Journal of Infrastructure, Policy and Development 2024, 8(6), 3777.
https://doi.org/10.24294/jipd.v8i6.3777

Article

Enhancing financial inclusion in China amidst COVID-19: Opportunities, challenges, and strategies

Fadi Ghosn[1], Mohamad Zreik[2,*], Ghina Awad[3], Suha Tahan[4], Ahmad Ashaal[5]

[1] Department of Banking & Finance, Lebanese International University, Beqaa 8643, Lebanon
[2] School of International Studies, Sun Yat-sen University, Xiangzhou District, Zhuhai 519082, China
[3] Department of Finance, Accounting, Audit, Control, Economics and Law, ICN Business School, 86 Rue Sergent Blandan, 54000 Nancy, France
[4] Department of Economics, Lebanese International University, Beirut 14404, Lebanon
[5] Department of Banking & Finance, Lebanese International University, Rayak 1801, Lebanon
*** Corresponding author:** Mohamad Zreik, zreik@sysu.edu.cn

CITATION

Ghosn F, Zreik M, Awad G, et al. (2024). Enhancing financial inclusion in China amidst COVID-19: Opportunities, challenges, and strategies. Journal of Infrastructure, Policy and Development. 8(6): 3777. https://doi.org/10.24294/jipd.v8i6.3777

ARTICLE INFO

Received: 20 December 2023
Accepted: 10 January 2024
Available online: 17 June 2024

Abstract: This paper examines the impact of the COVID-19 pandemic on financial inclusion in China, a country with a significant agricultural sector and an evolving digital landscape. The pandemic has accelerated the shift towards digital financial services, underscoring disparities in access. This study explores the pre- and post-pandemic scenarios of financial inclusion in China, evaluates the economic and social impacts of the pandemic, and assesses the role of digital transformation in the financial sector. It also investigates the changing roles of commercial banks and microfinance institutions, the integration of technology in finance, and the development of rural-urban economic linkages. The paper aims to propose strategies to enhance financial inclusion, ensuring it reaches the most vulnerable, and concludes with recommendations for creating a more equitable and robust economic system.

Keywords: financial inclusion; purchasing power of people; COVID-19; disadvantaged poor; infrastructure; income distribution; digital transformation; technology transfer; social losses; linkages between rural and urban

1. Introduction

Understanding the distinctive socioeconomic environment of China is crucial for placing financial inclusion in its proper context, especially in the aftermath of the COVID-19 pandemic. Achieving long-term economic growth and social fairness requires financial inclusion, which means that all parts of society should be able to access and purchase financial services (Neaime and Gaysset, 2018). Financial inclusion is more complex in China due to the country's large rural population and its quickly developing digital infrastructure. For a long time, the Chinese banking system was dominated by the state and served mostly the needs of big state-owned businesses and urbanites. Because of this, there is a lack of access to banking services for many people living in rural areas and small businesses (Kroeber, 2020).

The COVID-19 pandemic further deepened these divisions. Much like other economies, China's saw major setbacks as the virus spread. Faster financial inclusion could be achieved in China thanks to the country's sophisticated digital infrastructure and its rapid and severe reaction to the pandemic. Online banking, digital payments, and fintech solutions surged after the pandemic triggered digital change in the financial sector (Mansour, 2022). Digital platforms were increasingly important in providing financial services, and this change was not limited to urban

centres but spread to rural areas as well (Zreik, 2023).

Problems persist despite these improvements. The gap between rural and urban areas in terms of internet access is still there, though it is closing, as show in **Figure 1**. More customised financial products are required to meet the unique requirements of small businesses and rural communities. Another major obstacle is the fact that many people still don't know enough about money management to make good use of these new tools (Zhang et al., 2020). It is critical to grasp the intricacies of financial inclusion in this context as China continues to deal with the economic fallout of the pandemic. Ensuring equitable and inclusive financial services that may bridge the gap between diverse sectors of society is just as important as giving access to these services.

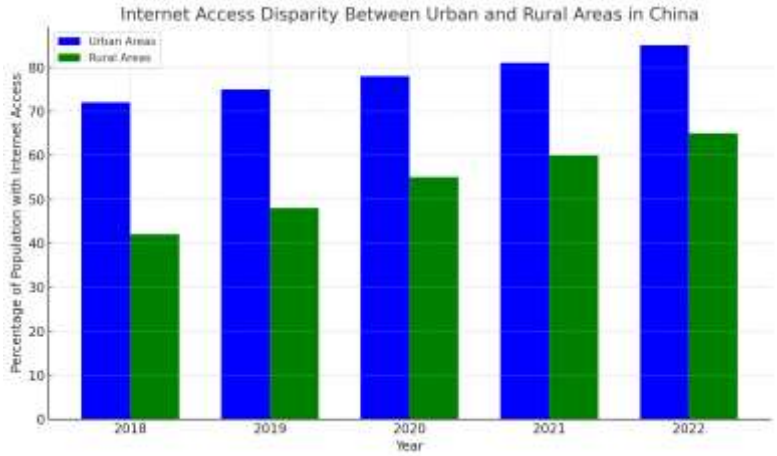

Figure 1. Internet access disparity between urban and rural areas in China.
Source: Asian Development Bank Publication (2023).

The bar graph above represents internet access disparity between urban and rural areas in China from 2018 to 2022. Each pair of bars for a given year shows the percentage of the population with internet access in urban areas (blue bars) compared to rural areas (green bars). This visualization illustrates how internet access improved over the years in both settings, with a persistent disparity between urban and rural areas.

Around the world, especially in China, COVID-19 has had a significant and far-reaching effect on economies. Both supply and demand were hit hard by the pandemic's double shock. Production and supply chains were impacted by lockdowns and social distancing tactics, which disrupted the supply side (Moosavi et al., 2022). Crucial to China's economy, sectors like manufacturing, suffered heavy losses as a result of facility closures and labour shortages. The travel and hotel industries were also hit hard because of the limitations on both domestic and international travel, which caused a precipitous drop in tourism and the money that came with it (Tooze, 2021).

Consumers' actions changed dramatically on the demand side. Consumer spending, especially on non-essential products and services, took a considerable hit as a result of the impending uncertainties and mobility restrictions. The economic recession was made worse by this drop in demand (Goolsbee and Syverson, 2021). The effects of the pandemic on the job market were also substantial. Small and

medium-sized firms (SMEs) in particular had a hard time weathering the economic storm, which meant fewer jobs and lower wages for many people (Didier et al., 2021). Household spending and savings were therefore impacted, which further reduced economic activity.

China, on the other hand, responded strongly and quickly to the economic threats that the pandemic presented. Stabilising the economy was the goal of the government's fiscal and monetary policy initiatives. Included in them were initiatives to increase consumer spending and confidence as well as stimulus programmes to aid businesses, especially SMEs (Liu et al., 2020). The fast transition to online platforms for both commercial and consumer activity in China, made possible by the country's robust digital infrastructure, helped to mitigate the economic impact (Li et al., 2020).

The path to economic recovery following COVID-19 is still complicated and uncertain, notwithstanding these efforts. A rethinking of economic concepts and policies is required since the pandemic has highlighted and intensified pre-existing weaknesses in the world's economic system. While dealing with the socioeconomic inequalities that the pandemic has highlighted, China must strike a balance between immediate recovery efforts and long-term sustainable growth.

The purpose of this study is to examine the effects of the COVID-19 pandemic on financial inclusion in China and to propose solutions to improve this aspect of the country's economy moving forward. According to the theory, although the pandemic has made financial inclusion even more difficult, it has also hastened digital transformation, which has opened up new possibilities for inclusive growth. This topic is important because it could help shape strategies and policies that lead to a fair allocation of financial resources, which is essential for long-term economic growth and social stability, especially in emerging markets like China's.

Using an analytical-descriptive approach, the article illustrates the intricate relationship between the financial inclusion situation and the economic effects of the pandemic. The current landscape is painted comprehensively by conducting an exhaustive assessment of financial data, existing literature, and reports using this approach. New developments in digital financial services are also investigated, and the efficacy of China's reactions to these problems is assessed.

The study is structured to tackle the various aspects of this complicated subject in a sequential manner. It starts with a contextual background, then moves on to a thorough literature review, analyses existing solutions and challenges, and finally concludes with strategic recommendations. Stakeholders, including Chinese lawmakers and financial institutions, can benefit greatly from this systematic approach to improving financial inclusion since it guarantees a complete understanding and offers insightful recommendations.

This research contributes significantly to the existing body of knowledge by providing a comprehensive and up-to-date analysis of the impact of the COVID-19 pandemic on financial inclusion in China. It uniquely bridges the gap between pre- and post-pandemic financial inclusion scenarios, offering a holistic view of the evolving digital finance landscape. The study not only evaluates the immediate effects of the pandemic on various economic sectors but also delves into the transformative role of digitalization in the financial sector during this period.

Furthermore, it offers strategic insights into enhancing financial inclusion by exploring the interplay between technology, regulatory policies, and educational initiatives. This analysis is particularly valuable for policymakers, financial institutions, and researchers, offering guidance on developing more inclusive financial systems in the wake of unprecedented global challenges.

2. Literature review

A literature study on the subject of financial inclusion in China before and after the COVID-19 pandemic demonstrates a complicated evolution impacted by new technologies, changes in legislation, and the pandemic's unparalleled impact. There was a period of transition in China's financial inclusion environment just before the pandemic hit. According to Hasan et al.' (2019) research, mobile payment platforms such as Alipay and WeChat Pay play a crucial role in providing access to financial services for underserved populations, especially in rural areas. Their research highlighted the importance of these platforms in connecting rural residents' demands with conventional banking services.

In addition, research by Cao et al. (2021) highlighted the Chinese government's positive attitude towards digital money, highlighting programmes that try to get more people to use the official banking system. Financial inclusion was encouraged by these regulations, according to Zreik et al. (2023). This was especially true for small and medium enterprises (SMEs), who had a hard time getting their hands-on traditional banking services in the past. On the other hand, these studies did note that there were still gaps in financial access, with rural regions having less access to complete services than urban centres.

A turning point came with the start of the COVID-19 pandemic. As a result of lockdown measures, traditional banking techniques became less accessible, leading to a notable transition towards digital financial services (Fu and Mishra, 2022). Although it was a reaction to the pandemic's limitations, their research showed that digital payment systems and online banking had a huge uptick in popularity, which opened the door to even more financial inclusion.

But new problems surfaced as a result of this change as well. After the pandemic, there was a clear digital divide between rural and urban areas, according to research by Zhao et al. (2022). Their research indicated that those living in cities were more equipped to handle financial transactions online, whereas those living in rural areas encountered difficulties owing to low levels of digital literacy and outdated infrastructure. As pointed out by Qian and Fan (2020), the pandemic's economic effects altered income levels, which in turn affected the capacity of vulnerable people to use financial services.

Chinese banks and the government have responded in a number of ways. Research by Du et al. (2023) revealed programmes to improve digital literacy in remote regions and policies aimed at helping small and medium-sized enterprises (SMEs). As an example, they looked at the People's Bank of China's attempts to create a complete regulatory framework for digital finance and talked about regulatory reforms that would make digital financial platforms more secure and reliable.

According to Wang et al. (2023), the pandemic immediately slowed economic growth. The study shed light on how the manufacturing sector—the bedrock of China's economy—was severely curtailed due to the temporary suspension of industries and enterprises caused by the strict lockdown measures that were necessary to prevent the virus's spread. Because China is a big provider of goods to the world, this industrial slowdown affected supply networks all over the place. Particularly hard hit were small and medium-sized businesses (SMEs), who were already struggling under the weight of stringent operating restrictions and limited cash flow, as pointed out by Khan (2022).

In terms of consumer behaviour, study conducted by Zreik et al. (2022) showed a significant change, with less money being spent on non-essential items and services. Income cuts and job losses caused by businesses cutting back or going out of business contributed to this change. The same research also revealed that more and more people are buying things online, which helped to lessen the blow to the retail industry but brought attention to the widening gap in digital literacy among various demographic groups.

The pandemic has had far-reaching social effects, worsening pre-existing disparities and highlighting previously unseen difficulties. According to Li et al. (2023), one major worry is the heightened susceptibility of already vulnerable populations, such as low-income families, migratory workers, and the elderly. The loss of jobs, healthcare, and other basic services hit some communities worse than others. Studies on the mental health effects of the pandemic have shown that different demographics are experiencing higher rates of stress and anxiety as a result of the economic uncertainty and extended periods of isolation (Shah et al., 2021).

One of the most noticeable societal effects of the pandemic has been the disturbance it has caused in the educational sector, as pointed out by Donthu and Gustafsson (2020). Students in rural locations, in particular, have less access to digital tools and educational materials, and this disparity was brought to light by the abrupt transition to online schooling. Education results and future opportunities for social mobility are affected by this change.

The literature highlights the adaptability and durability of the Chinese economy and society in the face of these problems. In another research, Renu (2021) highlighted how businesses, schools, and healthcare systems quickly embraced digital platforms. These platforms not only solved problems right now, but also set the stage for more significant changes in the future. In addition, as Liu et al. (2020) explains, vulnerable populations were helped immensely by the government's proactive monetary and fiscal measures, which helped to soften the economic impact.

Innovative technologies such as blockchain and artificial intelligence, along with the rapid growth of fintech companies, had already begun to digitally revolutionise China's financial sector prior to the pandemic. Digital platforms like Alipay and WeChat Pay transformed payment processes, making them more accessible and efficient, according to research by Zhang and Williamson (2021). The expansion of financial services to previously unbanked portions of the population, especially in rural regions, was helped by these platforms, which also made everyday financial transactions easier.

The rapid acceleration of this digital transition was hastened by the start of the

pandemic. According to Brodeur et al. (2021) study, digital banking services saw a dramatic surge in popularity as traditional banking services became inaccessible owing to social distancing measures and lockdowns. This tendency spread beyond metropolitan areas and into rural regions, helping to close the financial inclusion gap even further. Savings, loans, and insurance were among the many financial services that were digitised in response to the epidemic, which increased their accessibility.

Ameen et al. (2021) point out that the incorporation of cutting-edge technology into the financial sector is a significant part of this shift. One area where AI is seeing widespread use is in the evaluation of risks and the provision of tailored services; these applications are helping to make financial transactions safer and more efficient. In addition, blockchain technology has increased trust and transparency in financial processes, especially in sectors like supply chain finance and cross-border payments.

The literature does note, however, that difficulties have arisen as a result of this fast-digital revolution. The regulatory backlog is one big worry, as mentioned by Winter and Davidson (2022). Concerns about data privacy, security, and consumer protection have arisen as a result of the fact that the financial sector's rapid technological innovation has frequently outpaced current legal frameworks. In addition, bridging the digital gap is still a major obstacle. Disparities in access and digital literacy, particularly among rural communities and the elderly, persist as obstacles to complete financial inclusion, despite the extensive use of digital financial services.

How this digital transition will affect more conventional banks is another topic covered in the literature. Kitsios et al. (2021) found that in order to stay competitive and satisfy the evolving needs of their consumers, traditional banks and financial institutions are embracing digital transformation more and more. For this reason, many companies have rethought their business strategies and put a lot of money on digital infrastructure so that digital services can be integrated easily.

3. Analysis of current financial inclusion strategies

3.1. Role of commercial banks and microfinance institutions

In order to close the financial access gap in many countries, including China, a comprehensive examination of existing financial inclusion initiatives has been conducted. This research has focused on the functions of commercial banks and microfinance institutions (MFIs). The COVID-19 pandemic has intensified the already pressing need for these organisations to increase access to banking services for disadvantaged communities.

The commercial banking industry's rock-solid foundation has been through a period of radical change as it attempts to meet the problems of financial inclusion. Banks in developing nations have been using creative tactics to reach customers in rural areas, increasing their presence outside of major cities. For example, research by Hasan et al. (2022) reveals that Chinese banks are actively expanding their reach into rural areas by using agent banking models and mobile banking units. These methods have helped banks overcome geographical constraints and bring financial services closer to rural communities by combining physical presence with digital technologies. Microloans, tiny savings accounts, and insurance products tailored to

low-income clients are just a few examples of how commercial banks have been responding to the special demands of these neighbourhoods.

When it comes to offering banking services to populations that conventional banks tend to ignore, microfinance organisations have played a crucial role. The emphasis of these banks is on providing small businesses and individuals that do not fit the traditional banking criteria with savings products, loans, and other financial services (Kshetri, 2016). MFIs have been instrumental in alleviating poverty and boosting economic opportunities for women and small business owners in numerous developing nations. MFIs play an already vital role in helping people and small companies weather economic storms, and their importance has grown in the aftermath of the pandemic (Dotsey, 2022).

Also, a powerful tactic for expanding access to financial services is the cooperation between commercial banks and microfinance organisations. Research by Zheng and Zhang (2021) shows that when these two kinds of institutions work together, they can play to one other's strengths. MFIs possess in-depth knowledge of local markets and the capacity to reach underserved populations, in contrast to commercial banks' strong financial systems and regulatory compliance. When banks and MFIs work together, they can create financial ecosystems that are more inclusive, meaning that more people from different backgrounds have access to a variety of financial products and services.

On the other hand, problems that need fixing are exposed by the analysis, therefore these tactics can't be improved upon. The requirement for a more accommodating regulatory climate is a major obstacle. To increase accessibility to financial services, it is essential to implement regulations that allow commercial banks and MFIs to adopt alternative approaches. This could include simplifying the process of account creation and introducing more flexibility in lending criteria. Another obstacle is the lack of knowledge about personal finance. For inclusion programmes to be successful, it is crucial that the target populations possess the knowledge and skills to utilise financial services successfully.

3.2. Technology integration in financial services

Changes to the global financial landscape have been brought about by the integration of technology into financial services (Gomber et al., 2018). This has altered the operations of financial institutions as well as the ways in which clients have access to financial products and services. Digital platforms, fintech breakthroughs, and powerful data analytics have all contributed to this technological revolution, which has rethought the standards for financial transactions and service delivery.

Digital banking has emerged as a paradigm change in the banking and finance industry, thanks to technological advancements. This includes moving away from traditional brick-and-mortar operations to online and mobile platforms (Mishra and Prashar, 2021). The literature delves into how this shift has improved the accessibility and convenience of financial services while also reaching underserved or unbanked people. With the proliferation of digital wallets, online transaction platforms, and mobile banking apps, consumers can now apply for loans, make

investments, and send and receive payments all from the convenience of their smartphones (Agarwal and Zhang, 2020).

Leading this technological transformation have been fintech companies, which use cutting-edge technology such as blockchain, AI, and machine learning. New aspects of financial services, such robo-advisory, crowd-funding, and peer-to-peer lending, have been brought about by their inventive solutions (Chishti and Puschmann, 2018). Financial products are now more affordable and available to a wider audience because to these developments, which have democratised access to services while simultaneously increasing efficiency and reducing costs.

Machine learning and artificial intelligence have completely transformed numerous areas of the financial services industry. Credit scoring, fraud detection, and risk management are three areas where AI-driven algorithms are finding widespread usage, allowing financial institutions to make better, more educated decisions. Chatbots and virtual assistants driven by artificial intelligence have also improved customer service by giving clients access to help around the clock and tailored recommendations (Sadok et al., 2022).

Blockchain technology is another major development in financial technology. Blockchain technology has wider uses than only cryptocurrencies; it can improve the efficiency, security, and openness of financial transactions (Hashemi Joo et al., 2020). Secure and transparent record-keeping in sectors such as supply chain management, trade finance, and cross-border payments is made possible by its decentralised and immutable ledger technology.

But there are obstacles to integrating technology into financial services. Because of the growing susceptibility of financial institutions and their customers to cyber assaults and data breaches brought about by the proliferation of digital platforms, cybersecurity continues to be an important issue. The privacy and security of online financial transactions and consumer information is of the utmost importance in the modern digital era. The digital divide is an additional obstacle. Even while more people are able to use financial services because to technological advancements, the digital divide has become wider as a result. For financial services to reap the benefits of technological improvements fairly, it is essential to close this digital gap.

3.3. Formatting of mathematical components

A crucial component of financial inclusion and economic development is the establishment of rural and urban financial linkages. Economic integration and the reduction of inequalities can only be achieved through the movement of services and financial resources between rural and urban areas, and these connections are crucial for this. According to the research on this topic, these connections are crucial for fostering equitable regional development, increasing rural residents' access to capital, and strengthening economic ties between urban and rural areas (De Ferranti, 2005).

The urban and rural financial environments are very different in many emerging economies, like China. There is often a wider variety of financial goods offered by the many banks and other financial institutions that are located in and around major urban centres (Weber and Feltmate, 2016). On the other hand, traditional or informal

financial mechanisms are often the only option for those living in rural areas who lack access to conventional financial services. Both the urban-rural gap and economic growth in rural regions are exacerbated by this discrepancy.

The comparative bar graph in **Figure 2** illustrates data on the availability and usage of various financial services in urban and rural areas. Each pair of bars represents a different category of financial service: Banking Services, Digital Payments, Microfinance, Insurance Products, and Investment Services. For each category, the graph shows the percentage usage in urban areas (sky blue bars) compared to rural areas (light green bars). This visualization helps in identifying the disparities in the availability and utilization of financial services between urban and rural regions.

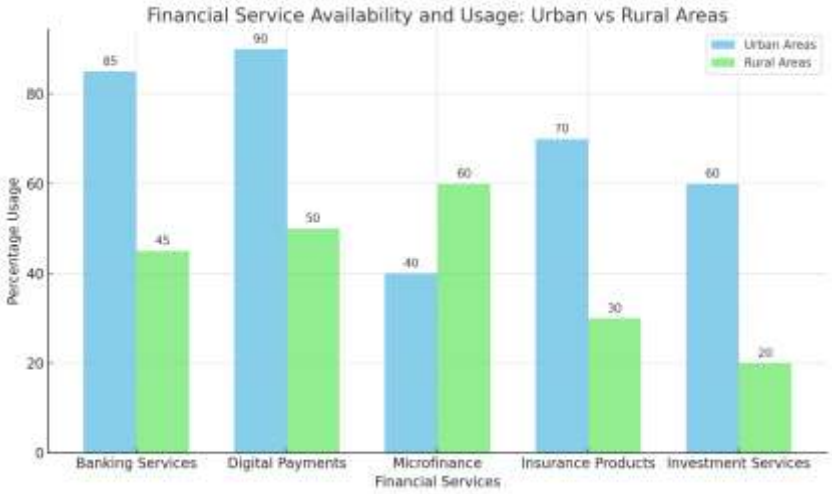

Figure 2. Comparative graphs highlighting the differences in financial service availability and usage between rural and urban areas.
Source: The Global Findex Database 2022 Report by the World Bank.

Efforts to establish financial links between rural and urban areas have been implemented in different ways. The extension of formal financial services to rural regions is one such strategy. More and more rural branches or alternative distribution channels like agent banking or mobile banking units have been set up by commercial and state-owned banks. Research shows that these programmes have helped introduce various financial services, including as savings accounts, credit facilities, and insurance products, to people living in rural areas (Mogaji et al., 2021).

The significance of MFIs in closing the financial gap between rural and urban areas is also substantial. MFIs have helped rural communities become more financially stable and economically active by giving small loans and other financial services to households and enterprises in rural areas. More investment flows into rural regions as a result of successful microfinance programmes, which boosts economic growth and strengthens financial ties between urban and rural communities.

These connections have been much easier to create because to recent technological developments. Financial services were formerly inaccessible to rural populations, but digital innovations like mobile money and internet banking have changed all that. Mobile payment platforms such as Alipay and WeChat Pay have

greatly lowered transaction costs and removed barriers to financial access for consumers in rural areas of China, for instance (Ye et al., 2023). These platforms have made it easy to send money from city to country, which is great for small companies and family remittances.

But there are obstacles to overcome in order to establish efficient rural-urban financial links. Rural locations may face challenges when it comes to infrastructure, including low energy and internet connectivity, which can make it harder for people to use digital financial services. When it comes to financing agricultural endeavours, in particular, there is frequently an absence of specialised financial instruments that address the unique requirements of rural communities. Also, many people still don't have a good grasp of financial products, so those living in remote areas might not be able to make the most of the services that are out there.

4. Challenges and opportunities

4.1. Identifying gaps and inefficiencies

To enhance the accessibility and effectiveness of financial services, it is essential to identify areas of deficiency and inefficiency in financial inclusion measures. To be clear, these aren't problems specific to any one country; rather, they are obstacles that many countries encounter as they work to strengthen their economies.

Disparities in the availability of financial services across various demographic groups constitute a major barrier to financial inclusion. Even though a lot of people have been reached, there are still some people who don't get the support they need, and that includes women, small business owners, and people living in rural areas. Factors such as geographical restrictions, cultural standards, and economic restraints can all contribute to this disparity, rather than governmental oversight being the sole cause. Some reasons why women may not have as much access to financial resources as males include cultural biases and a lack of infrastructure for digital financial services in rural areas.

The (strengths, weaknesses, opportunities, and threats) SWOT analysis in **Figure 3** presents a visual overview of the strengths, weaknesses, opportunities, and threats in the current financial inclusion landscape in China:

1) Strengths (light green box):

- Growing digital infrastructure.
- Government support for financial inclusion.
- High mobile penetration.
- Increasing urbanization.

2) Weaknesses (salmon box):

- Digital divide between urban and rural areas.
- Low financial literacy in rural areas.
- Limited access to banking in remote areas.
- Regulatory challenges.

3) Opportunities (sky blue box):

- Expansion of mobile banking services.

- Partnerships with fintech companies.
- Development of rural banking services.
- Innovative financial products for underserved segments.

4) Threats (light grey box):

- Cybersecurity risks.
- Economic disparities.
- Rapid technological changes.
- Potential regulatory tightening.

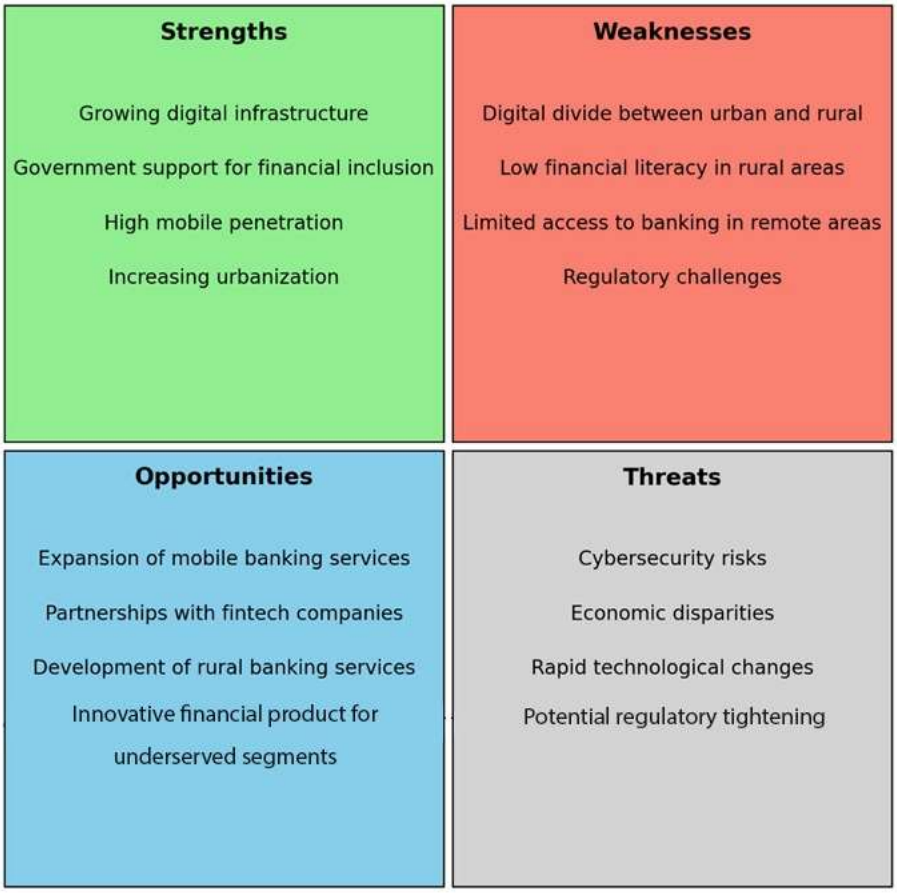

Figure 3. SWOT analysis highlighting the strengths, weaknesses, opportunities, and threats in the current financial inclusion landscape in China.
Source: People's Bank of China Report (2023); World Bank Group (2023); Asian Development Bank Publication (2023).

This SWOT analysis is a strategic tool to understand the internal and external factors impacting financial inclusion in China. It identifies areas where China excels and potential growth areas, as well as the challenges and risks that need to be managed. This visual representation can help in strategic planning and decision-making for stakeholders involved in financial inclusion initiatives in China.

The growth of China's digital infrastructure has been a key strength in the wake of the COVID-19 pandemic. According to the China Internet Network Information Centre, internet penetration rose from 59.6% at the end of 2019 to 70.4% by June 2021, indicating a significant shift toward digital platforms (Fu and Mishra, 2022). Moreover, the People's Bank of China reports a 20% year-over-year increase in

mobile payment transaction volumes in 2020, demonstrating a robust adoption of digital financial services (Yu and Nuangjamnong, 2022). Government initiatives further solidify this strength, as demonstrated by the 'Digital Village' project, which aims to extend digital financial services to rural areas, having invested over 10 billion yuan in improving rural internet infrastructure by 2020. These investments have facilitated the rise in mobile internet users, which stood at 989 million as of December 2020, according to the China Internet Network Information Centre (Fu and Mishra, 2022).

Despite the rapid digitization of financial services, a notable weakness is the persistent digital divide. The National Bureau of Statistics of China highlighted that only 55% of the rural population had access to the internet in 2020, compared to 87% in urban areas (Ullah et al., 2021). This gap in accessibility is compounded by disparities in financial literacy, where rural populations have lower awareness and understanding of digital financial products. A survey conducted by the China Association of Microfinance in 2020 showed that only 32% of rural respondents felt confident in their understanding of digital financial services, compared to 68% in urban centres (Al Amin et al., 2022). This data underscores the need for targeted financial education to ensure equitable financial inclusion.

The expansion of mobile banking services represents a significant opportunity, as illustrated by a report from the China Banking Association showing a 15% increase in mobile banking registrations in 2020 (Labouré and Deffrennes, 2022). This growth is partly driven by the pandemic, which has forced consumers to adapt to online platforms for everyday transactions. Furthermore, strategic partnerships between traditional banks and fintech companies have led to innovative financial products tailored to the underserved sectors. For example, collaborations between major commercial banks and fintech giants like Ant Financial have resulted in the creation of digital microloan products, which saw a 60% uptake increase among small business owners within their first year of launch (Qiu et al., 2022).

Cybersecurity remains a critical threat in the digital financial landscape, with the China Cybersecurity Review Technology and Certification Centre reporting a 22% increase in financial cyber-attacks in 2020 (Vasile et al., 2021). The average cost of a data breach in the financial sector reached 3.68 million yuan, emphasizing the need for robust cybersecurity measures (Wang et al., 2024). Economic disparities, exacerbated by the pandemic, pose another threat to financial inclusion. The National Statistics Bureau reported that the urban-rural income ratio widened to 2.7 in 2020, signalling a risk of increasing financial service disparity (Labouré and Deffrennes, 2022). This economic stratification can potentially hinder the full realization of financial inclusion efforts, as lower-income rural populations may not equally benefit from digital financial advancements.

Aligning financial goods with the needs of marginalised groups is another area where inefficiency is prevalent. A common flaw in the design of financial goods and services is a lack of customization to meet the needs of different customer segments. Workers in agriculture or small business, for instance, may benefit from savings products or loan terms that are more adaptable to their unpredictable revenue (Karlan et al., 2014). To address this mismatch, it is essential to understand more about the spending habits and needs of various demographics.

While technological progress is great news for financial inclusion, it also brings new obstacles. One factor that can worsen financial exclusion for some groups is the digital divide, which refers to the disparity between those with and without access to contemporary information and communication technology. Digital financial services do not reach their full potential in areas with spotty internet or low smartphone penetration (Williams et al., 2016). Additionally, individuals' and even financial organisations' capacity to stay up with the rate of technological change might occasionally be inadequate, resulting in inefficiencies and lost opportunities.

The comparative bar graph in **Figure 4** illustrates the disparities in digital literacy and infrastructure between urban and rural areas in China. Each pair of bars represents a different aspect of digital engagement: Internet Access, Smartphone Ownership, Digital Literacy, E-Banking Usage, E-Commerce Participation. For each category, the graph shows the percentage for urban areas (blue bars) compared to rural areas (green bars). This visualization highlights the digital divide, showcasing how urban areas typically have higher rates of digital literacy and access to digital infrastructure compared to rural areas.

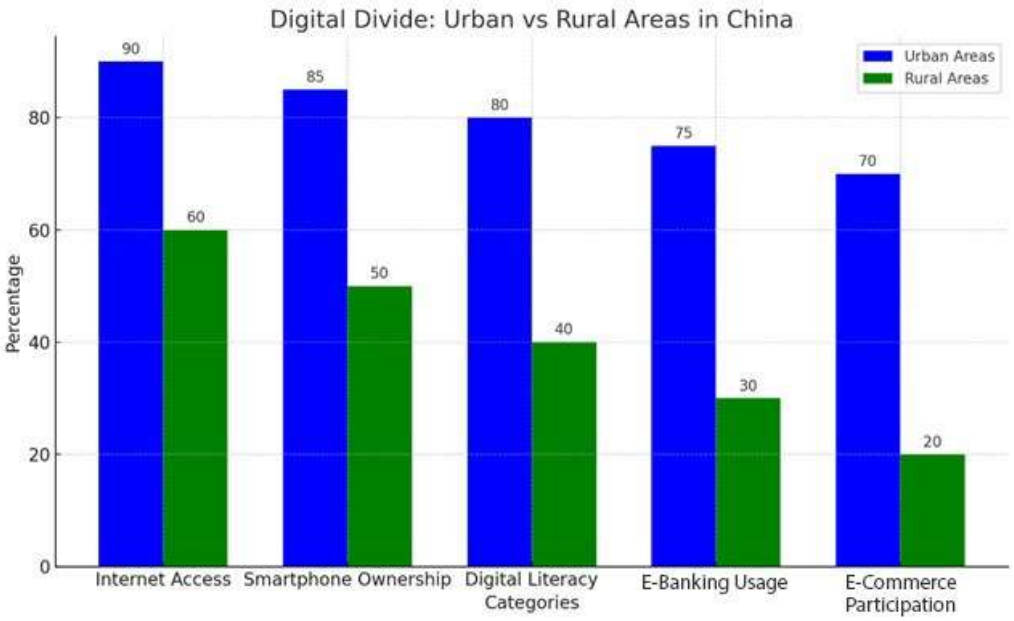

Figure 4. Graphs on digital divide showing the disparities in digital literacy and infrastructure.

Source: People's Bank of China Report (2023).

There are also serious deficiencies in the area of financial literacy. A lack of knowledge about personal finance among prospective users frequently impedes the success of initiatives to increase financial inclusion. People are less likely to make use of financial services and gain access to them if they lack a fundamental knowledge of money and how to use them (Van Raaij, 2016). To increase the use of financial services and provide people the tools they need to make sound financial decisions, financial literacy programmes are crucial.

The effectiveness of monetary systems is also greatly influenced by regulatory frameworks. Financial innovation and accessibility can be stunted by overly strict regulations, while fraud and systemic instability can result from overly lenient ones.

Fostering an environment that promotes innovation while safeguarding consumer interests requires finding the correct regulatory balance.

4.2. Opportunities for enhanced financial inclusion

With the world moving towards digitization and innovation, there are many chances to improve engagement and service delivery in the field of financial inclusion. More inclusive financial ecosystems that serve the requirements of varied population segments may be possible thanks to these opportunities, which have been found through a variety of studies and assessments.

The advent of digital financial services presents one of the greatest opportunities. There are now more ways than ever to reach neglected areas because to the proliferation of mobile technology and the rise of finance. From simple banking and payments to more complicated items like investments and insurance, digital platforms can provide a wide range of financial services at lower rates and with more convenience. For example, there is great promise in the usage of digital wallets and mobile banking to bring banking services to underserved rural and distant locations. Financial institutions can expand their access to previously untapped markets by utilising these technologies, which in turn promotes financial inclusion on a larger scale.

Data analytics and AI are becoming increasingly popular in the banking industry, which presents yet another possibility. Financial organisations may learn more about their customers' wants and habits with the use of these technologies, which in turn allows them to create new and better financial solutions. Lenders may extend loans to more people, even those with less-than-perfect credit histories, thanks to predictive analytics' improved ability to gauge credit risk. In a similar vein, personal finance solutions powered by AI may tailor recommendations and guidance to each user, empowering them to make better financial choices.

Another way to improve financial inclusion is through the growth and integration of MFIs with conventional financial services. MFIs have played a crucial role in ensuring that small enterprises and individuals with low incomes have access to credit and other financial services (Awuah and Addaney, 2016). MFIs can expand the services they offer by forming partnerships with conventional banks and fintech firms, which allow them to tap into their vast networks and in-depth knowledge of local markets (Matthews et al., 2023). Collaborations like these can also help microfinance initiatives scale up, which in turn makes them last longer and have a greater effect.

To further improve financial inclusion, programmes promoting financial literacy and education are also crucial. People are more likely to make wise financial decisions and make good use of financial services if they are well-informed. Initiatives aimed at educating the public can centre on teaching people the value of saving and investing, how to utilise digital financial tools, and fundamental financial principles. Particularly in underprivileged areas, these programmes can make a big difference in people's lives by incorporating financial literacy into school and community programmes and reaching more people through digital means.

Innovation in regulations is another important domain. By fostering an atmosphere that promotes innovation while guaranteeing consumer safety and economic stability, regulators play a critical role in moulding the financial inclusion scene. For instance, the creation of regulatory sandboxes encourages innovation in the financial services industry by providing a controlled setting for fintech entrepreneurs to test their innovative products and services. Furthermore, digital ID systems, e-KYC (Know Your Customer), and mobile banking rules can greatly reduce obstacles to financial services (Arner et al., 2019).

There is great potential for improving financial inclusion through including diverse demographic groups, especially women and marginalised communities. One example is the underserved yet sizable demand for financial services among women. One way to empower women socially and economically is to provide products and services that are tailored to their needs. This can be done through microloans or savings organisations, for example. Equally important is meeting the specific financial requirements of underserved populations in order to achieve full and equal financial inclusion.

5. Conclusion

The COVID-19 pandemic provides a unique lens through which to examine China's financial inclusion landscape, which is both dynamic and fraught with peril. The pandemic has hastened the financial sector's digital revolution while simultaneously highlighting the pre-existing inequalities in access to financial services. There are a lot of chances for increased financial inclusion brought about by this transition, but there are also a lot of problems and holes that need to be filled.

There has been a sea change in the financial industry, and China is leading the way towards improved financial inclusion via digital platforms. Rural areas and other underserved areas have benefited greatly from the expansion of financial services made possible by the broad use of mobile payment systems and internet banking. Nevertheless, there is still a critical problem with the digital divide. For these programmes to be successful, it is essential that people from all walks of life, particularly those living in rural regions, have equal access to digital financial services. A crucial step towards bridging the gap between urban and rural financial access is the continuous endeavour to improve digital infrastructure and literacy.

Microfinance organisations and commercial banks in China have played a crucial role in making financial services more accessible. It is admirable how they work together, how they come up with unique solutions, and how they innovate. But these institutions still have a long way to go before they can satisfy the changing demands of their varied clientele, especially those in rural areas and those running small businesses.

The financial inclusion landscape has also been significantly influenced by China's regulatory frameworks. The ever-changing character of financial regulation is demonstrated by the careful balancing act between encouraging innovation and guaranteeing consumer safety and stability. In the future, regulatory agencies will need to be flexible enough to respond to the ever-evolving financial landscape, especially as a result of technology developments.

Artificial intelligence, blockchain, and data analytics have paved the way for greater efficiency and safety in China's financial services industry. Cybersecurity and data privacy are two areas where these technologies pose particular threats, despite their enormous promise. In order to keep the financial system honest and reliable, it is essential to overcome these obstacles.

Finding the weak spots and missing pieces of China's financial inclusion efforts would obviously necessitate a sophisticated and multidimensional strategy. various demographics in China have various requirements and face distinct obstacles, therefore strategies should be situationally appropriate. This necessitates efforts in education and regulation in addition to technology fixes.

There is a plethora of opportunity to expand access to financial services in China. There is a rare opportunity for ground-breaking monetary solutions in this nation because of its huge and varied populace and its fast-technological development. Government agencies, banks, IT companies, and civic organisations must work together to take advantage of these potential.

The financial landscape of China in the future will be heavily influenced by the lessons gained and progress made in financial inclusion as the country continues to navigate the world post-pandemic. The objective is to create a society in which individuals, irrespective of their background or place of residence, can readily and affordably access a variety of financial services. Not only will this help the economy thrive and stay stable, but it will also get us closer to our larger goals of social justice and environmentally responsible growth.

Author contributions: Conceptualization, MZ and FG; methodology, MZ; software, AA; validation, MZ, FG and ZZ; formal analysis, GA; investigation, ST; resources, FG; data curation, MZ; writing—original draft preparation, MZ; writing—review and editing, ; visualization, ST; supervision, MZ; project administration, FG; funding acquisition, FG. All authors have read and agreed to the published version of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

References

Agarwal, S., & Zhang, J. (2020). FinTech, Lending and Payment Innovation: A Review. Asia-Pacific Journal of Financial Studies, 49(3), 353–367. Portico. https://doi.org/10.1111/ajfs.12294

Al Amin, Md., Arefin, Md. S., Alam, Md. S., & Rasul, T. F. (2022). Understanding the Predictors of Rural Customers' Continuance Intention toward Mobile Banking Services Applications during the COVID-19 Pandemic. Journal of Global Marketing, 35(4), 324–347. https://doi.org/10.1080/08911762.2021.2018750

Ameen, N., Hosany, S., & Tarhini, A. (2021). Consumer interaction with cutting-edge technologies: Implications for future research. Computers in Human Behavior, 120, 106761. https://doi.org/10.1016/j.chb.2021.106761

Arner, D. W., Zetzsche, D. A., Buckley, R. P., & Barberis, J. N. (2019). The Identity Challenge in Finance: From Analogue Identity to Digitized Identification to Digital KYC Utilities. European Business Organization Law Review, 20(1), 55–80. https://doi.org/10.1007/s40804-019-00135-1

Awuah, S. B., & Addaney, M. (2016). The Interactions between Microfinance Institutions and Small and Medium Scale Enterprises in the Sunyani Municipality of Ghana. Asian Development Policy Review, 4(2), 51–64. https://doi.org/10.18488/journal.107/2016.4.2/107.2.51.64

Brodeur, A., Gray, D., Islam, A., & Bhuiyan, S. (2021). A literature review of the economics of COVID-19. Journal of Economic Surveys, 35(4), 1007–1044. Portico. https://doi.org/10.1111/joes.12423

Cao, S., Nie, L., Sun, H., et al. (2021). Digital finance, green technological innovation and energy-environmental performance: Evidence from China's regional economies. Journal of Cleaner Production, 327, 129458. https://doi.org/10.1016/j.jclepro.2021.129458

Chishti, S., & Puschmann, T. (2018). The Wealthtech book: The FinTech handbook for investors, entrepreneurs and finance visionaries. John Wiley & Sons.

De Ferranti, D. M. (2005). Beyond the city: The rural contribution to development. World Bank Publications.

Didier, T., Huneeus, F., Larrain, M., & Schmukler, S. L. (2021). Financing firms in hibernation during the COVID-19 pandemic. Journal of Financial Stability, 53, 100837. https://doi.org/10.1016/j.jfs.2020.100837

Donthu, N., & Gustafsson, A. (2020). Effects of COVID-19 on business and research. Journal of Business Research, 117, 284–289. https://doi.org/10.1016/j.jbusres.2020.06.008

Dotsey, S. (2022). COVID-19 and Microcredit: Dissecting an NGO's Training, Financial Support, and Women Empowerment Programmes. Social Sciences, 11(9), 402. https://doi.org/10.3390/socsci11090402

Du, L., Razzaq, A., & Waqas, M. (2022). The impact of COVID-19 on small- and medium-sized enterprises (SMEs): empirical evidence for green economic implications. Environmental Science and Pollution Research, 30(1), 1540–1561. https://doi.org/10.1007/s11356-022-22221-7

Fu, J., & Mishra, M. (2022). Fintech in the time of COVID−19: Technological adoption during crises. Journal of Financial Intermediation, 50, 100945. https://doi.org/10.1016/j.jfi.2021.100945

Gomber, P., Kauffman, R. J., Parker, C., & Weber, B. W. (2018). On the Fintech Revolution: Interpreting the Forces of Innovation, Disruption, and Transformation in Financial Services. Journal of Management Information Systems, 35(1), 220–265. https://doi.org/10.1080/07421222.2018.1440766

Goolsbee, A., & Syverson, C. (2021). Fear, lockdown, and diversion: Comparing drivers of pandemic economic decline 2020. Journal of Public Economics, 193, 104311. https://doi.org/10.1016/j.jpubeco.2020.104311

Hasan, Md. M., Yajuan, L., & Khan, S. (2020). Promoting China's Inclusive Finance Through Digital Financial Services. Global Business Review, 23(4), 984–1006. https://doi.org/10.1177/0972150919895348

Hashemi Joo, M., Nishikawa, Y., & Dandapani, K. (2019). Cryptocurrency, a successful application of blockchain technology. Managerial Finance, 46(6), 715–733. https://doi.org/10.1108/mf-09-2018-0451

Karlan, D., Ratan, A. L., & Zinman, J. (2014). Savings by and for the Poor: A Research Review and Agenda. Review of Income and Wealth, 60(1), 36–78. Portico. https://doi.org/10.1111/roiw.12101

Khan, S. U. (2022). Financing constraints and firm-level responses to the COVID-19 pandemic: International evidence. Research in International Business and Finance, 59, 101545. https://doi.org/10.1016/j.ribaf.2021.101545

Kitsios, F., Giatsidis, I., & Kamariotou, M. (2021). Digital Transformation and Strategy in the Banking Sector: Evaluating the Acceptance Rate of E-Services. Journal of Open Innovation: Technology, Market, and Complexity, 7(3), 204. https://doi.org/10.3390/joitmc7030204

Kroeber, A. R. (2020). China's Economy: What Everyone Needs to Know. Oxford University Press.

Kshetri, N. (2016). Big data's role in expanding access to financial services in China. International Journal of Information Management, 36(3), 297–308. https://doi.org/10.1016/j.ijinfomgt.2015.11.014

Labouré, M., & Deffrennes, N. (2022). Democratizing finance: The radical promise of fintech. Harvard University Press.

Li, K., Kim, D. J., Lang, K. R., et al. (2020). How should we understand the digital economy in Asia? Critical assessment and research agenda. Electronic Commerce Research and Applications, 44, 101004. https://doi.org/10.1016/j.elerap.2020.101004

Li, L., Taeihagh, A., & Tan, S. Y. (2023). A scoping review of the impacts of COVID-19 physical distancing measures on vulnerable population groups. Nature Communications, 14(1). https://doi.org/10.1038/s41467-023-36267-9

Liu, X., Liu, Y., & Yan, Y. (2020). China macroeconomic report 2020: China's macroeconomy is on the rebound under the impact of COVID-19. Economic and Political Studies, 8(4), 395–435. https://doi.org/10.1080/20954816.2020.1844609

Liu, Y., Lee, J. M., & Lee, C. (2020). The challenges and opportunities of a global health crisis: the management and business implications of COVID-19 from an Asian perspective. Asian Business & Management, 19(3), 277–297. https://doi.org/10.1057/s41291-020-00119-x

Mansour, H. (2021). How successful countries are in promoting digital transactions during COVID-19. Journal of Economic Studies, 49(3), 435–452. https://doi.org/10.1108/jes-10-2020-0489

Matthews, K., Thompson, J., & Zhang, T. (2023). Economics of Bankin. The World Scientific.

Mishra, B., & Prashar, A. (2021). Customers' readiness for a paradigm shift towards cyberspace: An exploratory investigation in Indian retail banking. International Journal of Financial Innovation in Banking, 3(1), 1. https://doi.org/10.1504/ijfib.2021.114924

Mogaji, E., Adeola, O., Hinson, R. E., et al. (2021). Marketing bank services to financially vulnerable customers: Evidence from an emerging economy. International Journal of Bank Marketing, 39(3), 402–428. https://doi.org/10.1108/ijbm-07-2020-0379

Moosavi, J., Fathollahi-Fard, A. M., & Dulebenets, M. A. (2022). Supply chain disruption during the COVID-19 pandemic: Recognizing potential disruption management strategies. International Journal of Disaster Risk Reduction, 75, 102983. https://doi.org/10.1016/j.ijdrr.2022.102983

Neaime, S., & Gaysset, I. (2018). Financial inclusion and stability in MENA: Evidence from poverty and inequality. Finance Research Letters, 24, 230–237. https://doi.org/10.1016/j.frl.2017.09.007

Qian, Y., & Fan, W. (2020). Who loses income during the COVID-19 outbreak? Evidence from China. Research in Social Stratification and Mobility, 68, 100522. https://doi.org/10.1016/j.rssm.2020.100522

Qiu, W., Wu, T., & Xue, P. (2022). Can Mobile Payment Increase Household Income and Mitigate the Lower Income Condition Caused by Health Risks? Evidence from Rural China. International Journal of Environmental Research and Public Health, 19(18), 11739. https://doi.org/10.3390/ijerph191811739

Renu, N. (2021). Technological advancement in the era of COVID-19. SAGE Open Medicine, 9, 205031212110009. https://doi.org/10.1177/20503121211000912

Sadok, H., Sakka, F., & El Maknouzi, M. E. H. (2022). Artificial intelligence and bank credit analysis: A review. Cogent Economics & Finance, 10(1). https://doi.org/10.1080/23322039.2021.2023262

Shah, S. M. A., Mohammad, D., Qureshi, M. F. H., et al. (2020). Prevalence, Psychological Responses and Associated Correlates of Depression, Anxiety and Stress in a Global Population, During the Coronavirus Disease (COVID-19) Pandemic. Community Mental Health Journal, 57(1), 101–110. https://doi.org/10.1007/s10597-020-00728-y

Tooze, A. (2021). Shutdown: How Covid shook the world's economy. Penguin UK.

Ullah, A., Pinglu, C., Ullah, S., et al. (2020). The Role of E-Governance in Combating COVID-19 and Promoting Sustainable Development: A Comparative Study of China and Pakistan. Chinese Political Science Review, 6(1), 86–118. https://doi.org/10.1007/s41111-020-00167-w

Van Raaij, W. F. (2016). Understanding consumer financial behavior: Money management in an age of financial illiteracy. Springer.

Vasile, V., Panait, M., & Apostu, S.-A. (2021). Financial Inclusion Paradigm Shift in the Postpandemic Period. Digital-Divide and Gender Gap. International Journal of Environmental Research and Public Health, 18(20), 10938. https://doi.org/10.3390/ijerph182010938

Wang, J., Ho, C. Y. (Chloe), & Shan, Y. G. (2024). Does cybersecurity risk stifle corporate innovation activities? International Review of Financial Analysis, 91, 103028. https://doi.org/10.1016/j.irfa.2023.103028

Wang, Y., Wang, X., Zhang, Z., et al. (2023). Role of fiscal and monetary policies for economic recovery in China. Economic Analysis and Policy, 77, 51–63. https://doi.org/10.1016/j.eap.2022.10.011

Weber, O., & Feltmate, B. (2016). Sustainable banking: Managing the social and environmental impact of financial institutions. University of Toronto Press.

Williams, F., Philip, L., Farrington, J., & Fairhurst, G. (2016). 'Digital by Default' and the 'hard to reach': Exploring solutions to digital exclusion in remote rural areas. Local Economy: The Journal of the Local Economy Policy Unit, 31(7), 757–777. https://doi.org/10.1177/0269094216670938

Winter, J. S., & Davidson, E. (2022). Harmonizing regulatory regimes for the governance of patient-generated health data. Telecommunications Policy, 46(5), 102285. https://doi.org/10.1016/j.telpol.2021.102285

Ye, W., Chen, W., & Fortunati, L. (2021). Mobile Payment in China: A Study from a Sociological Perspective. Journal of Communication Inquiry, 47(3), 222–248. https://doi.org/10.1177/01968599211052965

Yu, J., & Nuangjamnong, C. (2022). The Impact of Mobile Banking Service on Customer Satisfaction: A Case Study of Commercial Banks in China. United International Journal for Research & Technology, 3(10), 43–64.

Zhang, M. Y., & Williamson, P. (2021). The emergence of multiplatform ecosystems: Insights from China's mobile payments system in overcoming bottlenecks to reach the mass market. Technological Forecasting and Social Change, 173, 121128. https://doi.org/10.1016/j.techfore.2021.121128

Zhang, W., Wang, Y., Yang, L., & Wang, C. (2020). Suspending Classes Without Stopping Learning: China's Education Emergency Management Policy in the COVID-19 Outbreak. Journal of Risk and Financial Management, 13(3), 55. https://doi.org/10.3390/jrfm13030055

Zhao, L., Cao, C., Li, Y., & Li, Y. (2022). Determinants of the digital outcome divide in E-learning between rural and urban students: Empirical evidence from the COVID-19 pandemic based on capital theory. Computers in Human Behavior, 130, 107177. https://doi.org/10.1016/j.chb.2021.107177

Zheng, C., & Zhang, J. (2021). The impact of COVID-19 on the efficiency of microfinance institutions. International Review of Economics & Finance, 71, 407–423. https://doi.org/10.1016/j.iref.2020.09.016

Zreik, M. (2023). Governance in Post-COVID-19 China. Advances in Logistics, Operations, and Management Science, 214–235. https://doi.org/10.4018/978-1-7998-9213-7.ch011

Zreik, M., Iqbal, B. A., & Rahman, M. N. (2022). Outward FDI: Determinants and Flows in Emerging Economies: Evidence from China. China and WTO Review, 8(2), 385–402. https://doi.org/10.14330/cwr.2022.8.2.07

Zreik, M., Marzuki, S. S., & Iqbal, B. A. (2023). Deepening Financial Inclusion through Digitization: A Case Study of Microfinance in China. ASEAN Entrepreneurship Journal, 9(2), 9–21.