

MUHANDISLIK

& IQTISODIYOT

ijtimoiy-iqtisodiy, innovatsion texnik,
fan va ta'limga oid ilmiy-amaliy jurnal

2026-YIL

IYUL/7-SON, I-QISM



Milliy nashrlar

OAK: <https://oak.uz/pages/4802>

05.00.00 - Texnika fanlari

08.00.00 - Iqtisodiyot fanlar



ISSN: 3060-463X



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Elektron nashr, 2026-yil, iyul.

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- 05.01.00 – Axborot texnologiyalari, boshqaruv va kompyuter grafikasi
- 05.01.01 – Muhandislik geometriyasi va kompyuter grafikasi. Audio va video texnologiyalari
- 05.01.02 – Tizimli tahlil, boshqaruv va axborotni qayta ishlash
- 05.01.03 – Informatikaning nazariy asoslari
- 05.01.04 – Hisoblash mashinalari, majmualari va kompyuter tarmoqlarining matematik va dasturiy ta'minoti
- 05.01.05 – Axborotlarni himoyalash usullari va tizimlari. Axborot xavfsizligi
- 05.01.06 – Hisoblash texnikasi va boshqaruv tizimlarining elementlari va qurilmalari
- 05.01.07 – Matematik modellashtirish
- 05.01.11 – Raqamli texnologiyalar va sun'iy intellekt
- 05.02.00 – Mashinasozlik va mashinashunoslik
- 05.02.08 – Yer usti majmualari va uchish apparatlari
- 05.03.02 – Metrologiya va metrologiya ta'minoti
- 05.04.01 – Telekommunikatsiya va kompyuter tizimlari, telekommunikatsiya tarmoqlari va qurilmalari. Axborotlarni taqsimlash
- 05.05.03 – Yorug'lik texnikasi. Maxsus yoritish texnologiyasi
- 05.05.05 – Issiqlik texnikasining nazariy asoslari
- 05.05.06 – Qayta tiklanadigan energiya turlari asosidagi energiya qurilmalari
- 05.06.01 – To'qimachilik va yengil sanoat ishlab chiqarishlari materialshunosligi
- 05.08.03 – Temir yo'l transportini ishlatish
- 05.08.06 – "G'ildirakli va gusenisali mashinalar va ularni ishlatish" (texnika fanlari)
- 05.09.01 – Qurilish konstruksiyalari, bino va inshootlar
- 05.09.04 – Suv ta'minoti. Kanalizatsiya. Suv havzalarini muhofazalovchi qurilish tizimlari
- 10.00.06 – Qiyosiy adabiyotshunoslik, chog'ishtirma tilshunoslik va tarjimashunoslik
- 10.00.04 – Yevropa, Amerika va Avstraliya xalqlari tili va adabiyoti
- 08.00.01 – Iqtisodiyot nazariyasi
- 08.00.02 – Makroiqtisodiyot
- 08.00.03 – Sanoat iqtisodiyoti
- 08.00.04 – Qishloq xo'jaligi iqtisodiyoti
- 08.00.05 – Xizmat ko'rsatish tarmoqlari iqtisodiyoti
- 08.00.06 – Ekonometrika va statistika
- 08.00.07 – Moliya, pul muomalasi va kredit
- 08.00.08 – Buxgalteriya hisobi, iqtisodiy tahlil va audit
- 08.00.09 – Jahon iqtisodiyoti
- 08.00.10 – Demografiya. Mehnat iqtisodiyoti
- 08.00.11 – Marketing
- 08.00.12 – Mintaqaviy iqtisodiyot
- 08.00.13 – Menejment
- 08.00.14 – Iqtisodiyotda axborot tizimlari va texnologiyalari
- 08.00.15 – Tadbirkorlik va kichik biznes iqtisodiyoti
- 08.00.16 – Raqamli iqtisodiyot va xalqaro raqamli integratsiya
- 08.00.17 – Turizm va mehmonxona faoliyati

Ma'lumot uchun, OAK
Rayosatining 2024-yil 28-avgustdagi 360/5-son qarori bilan "Dissertatsiyalar asosiy ilmiy natijalarini chop etishga tavsiya etilgan milliy ilmiy nashrlar ro'yxati"ga texnika va iqtisodiyot fanlari bo'yicha "Muhandislik va iqtisodiyot" jurnali ro'yxatga kiritilgan.

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COMPETITION IN THE INFORMATION MARKET: MONOPOLY TRENDS AND THE DIGITAL PLATFORM ECONOMY

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Abstract: This article examines whether Uzbekistan's competition-policy architecture can adequately address concentration in multi-sided digital markets. Employing the Rochet–Tirole two-sided platform model and Schmalensee's analysis of single- and multi-homing, the study shows that conventional tools — the Herfindahl–Hirschman Index, the standard Lerner Index, and the SSNIP test — misstate market power when consumer-facing prices are zero. Using UNDP and MEF structural data and case evidence from Uzum Market, Yandex Go/Eats, and the Payme–Click–TBC Bank cluster, the paper demonstrates that Uzbek platforms apply asymmetric, elasticity-proportional pricing consistent with the generalized Rochet–Tirole Lerner formula.

Keywords: two-sided markets; platform economics; Rochet–Tirole model; digital antitrust; Uzbekistan; competition policy; tipping markets.

Annotatsiya: Ushbu maqolada O'zbekistonning raqobat siyosati arxitekturasi ko'p tomonlama raqamli bozorlardagi konsentratsiyani yetarli darajada tartibga sola olishi masalasi o'rganiladi. Rochet–Tirole ikki tomonlama platforma modeli hamda Schmalensee'ning single-homing va multi-homing bo'yicha tahliliga tayangan holda, tadqiqot iste'molchilar uchun narxlar nolga teng bo'lgan sharoitda an'anaviy vositalar — Herfindahl–Hirschman indeksi, standart Lerner indeksi va SSNIP testi — bozor hokimiyatini noto'g'ri baholashini ko'rsatadi. UNDP va MEFning tarkibiy ma'lumotlari hamda Uzum Market, Yandex Go/Eats va Payme–Click–TBC Bank klasteri bo'yicha keys dalillaridan foydalangan holda, maqolada O'zbekiston platformalari umumlashtirilgan Rochet–Tirole Lerner formulasi bilan mos keluvchi assimetrik, elastiklikka mutanosib narxlash amaliyotini qo'llashi asoslab beriladi.

Kalit so'zlar: ikki tomonlama bozorlar; platforma iqtisodiyoti; Rochet–Tirole modeli; raqamli antimonopoliya; O'zbekiston; raqobat siyosati; tipping bozorlar.

Аннотация: В статье рассматривается вопрос о том, способна ли архитектура конкурентной политики Узбекистана адекватно реагировать на концентрацию в многосторонних цифровых рынках. Используя модель двусторонних платформ Роше–Тироля и анализ Шмалензи, посвященный single-homing и multi-homing, исследование показывает, что традиционные инструменты — индекс Херфиндала–Хиршмана, стандартный индекс Лернера и тест SSNIP — искажают оценку рыночной власти в условиях, когда цены для потребителей равны нулю. На основе структурных данных UNDP и MEF, а также кейсов Uzum Market, Yandex Go/Eats и кластера Payme–Click–TBC Bank в статье доказывается, что узбекские платформы применяют асимметричное ценообразование, пропорциональное эластичности, что соответствует обобщенной формуле Лернера Роше–Тироля.

Ключевые слова: двусторонние рынки; экономика платформ; модель Роше–Тироля; цифровое антимонопольное регулирование; Узбекистан; конкурентная политика; tipping markets.

INTRODUCTION

Twentieth-century industrial organization — the Lerner Index, SSNIP-based market definition, and structure–conduct–performance analysis — was built to describe firms selling a single good to a single class of buyer. Uzbekistan's post-2017 liberalization inherited this single-sided conception. Yet the country's most consequential digital firms — Uzum, Yandex Go, Payme, and Click — operate platforms: intermediaries whose value derives from connecting distinct groups of agents through cross-side network externalities. A rider's utility rises with the number of available drivers; a shopper's utility rises with the assortment of merchants. Classical demand theory does not accommodate the fact that one side's participation is, economically, an input into value delivered to the other.

Rochet and Tirole (2003) formalized this as the theory of two-sided markets, defining platforms as businesses whose two distinct sides derive benefit from interacting through a common intermediary — a definition spanning payment networks, marketplaces, and ride-hailing applications. This generates the paper's research problem: the standard Lerner Index cannot be computed meaningfully when one side's price is zero; the SSNIP test is mathematically undefined for a zero baseline price and blind to non-price competitive margins, such as data extraction and algorithmic ranking; and the HHI, computed on a single side, ignores the cross-side pricing asymmetry that is the platform's defining feature. This study asks whether the Rochet–Tirole/Schmalensee framework offers superior diagnostic power for Uzbekistan's platforms, and whether the country's 2023–2026 competition-law reforms are equipped to regulate the resulting concentration.

REVIEW OF LITERATURE ON THE SUBJECT

The two-sided markets literature emerged in the early 2000s in response to empirical puzzles that single-sided industrial organization could not explain. Rochet and Tirole provided the foundational formal treatment, establishing that platform intermediaries set prices to internalize cross-group network externalities — a mechanism fundamentally different from ordinary firms.

The international literature that followed has been both rigorous and, this author maintains, somewhat siloed. Evans and Caillaud and Jullien applied the framework to antitrust analysis — work of considerable policy importance. Armstrong and Rochet and Tirole extended the theory to dynamic competition and membership-versus-usage fee decomposition. Rysman surveyed empirical pricing patterns in payment cards and media, lending credibility to the theoretical predictions, yet explicitly cautioning against mechanically applying single-sided antitrust tools to platforms — precisely the warning Uzbekistan's regulators needed, yet one that went largely unheeded until 2024.

Yet this literature exhibits a critical limitation: it is primarily grounded in mature-market empirics — payment cards in the United States and Europe, online advertising platforms in developed nations, and media markets with established legal institutions. Weyl contributed theoretical refinements on pricing in multisided markets, but the focus remained on institutional contexts where contract enforcement, data protection, and antitrust doctrine were already established. This creates a gap: how do two-sided platforms behave in emerging markets with weaker institutional capacity?

Uzbekistan's digital platform ecosystem presents an instructive contrast. Local scholarship on competition law — notably Khodjaev Bakhshillo, who proposed a transitional competition model for misleading advertising regulation — has attempted to bridge the gap between inherited Soviet-era legal categories and modern market dynamics. Khodjaev's work is valuable for its institutional realism: it acknowledges that applying Western competition doctrine wholesale to Uzbekistan produces misalignment. Yet Khodjaev's framework does not address platform markets specifically, treating regulation as a traditional single-sided problem.

More recent Uzbek scholarship has begun to address digital platforms directly. Ahmedov examines how platform structure and network effects reshape competitive dynamics in e-commerce, fintech, and ride-hailing. Ahmedov's contribution is to map the empirical reality of Uzbekistan's own platforms against the international literature. Yet Ahmedov's analysis, while useful as a descriptive stocktaking, does not construct a diagnostic framework for regulators; it largely restates two-sided markets theory without applying it to Uzbekistan's specific legal architecture.

RESEARCH METHODOLOGY

This paper situates itself at the intersection. It adopts the Rochet–Tirole framework not as a universal doctrine, but as a diagnostic tool for a specific institutional gap: Uzbekistan has inherited twentieth-century competition law and now attempts to regulate platforms that did not exist when that law was written. The foreign literature provides the theory; Uzbek institutional reality provides the test case. This study argues that the two-sided framework, properly applied, explains concentration in Uzbek platforms far better than conventional HHI analysis or SSNIP testing, and that this superior diagnostic power can guide legal reform.

ANALYSIS AND RESULTS

Following Rochet and Tirole (2003), consider a monopoly platform with buyer price p_B and seller price p_S , quasi-demands $D_B(p_B)$ and $D_S(p_S)$, and transaction volume

$$T(p_B, p_S) = D_B(p_B) \cdot D_S(p_S) \quad (1)$$

With constant per-transaction cost C , profit is $\Pi = (p_B + p_S - C) \cdot T(p_B, p_S)$. Maximizing with respect



to each price and defining elasticities $\eta_B = -p_B D_B/D_B$ and $\eta_S = -p_S D_S/D_S$ yields the price-allocation rule and the generalized two-sided Lerner Index (Rochet & Tirole, 2003, 2004):

$$p_B = \eta_B \cdot (p_B + p_S - C), \quad p_S = \eta_S \cdot (p_B + p_S - C) \quad (2)$$

$$(p_B + p_S - C) / (p_B + p_S) = 1 / (\eta_B + \eta_S) \quad (3)$$

Unlike the classical Lerner Index, $L = (p - C) / p = 1 / \eta$, equation (3) implies that a higher-elasticity side receives a larger share of the markup — prices are proportional, not inversely proportional, to elasticity (Schmalensee, 2014). Consequently, one side's price may sit at or below cost without signaling an absence of market power (Figure 1).

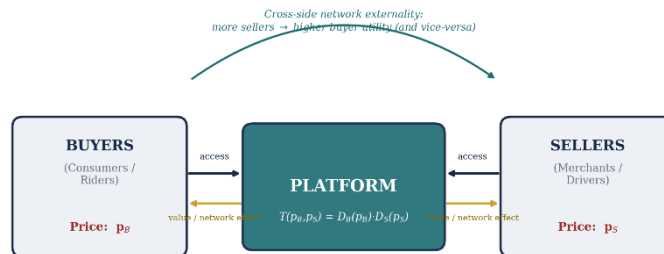


Figure 1. Schematic representation of the Rochet-Tirole (2003) two-sided platform, showing the independent side-specific prices p_B and p_S and the cross-side network externality that links participation on the two sides.

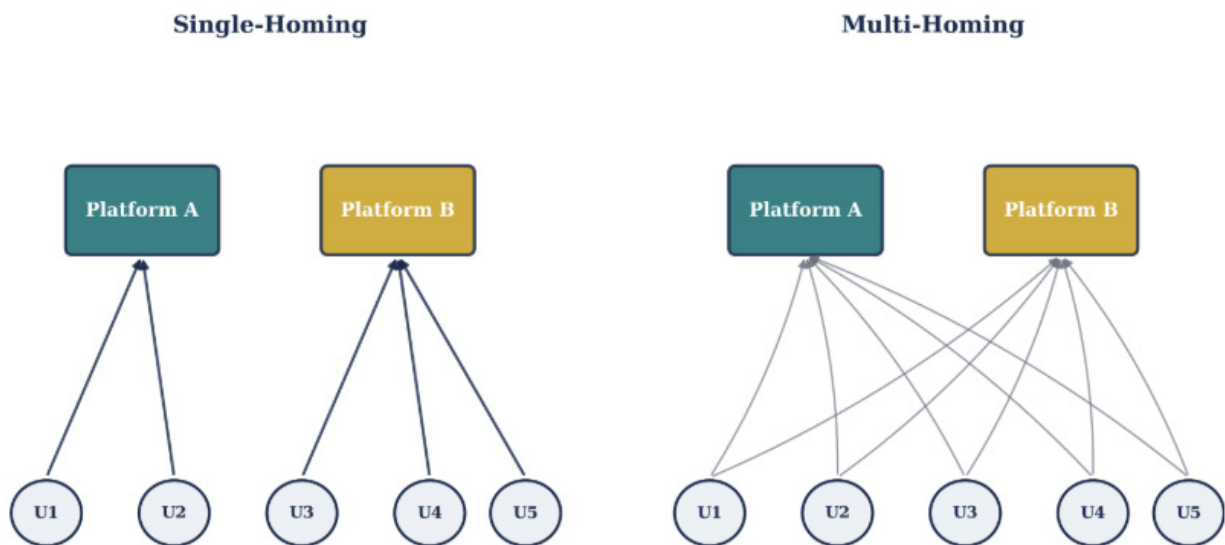


Figure 1. The Rochet-Tirole (2003) two-sided platform: independent side prices p_B , p_S linked by a cross-side network externality¹

Schmalensee extends the model through single-homing, where an agent uses one platform, versus multi-homing, where an agent uses several simultaneously: competition for single-homing agents is winner-take-all, intensifying price competition on that side and producing market tipping, while multi-homing agents are monetized as a captive input. The HHI, by contrast, requires a single prior market definition, is silent on price direction, and is static — it cannot detect a market on the verge of tipping. This study triangulates the formal model with UNDP and MEF (2025) structural data, firm disclosures, and the primary texts of Law No. ZRU-850 (2023), Cabinet Resolution No. 256 (2024), and the Committee's 2026 communications.

Uzbekistan's ICT sector contributed 2.1% of GDP in 2023; e-commerce grew at a 372% CAGR (2017–2022), reaching 1.2% of GDP, within a regulatory environment that UNDP & MEF (2025) rank 133rd of 134 countries on the ICT regulatory environment component of the Network Readiness Index² — conditions under

1 Source: author's elaboration.

2 United Nations Development Programme & Ministry of Economy and Finance of the Republic of Uzbekistan, *Digital Economy of Uzbekistan: The State of Digital Entrepreneurship and Artificial Intelligence* (UNDP, 2025), p. 25, citing Portulans Institute, Network Readiness Index (2023). The same page separately places Uzbekistan 102nd of 134 countries on the Index's distinct "Regulatory Quality" component. The original manuscript conflated the two indicators; this version cites the ICT regulatory environment figure specifically, since that is the ranking actually invoked.

which platform tipping, once triggered, is difficult to reverse.

Uzum Market, integrating a marketplace with Uzum Bank and Uzum Nasiya (BNPL), reached ≈20 million users and USD 11 billion in processed payments by 2026, with a USD 2.3 billion valuation. Consumers are treated as a loss leader — free access, zero-fee P2P transfers, loss-leading private-label goods — a direct instance of Rochet and Tirole’s captive-buyer mechanism, given that only 60% of Uzbek adults held a financial account as of the World Bank’s 2025 Global Findex survey³ — nearly double the 2017 level, but still leaving roughly 40% of adults unbanked — such consumers accordingly single-home on their first financial relationship. Merchants (17,000+, multi-homing across platforms) are monetized via commissions and embedded BNPL credit (58% of orders use installments).

Yandex Go held an 86.3% ride-hailing share (2023); following the October 2024 Express24 acquisition, Yandex Eats reached 87.5% of food delivery. Riders face dynamic surge pricing (state-dependent η_B); drivers pay 13–30% commission. Persistent single-platform dominance despite technically costless multi-homing reflects a density externality: a larger driver base yields shorter pickup times, sustaining rider single-homing and, endogenously, driver concentration — the network analogue of the marquee-buyer mechanism.

Payme and Click, both recognized dominant in online payments (2025), mirror Rochet and Tirole’s canonical payment-card case: near-zero consumer pricing against merchant discount rates. TBC Bank Group’s linkage of Payme, TBC Bank Uzbekistan, and (via conditional merger approval) OLX Classifieds prompted the Committee to impose non-discrimination and anti-tying conditions — an early, case-specific application of platform-neutrality remedies (Table 1).

Table 1.
Rochet–Tirole mapping of Uzbekistan’s principal digital platforms⁴

Platform	Subsidized side (ρ_B)	Monetized side (ρ_S)	Regulatory status
Uzum Market / Bank	Consumers (free access, zero-fee P2P)	Merchants (commission + BNPL credit)	Dominant — marketplace, 2025
Yandex Go / Eats	Riders (surge-priced) / restaurants	Drivers (13–30% commission)	Dominant — ride-hailing (86.3%) and food delivery (87.5%)
Payme / Click	Consumers (free P2P/ payments)	Merchants (discount rate)	Dominant — payment systems, 2025

Across every case, the Committee’s own register of “dominant digital platform operators” matches the platforms exhibiting the strongest captive-buyer, marquee-buyer, or single-homing dynamics identified here — evidence that dominance can be identified through observable proxies even without an explicit two-sided apparatus, though remedy design remains a distinct and harder problem.

Law No. ZRU-850 (2023) defines dominance via natural-monopoly status, absence of competition, exclusive rights, or a 40% market-share threshold, applied explicitly to digital platform operators. Cabinet Resolution No. 256 (2024) operationalized this for platforms, adding a 15-day advance-notice requirement for price/terms changes and triennial redetermination — under which Uzum Market, Uzum Tezkor, Yandex Go, Yandex Eats, Payme, and Click have all been designated dominant. This is a workable, administrable rule, but it is computed on one side only: it cannot distinguish captive-buyer lock-in from ordinary scale economics, and a platform’s own success at subsidizing one side may trigger the threshold on user-count metrics without reflecting genuine pricing power over that side at all.

The Committee’s June 2026 roundtable with the BRICS Competition Law and Policy Centre explicitly considered revising dominance-recognition criteria and designing special procedures for global platforms (Raqobat Qo’mitasi, 2026) — independently confirming this paper’s diagnosis. Dentons (2025) situates these reforms within convergence toward European standards, while noting that dominance criteria calibrated to single-sided commodity markets do not transplant cleanly onto platforms priced at zero on one side.

Five adjustments are proposed:

Dual-side disclosure of pricing, participation, and elasticity, enabling computation of the generalized Lerner ratio (eq. 3) rather than a single-sided share proxy.

A quality-adjusted substitute for SSNIP (a “SSNDQ” test) assessing degradation of data-privacy, ranking neutrality, or service quality on the zero-priced side.

3 World Bank, *The Global Findex Database 2025* (2025); GFRID, “Uzbekistan’s Financial Inclusion at a Glance (Global Findex 2025)” (5 August 2025), reporting 60% account ownership among Uzbek adults in 2024/25, nearly double the 2017 level. The manuscript’s original figure of “56% unbanked” could not be traced to a current source and has been corrected here to the most recent Global Findex round.

4 Source: author’s elaboration.



Codification of the OLX/TBC/Payme remedy template — non-discrimination, anti-tying, and data-leverage bans — as a standing rule for all designated operators, not a case-by-case remedy.

Data- and account-portability requirements to lower switching costs and counteract density-driven tipping (the Yandex Go mechanism).

Institutional capacity-building in platform economics, building on the Committee's existing collaboration with the BRICS Competition Law and Policy Centre.

CONCLUSIONS AND SUGGESTIONS

Uzbekistan's digital concentration cannot be fully understood through single-sided tools alone. The Rochet–Tirole framework and Schmalensee's homing/tipping analysis correctly predict the asymmetric pricing observed at Uzum, Yandex Go/Eats, and Payme/Click: each subsidizes a single-homing consumer or rider side while monetizing a multi-homing merchant or driver side, consistent with equations (2)– (3). Law of the Republic of Uzbekistan No. LRU-850⁵ dated July 3, 2023 “On Competition” and Resolution of the Cabinet of Ministers of the Republic of Uzbekistan № 256⁶ dated May 1, 2024 “On the approval of regulatory legal acts on antimonopoly regulation in commodity and financial markets” represent genuine, comparatively early progress, evidenced by six proactive dominance designations and the OLX/TBC/Payme non-discrimination conditions — yet remain anchored in a single-sided bright-line share test. The Committee's own 2026 reform agenda signals recognition of this gap; the instruments proposed here — dual-side disclosure, quality-adjusted substitution testing, codified remedies, and portability rules — offer a concrete path to closing it.

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muhandislik **& iqtisodiyot**

ijtimoiy-iqtisodiy, innovatsion texnik,
fan va ta'limga oid ilmiy-amaliy jurnal

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2026. № 7

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