A Comparative Study of Electronic Checks and Other Electronic Payment Instruments

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Abstract

With the expansion of modern technologies in the banking sector, numerous electronic payment instruments have been developed, among which the electronic check has been introduced as one of the most recent tools. This article aims to conduct a comparative analysis of electronic checks with other payment instruments such as bank cards, electronic transfers, the digital rial, and others. This study is theoretical in nature, employing a descriptive-analytical research method, and data collection has been conducted through library research by consulting documents, books, and articles. The electronic check, with its legal backing and high technical security, is a reliable tool in the digital payment system; however, in terms of public acceptance, it still lags behind bank cards and the digital rial. By integrating traditional legal structures with modern technology, the electronic check can serve as an appropriate substitute for paper checks. Nevertheless, in order to compete effectively with other digital payment instruments, it requires further development of infrastructure, cultural promotion, and legislative support.

Keywords: electronic check, digital rial, digital transfer, modern banking, financial technology (FinTech).

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1. Introduction

With the expansion of information and communication technologies, traditional financial systems have inevitably entered a stage of transformation. The emergence of the internet, smartphones, and secure electronic networks has paved the way for the digitization of payment instruments. In this context, many countries—including Iran—have taken steps toward developing and diversifying non-cash payment instruments (Khaleghi, 2021).

In Iran's banking system, instruments such as bank cards, electronic transfers (SATNA and PAYA), online payments, digital wallets, and more recently, the digital rial as the national digital currency have been introduced (Central Bank, 2023). These instruments have been developed with the aim of increasing speed, reducing costs, enhancing financial transparency, and minimizing the circulation of physical cash in the economy. Among them, the electronic check stands out as a significant innovation, implemented within the framework of the 2018 amendment to the Check Issuance Law and through the Sayad system. This instrument, while maintaining the structure and legal guarantees of paper checks, incorporates digital signatures and system-based registration of check information within the Central Bank, offering a high level of security, transparency, and traceability (Nasiri, 2022).

Nevertheless, the electronic check has yet to establish its proper position among other digital payment tools. Particularly in comparison with bank cards—which remain the most widely used payment tool in the country—or the digital rial, which is expanding rapidly with the support of the Central Bank and extensive media promotion, the electronic check still requires further clarification of its advantages and resolution of its operational barriers (Mohammadi, 2023).

In today's world, digital transformation has reshaped all aspects of human life, including financial and banking systems. The emergence of modern technologies such as the internet, mobile applications, blockchain, and artificial intelligence has led to a new generation of financial services known as electronic payments, through which financial exchanges can be conducted without in-person visits, paperwork, or time-consuming processes. In Iran, various tools have emerged for non-cash and digital payments, including bank cards, electronic transfers (PAYA, SATNA), internet gateways, digital wallets, and more recently, the "digital rial" as a national digital currency. Each of these tools has been designed to meet specific needs and plays a role in the country's payment system. Among these, the electronic check is one of the newest instruments, introduced within the framework of the new Check Issuance Law and through the Sayad system. This tool aims to combine the traditional advantages of paper checks (such as legal enforceability, the possibility of post-dated payments, and use in formal transactions) with the benefits of the digital world (such as speed, security, and fraud reduction). However, the electronic check is still in the stabilization and development phase and requires more precise evaluation to determine its position alongside other digital payment instruments. On the other hand, certain tools—such as the digital rial—with their specific technological features, pose serious challenges to the electronic check. Therefore, it is essential to conduct a scientific, legal, and technical comparison between the electronic check and other commonly used instruments (Banking System Reform Document of the Islamic Republic of Iran, 2023). This article aims to thoroughly examine the features, advantages, disadvantages, and challenges of the electronic check in order to determine its status within Iran's payment system. Furthermore, through comparative analysis with bank cards, electronic transfers, and the digital rial, pathways for the improvement and further development of this tool will also be proposed.

2. Materials and Methods

This study is a descriptive-analytical research. A library-based method has been used for data and content collection in this research.

3. Findings and Discussion

The concepts and history of electronic payment instruments in Iran and globally must first be analyzed and evaluated.

3.1. Global History of Electronic Payment Instruments

The emergence of electronic payment instruments globally can be traced back to the invention of credit cards in the 1950s by companies such as Diner's Club, followed by Visa and MasterCard. With the advancement of information technology and digital banking, ATMs were introduced in the 1960s, debit cards in the 1970s, and online payments began in the 1990s. In recent years, with the growth of financial technologies (FinTech) and smartphones, mobile payments, digital wallets, cryptocurrencies, and central bank digital currencies (CBDCs) have also developed. Advanced countries such as Sweden, China, and South Korea are moving toward the complete elimination of physical cash (World Bank, 2016).

3.2. Background and Importance of Electronic Payment Instruments in Iran

In Iran, the initial steps toward electronic payments were taken in the 1990s with the installation of ATMs. During the 2000s, with the launch of the Shetab interbank information exchange network, bank cards became widely integrated into everyday life. Systems such as SATNA (2006), PAYA (2009), SHAPARAK (2012), and later, the Sayad system (2018) for managing checks, expanded the electronic payment infrastructure. In recent years, the launch of the digital rial as a central bank digital currency and the implementation of electronic checks (since 2021) marked Iran's shift toward full digitization of its payment system (International Monetary Fund, 2019).

With the expansion of information technology and the transformation of financial systems, electronic payments have emerged as a fundamental pillar of the digital economy, playing a prominent role in facilitating financial exchanges and enhancing economic efficiency. These tools enable fast, secure, and low-cost transactions, reducing dependency on cash, increasing financial transparency, and improving money flow traceability (World Bank, 2016). Furthermore, electronic payments significantly contribute to combating crimes such as money laundering, tax evasion, and financial corruption, and they provide a suitable platform for implementing governmental monetary and fiscal policies (International Monetary Fund, 2019). On a micro level, these tools enhance user experience and support e-commerce by enabling ease of payment, time-saving, constant accessibility, and support across diverse platforms. In Iran, according to the "National Payment System Development Roadmap" approved by the Central Bank of the Islamic Republic of Iran, the expansion of electronic payment tools is a strategic objective of financial system development, pursued within the framework of the Sixth Development Plan and the Digital Transformation Document. Therefore, electronic payments are not merely technical tools but strategic infrastructures for achieving macroeconomic objectives and modern financial governance (Bank for International Settlements, 2020).

3.3. Electronic Payment Instruments

3.3.1. Electronic Checks

The electronic check retains the same legal nature and function as a traditional check but exists in a digital, paperless format. It is issued and transferred without the need for paper, pen, or manual signature, and all its stages (issuance, signing, transfer, clearance) are completed via banking systems and validated digital signatures.

A. Features of Electronic Checks

- **Remote Issuance and Registration:** Issued via online banking platforms, mobile banking, or specific applications, without requiring in-person presence or physical checkbooks.
- **Digital Identity Verification:** Identity authentication of both issuer and recipient is conducted using tools such as electronic signatures, one-time passwords, or biometric verification.
- **Reduced Risk of Forgery and Misuse:** Use of encryption and security technologies significantly reduces the risk of data manipulation or forgery compared to paper checks.
- **Ease of Traceability:** All information is recorded in centralized banking systems (e.g., Sayad system), ensuring high traceability.
- **Electronic Transferability:** If permitted, checks can be electronically transferred to third parties via banking platforms, without physical endorsement.
- **High Liquidity and Circulation Speed:** Clearance and settlement processes are faster than traditional paper checks.
- **Integration with Financial and Accounting Systems:** Capable of connecting with accounting software for accurate and automated check data entry.
- **Eco-Friendly:** Eliminates the need for paper, reducing printing, storage, and resource consumption costs.

B. Issuance Process of Electronic Checks

1. Log into the bank's system or digital banking app
2. Enter check details (amount, date, payee, etc.)
3. Digitally sign using a valid signature based on PKI infrastructure
4. Send to recipient via the system
5. Check can be cleared or transferred through the destination bank

C. Legal Status of Electronic Checks

- According to the Electronic Commerce Act (2003), electronic documents, including checks with valid digital signatures, possess legal credibility.

- Based on the 2018 amendment to the Check Issuance Law, all checks, including paper checks, must be registered in the Sayad system, laying the foundation for the development of fully digital checks (Article 21 repeated, Check Issuance Law, 2018 Amendment).
- In recent years, the Central Bank has prepared the necessary infrastructure, and several banks now offer this service (Judiciary IT and Statistics Center, 2023).

D. Advantages of Electronic Checks

- Enhanced security and forgery prevention
- Elimination of issues related to loss or theft
- Faster transfer and clearance
- Elimination of printing and transport costs
- Real-time verification of the issuer's credibility

9.2 Other Electronic Payment Instruments

- Bank Cards:

- Detailed explanation of debit and credit cards
- Features and developments of bank cards in Iran
- Advantages and disadvantages of bank card use

- Electronic Transfers (PAYA and SATNA):

- Key differences and their roles in interbank payments
- Evolution of transfer systems in Iran
- Pros and cons of electronic transfers

- Digital Wallets:

- Introduction to mobile and digital wallets
- Role of wallets in micro and routine payments
- Pros and cons of digital wallet usage

- Digital Rial (Rial-e-Ramz):

- Introduction and objectives of the digital rial
- Differences between digital rial and other cryptocurrencies
- Challenges and future outlook of the digital rial in Iran

3.4. Introduction and Evolution of Electronic Check and Other Electronic Payment Tools

3.4.1. Introduction and Development of Electronic Checks

The electronic check is one of the newest innovations in the national payment system, designed to digitize financial processes and improve transparency, security, and efficiency in banking transactions. It holds all the legal features of a traditional paper check but is issued, signed, transferred, and cleared entirely electronically through banking infrastructures. Unlike traditional checks, it does not exist in physical form and is registered fully in the Sayad (Integrated Check Issuance) system (Central Bank of Iran, 2021-04-21).

This innovation originated from the amendments to the Check Issuance Law in 2018, specifically Article 21 repeated, which states: "Banks must generate a unique identifier for every check issued and register it in the Sayad system. Issuance, endorsement, and transfer of the check shall only be valid if registered in this system" ("Cheque Issuance Law," 2018). This article laid the legal foundation for electronic checks in Iran.

Subsequently, with the provision of technological infrastructure—including electronic Know Your Customer (eKYC), banking app integration with Sayad, and digital banking expansion—the Central Bank enabled full electronic issuance and transfer of checks. As per the Central Bank's announcement, the implementation of electronic checks began in earnest in 2021, allowing customers to issue, transfer, and confirm checks via banking portals without using physical paper (Central Bank, Announcement 2021-04-21).

The primary advantage of electronic checks over other tools lies in their legal status as a reliable commercial instrument. In addition to payment capabilities, they can be endorsed, transferred, litigated, and executed through judicial authorities, making them unique in the national payment ecosystem. Moreover, their integration with Sayad, digital identity verification, and full documentation of issuer and recipient details have significantly reduced bad checks, prevented banking fraud, boosted transaction trust, and lowered check-related legal caseloads (Judiciary IT and Statistics Center, 2023). Ultimately, the electronic check is not merely a payment tool but a key component in the transformation of Iran's legal and banking system toward the realization of e-government, smart financial governance, and anti-corruption initiatives (Greene, 2023).

3.4.2. Introduction and Evolution of Other Electronic Payment Tools

In Iran's banking system, various electronic payment instruments have been developed to facilitate financial transactions. These tools are aimed at enhancing speed, security, and transparency, while reducing reliance on cash. Key tools include bank cards, electronic transfers (PAYA, SATNA), mobile and online payments, digital wallets, and the digital rial. Each has undergone technological and regulatory transformations over the past decades (Central Bank of Iran, Digital Transformation Document, 2023).

A. Bank Cards

- Bank cards (debit and credit) are the most commonly used payment tools in Iran, widely adopted since the early 2000s (Central Bank, 2023).
- All cards in Iran are now supervised by the SHAPARAK network, which ensures standardized transactions and secure payments. Recent developments include:
    - Introduction of One-Time Passwords (OTP) in 2019 to secure online transactions
    - Integration with payment service providers (PSPs) and payment facilitators
    - Centralized card issuance and management under the Central Bank

B. Electronic Transfers (PAYA and SATNA)

PAYA and SATNA are the two main interbank settlement systems:

- SATNA handles large-value real-time transfers
- PAYA manages scheduled, usually lower-value, batch transfers
- Launched in the early 2010s, they now play a key role in non-cash payments. Developments include:
- Increase of SATNA's transfer ceiling to 500 million tomans in 2023
- Launch of "Poul" services connecting card-to-card directly to SATNA
- Integration with mobile and online banking gateways

C. Mobile, Online, and QR Code Payments

With mobile technology expansion, mobile and online payments have replaced traditional methods. These are processed via banking apps, PSPs, and digital wallets. Developments include:

- Rise of QR Code-based payments since 2021
- Expansion of payment apps like "App," "Sepehr," "Top," etc.
- Approval of PSP and fintech regulations by the Central Bank (Central Bank, 2022)

D. Digital Wallets

Digital wallets are applications allowing users to preload funds for everyday purchases. Unlike bank cards, they are typically used for micro-payments (e.g., metro tickets, store purchases). Developments include:

- Introduction of NFC and QR-based wallets
- Integration with urban micro-payment systems (Central Bank, 2021)

E. Digital Rial (Rial-e-Ramz)

The digital rial is Iran's official central bank digital currency (CBDC), launched in pilot phase in 2022. Its aim is to facilitate peer-to-peer digital cash transfers with high security. Developments include:

- Pilot implementation in selected cities since 2022
- Offline and non-banking network transactions.

- Over the past two decades, Iran's electronic payment system has evolved from simple bank cards to advanced tools like digital rial and electronic checks. Each instrument now serves specific functions in micro, macro, online, offline, or legally binding transactions. This evolution aligns with Central Bank policy, FinTech growth, and increasing user demands (Alkhowaiter, 2020).

3.4.3. Initial Comparison of Electronic Checks with Other Electronic Payment Instruments

With the growth of electronic banking in recent decades, a range of tools—including bank cards, electronic transfers, digital rial, and electronic checks—have become available to individuals and businesses. Each has distinct features, applications, and legal frameworks. Among them, the electronic check, combining the traditional legal features of checks with modern financial technologies, holds a unique position (www.iranecar.com).

1. **Legal Nature:** Unlike bank cards and transfers that are merely payment tools, the electronic check is a commercial legal document enforceable through judicial or administrative proceedings in case of violation (Commercial Code, Article 310 onward; Check Issuance Law, 2018 Amendment). In other words, it can be used as evidence in legal disputes, whereas card and digital rial transactions lack this legal standing.
2. **Transferability and Endorsement:** A key advantage of electronic checks is their transferability and endorsability (Central Bank, Electronic Check Implementation Guidelines, 2022). In contrast, bank cards and digital rial are non-transferable and issued solely for personal use.
3. **Usage Type and Target Audience:** Bank cards are mainly used for micro and daily payments in stores or online. Electronic transfers are typically used for high-volume interbank settlements. The digital rial, currently in pilot, is designed for micro, peer-to-peer transactions. Meanwhile, the electronic check is best suited for business-to-business commercial transactions, offering the flexibility to include terms like post-dating, due dates, and contractual clauses (Banking System Reform Document, 2023).
4. **Security and Transparency Level:** Due to digital identity verification and full registration in the Sayad system, electronic checks are considered the most transparent and traceable interbank payment tool (Central Bank, Sayad System). Their integration with Central Bank supervisory infrastructure provides strong protection against forgery and misuse.
5. **Legal Coverage and Enforcement:** Electronic checks are fully covered under the Check Issuance Law and related regulations. If returned unpaid, they are subject to registration penalties, account blocking, denial of banking services, and even criminal charges (Article 5, Check Issuance Law). These enforcement mechanisms are either absent or weaker in other tools.

3.4.4. Electronic Checks and Their Compatibility with Commercial and Check Issuance Laws

The electronic check, as one of the innovations in the banking system, is considered the digital substitute for the paper check and is designed to facilitate financial transactions, enhance security, and reduce costs. In order to examine the compatibility of the electronic check with commercial and check issuance laws, it must be analyzed through the lens of two primary legal frameworks: the Commercial Code and the Check Issuance Law.

A. Definition of Check in the Commercial Code

Article 310 of the Commercial Code states: "A check is a written instrument by which the drawer withdraws all or part of the funds he/she has with the drawee or transfers them to another party." This definition traditionally pertains to paper checks. However, the essential elements of a check—namely the drawer, drawee, amount, date, and payee—are also present in electronic checks. While the format has changed from paper to digital, the core characteristics remain. Thus, although the Commercial Code does not explicitly mention electronic checks, a conceptual and expansive interpretation of Article 310 permits their inclusion within the same legal definition.

B. Check Issuance Law and Recent Amendments

The 2018 amendment to the Check Issuance Law introduced key measures toward digitizing the issuance and transfer process, including:

• Mandating the registration of check details in the Sayad system

• Prohibiting bearer checks

• Requiring check transfers to be registered in the system, even for paper checks

These reforms indicate that the legal infrastructure for issuing electronic checks is already in place, since check information must be recorded in Central Bank systems from the outset and is electronically traceable.

Accordingly, the Central Bank has developed the electronic check (E-Cheque), which:

• Is fully registered digitally

• Is signed via valid digital signature

• Can be transferred and endorsed electronically

• Is recorded and monitored in the Sayad system

C. Validity of Electronic Signatures under Iranian Law

According to the Electronic Commerce Law (2003), electronic signatures have legal validity, and if issued through secure methods, they are admissible in court just like handwritten signatures. This legislation provides the legal basis for using digital checks.

D. Challenges

• *Legal validity as a commercial instrument:* Although the electronic check lacks the physical form of a traditional check, its substance aligns with legal requirements. Judicial interpretation is needed to confirm its status as a commercial document.

• *Enforcement via judiciary and registration systems:* Like paper checks, electronic checks should be enforceable without additional certifications.

• *Criminal offenses related to dishonored checks:* If an electronic check is issued without sufficient funds, does it fall under Article 7 of the Check Issuance Law, or does this require revision?

Overall, electronic checks are substantively aligned with commercial and check issuance laws, especially in light of recent reforms and e-commerce legislation. However, full and gap-free implementation requires:

• Judicial interpretation or explicit legal provisions recognizing them as enforceable commercial documents

• Technical and legal infrastructure for digital identity verification, secure signature, and safe transfer (Abbasi, 2022).

3.4.5. Evolution of Electronic Checks: Legal and Technological Developments in Issuance and Transfer in Iran

The evolution of electronic checks in Iran results from a combination of legal reforms and technological advancements aimed at increasing transparency, reducing fraud, and facilitating payments. The evolution can be divided into two areas:

A. Legal Reforms Related to Electronic Checks:

1. *Amendment to the Check Issuance Law (ratified on 2018-11-04)*
2. These reforms laid the groundwork for the new check system—particularly "Sayad checks"—and paved the way for electronic check implementation. Key elements include:

- Mandatory registration of check information in the Sayad system (Central Bank)
- Restriction of transfers to Sayad-based processes only
- Legal and banking recognition of registered checks

2. *Executive Bylaw of the Check Issuance Law (ratified by the Cabinet on 2020-01-18)*
3. This bylaw outlined how electronic tools could be used for check registration, issuance, approval, and transfer.
4. *Electronic Commerce Law (2003) – Legal Validity of Digital Signatures*
5. This law provided the legal foundation for using digital signatures in documents, including electronic checks (Articles 10 and 14).
6. *Central Bank Directive on Electronic Checks (2021-02-14)*
7. Entitled "Electronic Check Implementation Guidelines," this directive detailed how electronic checks should be issued, circulated, recorded, and settled. (Directive No. 393474/99, Central Bank of Iran)

B. Technological Developments Related to Electronic Checks:

1. *Launch of the Sayad System (Integrated Check System)*
2. This key infrastructure enables registration and verification of both paper and electronic checks. Transfers must also occur within this system.

3. *Bank Enablement of Electronic Check Services*
4. Banks such as Melli, Mellat, Tejarat, Saderat, and Ayandeh have activated electronic check issuance and transfer services through online and mobile banking platforms.
5. *Use of Digital Signatures*
6. Through certificates issued by Iran's Root Certificate Authority, electronic signatures have gained formal recognition in check issuance.
7. *Integration with Credit Scoring Systems (Nehab, Samat, etc.)*
8. The financial credibility of check issuers is assessed in real-time through systems like Nehab (Electronic Banking Identity Verification System) and Samat (Central Bank's Credit Registry System).

3.5. Developments and Innovations in Electronic Payment Instruments in Iran and Globally

Innovations in electronic payment tools in Iran and the world—especially over the past two decades—have been driven by rapid technological advancements, evolving user needs, and changes in legal and economic policies. The following outlines key developments:

3.5.1. Bank Cards

A. Developments and Innovations:

Bank cards were among the first electronic payment tools, introduced in advanced economies in the late 1960s. In Iran, they became widely accessible in the early 2000s. Initially limited to ATM use, their functionality expanded to in-store and online transactions.

B. Key Innovations:

- Diversification of cards: debit, credit, and prepaid cards
- Introduction of dynamic one-time passwords (OTP) in 2019 for online transaction security
- Development of the SHAPARAK network: enabling standardized transactions and POS-based interbank transfers (Central Bank of Iran, SHAPARAK Performance Report, 2022)

3.5.2. Electronic Transfers (PAYA and SATNA)

A. Developments and Innovations:

Initially launched as stand-alone systems for central bank and high-value transactions, PAYA (for scheduled) and SATNA (for real-time transfers) later integrated with internet and mobile banking platforms.

B. Key Innovations:

- Real-time large-value transfers through SATNA, expediting national-level settlements
- Integration with other platforms such as online and mobile gateways
- Introduction of micro and intra-bank transfers via digital wallets and FinTech platforms (E-Commerce Development Center, PAYA and SATNA Performance Report, 2020)

3.5.3. Digital and Mobile Wallets

A. Developments and Innovations:

Originally created to store and quickly transfer funds via mobile devices, digital wallets evolved to enable online purchases and peer-to-peer transfers.

B. Key Innovations:

- QR Code payments: enabling in-store transactions via scanning
- Popular mobile apps like "App," "Sepehr," and "Top" have gained wide adoption
- Expanded functionalities: paying for public transport, online purchases, and currency conversions (E-Commerce Development Center, 2022)

3.5.4. Digital Rial (Rial-e-Ramz)

A. Developments and Innovations:

The digital rial is the Central Bank of Iran's CBDC initiative aimed at establishing a sovereign digital currency framework. Unlike decentralized cryptocurrencies, the digital rial is fully regulated and intended to lower transaction costs and simplify payments.

B. Key Innovations:

- Pilot launched in 2022 for testing digital transactions using national currency
- Blockchain-based architecture enhances security and traceability
- Offline transaction capability, allowing use without internet access (Central Bank officials, IRNA interview, October 2023)

3.5.5. Technological and Regulatory Developments

A. Technological Innovations:

Emerging technologies such as artificial intelligence and blockchain-based payments are significantly improving the security, speed, and transparency of payment systems.

B. Policy Innovations:

The Central Bank of Iran has introduced new regulations to supervise electronic payment tools, focusing on transaction security and anti-money laundering efforts. These include rules on payment facilitators, APIs, and cryptocurrency regulation.

In conclusion, electronic payment tools in Iran and globally are undergoing continuous evolution. Innovations in areas such as security, speed, transparency, and accessibility have made these tools an essential part of everyday life—embodied in bank cards, electronic transfers, digital wallets, and the digital rial. These changes call for further research on legal compliance, infrastructure development, and economic and cybersecurity challenges, creating new opportunities for future studies (Diallo & Shy, 2021).

To conduct a comparative analysis of electronic checks with other electronic payment instruments, several research directions can be proposed to help scholars and analysts evaluate these tools more comprehensively and practically:

A. International Comparative Study

- *Objective:* Compare electronic checks with digital payment tools in various countries, especially developed economies, and examine successful implementations.
- *Method:* Analyze laws, development trends, and challenges faced by other countries.
- *Advantage:* Provides models and insights applicable to Iran, identifying opportunities and threats for electronic check adoption.

B. Security-Based Comparative Analysis

- *Objective:* Assess the security level of electronic checks versus other tools, focusing on identity verification, fraud prevention, and cybersecurity.
- *Method:* Evaluate the security of systems like Sayad compared to bank cards, electronic transfers, and the digital rial.
- *Advantage:* Offers recommendations to improve transaction security in Iran.

C. Cost and Fee Structure Analysis

- *Objective:* Compare costs and transaction fees associated with electronic checks versus bank cards and transfers.
- *Method:* Collect financial data from banks to assess impact on consumers and businesses.
- *Advantage:* Helps users and businesses choose the most cost-effective payment method.

D. Economic and Social Impact Assessment

- *Objective:* Analyze how electronic checks and other tools influence consumer behavior and national economic performance.
- *Method:* Study their role in reducing transaction costs, supporting businesses, and accelerating payments.
- *Advantage:* Shows how these tools can foster economic growth and ease of life.

E. Accessibility and Geographic Coverage Analysis

- *Objective:* Evaluate access to electronic checks and other tools across urban and rural areas in Iran and abroad.
- *Method:* Analyze infrastructure and coverage issues, especially in remote areas.
- *Advantage:* Supports better expansion and accessibility of payment systems.

F. Usability Evaluation

- *Objective:* Compare ease of use of electronic checks versus other payment tools from the user perspective.
- *Method:* Conduct surveys, interviews, or focus groups to collect user feedback.
- *Advantage:* Informs the design of more user-friendly payment instruments.

G. Legal and Regulatory Analysis

- *Objective:* Compare the legal framework for electronic checks and other tools in Iran and other countries.
- *Method:* Analyze relevant laws such as the Check Issuance Law and compare with international legislation.
- *Advantage:* Identifies legal gaps and proposes reforms to support digital check use within current regulations.

H. Assessment of Compatibility with Emerging Technologies

- *Objective:* Evaluate how electronic checks and other tools align with technologies such as blockchain and artificial intelligence.
- *Method:* Analyze potential technological integrations to improve performance.
- *Advantage:* Facilitates adoption of cutting-edge solutions to enhance security, speed, and efficiency in electronic payment systems.

4. Conclusion

The conclusion generally indicates that each of these instruments has its own specific advantages and limitations, and depending on users' particular needs and the prevailing economic, social, and technological conditions, they may be selected as the preferred payment method. The following summarizes some of the key findings and inferences:

A. High Security and Tight Control

Due to specific security features such as electronic registration and transaction traceability, the electronic check provides greater control and transparency compared to certain other payment tools, such as bank cards or electronic transfers. The use of supervisory systems like Sayad in Iran has further strengthened this tool from a security standpoint.

B. Speed and Efficiency

Compared to tools like electronic transfers and digital wallets, electronic checks typically require more time to process. In contrast, instruments such as bank cards and instant transfers are faster and more suitable for quick and routine transactions. However, electronic checks remain more appropriate for large-scale and long-term payments.

C. Costs and Fees

Electronic checks generally incur lower costs compared to instruments such as bank cards or interbank electronic transfers, which often include transaction fees. This makes electronic checks more attractive for high-value and business-related payments, especially in developing countries.

D. Usability in Specific Conditions

While many electronic payment tools require internet connectivity and online infrastructure, electronic checks can be utilized across various platforms and are particularly suitable for interbank payments in commercial or international settings. Additionally, some new electronic check systems offer offline payment capabilities, which are especially beneficial in areas with limited internet access.

E. Flexibility and Accessibility

Newer tools such as digital wallets and QR Code-based payments offer greater flexibility for micro-payments, online purchases, and international transactions. These tools allow users to conduct financial transactions without visiting a bank or using physical cards.

F. User Convenience and Experience

Compared to tools like credit cards or digital wallets, electronic checks tend to present more limitations in terms of user experience. For instance, quick and seamless payments through bank cards and digital wallets—especially for daily purchases—are more convenient and faster than those made via electronic checks.

In conclusion, each electronic payment instrument—including electronic checks, bank cards, electronic transfers, and digital wallets—has its own distinct advantages and disadvantages. Electronic checks are especially suitable for high-value, commercial, and interbank transactions due to their higher security and lower costs, whereas tools like bank cards and digital wallets offer greater efficiency and ease for fast, small-scale, and everyday payments. The optimal choice of payment instrument depends on the specific personal or business needs, and in many cases, a combination of multiple tools may provide the most effective solution.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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