

E-Commerce and Economic Diversification in A Resource-Dependent Economy: The Case of Azerbaijan

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ABSTRACT: This article examines how e-commerce can contribute to economic diversification in a resource-dependent economy using Azerbaijan as a focused case. Rather than treating growth in online transactions as a direct measure of digital transformation, the study separates access, adoption, transaction intensity, domestic value capture and aggregate economic performance. The analytical framework combines endogenous-growth logic, digital-economy theory and country-specific institutional conditions. It draws on an official-source architecture covering annual digital-development context for 2013–2023 and a higher-frequency payment layer for 2018–2023. The analysis argues that e-commerce contributes to diversification only when payment modernization is complemented by domestic merchant capability, logistics, competition, skills, trust and the capacity to retain value inside the national economy. In a hydrocarbon-sensitive macroeconomic environment, total GDP is an imperfect short-run indicator of the contribution of digital commerce because oil output, fiscal expenditure, reconstruction, external demand and commodity prices can dominate aggregate fluctuations. The article therefore proposes a conditional interpretation: expansion of e-commerce is economically meaningful as an enabling mechanism for formalization, market access, firm scaling and data generation, but the magnitude of its contribution depends on whether digital transactions translate into domestic production and productivity. The findings support a policy shift from transaction-growth targets toward ecosystem quality and domestic value capture.

KEYWORDS: e-commerce, digital economy, economic diversification, digital payments, domestic value capture, Azerbaijan

JEL Classification: O33, O47, L81, P28

1. Problem statement and relevance

Economic diversification is a central policy challenge for economies in which hydrocarbon revenues remain an important source of output, fiscal resources and external receipts. Azerbaijan illustrates this problem clearly. The country has invested in infrastructure, public services and macroeconomic stabilization while simultaneously seeking a broader non-oil production base. The Azerbaijan 2030 priorities place competitive human capital, innovation, private initiative and a dynamic business environment at the center of long-run development. Within this agenda, e-commerce is important not because online transactions are intrinsically productive, but because digital commerce can alter how firms reach customers, organize inventories, receive payments, generate information and participate in markets.

The key analytical mistake is to equate a rapidly growing digital-payment series with structural transformation. A card transaction records a payment event. It may correspond to a domestically produced good, an imported product sold by a local retailer, a foreign digital service, a government service or a subscription whose value added is largely generated abroad. The payment rail captures movement of funds, while national accounts capture resident production. For that reason, the relationship between e-commerce and diversification is conditional rather than mechanical.

This article develops an economic framework for understanding that conditional relationship. It uses Azerbaijan as a case in which digital adoption has accelerated while aggregate performance continues to be influenced by oil production, hydrocarbon prices, fiscal policy, reconstruction, external demand and the pandemic-recovery cycle. The core question is therefore not whether e-commerce is growing, but whether its expansion helps create domestic capabilities that broaden productive activity beyond the resource sector.

2. Recent research and unresolved issues

The international literature generally finds that digitalization can support growth, but effects differ across technologies, development levels and institutional environments. ICT capital and connectivity can improve productivity, yet late adopters do not automatically achieve stronger returns. Cross-country evidence for developing economies points to positive relationships between digitalization

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and output, while also emphasizing complementary capital and institutions. Recent BIS evidence is especially relevant because it links digital-payment adoption with subsequent growth and lower informality, suggesting that payment modernization can have macroeconomic implications beyond convenience.

E-commerce research adds market-specific mechanisms. Digital ordering can lower search, replication, tracking and verification costs. Platforms can widen market reach and create network effects, but they can also concentrate data, bargaining power and rents. These competing forces are important for small economies because a domestic seller may gain access to more consumers while simultaneously becoming dependent on foreign marketplaces, advertising systems, cloud services and logistics intermediaries. In such a case, transaction volume can rise faster than domestic value added.

Evidence from the Western Balkans reports a positive panel relationship between e-commerce and economic growth, but transferring those coefficients to Azerbaijan would be inappropriate. Azerbaijan differs in hydrocarbon exposure, market size, institutional structure and macroeconomic volatility. Recent Azerbaijan-specific research also identifies digital-economy opportunities alongside institutional constraints. The unresolved issue is therefore country-specific: how should e-commerce be interpreted when the economy is resource-dependent and the most visible high-frequency digital indicator is payment activity rather than comprehensive online retail turnover?

3. Purpose and analytical approach

The purpose of the article is to explain the channels through which e-commerce may support economic diversification in Azerbaijan and to identify conditions under which transaction growth can or cannot be interpreted as productive digital transformation. The analytical design separates five stages: digital access, adoption, recorded e-commerce activity, domestic value capture and macroeconomic performance.

The evidence base follows the official-source architecture developed for the broader dissertation research. Annual digital-development indicators cover the 2013–2023 context. Monthly Central Bank payment data are available for January 2018 to December 2023, yielding 72 source observations that can be aggregated into 24 quarters. Official macroeconomic series are kept at their published frequency rather than artificially repeated across months. This layered design matters conceptually because connectivity, payment use and output are different constructs and should not be forced into a false common frequency.

The article is intentionally analytical rather than causal. It does not claim that an increase in e-commerce payments produces a proportional increase in GDP. Instead, it identifies plausible transmission mechanisms and evaluates their relevance in the institutional and structural setting of Azerbaijan.

4. E-commerce as a diversification mechanism

The first diversification mechanism is reduction of transaction costs. Digital ordering reduces the cost of customer search, product comparison, record keeping and remote settlement. For firms, these savings can improve market access and allow a business to test demand outside its immediate geographic area before committing to physical expansion. For a country with meaningful regional disparities and a relatively small domestic market, the ability to aggregate geographically dispersed demand can support firm scale. The second mechanism is formalization. Electronic payments create traceable records that can improve accounting, access to finance and tax visibility. Formalization does not necessarily create new real output immediately; part of the measured increase may represent transactions moving from cash to recorded channels. Nevertheless, formalization can create a foundation for productivity gains by producing data, lowering cash-handling costs and improving the information available to lenders and public institutions.

The third mechanism is capability accumulation. Endogenous-growth theory emphasizes reusable knowledge and organizational capability. In digital commerce this includes payment APIs, inventory systems, logistics software, customer analytics, cybersecurity routines and digital marketing capability. These assets can be used repeatedly across transactions and can therefore matter more for long-run diversification than the nominal value of any single year's online sales.

The fourth mechanism is market access and entrepreneurship. E-commerce can lower entry barriers for small and medium-sized firms by reducing the need for expensive storefronts and widening access to consumers. Yet digital participation also creates fixed costs: catalog development, fulfillment, returns, compliance, fraud prevention and platform commissions. If local firms lack these complementary capabilities, foreign platforms and large incumbents may capture a disproportionate share of the gains.

The fifth mechanism is data creation. Transaction data can improve matching, prediction, fraud detection and inventory decisions. However, data-driven value is not automatically retained domestically. If the platform, cloud infrastructure, advertising technology or analytics layer is foreign-owned, part of the rent generated by domestic consumption can accrue abroad.

5. Why transaction growth is not equivalent to diversification

Azerbaijan's macroeconomic structure creates a particularly strong reason to distinguish digital-market expansion from diversification. Total GDP can change because of oil extraction, global energy prices, fiscal spending, exchange-rate conditions, reconstruction or external demand even when domestic e-commerce follows a different trajectory. A weak short-run relationship between payment growth and total GDP therefore does not imply that digitalization lacks strategic value. Conversely, a strong contemporaneous relationship does not establish that e-commerce caused growth.

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The composition of online expenditure is equally important. If consumers increasingly purchase imported goods or foreign digital services, payment activity can rise while the domestic value-added effect remains limited to retail margins, delivery services and ancillary activities. The same nominal transaction growth can thus be associated with very different diversification outcomes depending on the origin of goods and services, the ownership of platforms and the depth of domestic supply chains.

Inflation further complicates interpretation because card-based e-commerce value is nominal. Higher prices can increase the value series even when real quantities change little. Transaction count provides an alternative perspective on diffusion, but counts treat a small purchase and a large purchase equally. For diversification analysis, neither measure is sufficient in isolation. Value captures economic scale but mixes price and quantity; count captures breadth and frequency but not domestic value.

6. Policy implications

The policy implication is that digital-commerce strategy should move beyond maximizing transaction volumes. The first priority is merchant capability: firms need inventory integration, reliable fulfillment, cybersecurity, customer service and data analytics. The second is competition and interoperability. Payment systems should reduce merchant acceptance barriers without creating excessive dependence on a small number of private intermediaries. The third is logistics, because the productivity advantage of online ordering disappears when delivery, returns and address systems are unreliable.

The fourth priority is trust. Consumer adoption depends on usefulness and ease of use, but also on seller verification, privacy, authentication, predictable refunds and dispute resolution. Trust infrastructure is therefore an economic input rather than merely a consumer-protection issue. The fifth priority is domestic value capture. Policymakers should monitor how much of digitally ordered expenditure supports local production, local services and local intangible capability rather than only the gross value of payments.

Finally, measurement policy should separate infrastructure, adoption, transactions and output. A dashboard that combines payment activity with firm adoption, digital skills, logistics performance, domestic online sales and non-oil value added would provide a more economically meaningful picture than a single headline measure.

7. CONCLUSIONS

E-commerce can support diversification in Azerbaijan, but the relationship is conditional on institutions, capabilities and the structure of value creation. Digital payments are an enabling infrastructure; they are not a complete measure of e-commerce and are not equivalent to digital transformation. Transaction growth can reflect greater market participation, formalization and efficiency, but it can also reflect inflation, substitution from cash, imported consumption or foreign-platform activity.

The central contribution of the article is therefore interpretive: in a resource-dependent economy, the economic significance of e-commerce should be judged by whether digital activity builds reusable domestic capability and increases domestic value added. This requires coordinated improvements in payment interoperability, logistics, competition, trust, skills and SME digitalization. Future empirical work should extend the high-frequency payment series, combine it with firm-level adoption and sectoral data, and distinguish domestic from cross-border digital expenditure. Such extensions would allow the diversification contribution of e-commerce to be evaluated more directly and with stronger causal identification.

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