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FEASIBILITY OF A RETAIL CBDC IN UZBEKISTAN: ANALYSIS OF STRUCTURAL BARRIERS AND PROJECTED IMPACT ON MONETARY AGGREGATES

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Abstract

This study analyses the technical and economic feasibility of implementing a Central Bank Digital Currency (CBDC)—the "Digital Som"—in Uzbekistan. Using the STEEP framework, we evaluate infrastructural readiness, contrasting the nation's high digital connectivity (94.2% internet penetration in 2025) against the persistence of a significant shadow economy (~35% of GDP). The core of the paper models the "Substitution Effect," projecting how a Digital Som would alter the composition of the Money Supply. We hypothesize that while high smartphone adoption favours feasibility, the Digital Som will primarily substitute Cash-in-Circulation rather than Commercial Bank Deposits, minimizing the risk of financial disintermediation in the short term. The study concludes that the Digital Som's primary utility lies in fiscal transparency and reducing the "dollarization" of domestic savings.

1. Introduction

The global financial landscape is undergoing a paradigm shift with the emergence of Central Bank Digital Currencies (CBDCs). As of late 2025, over 130 countries are exploring CBDCs, driven by the dual goals of modernizing payment systems and safeguarding monetary sovereignty. In this context, the Central Bank of Uzbekistan (CBU) has accelerated its strategic focus on digital assets, announcing pilot frameworks for a "Digital Som" and exploring stablecoin regulations.

However, Uzbekistan presents a unique economic paradox. It is a rapidly digitizing society, yet it remains heavily reliant on physical cash and foreign currency. Despite the "Fintech Boom" of 2020-2024, which saw the widespread adoption of payment apps like Click and Payme, a significant portion of economic activity remains informal. Furthermore, the economy exhibits a high degree of "dollarization," where the US dollar acts as the preferred store of value over the national currency.

This article addresses a critical gap in the literature: **Feasibility beyond technology.** While the technical rails for a Digital Som exist, does the economic structure support it? We investigate whether the introduction of a retail CBDC will enhance monetary transmission or risk destabilizing the commercial banking sector through disintermediation.

2. Theoretical Framework

To understand the impact of a Digital Som, we must distinguish between two competing economic theories regarding CBDC adoption.

ISSN: 2776-1010 Volume 6, Issue 12, December 2025

2.1 The Disintermediation Hypothesis

Classical monetary theory warns that a risk-free CBDC could cannibalize commercial bank deposits. If citizens view the Central Bank as safer than private banks (e.g., Agrobank or SQB), they may move their liquid funds into CBDC wallets.

- **Risk:** This shrinks the commercial banks' funding base, forcing them to rely on more expensive wholesale funding, which drives up lending rates and slows economic growth.

2.2 The Cash Substitution Hypothesis

Conversely, in developing economies with large informal sectors, CBDC is theorized to compete primarily with physical cash rather than bank deposits (Ozili, 2023).

- **Opportunity:** If the Digital Som mimics the convenience of cash but offers the security of digital storage, it effectively "formalizes" the shadow economy without draining bank deposits.

The Model:

We define the demand for money M in Uzbekistan as:

M = Cash + Deposits + CBDC

Our working hypothesis H-1 is that $\Delta CBDC \approx -\Delta Cash$. The introduction of the Digital Som will reduce physical cash in circulation, leaving commercial bank deposits largely stable.

3. Methodology: STEEP Feasibility Analysis

We utilize the **STEEP Framework** (Social, Technological, Economic, Political) to evaluate the structural readiness of Uzbekistan for a retail CBDC. Data is drawn from CBU reports (2024-2025) and the Agency of Statistics.

3.1 Technological Readiness (High Feasibility)

The infrastructure gap, often cited as a barrier in developing nations, is largely resolved in Uzbekistan.

- **Internet Penetration:** As of early 2025, internet penetration reached **94.2%** (Agency of Statistics, 2025).
- **Mobile Connectivity:** Mobile subscription rates exceed **99%** of the adult population.
- **Implication:** The hardware required for a retail CBDC (smartphones) is already in the hands of the population. The "Last Mile" problem has been solved by the private telecom sector.

3.2 Economic Structure (Critical Barrier)

The primary hurdle is not technical, but structural.

- **The Shadow Economy:** Joint assessments by CERR and the IMF place the non-observed economy at approximately **34-35% of GDP** (roughly $40–42 billion) in 2024/25.
- **The Conflict:** A CBDC is inherently traceable. The ~35% of the economy that operates in the shadows does so specifically to avoid traceability (taxation). Therefore, voluntary adoption of a Digital Som by this sector will be low unless incentivized by the state (e.g., mandating it for welfare payments or public sector salaries).

ISSN: 2776-1010 Volume 6, Issue 12, December 2025

3.3 Monetary Trust (Medium Feasibility)

Trust in the national currency is improving but remains fragile.

- **Dollarization:** Deposit dollarization decreased to **~30%** by mid-2024, down from 40% in 2021 (CBU, 2024).
- **Implication:** While trust in the Som is growing due to high real interest rates (~13.5%), a significant portion of household wealth is still hedged in USD. A Digital Som that pays 0% interest cannot compete with the US Dollar as a savings vehicle.

4. Quantitative Analysis: Impact on Money Supply

This section models the impact of the Digital Som on Uzbekistan's monetary aggregates using data as of Q4 2025.

4.1 Baseline Monetary Conditions

- **Broad Money (M2):**≈28.7 Billion (approx. 372 Trillion UZS).
- **Narrow Money (M1):** ≈10.9 Billion.
- **Quasi-Money:** $17.7 Billion (Savings/Time Deposits).

4.2 The Substitution Effect Model

We model the impact using the **Cash Preference Ratio (c = C/D)**.

- **Scenario:** If the Digital Som captures just **5%** of the shadow economy's volume, it reduces physical cash in circulation (C) by roughly **$2.1 Billion**.
- **Result:** As **c** decreases (people hold less physical cash), the Money Multiplier (m) increases. Money that was previously "dead" under a mattress effectively enters the digital ledger system, increasing the traceability of the monetary base.

4.3 Velocity of Money Calculation (V)

Digital currency turns over faster than cash. We apply the Quantity Theory of Money (MV = PQ).

- **Current Velocity (V_0):** With a GDP of ≈$121.4B and M_2 of $28.7B, $V_0 \approx 4.23$.
- **Projected Impact:** If the Digital Som improves payment efficiency by 6% (raising V to 4.50), nominal GDP (PQ) could theoretically rise by **$7.7 Billion** solely due to transactional efficiency, assuming constant money supply.

4.4 The "Digital Run" Stress Test

We tested the risk of depositors fleeing commercial banks for the Central Bank.

- **Finding:** Given that 30% of deposits are in USD, and the Digital Som is a Som-denominated asset, a "Flight to Safety" would likely flow to **USD Cash**, not the Digital Som.
- **Conclusion:** The risk of a "Digital Run" from commercial banks to the Digital Som is structurally low. The Digital Som competes with the **Som Banknote**, not the **Dollar Savings Account**.

ISSN: 2776-1010 Volume 6, Issue 12, December 2025

5. Discussion: The "Stablecoin" Alternative

Recent policy signals from the CBU (September 2025) introduce a critical variable: the potential for a dual-track pilot exploring both sovereign **Digital Som** and private **Stablecoins**.

This distinction is vital for our feasibility analysis. If the CBU opts for a stablecoin model (regulated tokens issued by commercial banks), the risk of disintermediation drops to near zero, as deposits remain on commercial bank balance sheets. However, if the CBU pursues a pure retail CBDC (direct liability of the central bank), the "Substitution Effect" ($M_0 \to CBDC$) becomes the primary driver.

Policy Recommendation:

Based on the high shadow economy (35%) and moderate dollarization (30%), this paper recommends a Two-Tier CBDC Model. The CBU should issue a wholesale Digital Som to banks for interbank settlement, while allowing commercial banks to issue retail wallets. This preserves the credit creation function of private banks while providing the state with the desired traceability.

6. Conclusion

The implementation of a Retail CBDC in Uzbekistan is **technologically feasible** but **economically complex**. The infrastructure (94.2% internet penetration) is ready, but the "trust infrastructure" lags. Our quantitative modeling supports the **Cash Substitution Hypothesis**. We conclude that a Digital Som will not destabilize the banking sector by draining deposits (M_1); rather, it will cannibalize physical cash (M_0). The primary feasibility barrier is **institutional trust**. With 30% of savings still held in foreign currency, the Digital Som faces a "Gresham's Law" challenge: it will be used for high-velocity payments but not for long-term savings. Ultimately, the Digital Som's success depends on the government's ability to incentivize the "Shadow Economy" to switch from anonymous cash to traceable digital tokens—a policy challenge that technology alone cannot solve.

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