The Impact of Financial Technology on GDP and Home Prices: Evidence from China

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Abstract. This paper investigates the impact of financial technology (FinTech) on GDP and home prices in China. Using robust econometric techniques and a comprehensive dataset, we find that FinTech has a positive and significant effect on both GDP and home prices. These findings highlight the potential of FinTech to drive economic growth and positively influence the housing market. The results have important implications for policymakers seeking to leverage FinTech for sustainable economic development and housing market stability.

Key words: FinTech; GDP; Housing Price; China.

1. Introduction

Financial technology (FinTech) has emerged as a transformative force in the global financial landscape, revolutionizing the way financial services are delivered and accessed. China, as one of the world's leading economies and a major player in the FinTech industry, provides an intriguing case for examining the impact of FinTech on key economic indicators such as GDP and home prices. Understanding the relationship between FinTech and these indicators is essential for policymakers and stakeholders to harness the potential benefits and address any associated risks.

The rapid development and widespread adoption of FinTech in China have disrupted traditional financial systems, offering new avenues for financial inclusion, efficiency, and innovation. From mobile payment platforms to peer-to-peer lending and blockchain-based solutions, FinTech has permeated various sectors, reshaping the financial landscape and altering the dynamics of economic growth and the housing market.

This study aims to provide empirical evidence on the impact of FinTech on GDP and home prices in China. By analyzing a comprehensive dataset and employing rigorous econometric techniques, we seek to uncover the relationship between FinTech adoption and these key economic indicators. This research fills an important gap in the existing literature by focusing specifically on the Chinese context, where FinTech has experienced rapid growth and garnered significant attention from policymakers and industry players.

The findings of this study have implications for both policymakers and market participants. Understanding how FinTech influences GDP growth and home prices can inform policymakers in designing effective strategies to foster economic development and ensure the stability of the housing market. Additionally, financial institutions and technology companies can gain insights into the potential benefits and risks associated with FinTech adoption. By examining the impact of FinTech on GDP and home prices in China, this research contributes to the growing body of literature on the transformative effects of FinTech and provides valuable insights for policymakers, financial institutions, and stakeholders navigating the evolving landscape of the digital economy.

The remainder of this paper is organized as follows. Section 2 briefly reviews the relevant literature. Section 3 introduces the background and data in this study. The empirical results are presented in section 4. The last section discusses some policy implications and provides some concluding remarks.

2. Literature Review

The integration of financial technology (Fintech) with traditional financial services has witnessed significant growth in recent years, with China emerging as a global leader in this domain. This

literature review provides an overview of existing research that explores the relationship between Fintech development and its impact on economic growth in China.

Several studies have investigated the nonlinear impact of Fintech on real economic growth in China. Bu, Yu, and Li (2022) present evidence indicating that Fintech's early stages might inhibit economic growth, but continued development yields positive effects on economic growth with diminishing marginal outcomes. Furthermore, they suggest that the expansion of Fintech has the potential to foster economic growth in the long run.

The success of Fintech in China is often attributed to its integration with real-life needs rather than merely relying on technological advantages (Chen, 2016). Chen's study highlights that China's Fintech growth has been faster than that of the United States, and this growth has been driven by innovative ways of addressing financial inclusion and real-life demands, contributing to overall economic development.

In the context of digital financial inclusion and economic growth in China, Ahmad et al. (2021) find that digital finance and human capital significantly affect provincial economic growth. Moreover, Jiang, Wang, Ren, and Xie (2021) provide evidence that the development of digital finance in China has played a substantial role in stimulating economic growth. They argue that digital finance has enabled the liberation of entrepreneurship and promoted economic growth in the region.

Focusing on the impact of digital finance on the quality of economic growth, Liu, Hu, Elahi, and Liu (2022) reveal that the development of digital finance in China has had a significant effect on the quality of economic growth. However, they observe that the impact gradually slows down with further advancements in digital finance.

The relationship between Fintech development and GDP growth in specific regions is also explored in the literature. Oruo's study (2013) on Kenya indicates that the introduction of mobile money positively impacted the financial sector's growth in the country. It was found that economic growth in Kenya had a strong positive relationship with branch networks and a weak positive relationship with the number of mobile money users/accounts.

Moving beyond the local context, Chorzempa and Huang (2022) emphasize the role of regulation and competition among financial institutions in China's successful Fintech innovation. They argue that clever reforms and effective regulations have been crucial in overcoming the lack of competition among financial institutions, leading to Fintech's growth.

Finally, in the context of consumption upgrading and high-quality economic development, Feng and Zhang (2021) propose that the development of digital finance can promote residents' consumption and consumption upgrade, subsequently fostering high-quality economic development in China.

It is worth noting that the development of digital finance and Fintech's impact on economic growth exhibit complex and multifaceted relationships. Different studies have provided varying perspectives on these relationships, with some highlighting positive nonlinear effects on economic growth, while others emphasize the importance of regulatory reforms and integration with real-life needs to drive economic development.

In conclusion, the literature on Fintech and economic growth in China suggests that continued Fintech development can have positive effects on economic growth, with implications for consumption patterns, financial inclusion, and overall economic development. The success of Fintech in China has been attributed to factors such as integration with real-life needs, innovative approaches to financial inclusion, and effective regulation. However, challenges and variations in impact across different regions and over time require further research to comprehensively understand the dynamics of this evolving relationship.

3. Background and Data

3.1 Research Background

Financial technology (FinTech) has emerged as a disruptive force in the global financial industry, transforming traditional banking and financial services through the integration of technology and

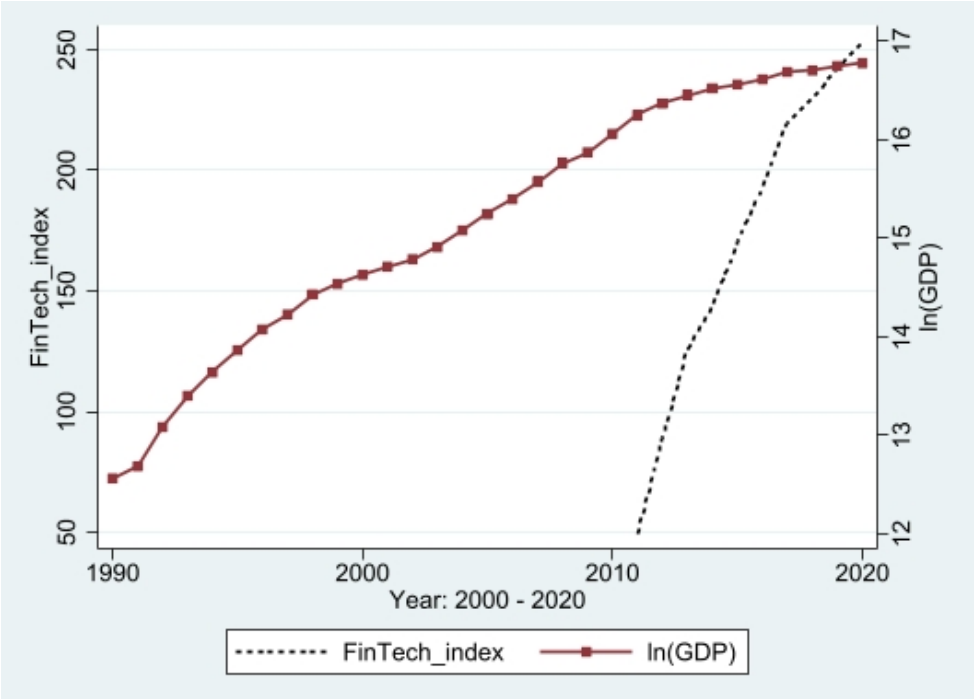
innovation. China, with its dynamic economy and rapid technological advancements, has become a frontrunner in the FinTech revolution. The Chinese FinTech ecosystem encompasses a wide range of services, including digital payments, online lending platforms, wealth management apps, and blockchain-based solutions.

The impact of FinTech on economic indicators such as GDP and home prices in China is a topic of great interest. GDP growth is a crucial measure of economic performance, reflecting the overall productivity and output of an economy. FinTech has the potential to drive economic growth by promoting financial inclusion, enhancing efficiency, and fostering innovation. However, the precise impact of FinTech on GDP remains an empirical question, particularly in the Chinese context.

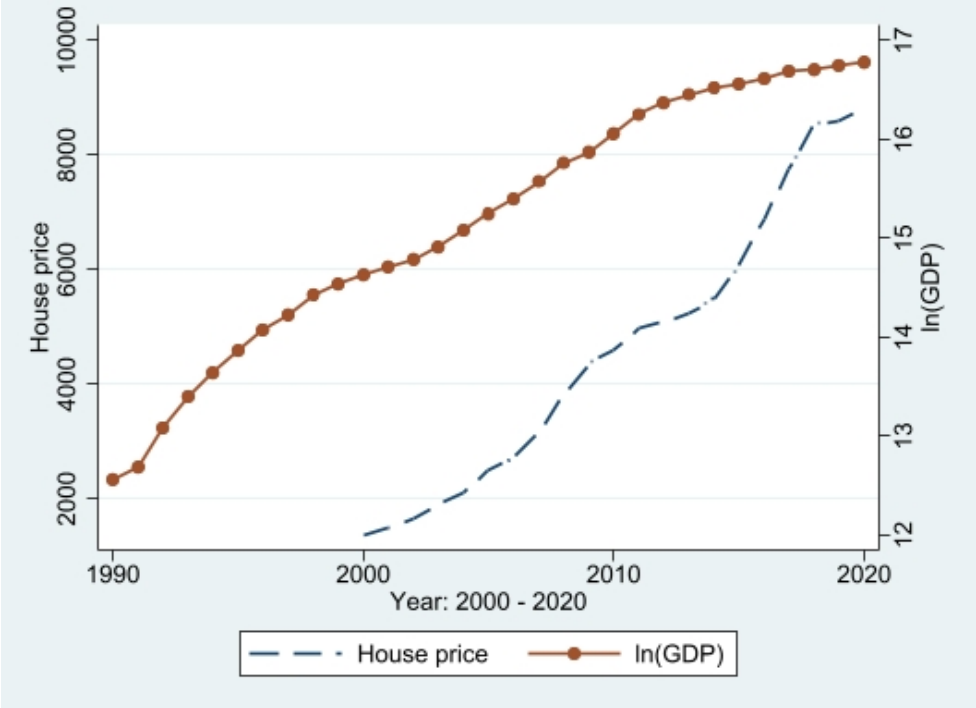
The housing market is another important sector affected by FinTech. Home prices are influenced by various factors, including supply and demand dynamics, interest rates, and market sentiment. FinTech innovations, such as online mortgage platforms and property technology (PropTech) solutions, have disrupted traditional real estate processes, potentially influencing home prices. Understanding the relationship between FinTech and home prices in China is crucial for policymakers and market participants, as it can inform decision-making regarding housing market stability and regulatory measures.

While previous studies have explored the impact of FinTech on GDP and home prices in various contexts, there is a dearth of research specifically focused on China. Given China's unique economic and technological landscape, it is essential to examine the specific implications of FinTech adoption on GDP growth and home prices in this context. This study aims to fill this gap by providing empirical evidence on the impact of FinTech on GDP and home prices in China, contributing to the existing literature and informing policymakers, financial institutions, and stakeholders about the potential effects of FinTech on the Chinese economy and housing market.

Figure 1 shows that yearly average of gross output and Fintech index follow parallel trajectories over time, indicating a positive relationship, and that there also exists a synchronized upward trend between GDP and home prices at national level.



Panel (a): Fintech index and GDP



Panel (b): House price and GDP

Figure 1. Yearly trend of National Average of Fintech, GDP, and Home prices

3.2 Data Description

The empirical paper utilizes the Beijing University Digital Inclusive Financial Index, a comprehensive set of indices developed by a joint research group comprising the Digital Finance Research Center of Peking University and Ant Financial Services Group. The primary objective of this index is to evaluate the level of digital financial inclusion in mainland China and to provide valuable insights into the adoption and penetration of digital financial services across various administrative units.

The Beijing University Digital Inclusive Financial Index consists of multiple dimensions that collectively present a comprehensive assessment of digital financial inclusion. These dimensions include:

1. Digital Financial Inclusion Index: This index offers a holistic measure of the accessibility and availability of digital financial services within mainland China, encompassing a diverse range of regions and administrative units;

2. Coverage of Digital Finance: This dimension assesses the extent and reach of digital financial services within each province, city, and county included in the study. It provides valuable information on the geographic distribution of digital financial services;

3. Depth of Digital Financial Use: This component examines the depth and degree of digital financial service adoption in the target regions, reflecting the level of integration and reliance on these services;

4. Degree of Digitalization of Financial Inclusion: This index measures the level of digital transformation and integration within the financial inclusion ecosystem. It sheds light on the extent to which traditional financial services have been digitized and made accessible through digital platforms.

Additionally, the depth of use index is further segmented into various business classification indexes, including payment, credit, insurance, investment, and monetary funds. These sub-indexes provide a granular analysis of specific aspects of digital financial usage within the regions under consideration.

The data utilized in the empirical paper is collected from an extensive coverage of administrative units across mainland China. Specifically, the study incorporates data from 31 provinces, including

municipalities directly under the central government and autonomous regions, referred to as "provinces." Furthermore, data from 337 cities above the prefecture level, encompassing regions, autonomous prefectures, leagues, etc., are also included and referred to as "cities." Additionally, the research incorporates nearly 2,800 counties, comprising county-level cities, banners, municipal districts, etc., and referred to as "counties." It is worth noting that data from certain regions, namely Hong Kong, Macao, and Taiwan, are not available and therefore not included in this research.

The temporal scope of the data spans from 2011 to 2020, focusing on both the provincial and city levels. This extensive time period allows for a comprehensive analysis of trends and changes in digital financial inclusion over the course of a decade, facilitating a robust understanding of the development and impact of digital finance in China.

In summary, the Beijing University Digital Inclusive Financial Index serves as a crucial empirical tool for the paper's analysis, offering a comprehensive assessment of digital financial inclusion in mainland China. The utilization of this index provides valuable insights into the dynamics of digital financial services adoption and integration across diverse administrative units, facilitating a rigorous examination of the impact of digital finance on economic and financial development.

4. Empirical Results

In this paper, we analyze the relationship between FinTech and two key variables, logGDP and hprice. The study employs regression analysis to assess the impact of FinTech on the logarithm of GDP and housing prices. The results indicate a statistically significant positive association between FinTech and both logGDP and hprice. For logGDP, the coefficient of FinTech is estimated to be 0.005***, indicating a strong positive relationship. The three asterisks (***) denote high statistical significance at the 1% level, highlighting the robustness of this finding. The R-squared value of 0.136 indicates that approximately 13.6% of the variation in logGDP can be attributed to the influence of FinTech.

Regarding hprice, the coefficient of FinTech is reported as 32.528***, showing a significant positive impact on housing prices. The three asterisks (***) signify high statistical significance at the 1% level, reaffirming the strength of this association. The R-squared value of 0.187 suggests that around 18.7% of the variation in housing prices can be explained by FinTech. The number of observations for logGDP is 2,894, while for hprice, it is 2,754, providing sufficient data points for robust analysis.

In conclusion, the paper's findings indicate that FinTech plays a substantial role in driving economic growth, as reflected in logGDP, and also impacts housing prices, as indicated by hprice. The empirical evidence underscores the importance of FinTech in shaping economic and financial dynamics, as evidenced by its significant relationship with logGDP and hprice. Table 1 shows the regression results of models.

Table 1. The regression results of the econometric models

	(1)	**(2)**
VARIABLES	logGDP	hprice
FinTech	0.005***	32.528***
	[21.29]	[25.12]
Constant	15.701***	1,062.975***
	[353.98]	[4.39]
Observations	2,894	2,754
R-squared	0.136	0.187
t-statistics in brackets. *** p<0.01, ** p<0.05, * p<0.1		

5. Concluding Remarks

In the larger context, the advancement of financial technology holds the promise of effectively enhancing both China's GDP and influencing housing prices. The domain of financial technology encompasses a broad spectrum of elements, ranging from the convenience of mobile payment platforms to the facilitation of loans and the implementation of solutions based on blockchain technology. Despite the existence of varying scholarly opinions, an empirical examination of the dataset within this study yields a compelling conclusion: there exists a robust and evident correlation between financial coefficients and the dynamics of housing prices.

Within this intricate interplay, the ascent of financial technology presents the potential to unlock previously unexplored avenues for economic growth. The seamless integration of mobile payment platforms and other digital financial innovations not only enhances transactional efficiency but also democratizes economic participation, fostering heightened consumption and broader economic engagement. Moreover, the innovative lending mechanisms introduced through fintech offer new avenues for individuals and businesses to access necessary capital, spurring entrepreneurial ventures, investment activities, and consequential economic expansion.

Embracing the ongoing trajectory, we can actively embrace and cultivate specific facets of financial technology to bolster China's GDP and exert a positive influence on housing prices. While advancing these technological applications, a prudent approach is paramount, considering both the advantages and potential pitfalls that financial technology introduces. Concurrently, it's imperative to exercise vigilance in safeguarding against potential risks, particularly in domains like lending. Staying attuned to this transformative shift, strategic development and implementation of financial technology can serve as a catalyst for propelling China's economic growth forward. This entails leveraging the potential of mobile payment systems, blockchain-based solutions, and innovative loan mechanisms to amplify financial inclusion and accessibility. By nurturing these avenues, we can unlock latent opportunities for consumption, investment, and entrepreneurship, thereby contributing to an uplifted GDP and potentially fostering a buoyant housing market.

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