on inter-provincial data and heterogeneity of industrial structure. *Modern Economic Science*, 43(1), 79–90. [[CrossRef](#)]

- Feyrer, J. (2019). Trade and income—Exploiting time series in geography. *American Economic Journal: Applied Economics*, 11(04), 1–35. [\[CrossRef\]](#)
- Ge, T., Hai, H., & Xun, Z. (2023). Digital finance and high-quality entrepreneurship: Evidence from China. *Journal of Financial Research*, 3, 74–92.
- Goldfarb, A., & Tucker, C. (2019). Digital economics. *Journal of Economic Literature*, 57(01), 3–43. [\[CrossRef\]](#)
- Guo, F. (2020). Measuring China's digital financial inclusion: Index complication and spatial characteristics. *China Economic Quarterly*, 19(4), 1401–1418.
- Guo, F., & Xiong, Y. (2021). Measurement and impact of digital financial inclusion in China: A literature review. *Chinese Review of Financial Studies*, 13(6), 12–23+117–118.
- Guo, H., Lu, M., & Gao, L. (2025). How does digital finance drive high-quality development of technology innovation enterprises: Empirical evidence from Chinese listed enterprises based on total factor productivity. *Social Sciences in Xinjiang*, (3), 18–33+169.
- Hu, G. H., & Zhao, T. T. (2022). Digital foundation, digital inclusive finance and resident entrepreneurship—Empirical analysis based on mediating effects model. *Journal of Industrial Technology and Economy*, 41(4), 122–130.
- Hu, J., Yu, L., & Fan, C. (2024). Impact of digital economy on the gap of sharing development achievement from the perspective of common prosperity. *Geographical Science*, 44(4), 610–618.
- Huan, Q. (2025). Digital inclusive finance, artificial intelligence investment, and total factor productivity. *Finance Research Letters*, 88, 109223.
- Huang, J., Henfridsson, O., Liu, M. J., & Newell, S. (2017). Growing on steroids: Rapidly scaling the user base of digital ventures through digital innovaton1. *MIS Quarterly*, 41(1), 301–314. [\[CrossRef\]](#)
- Leendertse, J., van Rijnsoever, F., & Oostveen, B. (2025). Ecosystems cast a shadow: How high-quality entrepreneurial ecosystems hamper productive entrepreneurship in neighboring regions. *Journal of Business Venturing Insights*, 23, e00533. [\[CrossRef\]](#)
- Leick, B., Falk, M. T., Eklund, M. A., & Vinogradov, E. (2022). Individual-contextual determinants of entrepreneurial service provision in the platform-based collaborative economy. *International Journal of Entrepreneurial Behavior & Research*, 28(04), 853–877. [\[CrossRef\]](#)
- Li, W., Li, E., & Cao, Y. (2024). Research on the relationship between digital inclusive finance, innovation persistence and entrepreneurial firm performance: The moderating role of top management team faultlines. *Science of Science and Management of Science and Technology*, 45(5), 141–162.
- Sanga, B., & Aziakpono, M. (2023). FinTech and SMEs financing: A systematic literature review and bibliometric analysis. *Digital Business*, 3, 100067. [\[CrossRef\]](#)
- Shane, S. (2003). A general theory of entrepreneurship: The individual-opportunity nexus. In *A General theory of entrepreneurship*. Edward Elgar Publishing.
- Stam, E., & van de Ven, A. (2021). Entrepreneurial ecosystem elements. *Small Business Economics*, 56, 809–832. [\[CrossRef\]](#)
- Sussan, F., & Acs, Z. J. (2017). The digital entrepreneurial ecosystem. *Small Business Economics*, 49, 55–73. [\[CrossRef\]](#)
- Teodoro, J., & Bernadó, E. (2025). Entrepreneurial capital creation in higher education institutions: The case of the start for future program. *Triple Helix*, 11(3), 379–411. [\[CrossRef\]](#)
- Wang, F., & Wang, Y. (2024). The historical evolution, governance dilemma, and bridging path of China's urban-rural digital divide. *China Business and Market*, 38(2), 3–12.
- Wang, X. (2019). The high-quality economic development of China's economy in the domestic and international environment. *Globalization*, (10), 45–59+134.
- Xie, X., Shen, Y., Zhang, H., & Guo, F. (2018). Can digital finance promote entrepreneurship? Evidence from China. *China Economic Quarterly*, 17(4), 1557–1580.
- Xu, Z., Chen, Z., & Zhen, M. (2022). The influence mechanism of regional integration policy on the distribution of urban talents: Take the Yangtze River Delta as an example. *Geographical Research*, 41(6), 1540–1553.
- Yang, J., Lu, Y., Li, J., & Xue, R. (2022). The impact of inclusive finance on entrepreneurship in the digital age: Evidence from Chinese household micro survey. *Journal of Management Sciences in China*, 25(11), 43–68.
- Yang, X., Zhang, N., Zhang, D., Yang, F., & Zhou, N. (2022). How does digital inclusive finance influence the level of urban innovation and entrepreneurship in the Yangtze river delta region: An empirical study from spatial Durbin model. *Journal of Suzhou University*, 37(4), 24–29.
- Yin, X., Tao, T., & Wang, G. (2025). Digital inclusive finance and university graduate employment: Evidence from the Chinese general social survey. *Finance Research Letters*, 85, 108189. [\[CrossRef\]](#)
- Yu, W., Wang, L., Liu, X., Xie, W., & Zhang, M. (2024). Can digital inclusive finance promote high-quality rural entrepreneurship? A county-level analysis from China. *Finance Research Letters*, 67, 105820. [\[CrossRef\]](#)
- Zhang, C., Zhu, Y., & Zhang, L. (2024). Effect of digital inclusive finance on common prosperity and the underlying mechanisms. *International Review of Financial Analysis*, 91, 102940. [\[CrossRef\]](#)
- Zhang, C.-Y., Cai, Q.-M., & Wei, W.-Q. (2024). Re-examination of the employment effect of the digital economy: A perspective on inclusive growth and occupational diversity. *Open Times*, (2), 190–204.

- Zhang, J., Liu, Y., & Li, L. (2022). Research on the impact of digital inclusive finance on innovation and entrepreneurship. *Modern Business*, 21(07), 75–77.
- Zhang, X., Wan, G., Zhang, J., & He, Z. (2019). Digital economy, inclusive finance, and inclusive growth. *Economic Research Journal*, 54(8), 71–86.
- Zhang, X., & Zhao, M. (2017). An analysis on the effects of innovation and entrepreneurship on efficiency-driven economies and innovation-driven economies —Based on GEM data analysis. *East China Economic Management*, 31(2), 36–42.
- Zhao, X., Zhong, S., & Guo, X. (2021). Digital inclusive finance development, financial mismatch mitigation and enterprise innovations. *Science Research Management*, 42(4), 158–169.
- Zhou, J. (2023). Inclusive effects and heterogeneous of digital inclusive finance. *Journal of South China Agricultural University (Social Sciences Edition)*, 22(6), 102–114.

Disclaimer/Publisher’s Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.