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DIGITALIZATION OF TAX ADMINISTRATION IN THE REPUBLIC OF UZBEKISTAN: THEORETICAL FOUNDATIONS, INTERNATIONAL EXPERIENCE, AND FISCAL EFFECTIVENESS

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Abstract

This paper analyzes the theoretical foundations, international experience, and national practice of digitalizing tax administration in the Republic of Uzbekistan. The fiscal effectiveness of the taxpayers' personal cabinet (my.soliq.uz), the electronic invoicing system (EIS), online cash registers (OCR), and AI-based risk assessment systems is examined. A comparative analysis with the advanced experiences of South Korea, Estonia, and Brazil is conducted. The findings indicate that the introduction of digital tools serves as a key factor in expanding the taxpayer base, narrowing the tax gap, and reducing administrative costs. At the same time, issues of digital literacy among small businesses and the rural population, cybersecurity, and institutional capacity remain relevant.

Keywords: Tax administration, digital economy, tax gap, electronic invoicing, online cash registers, my.soliq.uz, fiscal effectiveness, tax reform, digitalization.

Introduction

In modern states, the effectiveness of the tax system is determined not only by the level of tax rates but also by the quality of tax administration. As Bird and Zolt (2008) emphasized, the shortfall in tax revenues in developing countries is



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often the result not of legislative deficiencies but of weak administration. For this reason, over the past two decades, the international community has paid particular attention to the field of “digital tax administration.”

Within the framework of large-scale tax reforms implemented since 2017, the Republic of Uzbekistan has placed a special emphasis on digitalizing tax administration. With the adoption of the new Tax Code in 2019, new institutions were introduced, including the taxpayers’ personal cabinet (my.soliq.uz), the electronic invoicing system (EIS), online cash registers (OCR), and the mandatory product marking system. Between 2018 and 2023, the number of registered taxpayers grew from 400 thousand to over 1 million, and the ratio of tax revenues to GDP rose from 20.3 percent to 22.8 percent (Ministry of Finance of the Republic of Uzbekistan, 2024).

The purpose of this study is to reveal the theoretical foundations of the digitalization process, analyze international experience, and assess the impact of digital tax tools on fiscal effectiveness in Uzbekistan. The study seeks answers to the following questions: (1) To what extent does digitalization affect tax revenues? (2) Which digital tools yield the highest effectiveness? (3) When compared with international standards, in which areas does the Uzbek experience reveal shortcomings?

Literature review

The modern theoretical foundations of tax administration were developed by Bird and Zolt (2008), who argued that the effectiveness of tax legislation is directly linked to the quality of its practical application. Slemrod (2019), drawing on the U.S. experience, analyzed the role of tax technology in behavioral economics and empirically demonstrated that electronic filing systems increase tax compliance by an average of 8–12 percent.



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Okunogbe and Pouliquen (2022), analyzing electronic filing systems in Tajikistan and other developing countries, showed that digitalization not only reduces reporting time but also significantly decreases corruption. The authors emphasize that the effectiveness of digital tools strongly depends on institutional quality, particularly the independence of regulatory bodies.

Among local studies, Yuldoshev (2022) and Niyozov (2023) examined the impact of electronic invoicing on value-added tax (VAT) revenues in Uzbekistan. According to Yuldoshev (2022), the full implementation of EIS in 2021–2022 increased the additionally assessed VAT amount by approximately 30 percent. The OECD (2022) report analyzes four generations of digitalization (the Tax Administration 3.0 concept): the first generation - electronic document exchange; the second - online services; the third - real-time data integration; and the fourth - proactive administration based on artificial intelligence.

Overall, the existing literature confirms the fiscal effectiveness of digitalization; however, in the context of Uzbekistan, holistic studies that quantitatively assess the specific impact of various tools remain insufficient. The present article seeks to partially fill this gap.

Research methodology

The study employs a mixed-method approach. First, comparative analysis was used to compare the tax digitalization indicators of Uzbekistan, South Korea, Estonia, and Brazil. Second, statistical analysis examined the dynamics of tax revenues, the number of taxpayers, and EIS turnover volume in Uzbekistan over 2018–2023. Third, document analysis was applied (Tax Code, Cabinet of Ministers resolutions, State Tax Committee instructions). Data sources included stat.uz, lex.uz, soliq.uz, official reports of the Ministry of Finance, as well as analytical databases of the OECD, IMF, and World Bank.



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Analysis and discussion of results

Theoretical foundations of digitalizing tax administration. In economic theory, the costs of tax administration are divided into two groups: administrative costs borne by the state and compliance costs borne by the taxpayer. According to Sandford's (1989) model, the sum of these costs is considered optimal when it does not exceed 2–3 percent of tax revenues. Digitalization makes it possible to reduce both types of costs simultaneously: it relieves the state from paper-based work and shortens the time taxpayers spend on filing reports.

Another theoretical foundation of digitalization is the elimination of information asymmetry. According to the optimal taxation theory of Mirrlees (1971), informational imbalance between the state and the taxpayer reduces tax compliance. Real-time monitoring of transactions (for example, through EIS and OCR) substantially narrows this asymmetry.

International experience. South Korea was one of the first countries to mandatorily introduce an electronic invoicing system, beginning in 2010. As a result, VAT revenues grew on average by 0.8 percent per year, while the tax gap narrowed by 2.1 percentage points (OECD, 2022). Estonia has shortened the time required to file a tax return to as little as 3 minutes: 98 percent of the population now files taxes exclusively online (e-Estonia, 2023). In Brazil, the Nota Fiscal Eletrônica system enables real-time tracking of goods movement, and its introduction reduced the tax gap from 25 percent to 12 percent (Mascagni et al., 2021).



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TABLE 1. DIGITALIZATION INDICATORS OF TAX ADMINISTRATION IN SELECTED COUNTRIES

Country	EIS coverage (%)	Online filing (%)	Reporting time (hrs/year)	Tax gap (%)
Estonia	100	98	50	5.1
South Korea	100	95	174	8.3
Brazil	98	92	1501	12.0
Russia	95	88	168	10.5
Uzbekistan (2023)	~85	~75	181	~18.0

Source: OECD Tax Administration 2023; Mascagni et al., 2021; State Tax Committee of the Republic of Uzbekistan, 2024.

The data in Table 1 indicate that, although Uzbekistan stands at a comparable or close level to regional peers in terms of EIS coverage and online filing, the higher reporting time and the relatively larger tax gap suggest that further qualitative deepening of administration is required.

Analysis of Uzbekistan’s experience. After 2018, digital tax tools in Uzbekistan rapidly developed in four main directions. First, the taxpayers’ personal cabinet (my.soliq.uz) had united more than 2 million users by 2023 and offers more than 50 online services. Second, the EIS, which became mandatory for VAT payers from 2021, generated an average of more than 1.5 million electronic invoices per day in 2023. Third, through the OCR system, the small retail sales turnover has been brought under full digital control: by the end of 2023, more than 500 thousand online cash register devices were connected. Fourth, since 2022, a risk



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analysis module powered by artificial intelligence and big data has been launched, automatically evaluating more than 30 risk indicators.

The fiscal effectiveness of these reforms is reflected as follows: in 2019–2023, VAT revenues grew on average by 18–22 percent annually; additional inflows of more than 2.5 trillion soums were ensured through new entities included in the tax base. At the same time, the share of tax administration costs amounts to approximately 1.5 percent of revenues, which is close to the optimal level recommended by Sandford (1989).

Existing problems and limitations. At the same time, a number of systemic challenges remain in the digitalization process. First, the level of digital literacy is insufficient among rural residents and small business representatives. According to studies by small business associations, approximately 35 percent of individual entrepreneurs still need assistance in using EIS and the online cabinet. Second, cybersecurity issues are not adequately regulated: legislation on personal data protection, data storage standards, and protection from cyberattacks needs to be deepened. Third, the integration between databases of various agencies (the State Tax Committee, Customs, the Statistics Committee, banks) is still incomplete, which limits the capacity for real-time proactive administration (Tax Administration 3.0).

Conclusions and recommendations.

The findings of this study lead to the following conclusions.

First, the digitalization of tax administration is not only a technological but also an institutional transformation. The effectiveness of technology depends on the quality of the regulatory environment, the training of personnel, and the redesign of management processes.



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Second, over the past five years, Uzbekistan has achieved significant progress in introducing digital tax tools: the taxpayer base has more than doubled, tax revenues have grown by 2.5 percentage points relative to GDP, and the ratio of administrative costs has approached an optimal level.

Third, regional and international comparisons show that Uzbekistan stands at an intermediate level in terms of EIS coverage and online services, but lags behind advanced countries in indicators such as reporting time and tax gap.

The following recommendations are proposed:

- 1) Accelerate the transition to the OECD-recommended Tax Administration 3.0 concept by integrating government databases through a single centralized platform;
- 2) Develop simplified mobile applications for small businesses and individual entrepreneurs and organize free digital literacy courses;
- 3) Develop a separate legislative framework on personal data protection and cybersecurity, harmonized with international standards (such as the GDPR);
- 4) Expand the AI-based risk analysis system to also cover transfer pricing, e-commerce, and cryptocurrency transactions;
- 5) Introduce a KPI system for the regular evaluation of the effectiveness of digital tax services and publicly disclose the results.

The integrated implementation of these measures will create the foundation for bringing Uzbekistan's tax system closer to international standards, strengthening fiscal sustainability, and further improving the business environment.

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