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TRENDS IN THE DEVELOPMENT OF CASHLESS SETTLEMENTS AND REMOTE BANKING SERVICES IN COMMERCIAL BANKS

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Abstract. This article examines the development trends of cashless settlements and remote banking services in commercial banks of Uzbekistan from the perspective of enhancing the accessibility and widespread use of banking services. Based on regulatory and legal documents, reports of the Central Bank of the Republic of Uzbekistan, and empirical data on commercial banks operating in Andijan Region, the study analyzes the current state of electronic payment infrastructure, the use of bank cards and alternative digital payment instruments at fuel filling stations, as well as disparities across regions and banks.

The study substantiates the necessity of assessing the development of cashless settlements not merely by the number of payment instruments available, but also by their actual utilization rate, transaction volumes, the share of active cards, territorial coverage, and customer activity. The mechanism through which the widespread adoption of remote banking services affects banks' financial stability via the expansion of the customer base, growth in banking turnover, commission income, and strengthening of the resource base is also examined. Based on the findings, scientific and practical recommendations aimed at improving the efficiency of digital payment services are proposed.

Keywords: cashless settlements, remote banking services, digital banking, accessibility of banking services, QR payment, bank card, financial inclusion, transaction, payment infrastructure, financial stability.

INTRODUCTION

The rapid expansion of the digital economy is fundamentally transforming the mechanisms through which banking services are delivered. Interaction between banks and customers is increasingly shifting from traditional branches and cash desks to mobile applications, internet banking, bank cards, QR codes, remote identification systems, and other electronic channels. Consequently, cashless settlements are no longer regarded solely as a technological means of making payments; they have become an important factor contributing to the accessibility of financial services, the transparency of economic transactions, and the formation of a sustainable revenue base for banks.

In Uzbekistan, reforms in this area have developed gradually. Resolution No. PQ-3270 of 2017 was aimed at modernizing the banking system and expanding the range of banking services, while Resolution No. PQ-3620 of 2018 focused on improving the accessibility of banking services. Presidential Decree No. PF-5992 of 2020, in turn, was directed toward transforming the banking sector, improving the quality of services, and developing digital infrastructure [1,2]. At the subsequent stage, the introduction of specific target indicators for promoting cashless payments and

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digitalizing economic transactions further increased the practical significance of these processes [3].

The purpose of this study is to assess current trends in the development of cashless settlements and remote banking services in commercial banks, identify their relationship with the accessibility of banking services and financial stability, and develop scientific and practical recommendations for improving the digital payment ecosystem.

LITERATURE REVIEW

The issue of assessing access to banking services is closely associated with the concept of financial inclusion in international academic literature. Beck, Demirgüç-Kunt, and Martinez Peria demonstrated that access to banking services can be evaluated through such indicators as branch density, the number of accounts, and barriers to the use of financial services [4]. Allen et al. showed that the use of formal financial services is significantly influenced by service costs, geographical distance, identification requirements, and institutional factors [5].

National studies have also paid considerable attention to remote banking services and digital transformation. In particular, Z.T. Mamadiyarov examined the management of risks associated with remote banking services and highlighted the role of electronic services within the banking ecosystem [6]. However, the integrated assessment of the relationship between the actual intensity of the use of cashless payment infrastructure, its territorial coverage, and the financial performance of banks requires further research.

RESEARCH METHODOLOGY

The study employs methods of systems analysis, comparative analysis, time-series analysis, grouping, calculation of structural shares, and indicative assessment. The empirical database consists of reports of the Central Bank of the Republic of Uzbekistan and practical data generated by commercial banks operating in Andijan Region regarding the organization of cashless payments at trade and service facilities, particularly at fuel filling stations.

The main indicators used in the analysis include the number of fuel filling stations, the distribution of ATTO cards and “Nomsiz karta” cards, the number of information kiosks, the volume of electronic payments, the number of transactions, and the structure of payment instruments.

For the purpose of assessing the accessibility and adoption of remote banking services, it is advisable to divide the indicators into two groups: infrastructural coverage indicators and usage activity indicators. Infrastructural coverage is characterized by the number of bank cards, payment terminals, information kiosks, QR-payment points, and remote service channels. Usage activity, in turn, is assessed through the share of active users, transaction frequency, average transaction value, and the share of electronic transactions in total banking operations.

Such an approach makes it possible to comprehensively assess not only the availability of digital banking services, but also their practical economic activity and the extent to which customers actually use them.

ANALYSIS AND RESULTS

The data examined for banks operating in Andijan Region indicate the presence of 355 fuel filling stations. A total of 10,630 ATTO cards were issued to these facilities, of which 3,865 cards were distributed to individuals. In addition, 38,508

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"Nomsiz karta" cards were allocated to fuel filling stations, of which 30,895 cards were distributed to citizens.

The volume of payments made to fuel filling stations using cards issued by bank employees amounted to UZS 4,489.1 million, while the number of installed information kiosks reached 103. These indicators demonstrate that the process of integrating fuel retailing into the cashless payment infrastructure in Andijan Region has reached a considerable scale [7].

Table 1

Key Indicators of Cashless Payment Infrastructure at Fuel Filling Stations in Andijan Region

Indicator	Amount
Number of fuel filling stations	355
ATTO cards issued	10,630
ATTO cards distributed to individuals	3,865
"Nomsiz karta" cards issued to fuel filling stations	38,508
"Nomsiz karta" cards distributed to individuals	30,895
Payments made to fuel filling stations using bank cards	UZS 4,489.1 million
Information kiosks installed	103

By individual banks, the largest coverage is accounted for by Hamkorbank. The bank serves 152 fuel filling stations, representing approximately 42.8 percent of the total 355 filling stations in the region. Through this bank, 27,987 "Nomsiz karta" cards were allocated to fuel filling stations, of which 25,203 cards were distributed to individuals. The distribution rate thus amounted to approximately 90 percent.

This indicates that the bank's involvement in organizing cashless settlements is substantial not only in terms of the number of facilities covered but also in terms of the practical dissemination and utilization of payment instruments.

Territorial analysis reveals that there are 50 fuel filling stations in Andijan District, 41 in Andijan City, 32 in Asaka District, 31 in Shahrixon District, and 30 in Xo'jaobod District. By contrast, only 5 filling stations were recorded in Khanabad City, while Buloqboshi and Bo'ston districts each had 7 facilities.

Such disparities indicate that digital payment infrastructure should not be distributed uniformly across all territories based solely on quantitative criteria. Instead, its allocation should take into account population density, traffic flows, commercial activity, and actual demand for transactions.

Table 2

Short-Term Dynamics of Electronic Payment Transactions at Fuel Filling Stations

Period	Number of Transactions	Payment Volume	Average Transaction Value
9 April	980.8 thousand	UZS 113.9 billion	UZS 116.1 thousand
10 April	893.3 thousand	UZS 108.9 billion	UZS 121.9 thousand
11–13 April	2.7 million	UZS 320.6 billion	UZS 118.7 thousand

As shown in Table 2, on 9 April, a total of 980.8 thousand transactions generated payments amounting to UZS 113.9 billion. On 10 April, the number of transactions declined to 893.3 thousand, while the total payment volume decreased to UZS 108.9 billion.

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During the period of 11–13 April, approximately 2.7 million transactions were carried out, with their total value reaching UZS 320.6 billion [8]. The fact that the average payment per transaction remained within the range of UZS 116.1–121.9 thousand indicates that the use of electronic payments demonstrates a relatively stable pattern not only in terms of transaction frequency but also in terms of the economic value of operations.

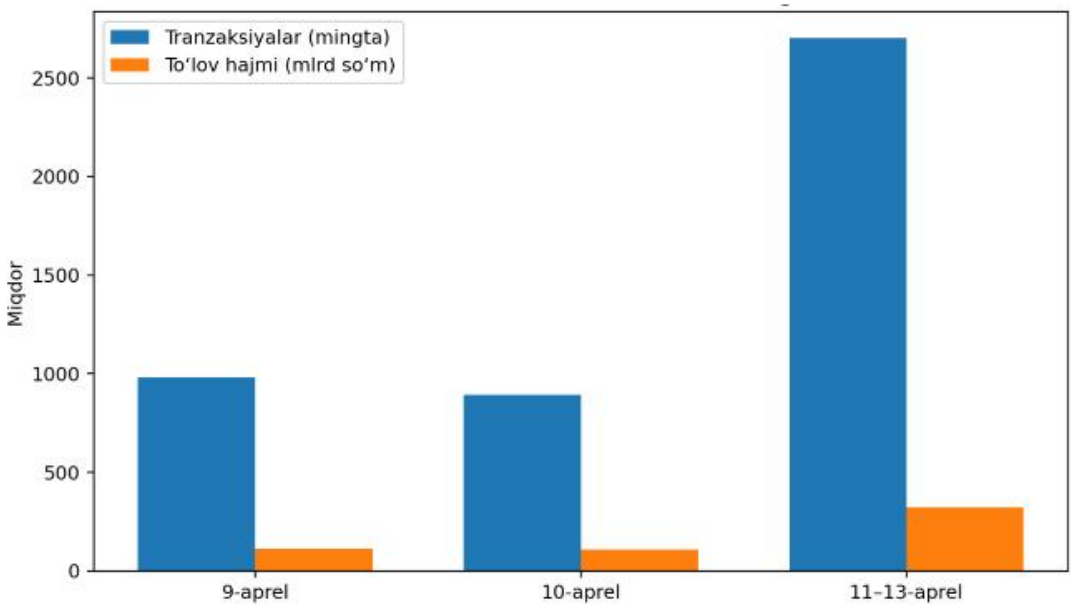


Figure 1. Electronic Payment Activity at Fuel Filling Stations

The analysis of the composition of payment instruments also yields important findings. On 9 April, transactions conducted using active bank cards accounted for 89.4 percent of all transactions, while QR-code payments represented 4.0 percent, fuel cards 4.6 percent, and instant-issue cards 2.0 percent. On 10 April, the share of active bank cards declined to 86.1 percent, whereas the share of QR-code payments increased to 4.8 percent and that of fuel cards rose to 7.1 percent. During the period of 11–13 April, active bank cards accounted for 87.6 percent, QR-code payments for 4.6 percent, fuel cards for 5.7 percent, and instant-issue cards for 2.2 percent. Thus, although bank cards remain the dominant payment instrument, alternative digital payment instruments are also developing a tangible user base.

These findings indicate the need to shift the approach to developing remote banking services from merely "increasing the number of channels" to "enhancing the active use of available channels." For example, the mere availability of a mobile banking application or QR-payment functionality does not automatically imply widespread adoption of the service. If customers do not use such services regularly, their economic impact remains limited. Therefore, the share of active users, the number of transactions per customer, the proportion of transactions performed through digital channels, and the continuity and reliability of service provision should be used as key indicators for assessing a bank's digital development.

The development of cashless settlements and remote banking services affects the financial stability of commercial banks through several channels. First, the regular use of electronic payments increases cash flows through customers' bank accounts and contributes to the stability of the bank's funding base. Second, an increase in the

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number of transactions contributes to the diversification of commission income. Third, digital channels may reduce the cost of providing banking services per transaction. Fourth, customers' transaction histories provide banks with an additional information base for assessing their financial behavior more accurately and improving credit risk management.

At the same time, the impact of digitalization on financial stability should not be regarded as automatically positive. Cybersecurity threats, operational disruptions, fraud, insufficient levels of digital literacy, and limited telecommunications infrastructure in certain regions create new risks for banks. Therefore, a strategy aimed at expanding the accessibility and adoption of banking services should be based on the integrated management of digital channel availability, security, continuity, usability, and actual customer utilization [8].

Based on the research findings, the impact of cashless and remote banking services on the financial stability of banks can be expressed through the following logical sequence:

availability of digital infrastructure and services → greater convenience for customers → increase in active users and transactions → growth in banking turnover and commission income → diversification of the funding base and income sources → strengthening of financial stability.

At each stage of this sequence, service quality indicators and relevant risk factors should be continuously monitored.

Based on the analysis conducted, five key areas are proposed to improve the effectiveness of cashless settlements and remote banking services in commercial banks.

First, banks should assess the effectiveness of digital services not merely by the number of cards or payment terminals, but by means of an "active usage ratio." This ratio may be calculated as the proportion of users who have carried out at least one transaction during a specified period relative to the total number of registered users.

Second, it is advisable to introduce a regional digital coverage index, which would provide an integrated assessment of payment-point density, the volume of electronic transactions, the share of active users, and the quality and availability of internet infrastructure.

Third, incentive mechanisms for electronic payments at fuel filling stations, retail outlets, and service establishments should not be limited solely to indicators reflecting the distribution of payment instruments. Instead, such mechanisms should also be linked to the active use of these instruments, the number of transactions, and the volume of payments.

Fourth, banks may develop customer segmentation models based on customers' digital behavior and offer personalized communication strategies and simplified product packages to customers with relatively low levels of digital activity.

Fifth, it is proposed that indicators reflecting the adoption of digital banking services be monitored in an integrated manner alongside the financial stability indicators of banks, including commission income, the share of low-cost funding, operating expenses, and customer retention rates.

CONCLUSION

The findings of the study demonstrate that the development of cashless settlements and remote banking services in Uzbekistan has passed through successive

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institutional and technological stages. Initially, reforms were primarily aimed at modernizing the banking system and expanding the range of banking services. These reforms were subsequently complemented by measures designed to enhance the accessibility of banking services, promote digitalization, and establish an electronic payment ecosystem. At the current stage, the main priority is shifting from increasing the number of payment instruments toward ensuring their regular and effective use.

The analysis conducted using the case of Andijan Region demonstrates that fuel filling stations have been substantially integrated into the cashless payment infrastructure. However, considerable differences remain among individual banks and territories in terms of both coverage and intensity of use. Although bank cards continue to account for the majority of electronic payments, the shares of alternative instruments such as QR-code payments, fuel cards, and instant-issue cards are also gradually increasing. This trend indicates an ongoing diversification of the digital payment ecosystem.

Therefore, the next stage in the development of cashless settlements and remote banking services by commercial banks should focus not only on expanding digital infrastructure but also on increasing active usage, ensuring security and service quality, and reducing territorial disparities in access to digital financial services. Such an approach can contribute to the long-term financial stability of banks through increased customer activity, higher transaction volumes, diversification of commission income, and strengthening of the funding base.

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