

THE IMPACT OF DIGITAL PAYMENTS ON PRIVATE SECTOR DEVELOPMENT IN UZBEKISTAN

O'ZBEKISTONDA RAQAMLI TO'LOVLARNING XUSUSIY SEKTOR RIVOJLANISHIGA TA'SIRI

[1]Eshmurotov Doniyor

[1]Central Bank of the Republic of Uzbekistan, Department for Development of Financial Technologies Senior Specialist, Independent Researcher.

Abstract Annotatsiya

Eng. - This article examines the relationship between digital payment expansion and private sector development in Uzbekistan using data from the Central Bank, National Statistics Committee, tax authorities, World Bank Enterprise Survey and e-commerce sources. Applying a mixed-method approach, the study analyses trends in 2021–2025 and evaluates four transmission channels. POS payment turnover increased approximately fourfold, from UZS 112.4 trillion to UZS 460.3 trillion, while its share of nominal GDP rose from 13.1% to 24.9%. The estimated shadow economy declined from 45–50% of GDP in 2019 to 33% in 2025, although causality remains unproven. Despite e-commerce growth, financial inclusion remains limited: over one-third of MSMEs lack bank accounts, and access to credit remains low. The findings indicate a relatively strong formalisation channel, moderate transaction-cost and market-access effects, and a weak information-and-credit channel. The study recommends prioritising interoperable payment systems, affordable merchant services and responsible cash-flow-based lending to strengthen MSME development.

Uzb. - Ushbu maqolada O'zbekistonda raqamli to'lovlar ko'lamining kengayishi va xususiy sektor rivojlanishi o'rtasidagi bog'liqlik Markaziy bank, Milliy statistika qo'mitasi, soliq organlari, Jahon bankining korxonalar o'rtasida o'tkazilgan so'rovi hamda elektron tijoratga oid ma'lumotlar asosida tadqiq etilgan. Aralash metodologik yondashuv orqali 2021–2025-yillardagi tendensiyalar va raqamli to'lovlarning ta'sirini ifodalovchi to'rtta asosiy mexanizm baholangan. POS-terminallar orqali amalga oshirilgan to'lovlar hajmi qariyb to'rt baravarga, ya'ni 112,4 trln. so'mdan 460,3 trln. so'mgacha oshgan, ularning nominal yalpi ichki mahsulotga nisbati esa 13,1 foizdan 24,9 foizga yetgan. Yashirin iqtisodiyotning baholangan ulushi 2019-yildagi 45–50 foizdan 2025-yilda 33 foizgacha qisqargan, biroq ushbu o'zgarishlar o'rtasidagi sababiy bog'liqlik to'liq isbotlanmagan. Elektron tijorat rivojlanishiga qaramay, mikro, kichik va o'rta biznes subyektlarining uchdan bir qismidan ortig'i bank hisobvaraqlariga ega emasligi hamda kredit resurslaridan foydalanish imkoniyatlari cheklanganligi aniqlangan. Tadqiqot natijalariga ko'ra, iqtisodiy faoliyatni rasmiylashtirish mexanizmining ta'siri nisbatan kuchli, tranzaksiya xarajatlarini kamaytirish va bozorlarga kirish imkoniyatlarini kengaytirish mexanizmlarining ta'siri o'rtacha, axborot va kreditlash mexanizmining ta'siri esa zaif deb baholangan. Xususiy sektor rivojlanishini jadallashtirish uchun o'zaro integratsiyalashgan to'lov tizimlarini kengaytirish, savdo subyektlari uchun to'lov xizmatlari xarajatlarini maqbullashtirish hamda pul oqimlariga asoslangan mas'uliyatli kreditlash mexanizmlarini rivojlantirish taklif etilgan.

Keywords:
Kalit so'zlar:

❖ *digital payments, private sector development, small and medium-sized enterprises, formalisation, shadow economy, cash-flow-based lending, e-commerce, unified QR code.*

❖ *raqamli to'lovlar, xususiy sektor rivojlanishi, kichik va o'rta biznes, iqtisodiy faoliyatni rasmiylashtirish, yashirin iqtisodiyot, pul oqimlariga asoslangan kreditlash, elektron tijorat, yagona QR-kod.*

Introduction.

Payment systems provide the infrastructure through which market transactions are settled, and their efficiency affects the costs and risks of doing business. Digital payments can reduce transaction frictions, generate verifiable payment records and connect firms with broader customer markets [1; 2]. In developing economies, where informality and limited access to external finance remain common, these features make digital payment systems a potentially important instrument not only for financial inclusion but also for private sector development [3; 4].

Uzbekistan provides an instructive case. Following the economic reforms initiated in 2017, private enterprise has remained a major contributor to national output: small business accounted for 52.2% of GDP in 2025 [5], while MSMEs represented over 90% of firms, approximately 75% of employment and around 55% of GDP under the World Bank's broader MSME definition [6]. At the same time, payment infrastructure has changed rapidly. By 1 January 2026, the number of bank cards in circulation exceeded 68 million, and POS-terminal payments in 2025 totalled approximately UZS 460.3 trillion [7]. From 1 July 2026, the unified national QR payment acceptance framework (UzQR) became mandatory for relevant trade and service legal entities [8; 42]. Decree No. PF-246 of 10 December 2025 explicitly links wider non-cash payments with the reduction of the non-observed economy [42].

This creates a research problem. The impact of digital payments is usually discussed in terms of transaction volumes or household financial inclusion, whereas the question of whether payment growth translates into formalisation, better access to finance and wider markets for firms, and which channels are binding, remains insufficiently studied. Payment volumes may grow mainly through consumer cards and person-to-person transfers, while many firms continue to operate in cash and remain credit-constrained. Without distinguishing these effects, policy risks treating growth in payment turnover as evidence of private sector development.

The aim of this article is to assess the impact of digital payments on private sector development in Uzbekistan and to identify the key transmission channels and their relative strength. The study tests three working hypotheses: (H1) the expansion of digital payments is positively associated with the formalisation of private economic activity; (H2) the association with firms' access to finance is substantially weaker, because payment data are not yet systematically used in lending; (H3) the channels differ in strength, and the binding constraints lie on the firm side, in merchant acceptance costs and in the use of transaction data, rather than in consumer adoption of payment instruments.

Literature Review.

The literature treats payments as a core function of the financial system whose cost determines the efficiency of intermediation. Philippon shows that the unit cost of financial services has remained high for decades and argues that technology can reduce it by lowering distribution and information costs [1]. Beck et al. develop and test a model in which mobile payments reduce the cost and risk of transactions for entrepreneurs and facilitate supplier credit, with measurable gains for small

firms [2]. In Kenya, access to mobile money enabled a significant share of women to move from subsistence farming into business occupations [10].

A second strand of research emphasises network externalities in payment adoption. Because merchants accept digital payments only if enough customers use them and vice versa, adoption can remain stuck in a cash equilibrium. Higgins shows that the distribution of debit cards to poor households in Mexico led small retailers to adopt POS terminals, which in turn raised other consumers' card adoption and shifted spending towards small shops, increasing their sales and profits [4]. Crouzet et al. find that India's 2016 demonetisation produced a persistent increase in the use of electronic wallets, consistent with coordination failures that a large shock can overcome [11]; at the same time, the sudden withdrawal of cash depressed economic activity in the short run, which warns against coercive transitions [12].

A third strand links payments to credit through information. Cashless transactions can generate verifiable records of firms' revenues and expenses, potentially reducing information asymmetry. Ghosh et al. show, using data from an Indian lender to small businesses, that borrowers' use of cashless payments improves their access to fintech credit and predicts a lower probability of default [13]. In a randomised controlled trial with Kenyan SMEs, Dalton et al. find that adoption of a merchant e-payment instrument increased access to mobile loans by at least 50% and reduced sales volatility, although it did not change sales or profits [14]. Digital-footprint variables can match the predictive power of credit bureau scores [15], and large technology platforms combine payments, commerce and lending in a single ecosystem [3].

A fourth strand concerns formalisation and taxation. The anonymity of cash facilitates tax evasion and informal activity [16; 17], and shadow economies remain large in many emerging markets [18]. Naritomi demonstrates that rewarding consumers for requesting electronic receipts in Brazil substantially increased the revenue reported by retail firms [19]. Formalisation, however, also raises compliance costs, and evidence from Kenya shows that business owners who are more averse to transparency are more reluctant to adopt e-payments [14].

Based on this literature, the article distinguishes four transmission channels from digital payments to private sector development: (1) the transaction-cost and acceptance channel, which lowers the cost of receiving payments and settling with suppliers; (2) the formalisation channel, through which payment traceability brings turnover into the tax and statistical base; (3) the information-and-credit channel, which converts transaction data into access to external finance; and (4) the market-access channel, through which payment-enabled platforms extend firms' customer reach. Trust, the cost of acceptance relative to cash and the risk of over-indebtedness are treated as moderators of all four channels. Private sector development is assessed at three levels: formalisation of activity, access to finance, and market expansion.

Research Methodology.

The study adopts a mixed-method design suited to the available data. Payment indicators were obtained from CBU statistics and reviews of cash circulation [7; 20; 21; 22; 23], supplemented by market studies [24]. GDP and small business indicators were drawn from the National Statistics Committee [5; 25; 26; 27]. Formalisation indicators are based on publicly reported estimates attributed to the Ministry of Economy and Finance and the tax authorities [9]. Firm-level constraints are drawn from the World Bank's 2024 Enterprise Survey findings as summarised in a World Bank release [6]. Credit and market-access indicators rely on published lending data, e-commerce statistics

and platform disclosures [28; 29; 30; 31; 32; 33]. The analysis distinguishes official figures from estimates compiled by the author and from statements made by private platforms.

Three analytical steps are applied. First, the dynamics of payment and private sector indicators are compared over 2021–2025. Second, the depth of payment digitalisation relative to the size of the economy is measured with a digital payment intensity indicator:

$$DPI_t = POS_t / GDP_t \times 100\% \quad (1)$$

where POS_t is the value of payments through POS terminals and GDP_t is nominal GDP in year t. To compare how private sector outcomes moved relative to payments, a descriptive elasticity is calculated as the ratio of the growth rate of an outcome to the growth rate of POS payments over the same period:

$$\varepsilon_k = \%\Delta Y_k / \%\Delta POS \quad (2)$$

where %ΔYk denotes the percentage change in outcome k and %ΔPOS the percentage change in POS payments over the corresponding period. A value near one indicates similar proportional growth; a lower value indicates slower growth of the selected outcome. The ratio is a descriptive co-movement measure, not an econometric or causal elasticity. Third, the four proposed transmission channels are appraised qualitatively against the available evidence and classified as strong, moderate or weak.

The study has several limitations: a short time series, revisions to GDP and small business statistics, reliance on some official data relayed by secondary sources, and the absence of merchant-level disaggregation in POS statistics. The 2021 POS estimate was reconstructed from a dollar-denominated figure and is therefore less directly comparable with the later CBU series. Estimates of the shadow economy depend on definitions and measurement methods. The strength assigned to each transmission channel is a reasoned qualitative assessment rather than a statistically estimated effect. Consequently, the findings should be read as evidence of contemporaneous association and institutional constraints, not of established causality.

Analysis and Discussion of Results.

Digital payments in Uzbekistan grew substantially faster than nominal GDP during the period reviewed (Table 1). POS-terminal payments increased from UZS 177.7 trillion in 2022 [22] to UZS 255.0 trillion in 2023 [20], UZS 326.7 trillion in 2024 and UZS 460.3 trillion in 2025 [7], a rise of approximately 40.9% in 2025. The share of terminal receipts in banks' combined cash and terminal receipts rose from about 31% in 2021 to 38% in 2023 [20]. In 2025, cash receipts amounted to approximately UZS 615 trillion and terminal receipts to UZS 460 trillion [7; 21], implying a terminal share of roughly 43%.

Table 1

Digital payment intensity in Uzbekistan, 2021–2025

Indicator	2021	2022	2023	2024	2025
POS payments, UZS trillion	112.4*	177.7	255.0	326.7	460.3
Nominal GDP, UZS trillion	861.2	1,041.9	1,261.8	1,535.4	1,849.7
Digital payment intensity (DPI), % of GDP	13.1	17.1	20.2	21.3	24.9
Terminal payments in banks' cash and terminal receipts, %	31	34	38	≈39**	≈43**
POS terminals in operation, thousand	–	433.9	433.5	430.3	430.8

Sources: CBU payment-system statistics and cash-circulation releases [7; 20; 21; 22; 23]; National Statistics Committee [25]; KPMG market review [24]. * Author's estimate converted from USD using an average annual exchange rate; not directly comparable with the CBU figures. ** Author's calculation from reported cash and terminal receipts. GDP follows the revised National Statistics Committee series. Terminal counts refer to the available observations for early 2022, early 2023, March 2024, and 1 January 2026.

As Figure 1 illustrates, the ratio of POS payments to GDP increased from an estimated 13.1% in 2021 to 24.9% in 2025. Notably, this growth did not require an equivalent expansion of installed terminals: the network comprised approximately 434,000 terminals in early 2022 [23] and 430,762 on 1 January 2026 [7]. The nominal payment value per terminal thus increased considerably. Greater use of existing acceptance points, contactless payments and mobile channels may have contributed; however, the aggregate statistics do not permit their separate effects to be quantified. NFC payments totalled UZS 41.4 trillion in 2024 according to reported CBU indicators [7].

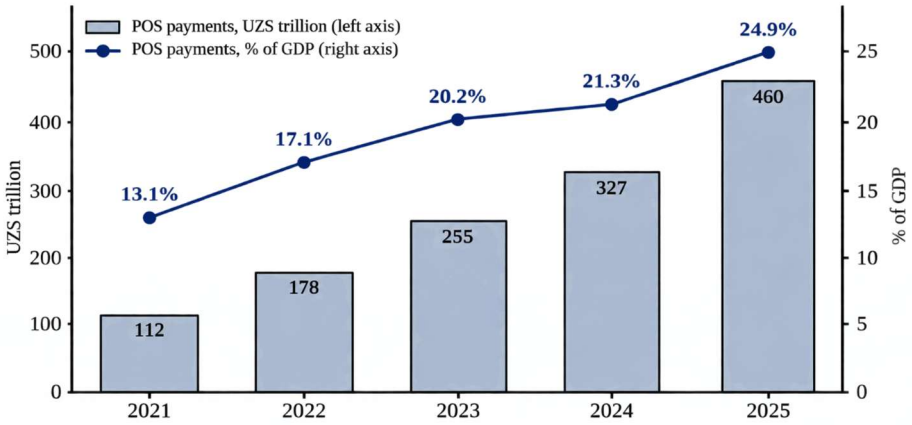


Figure 1. Value of POS payments and digital payment intensity in Uzbekistan, 2021–2025 [7; 20; 25]

A second feature is the role played by payment organisations and digital platforms. Click, Payme and Uzum are prominent providers, although transfers between individuals account for a substantial share of their payment activity [24]. Uzum reported that its ecosystem processed USD 11.1 billion in payments in 2025 [32]. Regulatory change has also accelerated the transition: under Decree No. PF-246, from 1 April 2026, designated payments—including utility bills, public services and certain high-value purchases and property transactions—must be made through bank cards or electronic payment systems [42]. The CBU reports a standard UzQR merchant commission of 0.65%; this should not be interpreted as the fee for every digital payment instrument [34].

Behind these aggregates lies a pronounced asymmetry between households and firms. About 72% of adults used digital payments in 2025 [35], but more than one-third of MSMEs still lack a bank account and less than 30% of their sales are conducted electronically [6]. Digitalisation in Uzbekistan thus proceeds at two speeds: rapid on the consumer side and markedly slower on the side of the firms that are expected to benefit from it.

The private sector has continued to expand, although counts depend on whether self-employed persons, individual entrepreneurs and registered enterprises are included. Official data indicated approximately 1.21 million small business entities in the relevant statistical grouping as of 1 October 2025 [26], whereas about 475,000 registered enterprises were reported at the beginning of 2026, of which roughly 85% were small enterprises or microfirms [36]. These measures should not be treated as interchangeable. In the revised National Statistics Committee series, the contribution of small business to GDP declined from 53.5% in 2024 to 52.2% in 2025 [5; 27]. Thus, an increase in digital payment turnover did not coincide with an increase in the relative GDP share of small businesses. This observation

does not establish that payment digitalisation adversely affected firms.

Changes in formalisation are among the more visible developments. According to estimates attributed to the Ministry of Economy and Finance, the shadow economy declined from 45–50% of GDP in 2019 to 33% in 2025 [9]. Reported turnover through online cash registers increased by 18.4% in 2025, and 6.8 million consumers reportedly received 1% tax cashback for fiscal receipts [9]. Digital invoices, online cash registers, product labelling and incentives have all been associated with greater transaction reporting, although their individual effects have not been isolated. In Tashkent public transport, recorded transaction volumes reportedly rose by 38% following the transition to cashless fares, suggesting that previously unrecorded activity became more visible [9]. Changes in measurement, compliance and economic activity may also explain part of the observed trends.

Access to finance shows a more mixed picture. Lending to SMEs and entrepreneurs reached UZS 131.2 trillion in 2025, 42% more than in 2024 [28], and the SME support portfolio amounted to UZS 218 trillion, or 12% of GDP [30]. Yet the structure of this lending points to a weak role of payment data. At the end of 2024 the share of small business in bank lending stood at only 28%, against a government target of 40% [37]; a substantial part of SME credit is channelled through state programmes, which accounted for UZS 8.0 trillion of the UZS 35.1 trillion lent to MSMEs in the first quarter of 2026 [29]; and the share of unsecured online microloans remains low, with processing times of up to seven days [30]. At the firm level, only 10% of small and 16% of medium-sized enterprises report access to bank credit, and women-led firms are more than twice as likely as male-led firms to cite finance as their main obstacle (23% versus 10%) [6].

Market access has expanded fastest from a low base. Online sales grew 1.5 times in 2025 to UZS 22.7 trillion, raising the share of e-commerce in retail trade from 3.7% to 4.6%, and the number of e-commerce platforms increased from 36 to 115 [31]. Uzum reports more than 20,000 sellers, over half of whom use its embedded instalment and payment services [33], while sales of Uzbek sellers on Wildberries rose by 35% to more than USD 1.4 billion, including exports [38]. Nevertheless, the reported e-commerce share of retail remains below the approximately 14% figure quoted for Kazakhstan [38].

Table 2 compares selected changes in 2025 with the growth of POS payments. Nominal GDP grew at approximately half the POS payment growth rate (ε = 0.50); bank cash turnover also grew more slowly (ε = 0.59) but still increased by about 24% [21]. Hence, cash remained economically significant. Reported lending to SMEs and entrepreneurs increased at a similar rate to POS payments (ε = 1.03), while e-commerce expanded more quickly (ε = 1.22). These ratios summarise aggregate movements and cannot identify the contribution of digital payments to any of the other outcomes.

Table 2

Growth of private sector outcomes relative to POS payments, 2025 vs 2024

Indicator	Growth, %	Elasticity ε
POS payments (reference)	40.9	1.00
Nominal GDP	20.5	0.50
Cash turnover through banks	24.0	0.59
Bank cards in circulation	10.0	0.24
Lending to SMEs and entrepreneurs	42.0	1.03
E-commerce sales	50.0	1.22

Source: *calculated by the author using formula (2) based on [7; 21; 25; 28; 31].*

The descriptive measures are consistent with H1 but do not provide a causal test of the hypothesis. The co-movement of SME lending and POS payments is close to one, yet this may reflect common macroeconomic conditions and credit policies rather than the systematic use of transaction data in lending decisions. Firm-level indicators suggest that businesses' visibility within payment and tax systems has improved faster than their access to credit.

Table 3 summarises the qualitative assessment of the proposed channels. Formalisation has the clearest supporting evidence, whereas the transformation of payment data into affordable credit for small firms is currently the least well-established mechanism. These rankings are analytical judgements based on the available evidence, rather than statistically identified channel effects.

Table 3

Assessment of channels through which digital payments affect private sector development in Uzbekistan

Channel	Mechanism	Evidence for Uzbekistan	Strength
Transaction cost and acceptance	Lower cost and risk of receiving and making payments	POS value ×4 in 2021–2025 with flat terminal count; QR fees 1–3% before UzQR (0.65%); <30% of MSME sales electronic	Moderate
Formalisation	Traceable turnover enters tax and statistical base	Shadow economy 45–50% → 33% of GDP; online cash register turnover +18.4%; 6.8 mln cashback users	Strong
Information and credit	Payment data reduce information asymmetry in lending	10% of small and 16% of medium firms with loans; SME share of lending 28%; online unsecured SME loans low	Weak
Market access	Payment-enabled platforms extend customer reach	E-commerce 1.5× to UZS 22.7 trln (4.6% of retail); 20,000+ sellers on Uzum	Moderate, rising
Moderators	Cost relative to cash, trust, debt risk	Cash still +24% in 2025; ~30% of borrowers with multiple loans	–

Source: author's assessment based on [6; 7; 8; 9; 21; 30; 31; 33; 34; 37; 39].

Transaction-cost and acceptance channel (moderate). Remote and contactless instruments can reduce the practical cost and risk of settling payments. The observed value processed per installed terminal increased markedly between 2022 and 2025 [7; 23]. Merchant acceptance, however, remains sensitive to commissions and compliance costs. The CBU's UzQR framework establishes a standard commission of 0.65% for payments processed through that system [34], potentially lowering barriers for smaller merchants. Its effects on firms that currently receive most payments in cash remain to be evaluated [6].

Formalisation channel (comparatively strong). Electronic invoices, online cash registers, QR-coded fiscal receipts and consumer cashback have made business turnover more observable. The reported fall in the shadow-economy estimate coincided with the wider adoption of digital payments and related administrative reforms [9]. Evidence on receipt-based incentives in Brazil supports the plausibility of this channel [19], but the available Uzbek data cannot separate the impact of payments from that of tax administration, regulatory change or statistical revision. The long-term fiscal effectiveness of broad cashback incentives also deserves evaluation [40].

Information-and-credit channel (weak). Banks and fiscal authorities have accumulated information that could help lenders assess enterprise cash flows. Nevertheless, unsecured online SME finance remains limited, and lending is often collateral-based or programme-supported [30]. International studies show how digital transaction records

can improve screening and access to finance [13; 14]. Policy proposals envisage open-banking infrastructure, alternative scoring using turnover, tax and utility-payment data, and more integrated SME lending applications [30; 41]. However, plans or implementation schedules must not be confused with verified operational outcomes. Effective use of such data also requires explicit consent, safeguards for privacy and robust credit-risk assessment.

Market-access channel (moderate, strengthening). Payment-enabled marketplaces have given small sellers a nationwide customer base and, increasingly, access to export markets [31; 38]. Platforms combine payments, logistics and embedded finance, which is consistent with the BigTech model described in the literature [3]. The channel is strengthening but remains limited by the low share of e-commerce in retail and by the concentration of platform activity in a few large ecosystems, which raises questions of data access and fair competition.

Moderators: trust, costs and financial risk. The four channels may be weakened by acceptance fees, consumers' and merchants' trust, the compliance costs associated with greater transparency and the risk of excessive indebtedness [8; 14; 39]. A reported significant share of borrowers hold multiple loans, making responsible underwriting especially important [39]. Evidence from India also suggests that abrupt restrictions on cash can disrupt economic activity in the short term [12]. These potential adverse effects should be evaluated alongside the benefits of formalisation.

Taken together, the evidence is consistent with H3: firm-side acceptance costs and the limited use of payment information in lending appear to constrain the contribution of digital payments to private sector development. This conclusion remains provisional, given the lack of linked firm-level data.

The findings place Uzbekistan at a recognisable stage of the digital payment trajectory. As in Brazil and India, the first effects of payment digitalisation have been most visible in formalisation and in consumer adoption [11; 19]. The experience of Mexico and Kenya shows that the next stage, in which payments raise small firms' sales and access to credit, depends on merchant-side adoption and on lenders' use of payment information [4; 14]. In Uzbekistan this stage has only begun.

Conclusions And Recommendations.

The analysis indicates that digital payments expanded rapidly in Uzbekistan and were accompanied by broader recording of private economic activity. From 2021 to 2025, the estimated value of POS payments increased by approximately four times, while the POS-payment-to-GDP ratio rose from 13.1% to 24.9%. Over a partially overlapping period, the officially reported estimate of the shadow economy fell to 33% of GDP; e-commerce sales also rose markedly in 2025. These developments are consistent with, but do not establish, beneficial effects of payment digitalisation.

The link between digital payments and access to productive finance for smaller firms remains less developed. More than one-third of MSMEs reportedly lack bank accounts, fewer than 30% of their sales are electronic, and only 10% of small enterprises report having bank credit [6]. The four transmission channels are therefore assessed as unequal in strength: formalisation has comparatively strong supporting evidence, transaction costs and market access have moderate support, and information-driven credit remains weak. The risk of excessive debt and the costs of merchant adoption must also be considered.

Several policy implications follow. First, policy evaluation should supplement aggregate payment turnover with firm-level indicators, including the share of MSME sales settled electronically and the share of firms with business bank accounts. Second, merchant acceptance should be affordable and interoperable; for microbusinesses, temporary

fee relief or differentiated pricing could be assessed against its cost and competition effects [4; 34]. Third, firms should be able to authorise secure sharing of their acquiring, fiscal receipt and tax records with competing lenders, enabling cash-flow-based financing without replacing prudent affordability checks. Fourth, formalisation policy should combine traceability with proportionate reporting obligations, clear information and targeted incentives. Fifth, the development of platform-based finance should be accompanied by safeguards for data portability, fair competition and responsible lending. Finally, monitoring should distinguish announced reforms from their implemented outcomes, including the effects of UzQR and open-banking initiatives [41; 42].

For Uzbekistan, the next priority should be to translate wider payment acceptance into measurable business outcomes: lower transaction costs, more reliable financial records, stronger market access and better-targeted working-capital finance. Affordable interoperable infrastructure, privacy-preserving consent-based data sharing and responsible cash-flow lending are central to this agenda. Future research should link individual firms' payment, tax and loan records, where legally and ethically permissible, to test causal effects and assess the results of UzQR and open banking after sufficient post-implementation observations become available.

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