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FinTech Evolution and Economic Progress: A Study of Kazakhstan's Financial Sector

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Abstract

The transformation of financial technologies has had a significant impact on financial institutions and economic processes. The development and implementation of financial technologies in the banking industry are key factors contributing to the innovation transition of the sector, as well as changes in business practices and strategies. This study aims to explore the relationship of financial technology with innovation and economic growth of a country. The study is based on the analysis of data obtained from the annual reports of the National Bank of Kazakhstan, statistical data from the World Bank database and information provided by the Agency for Statistics. The research method is time series analysis. This data covers the period from 2012 to 2022. The results of the study indicate that the introduction of modern technological solutions in the financial sector has a significant impact on the overall economic growth of Kazakhstan. However, government and intergovernmental organizations should consider that the implementation of innovations may require significant financial investments, and there is a risk of insufficient return on investment. In addition, innovation may lead to changes in the business model, which may also involve financial risks.

Keywords: Financial Technology (Fintech), Innovation, ATM, Economic Growth, Banking, Kazakhstan, Covid-19
Jel codes: O31, O33, M50.



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1. Introduction

The study of the impact of financial technologies on a country's economy and their connection with innovations and economic growth represents a pressing task that requires analysis and assessment of the consequences of implementing these technologies for the sustainable development of the financial sector and the economy as a whole. The evolution of Financial Technology (Fintech) has significantly transformed the financial sector, especially in terms of investments and Automated Teller Machines (ATMs). Investigating innovations and ATMs is important for several reasons. ATMs are widely used points of contact between consumers and the financial system, influencing consumer experience. The widespread proliferation of ATMs is directly linked to an increase in economic activity. They reduce transaction costs, facilitate access to credit, and stimulate consumer demand and business initiatives. ATMs also serve as platforms for the introduction of new technologies such as biometrics and artificial intelligence (Aubakirova, 2019). Studying how innovations can improve their functionality and security is vital for the quality of financial services.

Additionally, Fintech has revolutionized financial operations, enhancing the banking industry. ATMs have become multifunctional due to Fintech, but this has also brought about security and maintenance issues. Fintech has altered the investment landscape, making investments more accessible and providing personalized advice, but this has also increased market risks and volatility (Edward & Kuznetsov, 2023).

Moreover, the connection between ATMs, innovations, and Fintech is strong. Innovations help make ATMs more secure and convenient, expanding their functionality (Chen, 2021; Fidan & Tuğba, 2023). Fintech facilitates the growth of small and medium-sized enterprises but also increases investment risks and creates monopolies. Furthermore, the emergence of Fintech has led to new lending models and a rise in fraud, creating regulatory challenges and issues related to the security of consumer data in financial technologies (Cortina & Chen, 2022). This article contributes to the research on the impact of Fintech and innovations on the economic development of Kazakhstan, a topic previously unexplored.

2. Literature Review

The banking industry of financial technologies is garnering significant attention from researchers. The role of financial technologies (Fintech) in the financial sphere has greatly increased, becoming a key element in the development strategy of the banking sector in many countries. There is an extensive body of research that analyzes the impact of the development of financial technologies, taking into account various aspects, including both macroeconomic and microeconomic factors (Dirir, 2023).

Fintech-focused startups most commonly emerge in countries with modern infrastructure, access to advanced technologies, favorable regulation, and a broad labor market. Research also examines the relationship between investments in Fintech and GDP, with developed countries possessing flexible financial systems providing more stable conditions for Fintech investments and stimulating economic growth (Musabegovic et al., 2019). Interestingly, the nature of innovations in this field depends on the complexity of the innovations and the opportunities available to innovators.

The banking sector faces a number of documented challenges, including risks associated with balance sheets, securitization, and intermediation, as well as changes in intermediation caused by the spread of digital currencies (Wandmacher & Wegmann, 2020). It should be noted that the development of Fintech innovations is accompanied by increased risks of cyberattacks and data breaches, making cybersecurity a top priority. Cybersecurity in the context of financial technologies (Fintech) represents an integral and critically important area, conditioned by the introduction of modern technologies and online payments into the financial sector.

The development of mobile applications for banking operations has made financial services more accessible and user-friendly. These apps allow customers to perform a variety of banking operations such as money transfers, bill payments, and loan applications directly from their smartphones (Jarvis & Han, 2021). These innovations include the development of mobile applications for banking operations, the use of big data and artificial intelligence for analyzing financial markets and risks, as well as the creation of cryptocurrencies and digital assets for new types of investments (Hwang et al., 2021). Mobile and internet technologies, as well as digital currencies, play an important role in defining the demand for money and can impact commodity markets (Evans, 2018; Abraham, 2006). Monetary policy also has a significant impact on the Fintech sector, including factors such as interest rates, GDP, inflation, financial development index, and stock indices (Omodero, 2021).

ATMs, since the last century, have offered clients the ability to withdraw cash, check account balances, deposit cash, and perform other banking operations without the need to visit a bank or interact with bank staff. Fintech represents a new stage in the evolution of financial services, based on modern technologies such as mobile applications, internet platforms, and blockchain (Ashta & Biot-Paquerot, 2018). Previously, there have been no studies that examined ATMs as predictors of financial technologies in relation to the economic growth of

Kazakhstan. Below, the research methodology will be presented, along with the interpretation of the main results obtained and conclusions drawn from the conducted study.

3. Data & Methodology

The research methodology of current research includes a comprehensive approach to analyzing socio-economic development of regions of Kazakhstan based on the following indicators: gross regional product (GRP), Automated teller machines and capital investment. The data for the analysis was collected from the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan and covered the period from 2018 to 2022. Regional inequalities in socio-economic development represent significant differences in levels of wealth, access to resources, infrastructure, education and health services between different areas or regions within the same country or between different differences.

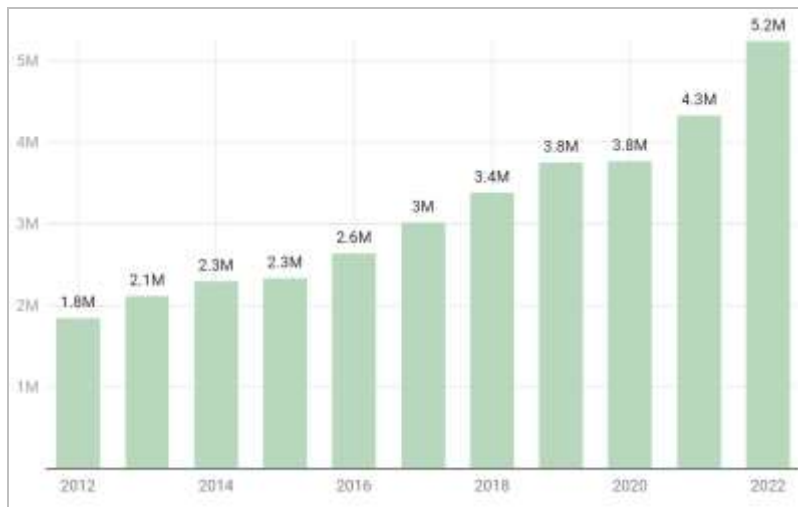


Figure 1. Gross domestic product per capita, Kzt

Source: National Bank of Kazakhstan (Statistical bulletin)

During the period from 2012 to 2022, the economy of Kazakhstan underwent a series of significant changes, as reflected in its Gross Domestic Product (GDP) per capita. The economic growth of Kazakhstan was largely dependent on global oil prices, leading to periods of both high growth and economic downturns in line with fluctuations in the global market. For instance, the decline in oil prices during 2014-2015 exerted pressure on the nation's economy. In response, the government implemented a series of measures aimed at stimulating the economy and diversifying its sectors to reduce reliance on the oil industry. From 2020, the global COVID-19 pandemic had a profound impact on Kazakhstan's economy. Measures to combat the pandemic, including lockdowns and restrictions on international travel, significantly affected economic activity.

The COVID-19 pandemic has underscored the significance of financial infrastructure, including Automated Teller Machines (ATMs), in crisis conditions. ATMs provide continuous access to financial resources, thereby enhancing the efficiency and flexibility of the economic system. They simplify the processes of cash withdrawal and account management, which are critically important for the daily financial operations of both individuals and businesses. Information on the long-term dynamics of the growth of the ATM network is presented in Figure 2.

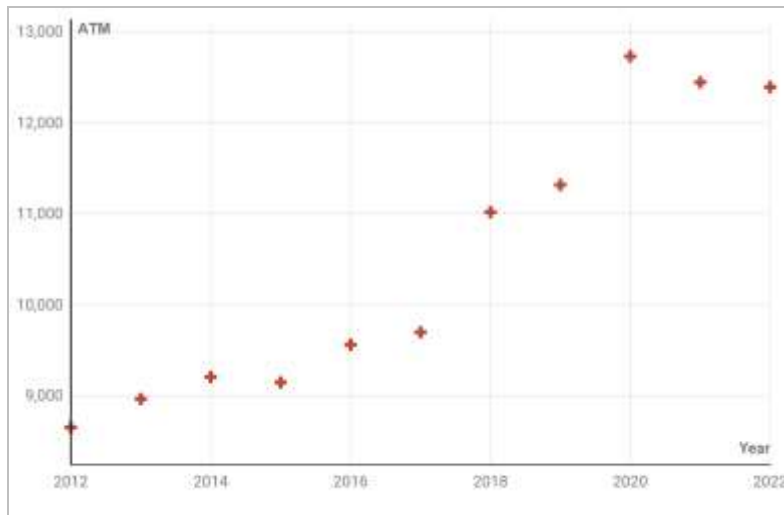


Figure 2. Automated teller machines (per 100,000 adults), count

Source: World Bank Database

The data presented reflects the number of Automated Teller Machines (ATMs) over a decade, starting from 2012 and ending in 2022. Throughout this period, a consistent trend of increasing ATM numbers is observed, albeit with varying growth rates. Certain years, such as from 2019 to 2020, experienced spikes in ATM numbers, possibly attributable to the impact of the COVID-19 pandemic on the financial sector.

It is important to note that the pandemic also stimulated investment growth. There was an increased demand for online banking and financial services, and mobile applications and online platforms for payments and transfers offered via the internet became highly sought after. Innovations in cybersecurity became a priority for financial institutions amid the rise of online transactions. The development of new authentication methods, multi-factor verification, and biometric technologies became a necessity.

The decline in the use of cash, closure of physical bank branches, or reduction in operating hours affected ATM accessibility for customers, especially in remote areas. These changes stimulated growth in online banking and the use of mobile applications for financial management. Consequently, banks reevaluated their strategies and investments in developing physical ATM networks. Most banks in Kazakhstan during the pandemic reduced or redirected investments towards other innovative projects and digital initiatives. Kaspi Bank, on the contrary, adopted a different investment strategy. During the pandemic, this bank not only invested in the development of online banking but also significantly expanded the range of services that a single ATM could handle. As of 2023, Kaspi Bank possesses the most extensive ATM network in Kazakhstan, providing the population with access to cash and banking operations even in remote regions.

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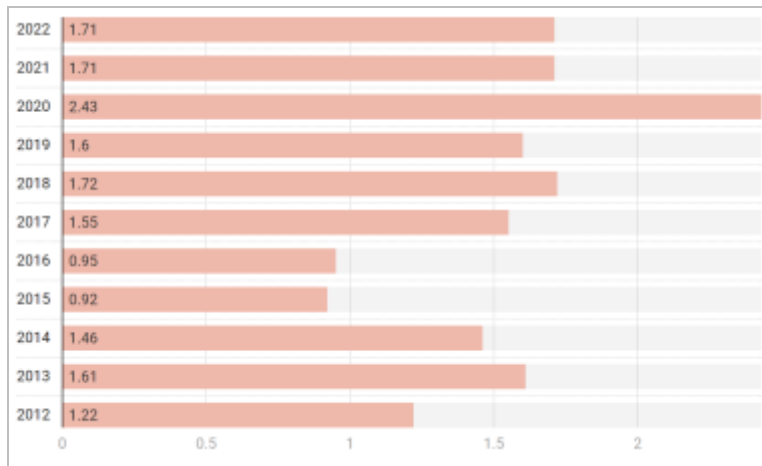


Figure 3. Share of innovative products (goods, services) in relation to GDP, %.

Source: Agency for Statistics of Kazakhstan

Interestingly, during the oil crisis of 2014-2015 and subsequently, the amount of investment decreased, but during the pandemic, the increase in investments in Kazakhstan was most significant – 2.43 times. It is important to note that during the COVID-19 pandemic, Kazakhstan stood out as a country demonstrating a steady increase in direct foreign investment. This phenomenon was due to a combination of unique economic and political factors.

The state actively implemented stimulating measures aimed at supporting and attracting investments. Significant factors included economic reforms, improvement of the investment climate, and infrastructure development. The stability of the national currency and the strengthening of legal protection for investors also played a key role. The main directions that attracted investor attention included the technology sector, healthcare, and renewable energy sources. The development of digital technologies, highlighted by the pandemic, and a heightened focus on public health created favorable conditions for investments. The investment boom in Kazakhstan during the pandemic underscores the country's potential as an attractive investment destination. Maintaining this trend will require further refinement of economic policy and strengthening of international ties. These investments are likely to have a significant long-term impact on the country's economic development and prosperity.

4. Conclusion

In concluding, it is evident that the comprehensive approach adopted to analyze the socio-economic development of Kazakhstan's regions has yielded insightful results. The findings highlight significant disparities in wealth, access to resources, infrastructure, education, and health services across various regions. Such inequalities are not only markers of current socio-economic status but also indicators of potential challenges and opportunities for future development. The presence and distribution of ATMs, serving as a proxy for financial infrastructure and access, alongside capital investments, indicate the varying levels of economic activities and priorities among regions.

This study underscores the critical need for targeted policy interventions aimed at addressing these regional disparities. Strategies should include equitable distribution of resources, investment in infrastructure development, and enhancement of health and educational services, tailored to the specific needs of each region. Furthermore, fostering a more inclusive financial environment through the expansion of ATM networks and encouraging capital investments in underdeveloped regions could stimulate economic activities and contribute to a more balanced regional development. Ultimately, the findings of this research provide a crucial foundation for policymakers and stakeholders in Kazakhstan to devise and implement more effective strategies for achieving equitable socio-economic growth across all regions. The importance of continuous monitoring and analysis of these indicators cannot be overstated in guiding future development policies and ensuring sustainable growth and prosperity for the nation.

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