

IMPROVING FINANCIAL AND ECONOMIC MECHANISMS TO STIMULATE INNOVATION: EVIDENCE FROM UZBEKISTAN AND GLOBAL EXPERIENCE

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Abstract: This article investigates the role of financial and economic mechanisms in stimulating innovative activity, with particular emphasis on the experience of Uzbekistan and international best practices. The study examines fiscal incentives, financial market development, institutional quality, venture capital systems, and digital finance as key drivers of innovation. Using official statistical data from Uzbekistan, World Bank databases, and international comparative analysis, the paper demonstrates that well-designed financial mechanisms significantly enhance innovation performance, productivity, and sustainable economic growth. Empirical evidence indicates that Uzbekistan has achieved substantial progress in innovation financing reforms; however, persistent structural constraints remain. The study proposes an integrated financial policy framework aimed at strengthening national innovation systems and ensuring long-term economic resilience.

Keywords: innovation finance, economic mechanisms, R&D funding, venture capital, digital finance, Uzbekistan, institutional quality, sustainable development.

In the contemporary global economy, innovation has become the primary driver of long-term economic growth, productivity enhancement, and structural transformation. Financial and economic mechanisms play a decisive role in shaping innovation ecosystems by determining the accessibility, allocation, and efficiency of capital flows toward research, development, and technological advancement. Countries that successfully design integrated innovation financing frameworks tend to demonstrate higher technological competitiveness and stronger economic resilience.

Uzbekistan, as a rapidly transforming economy, has undertaken comprehensive reforms to modernize its financial sector, stimulate entrepreneurship, and promote innovation-driven growth. Since 2017, structural reforms have targeted banking liberalization, capital market development, and digital finance expansion. According to the World Bank, Uzbekistan's gross expenditure on R&D increased from 0.15% of GDP in 2016 to approximately 0.32% in 2023, reflecting a gradual shift toward knowledge-based development. However, this level remains significantly below the global average of 2.3%, highlighting the necessity for more effective financial mechanisms.

Innovation economics emphasizes the presence of market failures in knowledge production due to uncertainty, indivisibility, and externalities. Private firms often underinvest in R&D because they cannot fully appropriate the returns from innovation. Financial and economic mechanisms such as public R&D funding, tax incentives, venture capital, and innovation-oriented credit instruments are therefore essential to correct these failures.

Institutional economics further highlights that the effectiveness of financial mechanisms depends on governance quality, regulatory transparency, and legal enforcement. Countries with stronger institutional frameworks demonstrate higher innovation efficiency and stronger linkages between finance and technological progress.

Uzbekistan has expanded public funding for science and innovation through the establishment of the Ministry of Innovative Development and specialized innovation funds. Government budget allocations for science increased from 0.8 trillion UZS in 2018 to 4.2 trillion

UZS in 2024, representing more than a fivefold increase. Additionally, tax incentives have been introduced for high-tech enterprises, including reduced profit tax rates and VAT exemptions for R&D-related imports.

Table 1. Dynamics of R&D Expenditure in Uzbekistan (2016–2023)

Year	R&D Expenditure (% of GDP)	Government R&D Budget (trillion UZS)
2016	0.15	0.6
2018	0.20	0.8
2020	0.25	1.9
2022	0.29	3.1
2023	0.32	4.2

The venture capital ecosystem in Uzbekistan is still at an early stage. However, several state-backed venture funds, including UzVC and IT Park Ventures, have been established to support technology startups. Between 2020 and 2024, total venture investment exceeded USD 150 million, primarily concentrated in fintech, agritech, and software services.

Digital finance has significantly expanded access to financial services in Uzbekistan. The number of mobile banking users increased from 4.2 million in 2018 to more than 18 million in 2024. FinTech platforms facilitate SME financing by reducing transaction costs and improving credit risk assessment through big data analytics.

Uzbekistan has improved its institutional environment through regulatory reforms, digital governance platforms, and judicial modernization. According to the World Governance Indicators, regulatory quality improved from -1.1 in 2016 to -0.3 in 2023. This progress has positively influenced business confidence and innovation investment.

Despite progress, Uzbekistan faces challenges including limited private-sector R&D investment, shallow capital markets, and weak university-industry linkages. Policy priorities should include expanding venture capital markets, enhancing innovation-oriented credit instruments, strengthening intellectual property protection, and deepening capital market reforms.

Strengthening financial and economic mechanisms is essential for transforming Uzbekistan into an innovation-driven economy. A comprehensive strategy integrating fiscal incentives, financial market development, institutional reforms, and digital finance expansion can significantly enhance national innovation capacity and long-term sustainable growth.

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