

Exploring the Evolutionary Path of Digital Financial Inclusion in Guangdong Province, China

Juan Zhang*

School of Information Management and Engineering, Neusoft Institute Guangdong, Foshan 528000, Guangdong Province, China

*Corresponding author: Juan Zhang, zhangjuan@nuit.edu.cn

Copyright: © 2024 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: This study explores the development trajectory of digital financial inclusion in 21 cities in Guangdong Province through fuzzy-set qualitative comparative analysis (fsQCA). The findings emphasize that the success of digital financial inclusion goes beyond individual dimensions, forming a systematic initiative marked by multifaceted interaction among different disciplines. In the trajectory of high-level digital inclusive finance development, the study identifies economic prosperity and technological innovation as crucial elements, highlighting their centrality, and elucidates the synergistic collaboration between market mechanisms and government guidance. Furthermore, the study emphasizes the government's pivotal role in supporting market mechanisms and guiding policies, highlighting the need to achieve a nuanced equilibrium in the digital financial inclusion strategy. In contrast, non-high-level development paths of digital inclusive finance show a spectrum of diversities, emphasizing the critical roles played by economic fundamentals, government regulation, market mechanisms, and other contextual factors in different trajectories. Regarding policy implications, the study emphasizes the comprehensive and systemic nature inherent in the development of digital inclusive finance. It proposes four policy recommendations, including integrating development strategies, emphasizing scientific and technological innovation and economic development, achieving a delicate balance between market mechanisms and government guidance, and providing precise policy support. These insights provide valuable lessons for shaping digital inclusive financial policies in Guangdong Province and beyond, offering profound insights for strategically constructing robust digital financial ecosystems.

Keywords: Digital inclusive finance; Impact pathways; Economic development level; Technological innovation; Fuzzy-set qualitative comparative analysis (fsQCA)

Online publication: February 25, 2024

1. Introduction

Digital inclusive finance, propelled by technology, aims to offer universal access to financial services via digital channels, enhancing convenience and inclusivity for diverse populations, and fostering sustainable economic development. Globally acknowledged as a major trend, digital inclusive finance plays a crucial role in realizing financial inclusion and sustainable development. During the Central Financial Work Conference in November

2023, General Secretary Xi emphasized the significance of “advancing five major areas: science and technology finance, green finance, inclusive finance, pension finance, and digital finance,” providing a framework for high-quality financial development.

Focusing on “inclusive finance” is vital for advancing the digital economy and overall high-quality development in this critical phase of China’s high-quality development. A pivotal element in China’s financial strategy, digital financial inclusion is essential, prompting an investigation into its development trajectory and key factors. Despite its advanced financial system, Guangdong encounters challenges in catering to micro-, small-, and medium-sized enterprises (MSMEs) and rural areas using conventional approaches. Digital inclusive finance stands out as an innovative solution, as observed in Guangdong’s experience characterized by financial service innovation and robust technology application, leveraging mobile internet, big data, and artificial intelligence (AI).

Nevertheless, the progress of digital financial inclusion faces challenges, and diverse factors shape its course in Guangdong. It is crucial to comprehend the central influencing factors and evaluate the path’s consistency across Guangdong, considering regional variations. Collaborations between digital inclusive finance and other financial innovations are vital in fostering sustainable economic and social development. This impact goes beyond Guangdong’s strategy, influencing the entire Chinese financial system. Hence, conducting thorough research to understand the distinctive trajectory and key factors of digital inclusive finance in Guangdong is essential, providing scientific guidance for advancing its high-quality development in the province.

Currently, scholars have extensively investigated digital inclusive finance, exploring factors influencing it, the correlation between digital inclusive finance and economic growth, scientific and technological innovation, resource endowment, human capital, and other pertinent issues. The research primarily concentrates on the following aspects:

Firstly, Jiang *et al.* conducted a comprehensive analysis of the development status of rural digital inclusive finance in China and its determinants using hierarchical analysis and regression models ^[1]. They proposed policy recommendations to enhance rural digital finance development. Some scholars, such as Guo *et al.* ^[2], have contended that the advancement of rural digital inclusive finance contributes to traditional finance. They underscored the pivotal role of educational qualifications and financial knowledge in the sustained development of rural digital inclusive finance. Additionally, Liu and Yang employed a panel data clustering approach to unveil the diverse development patterns of digital inclusive finance across Chinese provinces ^[3]. They explored the influencing factors of digital inclusive finance using semi-parametric theory.

Secondly, scholars analyze the crucial role of digital inclusive finance in conjunction with economic growth, scientific and technological innovation, resource endowment, and human capital. In a study by Liu ^[4], the positive impact of digital inclusive finance on employment quality is revealed through the employment quality indicator system constructed using Chinese General Social Survey (CGSS) data, along with relevant policy recommendations. Wang and Chen ^[5], employing two-way fixed effects and mediated effects models, elucidated the mechanism of digital inclusive finance’s impact on the dimensional and regional heterogeneity of the commonwealth. Disse and Sommer addressed the role of digital financial instruments in financing SMEs in Sub-Saharan Africa ^[6]. Parvin and Panakaje analyzed various prospects and challenges of digital financial inclusion, indicating its significant role in fostering socio-economic, sustainable, and inclusive prosperity ^[7].

Thirdly, from a methodological perspective, qualitative comparative analysis (QCA) is a research methodology examining causal inferences based on cases and substantive explanations. QCA, an important innovation in case-based methodology, is underutilized in advanced industrial structure research. Liu and Zhang

[8], utilizing QCA, analyzed the path to enhance the efficiency of science and technology financial development, offering targeted policy recommendations for regions with varying financial development levels. In a study by Huang *et al.* [9], the fuzzy set qualitative comparative analysis (fsQCA) method is employed to reveal the improvement of digital financial development under multiple paths, presenting diverse strategies. Zhang and Wang [10], using the fsQCA method, thoroughly discussed the synergistic effect of technological innovation, urban development capacity, and human capital on the development of digital inclusive finance, proposing relevant policy recommendations.

A literature synthesis reveals the positive impact of digital inclusive finance on economic growth, technological innovation, and human capital in Guangdong Province. The literature provides theoretical and empirical support for these relationships through in-depth analyses of relevant indicators and factors. The current research on the development path of digital inclusive finance in Guangdong Province emphasizes the intricate relationship with multiple factors. In exploring interactions with elements like economic growth, technological innovation, and human capital, this paper delves into the diversity and complexity of these relationships, examining various dimensions and perspectives. This underscores the importance for policymakers to comprehensively consider the impact of multiple factors when formulating digital financial inclusion policies, enabling the development of more comprehensive and targeted strategies. This realization addresses the limitations of existing research. In contrast to previous literature, this paper's marginal contributions mainly lie in the following aspects:

Firstly, this paper employs the fsQCA methodology to analyze the development of digital inclusive finance in Guangdong Province. Unlike traditional regression analyses, fsQCA utilizes fuzzy set theory to handle non-linear relationships better and conduct multi-factor comprehensive analyses, considering complexities like path dependence and ambiguity. This methodological innovation offers a fresh perspective and a more flexible, comprehensive approach for future quantitative research.

Secondly, through the introduction of fsQCA, this paper delves into the intricate mechanisms of digital inclusive finance development under various conditions. It uncovers the key factors and their interactions in the development of digital inclusive finance in Guangdong Province. This in-depth exploration contributes to providing more precise and targeted policy recommendations.

Finally, currently, there is limited literature investigating the synergistic development of digital inclusive finance in Guangdong Province using group state analysis. Introducing a novel qualitative research methodology, this paper aims to offer deeper theoretical insights and practical guidance. It brings forth new ideas and methods to advance the sustainable development of digital inclusive finance in Guangdong Province.

2. Research framework

The evolution of digital inclusive finance is characterized by diversity and complexity. This paper establishes a multi-dimensional analytical framework that incorporates crucial factors, including technological innovation, economic development, marketization level, government regulation, and human capital.

The degree of technological innovation is crucial for the swift advancement of digital inclusive finance. Cutting-edge technology facilitates the provision of efficient and convenient services, catering to the diverse financial needs across various regions in Guangdong Province. Economic development level is directly linked to financial demand and payment capacity. Regions with higher economic levels exhibit more diversified needs. Therefore, digital inclusive finance should tailor its services to cater to the requirements of distinct groups.

The degree of marketization influences financial market competition and institutional flexibility. In highly marketized regions, digitally inclusive financial institutions must innovate their services to thrive in

intense competition. Government regulation serves as a guiding force for the advancement of digital inclusive finance, offering sensible directives to foster innovation and maintain a fair and transparent market. Human capital constitutes the cornerstone of digital inclusive financial development. Cultivating and attracting talent is essential for fostering fintech innovation, and practitioners must possess technical and business literacy in the digital era.

The multi-dimensional analytical framework offers theoretical support for a comprehensive comprehension of digital inclusive finance in Guangdong Province. It underscores the intricate interconnections among various factors, contributing to the theoretical foundation for future policies and research aimed at achieving sustainable and efficient development of digital inclusive finance in the province. The comprehensive research framework is illustrated in **Figure 1**:

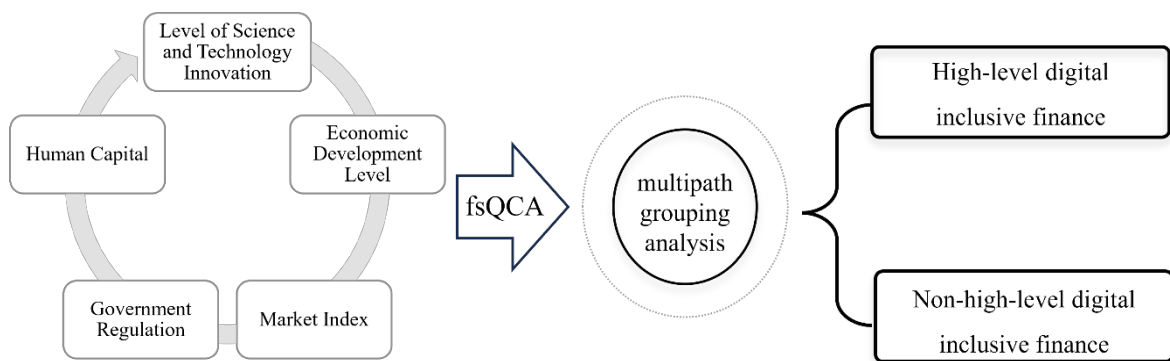


Figure 1. Comprehensive research framework

3. Research design

3.1. Research methodology

QCA is a potent method for comprehensively studying complex systems, particularly notable for its thorough examination of interrelationships among multiple conditions. In contrast to traditional single-variable analyses, QCA delves into the intricate effects of diverse condition combinations on outcomes, highlighting the synergistic impact of multiple variables. This approach offers the advantage of seamlessly integrating qualitative and quantitative analyses ^[11].

As an advanced extension of QCA, fsQCA utilizes fuzzy set theory to address ambiguities and uncertainties among condition variables more effectively. It examines how condition variables collaboratively influence the outcome variable in a specific state. The application of fsQCA enhances our understanding of the mechanisms and pathways leading to a specific outcome in complex conditions.

In a specific study, n condition variables were examined and labeled as X_1, X_2, \dots, X_n , along with the associated outcome variable Y . To clarify their relationship, a unique method is introduced to illustrate condition combinations. Each conditional variable's presence or absence is represented by binary values 1 and 0. Conditional combinations are expressed by the n -tuple A , where $A=(X_1, X_2, \dots, X_n)$, offering a visual representation of the research scenario and the impact of each condition under different combinations. As shown in **Formula 1**:

$$A \subseteq \{0,1\}^n \quad (1)$$

In-depth studies require attention to the presence or absence of conditional combinations, their frequency in the sample, and their actual impact on the outcome variable. This is accomplished by constructing truth tables that document the occurrences $(N(A))$ of each conditional combination A in the sample, along with its

corresponding values of the outcome variable Y and the frequency of the combination.

In the fsQCA method, the researcher subjectively introduces the key concept threshold, transforming the existence or non-existence of binary variables into a fuzzy logical judgment better suited to the complexity of the research object. Using truth table information, combinations of conditions with sufficient or necessary influence on the outcome variable Y are identified through logical operations of fuzzy set theory, including operators like AND and OR. This analysis discloses that specific combinations of conditions serve as either sufficient conditions leading to $Y(A \Rightarrow Y)$ or necessary conditions for $Y(A \Leftarrow Y)$. Establishing such relationships between conditions and outcomes provides a deeper understanding of the system's behavioral patterns under different conditions, offering more concrete insights for subsequent research and decision-making. Additionally, the model's quality and applicability are further assessed through consistency and coverage formulas.

The formula for consistency is:

$$inclN_{X \Leftarrow Y} = \sum \min(X, Y) / \sum Y \quad (2)$$

The coverage formula is defined as follows:

$$covN_{X \Leftarrow Y} = \sum \min(X, Y) / \sum X \quad (3)$$

The sufficient condition for a specific grouping ($A \Rightarrow Y$) indicates that A is sufficient to lead to Y .

The consistency formula is given by:

$$inclS_{X \Rightarrow Y} = \sum \min(X, Y) / \sum X \quad (4)$$

fsQCA excels in handling non-linear relationships among multiple conditions, making it well-suited for investigating the collective impacts of various factors. Analyzing the five key dimensions collectively enables a more comprehensive understanding of the interplay of conditions in digital inclusive finance development. It helps identify the combinations of conditions that facilitate or impede development.

Applying this methodology is anticipated to yield more precise and substantial conclusions, offering stronger theoretical support for the formulation of digital inclusive finance policies. Delving deeper into the potential mechanisms of condition combinations enhances our understanding of the complexity of digital inclusive finance development. It offers new perspectives and methods for future research and policy formulation.

3.2. Description of research cases and variables

3.2.1. Study cases

This study focuses on 21 cities in Guangdong Province, a powerhouse of China's economy. Its strategic location and openness create favorable conditions for digital inclusive finance. The province's diverse economy, spanning various industries, forms a fertile ground for digital inclusive finance. Examining this economically advanced region enhances our insights into the development trajectory and mechanisms of digital inclusive finance.

Moreover, Guangdong has consistently led in science and technology innovation and hosts numerous high-tech enterprises. Given the close link between digital inclusive finance and technological innovation, choosing Guangdong as a case study facilitates an in-depth exploration of how technological innovation promotes digital inclusive finance. It serves as a valuable reference for uncovering the development path in technologically advanced regions.

Guangdong Province encompasses 21 cities, each with distinct economic, social, and cultural aspects.

Examining these cities enables a more comprehensive understanding of the diverse development patterns of digital inclusive finance. Variations among cities result from factors like local policies, industrial structure, and population size. Analyzing these cities contributes to a more precise comprehension of the diversity and applicability of digital inclusive finance development, supporting the formulation of targeted policies.

3.2.2. Variable selection

The measurement of the outcome variable relies on the Peking University Digital Financial Inclusion Index, sourced from the Peking University Digital Inclusive Finance Index 2021.

Given data availability constraints, this study chooses variables related to science and technology innovation, economic development, marketization level, government regulation, and human capital as conditional variables. The variable measures and data sources are shown in **Table 1**:

Table 1. Measurement of variables and data sources

	Indicator level	Specific indicator measurement method	Description source
Outcome variable	Digital inclusive finance index	Analytic hierarchy process	Peking University Digital Inclusive Finance Index
Conditional variables	Technological innovation level	R&D expenditure/internal expenditure on GDP	China City Statistical Yearbook
	Economic development level	Real per capita GDP	China City Statistical Yearbook
	Marketization level	Fan Gang marketization index	Calculated
	Government regulation	Government expenditure	China City Statistical Yearbook
	Human capital (higher education level)	Number of regular undergraduate and college students (in tens of thousands) / permanent resident population	China City Statistical Yearbook

4. Analysis of empirical results

In applying the fsQCA method, three solution types have been identified based on the treatment of the “logical remainder”: complex, simple, and intermediate solutions. Typically, scholars prefer the intermediate solution due to its better alignment with theoretical and practical knowledge. Utilizing an extensive study of 21 cities in Guangdong Province, the group analysis result presentation proposed by Ragin and Fiss was adopted ^[12]. By selecting conditions with a frequency greater than 1 and consistency greater than 0.8, three paths that facilitate the development of digital financial inclusion were identified. These paths demonstrate robust consistency, reaching 0.814, indicating that 81.4% of cities satisfying these paths exhibit a high level of digital financial inclusion.

Furthermore, the coverage of these three paths is 0.754, indicating that they account for 75.4% of the cases, affirming the robust explanatory capability of these paths. Specifically, the levels of STI and economic development are acknowledged as core determining conditions in these three paths, appearing in both the parsimonious and intermediate solutions. This underscores the pivotal role of these two factors in fostering high-level digital financial inclusion, with their interaction serving as the central driving force in the development of digital financial inclusion.

Correspondingly, six paths associated with the development of non-high-level digital inclusive finance were calculated and identified. The consistency of these paths is 0.971, with a coverage of 0.704, signifying their robust explanatory capacity. This aids in a more comprehensive understanding of the development

mechanism of non-high-level digital inclusive finance. The analysis of conditional sufficiency for each group state is presented in **Table 2**:

Table 2. Configuration condition sufficiency analysis

Condition variables	Configuration for high-level digital inclusive finance			Configuration for non-high-level digital inclusive finance		
	H1	H2	H3	NH1	NH2	NH6
Technological innovation level	★	★	○		●	☆
Economic development level	★	★	☆	☆	★	☆
Marketization level	●	○	○	★	☆	☆
Government regulation	●		★	☆	○	★
Higher education level		●		○	●	☆
Consistency	0.802	0.866	0.848	0.989	0.970	0.979
Original coverage	0.533	0.336	0.373	0.459	0.307	0.331
Unique coverage	0.249	0.031	0.158	0.045	0.010	0.036
Total consistency	0.814			0.971		
Total coverage	0.754			0.704		

Note: ● indicates that the edge condition exists, ○ indicates that the edge condition does not exist, ★ indicates that the core condition exists, ☆ indicates that the core condition does not exist, and blank indicates that the condition exists or not.

4.1. Description of research cases and variables

4.1.1. Grouping 1: high-level path

Grouping 1 reveals a high-level development path with economic growth and science, technology, and innovation as drivers, achieving notable results with a consistency of 0.802 and a coverage of 0.533, effectively explaining 53.3% of the cases. In this path, economic growth and technological innovation are central, while marketization and government regulation play peripheral roles. The success of cities like Guangzhou and Shenzhen underscores the pivotal role of economic and technological innovation in the prosperous development of digital inclusive finance. Nevertheless, market mechanisms and government guidance provide supportive roles, offering a balanced reference for policymaking.

4.1.2. Grouping 2: foundation to be upgraded path

Grouping 2 exhibits insufficient marketization and high potential for human capital, boasting a consistency of 0.866 and a coverage of 0.336, explaining 33.6% of cases. The core of this path still involves economic and technological innovation, with cities like Zhuhai and Zhaoqing illustrating a model that relies on highly qualified talent to propel digital financial inclusion. Human capital is considered a marginal condition, emphasizing the significance of education and talent development. This path introduces new perspectives for policymaking, underscoring the crucial role of talent development in the absence of complete market mechanisms.

4.1.3. Grouping 3: weak foundation but strong government guidance pathway

Grouping 3 illustrates a pathway characterized by a weak foundation but strong government guidance, featuring a consistency of 0.848 and coverage of 0.373, explaining 37.3% of the cases. In this pathway, government regulation takes a central role, despite the relative economic weakness. Cities like Meizhou and Zhanjiang

validate that strong government regulation effectively promotes digital financial inclusion. This discovery offers empirical support for the government's role in digital financial inclusion strategies, highlighting that in regions with relatively weak economic fundamentals, government guidance and intervention are crucial for ensuring financial inclusion development.

These three state patterns unveil diverse trajectories of digital financial inclusion development, offering empirical support and policy insights. The necessity to strike a balance between market mechanisms and government guidance in digital inclusive finance development, the comprehensive strategy that centers on economic development, technological innovation, and talent cultivation, and the imperative of addressing market deficiencies under government guidance is underscored.

4.2. Analysis of the development path of non-high-level digital financial inclusion

4.2.1. Grouping 1: insufficient foundation and low government regulation

Within the non-high-level paths of digital inclusive finance development, grouping 1 revolves around improved marketization but insufficient foundation and low government regulation. Representative cities in this category, such as Qingyuan, Jieyang, and Yunfu, exhibit relatively low levels of economic development, impeding the growth of digital inclusive finance. Due to a comparatively low degree of government regulation, market mechanisms take precedence in driving service innovation and user coverage. This limitation hampers the quality and widespread adoption of digital inclusive financial services.

4.2.2. Grouping 2: limitation due to low marketization levels

Grouping 2 focuses on adequate economic development but insufficient marketization, featuring representative cities like Zhuhai, Zhaoqing, and Maoming. Despite the economic robustness of these regions, inadequate marketization poses a limitation, hindering the complete development of digital inclusive financial services. Low marketization levels can result in industry barriers, regulatory restrictions, and insufficient market competition, impeding service innovation and development.

4.2.3. Grouping 3: challenges due to weak foundation and limited government regulation

Grouping 3 reveals challenges arising from a low level of science and technology innovation, a weak foundation for economic development, limited marketization, and insufficient human capital. Despite efforts to address these challenges through stronger government regulation, filling the potential constraints remains difficult. Meizhou, the representative city of this category, illustrates that, even with robust government regulation, inadequacies in other areas hinder the complete development of digital inclusive finance. The primary constraints include low levels of technological innovation, weak economic foundations, limited marketization, and insufficient human capital. Government regulation faces challenges in compensating for these underlying issues.

4.3. Robustness test

To ensure the reliability of the study results, a robustness testing method with increased consistency thresholds was employed, inspired by the approach of Kruas *et al.* ^[13]. This method evaluated the stability of results from conditional histogram analyses under various consistency thresholds, providing additional validation for the study conclusions. The consistency threshold was raised from 0.8 to 0.85 to simulate scenarios requiring higher result consistency and more rigorous screening of eligible histograms. Comparing results at different consistency thresholds did not significantly alter the overall consistency level. While finetuning of individual edge conditions may have occurred in the pathway of grouping states with high levels of digital inclusion, it did

not alter the primary trend.

This suggests that findings remain relatively consistent across different consistency requirements, although fine-tuning some edge conditions may slightly impact interpretation. The relative stability of consistency levels boosts confidence in the findings, indicating that the conclusions are reliable. Some variations under different consistency thresholds did not alter our main understanding of the development path of digital financial inclusion, affirming the relative reliability of the research methodology and analytical framework.

5. Conclusion

After conducting a thorough examination of the development paths of digital inclusive finance in 21 cities across Guangdong Province, several crucial conclusions that offer significant insights for crafting evidence-based policies were derived.

Firstly, the development path of high-level digital inclusive finance revolves around a robust economy and technological innovation. This underscores that economic prosperity and technological advancement are pivotal factors driving the successful development of digital inclusive finance. Marketization and government regulation play peripheral roles in this trajectory, indicating the importance of maintaining a balance between market mechanisms and government guidance in strategies for digital financial inclusion.

Secondly, paths of non-high-level digital financial inclusion are hindered by insufficient foundations, limited marketization, and weak government regulation. This indicates that these regions encounter fundamental challenges in the development of digital financial inclusion, necessitating increased government guidance. The path characterized by a low level of marketization implies that, despite relative economic prosperity, the evolution of market mechanisms is restricted, urging governments to concentrate on unlocking market potential.

While underscoring the importance of government guidance, the complementary role of market mechanisms in the development paths of high-level digital inclusive finance was also emphasized.

The analysis of group states unveils the multidisciplinary interactive system engineering involved in the development of digital inclusive finance, offering profound insights for shaping pertinent policies. Here are some policy insights:

- (1) Multi-domain synergistic development: Digital inclusive finance is not confined to a single domain; instead, it entails synergistic development across multiple domains. This includes dimensions like the economy, technology, market, and government, necessitating the establishment of organic connections among these fields. When crafting policies, it is crucial to emphasize the synergies among these dimensions to ensure comprehensive coverage and the synergistic evolution of policies, creating a robust driving mechanism. For instance, while supporting scientific and technological innovation, it is necessary to consider the completeness of the market mechanism, forming an organic link between government guidance and market-driven innovation. This systematic policy design facilitates the rational allocation of resources and mutual promotion among all stakeholders.
- (2) Emphasis on scientific and technological innovation and economic development: Scientific and technological innovation, along with economic development, takes a central role in the trajectory of high-level digital inclusive finance. The synergistic advancement of science and technology innovation and economic development can be fostered by establishing science and technology innovation parks, offering tax incentives, and guiding collaboration between fintech enterprises and traditional financial institutions. This approach contributes to building an innovative ecosystem for digital financial inclusion and facilitates the widespread adoption and enhancement of digital financial services.

- (3) Balancing market mechanism and government guidance: In the high-level trajectory, the market mechanism and government guidance synergistically contribute. Formulating relevant policies ensures fair competition in the market, guiding financial institutions to better serve the inclusive finance sector. One example is the establishment of a financial innovation support fund and the promotion of digital currency development.
- (4) Targeted policy support: Formulating strategies should consider the heterogeneity among different cities in digital inclusive finance. Varied levels of development, market conditions, and government regulatory needs exist among cities, demanding comprehensive development planning that fully considers these differences. This necessitates a focus on differentiated management in planning. For paths with weak economic foundations but strong government regulation, the development of digital inclusive financial services can be expedited through measures such as financial support and tax incentives. Implementing such targeted policies can better address the actual needs of each region, enhancing policy relevance and effectiveness.

These policy insights highlight the comprehensive and holistic nature of digital inclusive finance, underscoring the necessity for systematic government policy interventions across various areas to establish a robust driving mechanism. This bears far-reaching significance for the sustainable development of digital inclusive finance.

Funding

2023 Guangdong Provincial Education Science Planning Project (Higher Education Special Project) “Empirical Study on the Spatial Optimization of the Relationship between Human Capital and Industrial Structure in Guangdong Province under the Support of Higher Education Services” (No. 2023GXJK144)

Disclosure statement

The author declares no conflict of interest.

References

- [1] Jiang Q, Li H, Liu X, 2019, Measurement of the Development Level and Influencing Factors of Rural Inclusive Digital Finance. *Journal of Financial and Economic Research*, 34(4): 123–133.
- [2] Guo Y, Zhang L, Wang X, 2020, Economic Effects and Influencing Factors of Rural Inclusive Digital Finance: An Empirical Analysis Based on County-level Survey Data. *Journal of Shandong University (Philosophy and Social Sciences)*, 2020(6): 122–132. <https://doi.org/10.19836/j.cnki.37-1100/c.2020.06.013>
- [3] Liu Y, Yang Z, 2023, Research on the Development Characteristics and Influencing Factors of Provincial Inclusive Digital Finance. *Statistics and Decision*, 39(11): 139–144. <https://doi.org/10.13546/j.cnki.tjyj.2023.11.024>
- [4] Liu Y, 2023, Digital Inclusive Finance, Industrial Structure, and Employment Quality. *World Investigation*, 2023-12-25: 1–10. <https://doi.org/10.13778/j.cnki.11-3705/c.2023.12.005>.
- [5] Wang X, Chen X, 2023, Digital Inclusive Finance, Innovation-Driven, and Common Prosperity. *Statistics and Decision*, 39(13): 138–143. <https://doi.org/10.13546/j.cnki.tjyj.2023.13.025>
- [6] Disse S, Sommer C, 2020, Digitalisation and Its Impact on SME Finance in Sub-Saharan Africa: Reviewing The Hype and Actual Developments. *Deutsches Institut für Entwicklungspolitik (DIE), Discussion Paper 4*. <https://doi.org/10.23661/dp4.2020>

- [7] Parvin SMR, Panakaje N, 2022, A Study on The Prospects and Challenges of Digital Financial Inclusion. *International Journal of Case Studies in Business IT and Education*, 6(2): 469–480. <https://doi.org/10.47992/IJCSBE.2581.6942.0210>
- [8] Liu Y, Zhang H, 2021, Research on the Efficiency Improvement Path of Integrated Development of Science and Technology Finance in China: A Case Study of the Yangtze River Economic Belt. *Modernization of Management*, 41(5): 7–11. <https://doi.org/10.19634/j.cnki.11-1403/c.2021.05.003>
- [9] Huang J, Chang H, Li Y, 2021, Analysis of the Path to Enhance the Development of Digital Finance in China: A Study Based on Fuzzy Set Qualitative Comparative Analysis. *Modernization of Management*, 41(1): 12–16. <https://doi.org/10.19634/j.cnki.11-1403/c.2021.01.004>
- [10] Zhang X, Wang H, 2023, Research on the Development Path of Inclusive Digital Finance in the Yellow River Economic Belt Based on Fuzzy Set Analysis. *Regional Financial Research*, 2023(4): 18–23.
- [11] Du YZ, Li Y, Rihoux B, et al., 2017, *QCA Design Principles and Application*. China Machine Industry Press, Beijing.
- [12] Ragin CC, Fiss PC, 2008, Net Effects Analysis Versus Configurational Analysis: An Empirical Demonstration. *Redesigning Social Inquiry: Fuzzy Sets and Beyond*. University of Chicago Press, Chicago, 190–212 + 240.
- [13] Kraus S, Ribeiro-Soriano D, Schüssler M, 2018, Fuzzy-Set Qualitative Comparative Analysis (fsQCA) in Entrepreneurship and Innovation Research – The Rise of a Method. *International Entrepreneurship and Management Journal*, 14: 15–33. <https://doi.org/10.1007/s11365-017-0461-8>

Publisher's note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.