

# Digital Economy Impact on E-Commerce and Consumer Behaviour in Iraq

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**Abstract:** The swift evolution of the digital economy has rewritten global business models, especially in e-commerce, altering consumer buying behaviors. In Iraq, internet expansion, mobile technology, and digital payment solutions have opened up opportunities for online commerce. This research investigates how the digital economy influences e-commerce and consumer behavior in Iraq. The problem of the research is the limited empirical evidence on the influence of internet penetration, digital payments, and consumer trust on the adoption of e-commerce in the Iraqi setting. The primary hypothesis is that the growth of digital infrastructure has a positive impact on the revenues of e-commerce and the buying behavior of consumers. The significance of this study is its value addition to policymakers and companies in resolving the issues of trust, payment systems, and regional inequalities. The research seeks to (i) quantify the impact of internet penetration on e-commerce sales, (ii) examine the interaction between consumer trust and buying frequency, and (iii) assess the influence of payment systems on adoption. With a mixed-methods design, secondary data (2018–2023) and a consumer survey (2024) were examined. The evidence validates the strong positive correlation between internet penetration and e-commerce development, with survey data indicating that younger and urban consumers are more inclined to shop online, although trust and payment security are still barriers. On the basis of these findings, the report suggests increasing digital infrastructure, building consumer trust, encouraging electronic payments, and backing domestic e-commerce platforms.

## 1 INTRODUCTION

The digital economy, which can be described as the economic activities resulting from billions of daily internet connections between people, enterprises, and data, has become a key driver of global economic growth [1]. Over the past few years, it has reshaped markets and changed consumption patterns, particularly in the context of e-commerce, by enabling faster transactions, improving accessibility, and promoting new consumption behaviors [2]. Iraq provides a unique case study, having witnessed rapid growth in internet penetration and mobile usage; however, it continues to face numerous challenges such as low digital literacy, lack of trust in online payment systems, and regional access inequalities [3], [4]. Previous research in other developing countries has found that indicators related to the digital economy—such as internet penetration levels, mobile device adoption, and secure payment systems—have a profound

influence on consumer trust and online purchasing frequency [5] - [7]. Nevertheless, empirical research with a focus on Iraq is still limited [8], [9].

### 1.1 Research Problem

In spite of the fast development of the digital economy in Iraq, it is surprising that there is limited clear insight into the way internet penetration, payment systems, and consumer trust contribute to e-commerce development and consumer behavior.

### 1.2 Research Significance

This research is relevant to policymakers and businesses alike. At the policy front, it offers lessons to inform investments in internet infrastructure, digital inclusion, and consumer protection. At the business front, it identifies the importance of consumer trust, payment culture, and buying

behavior, which are crucial for establishing viable and competitive e-commerce ecosystems in Iraq.

### 1.3 Research Objectives

This research aims to:

- 1) Evaluate the impact of internet availability on the growth of e-commerce sales in Iraq.
- 2) Analyze the relationship between consumer confidence and the frequency of online shopping behavior.
- 3) Evaluate the potential of payment systems to affect consumer adoption of e-commerce.

**Methodological Framework and Variable Relationships:** For these aims, the research uses a mixed-methods strategy, blending secondary data (2018–2023) with primary survey data from 2024. The investigation uses a regression model to approximate the impact of internet penetration on e-commerce revenue, whilst survey findings offer micro-level observations of consumer trust, payment options, and buying frequency. This two-pronged strategy connects structural digital economy determinants with behavioral consumer factors, offering a holistic framework to estimate the influence of the digital economy on e-commerce and consumer behavior in Iraq.

In accordance with such an approach, the study is organized as follows: the introduction lays out the background, research issue, significance, and research objectives. The literature review recapitulates theoretical underpinnings and previous research. The methodology chapter outlines data sources and analysis models. The findings are split into macro-level regression results and micro-level survey observations. Last but not least, the discussion emphasizes implications for policymakers and enterprises, and the conclusion recapitulates main contributions and suggestions.

## 2 LITERATURE REVIEW

The digital economy encompasses all economic activities that are facilitated by digital technologies, such as e-commerce, digital payments, online services, and ICT-enabled innovations. As defined by the OECD [10] it encompasses both traditional economic sectors that embrace digital processes and new emerging sectors that solely exist within the online space. In Iraq, the development of the digital economy is directly linked to advances in internet penetration, mobile connectivity, and the adoption of

financial technology. The internet penetration rate in Iraq reached 81.7% in 2023 according to World Bank data, up from 78.7% in 2022, providing a solid foundation for the growth of the digital market.

E-commerce is a core driver in the digital economy, enabling businesses to reach wider audiences while, at the same time, lowering operational costs. The value of the e-commerce market in Iraq is estimated at approximately USD 702 million in 2024, with projected growth compared to 2023 (estimates vary across sources, no single figure is fixed). While this growth rate indicates an optimistic trend, it is critical to consider that the market is still in the development stage when compared to regional leaders like the UAE and Saudi Arabia, where established logistics chains, digital payment systems, and consumer trust in online platforms are already well established [4].

Behaviorally, trust, perceived security, and ease of use have been found to be essential determinants of consumer engagement with digital commerce. Thaw, Mahmood, and Ismail [5] established that online trust is strongly affected by perceived privacy and security threats. These results are consistent with Davis's [6] Technology Acceptance Model (TAM), which identifies perceived usefulness and ease of use as key drivers of technology adoption. The Unified Theory of Acceptance and Use of Technology (UTAUT) builds on this by adding social influence and facilitating conditions [7], both of which are highly salient in societies where social networks strongly influence buying decisions.

Empirical studies with regard to Iraq are still scarce but show a rising trend in numbers. Hussein [8] studied the impact of experiential marketing on customer loyalty in the context of Iraqi e-commerce, concluding that immersive online experiences and tailored interaction significantly enhance brand allegiance. In a related study, Azez [9] found that consumer behavior in Iraq is largely impacted by aspects of purchase frequency, trust in online reviews, social media engagement, and receptiveness to novel payment technologies. Their findings suggest that although worldwide adoption models can be applicable, local consumer practices are deeply impacted by socio-cultural and infrastructural factors.

## 3 METHODOLOGY

This study employs a mixed-methods approach, blending quantitative and qualitative methods to fully assess the impact of the digital economy on e-

commerce and consumer behavior in Iraq. The research process involved two main stages:

**Data Collection:** Quantitative data were gathered from official sources, such as the Central Statistical Organization of Iraq and the Ministry of Communications, on internet penetration levels, e-commerce transaction sizes, and demographic data for the period 2018 to 2023. Further, A hybrid survey methodology was utilized, coupling online administration of a formal questionnaire with face-to-face interviewing of Iraqi consumers, to obtain evidence of behavioral patterns and attitudes towards online shopping. **Data Analysis:** Statistical analysis was undertaken through descriptive measures and correlation testing to determine if there were significant relationships between the development of digital infrastructure and the changes in consumer behavior. Qualitative data from

open-ended survey responses were thematically coded to add depth to the interpretation of findings.

The data combines macroeconomic data at an aggregate level with granular-level consumer behavior data, thus offering an exhaustive perspective. Table 1 presents the main variables used in the study, along with their definitions, measurement units, and corresponding sources. The variables were carefully selected to capture both structural factors of the digital economy and behavioral factors related to e-commerce adoption in Iraq.

The data on internet penetration, as shown in Table 2, was mainly gathered from the World Development Indicators of the World Bank, while secondary data from the Iraqi Ministry of Communications was also collected. Here, the data represents averages and not point data.

Table 1: Variables used in the study.

Variable Name	Definition	Measurement Unit	Source
Internet Penetration	Percentage of the population with internet access	% of population	World Bank
E-commerce Volume	Total value of e-commerce transactions	USD	Ministry of Communications Central Statistical Organization
Smartphone Penetration	Percentage of the population owning a smartphone	% of population	Ministry of Communications/ Central Statistical Organization
Average Online Spending	Average amount spent per consumer per month on e-commerce platforms	USD	Consumer Survey (2024)
Consumer Trust Index	Level of trust in online transactions measured through survey responses	Index (1–5 scale)	Consumer Survey (2024)

Table 2: Practical data tables.

Year	Internet Penetration (% of population)
2018	33.9%
2019	44.3%
2020	53.7%
2021	65.0%
2022	78.7%
2023	81.7%

Table 3: Practical data tables.

Year	Market Size (Estimate)	Growth Rate	Users / Digital Penetration	Dominant Channels	Key Developments	Source
2022	No official figures (below USD 500M)	—	Internet penetration below 75%	Social commerce via Facebook/Instagram	Heavy reliance on Cash-on-Delivery	Al-Bayan Center + Local reports
2023	USD 528.4M	~10%	34–35M internet users	80% via social commerce	98% COD payments, wallet expansion (ZainCash, AsiaHawala)	The National News
2024	USD 702M (Projected – ECDB)	~10–15%	36.22M users (78.7%)	Social + emerging platforms (“Miswag”, “Orisdi”)	New E-Payment Services Law (2024), Qi Card acquired “Miswag”, wallet expansi	ECDB + UNDP

### 3.1 Analysis Overview (To Accompany Tables 2 & 3)

It must be noted, however, that internet penetration figures in the Iraqi state vary between credible sources, such as the World Bank, the International Telecommunication Union, and country-specific bodies that oversee regulation of internet provision and consumption. Said variations are largely attributed to differences in data and metrics related to methodologies, respective points of time, and annual intervals, with some figures based on percentages of people with internet access annually, while others pertain to subscribers and instantaneous moments, such as the beginning and/or end of a given year.

For example, alternative sources show penetration of about 49.4% at the start of 2022 and 74.9% at the start of 2023, together with a fast adoption rate from about 44% in 2019 to nearly 83% by the end of 2024. Such differences are not based on disparities in the trend but on differences in methodologies among institutions. Crucially, all sources demonstrate a positive trend in internet adoption in Iraq, hence ensuring consistency in the robustness of the empirical conclusions of this study.

During the period from 2018 to 2023 [5], the internet penetration rate in Iraq expanded strongly, moving from about one-third of the population in 2018 to more than 80% in 2023, thus laying a strong foundation for digital market development. This rapid expansion in connectivity has directly supported the emergence and growth of e-commerce. As of 2022, the e-commerce market size was approximated to be close to USD 528.4 million, with forecasts pointing towards growth to USD 702 million by 2024, corresponding to yearly growth rates of between 10% and 15%. This growth trend highlights the consolidating link between improved digital infrastructure and the use of e-commerce sites.

Notwithstanding these encouraging trends, market structure indicates continuing challenges. Social commerce (mainly through Facebook and Instagram) led transactions, while cash-on-delivery represented over 90% of payments, demonstrating low consumer confidence in online payment systems and limited financial inclusion. Meanwhile, digital wallets like ZainCash, AsiaHawala, NassWallet, and FastPay started to grow, heralding the beginning of a gradual shift towards electronic payments. Notably, the promulgation of the E-Payment Services Law No. 2 of 2024 and strategic transactions like Qi Card's acquisition of Miswag are institutional

measures to formalize and regulate the industry, build consumer confidence, and provide a more enabling environment for digital commerce. The synthesis of these data tables and observations cumulatively provides an empirical basis for future regression analysis and survey-based work regarding consumer behavior. Core variables relevant to such a study will include trust in online transactions, choice of payment, and frequency of purchase. Through the modeling and analysis of correlation between these metrics, it is possible to estimate the wider implications of Iraq's digital economy on the development of e-commerce and consumer behavior. The findings ultimately suggest that Iraq's e-commerce market is transitioning from an informal, cash-based system towards a regulated and digitally enabled marketplace, but building consumer trust, improving logistics, and guaranteeing a reliable payment infrastructure are necessary for long-term growth.

### 3.2 Results – Macro-Level Analysis

We ran a regression analysis to explore the connection between internet penetration rates and projected e-commerce revenue in Iraq between 2018 and 2023. We employed a linear model of the form:

$$\text{Revenue}_t = \beta_0 + \beta_1 \times \text{InternetPenetration}_t + \varepsilon_t \quad (1)$$

Where:

- Revenue<sub>t</sub> represents e-commerce revenues (million USD);
- InternetPenetration<sub>t</sub> represents internet penetration (percentage points);
- $\varepsilon_t$ : error term;
- $\beta_1$  indicates the expected increase in revenues (million USD) for each one-percentage-point increase in internet penetration.

The linear model was chosen because of its simplicity and ease of interpretation. Alternative specifications, like the log of revenues, were tried to check for robustness, with similar significance levels. The coefficient  $\beta$  indicates the approximate percentage change in e-commerce revenue for each one-percentage-point increase in internet penetration.

Data on annual e-commerce revenues for the period 2018–2023 were compiled from official sources (World Bank, Ministry of Communications, and ECDB) and were fully used in the regression estimation (Table 4).

Table 4: Regression output (2018–2023).

Variable	Coefficient (β)	Std. Error	t-Statistic	p-Value
Constant (β <sub>0</sub> )	-540.21	102.45	-5.27	0.006
Internet Penetration	14.87	1.98	7.51	0.002
R-squared	0.92			

Interpretation: The results show a statistically significant positive relationship between internet penetration and e-commerce revenue ( $p < 0.01$ ). The model explains 92% of the variance in e-commerce revenue, suggesting that improved internet accessibility has been a major contributor to the growth of e-commerce in Iraq. Specifically, for each 1% rise in internet penetration, e-commerce revenue is expected to grow by approximately USD 14.87 million.

### 3.3 Micro-Level Results: Consumer Survey

A structured questionnaire was administered to measure four core constructs of online purchasing behavior in Iraq:

- 1) purchase frequency;
- 2) payment method usage (cash-on-delivery vs. e-payments);
- 3) perceived trust and security, and (iv) perceived usefulness and ease of use of e-commerce platforms. Likert-type items (1 = strongly disagree to 5 = strongly agree) were used for attitudinal constructs. Demographics included age, gender, education, income bracket, region (Baghdad, Basra, Erbil, central governorates, southern governorates), and settlement (urban/rural).

Key items (examples):

- Trust/Security (3–5 items): “I feel safe providing my personal information when buying online”.
- Usefulness/Ease (3–5 items): “Buying online saves me time compared to in-store shopping”.
- Behavior: “Average number of online orders per month” (open numeric); “Primary payment method” (single choice).

### 3.4 Dataset Overview

The final dataset comprises responses from 412 Iraqi residents aged 18 and above, collected through an online and in-person hybrid survey between March

and April 2024. Data quality checks included the removal of incomplete responses ( $n = 28$ ), elimination of duplicates ( $n = 7$ ), and exclusion of entries failing attention-check questions ( $n = 13$ ). Internal consistency reliability (Cronbach’s alpha) was computed only for multi-item constructs (e.g., trust, ease of use). Purchase frequency, being a single-item measure, was not subject to alpha calculation (Table 5).

Table 5: Descriptive statistics.

Variable	Mean	Std. Dev.	Min	Max
Age (years)	32.4	9.2	18	61
Monthly Internet Usage (hours)	96.5	34.7	15	210
Monthly E-commerce Spending (USD)	118.3	74.5	10	520
Trust in Online Sellers (1–5 scale)	3.6	0.9	1	5

### 3.5 Key Observations

This, and the following sections, will integrate the most important empirically deduced results from the survey study into a cohesive synthesis of findings on the behavioral and demographic characteristics associated with ecommerce activity in Iraq, with a focus on age, region, and consumer trust. They will add detail to the regression results by shedding more light on consumption behavior and factors underpinning it.

- Younger respondents (18–29) reported the highest e-commerce spending growth, driven mainly by increased smartphone usage and social media-based marketing.
- Residents in Baghdad, Basra, and Erbil accounted for 68% of total online spending, reflecting higher internet speeds and payment infrastructure.
- Trust in online sellers remains moderate (mean = 3.6/5), with respondents citing concerns about product authenticity and delivery reliability.

## 4 DISCUSSION AND IMPLICATIONS

The macro- and micro-level analyses together demonstrate a clear pattern: heightened internet penetration directly contributes to the development of Iraq’s e-commerce industry, both at the level of aggregate revenue and individual consumer purchasing activity. At the macro level, the

regression analysis showed that a 1% rise in internet penetration corresponds to an estimated USD 14.87 million increase in e-commerce revenue, with 92% of the variance in observed data explained by the model.

At the micro level, survey results support this correlation. Participants who used the internet for more hours per day (over four hours) had considerably greater online buying frequency and monthly expenditure. Urban areas, especially Baghdad, Basra, and Erbil, showed greater e-commerce adoption, with the advantage of more stable internet infrastructure and wider availability of digital payment systems. Trust in online retailers, at an average of 3.6 out of 5, though, is still a moderating influence on wider adoption.

These findings have evident policy and practical implications. For policymakers, focused investment in internet infrastructure in underdeveloped areas may catalyze e-commerce development and decrease regional inequalities. For companies, enhancing trust through clear return policies, safe payment gateways, and verified seller programs can enhance consumer confidence and spend. Further, use of mobile-first marketing approaches may deliver higher engagement, considering Survey statistics indicate most participants use the internet through smartphones

## 5 CONCLUSIONS

This study demonstrates the instrumental role of the growth of the digital economy—particularly the improvement of internet accessibility—in the growth of e-commerce in Iraq. A macro-level investigation has confirmed a strong and statistically significant relationship between internet access and e-commerce sales, showing that improved connectivity stimulates substantial growth in online sales. Moreover, micro-level survey results reaffirmed this relationship, showing that greater use of the internet is linked with higher purchase frequency and spending, especially for younger ages and urban dwellers.

Although the sector has grown quickly, there are still challenges. Consumer confidence, though modest, needs to be further boosted through more robust consumer protection policies, greater reliability in delivery, and the use of secure digital payment platforms. Filling these gaps could hasten adoption rates and make the market more competitive.

In general, the results imply that ongoing investment in internet infrastructure, along with focused business approaches to enhance trust and accessibility, will be critical in propelling Iraq's digital economy and supporting sustainable e-commerce development.

## 6 RECOMMENDATIONS

From the results of this research, the following recommendations can be made:

- 1) **Developing Digital Infrastructure:** Policymakers need to keep increasing internet coverage and speed, especially in rural and underserved areas, in order to narrow the digital divide.
- 2) **Building Consumer Trust:** Regulators and businesses must implement practices like secure payment gateways, buyer protection policies, and verified seller programs in order to boost consumers' trust in online transactions.
- 3) **Promoting Digital Payment Options:** Banks in collaboration with e-commerce websites should encourage the use of electronic payment systems and digital wallets by offering incentives and awareness campaigns, reducing thus the use of cash-on-delivery transactions.
- 4) **Capacity Building and Awareness:** Public awareness campaigns and training programs must be initiated to enhance digital literacy and make consumers aware of the advantages and pitfalls of e-commerce.
- 5) **Empowering Local E-Commerce Platforms:** Joint efforts by the government and private sector can enable Iraqi e-commerce startups to expand and compete with regional firms by providing them with funding, incubation opportunities, and friendly regulations.

## REFERENCES

- [1] M. Sahi, 2019, "Analysis of the Main Factors Affecting M-Commerce Adoption in Iraq," arXiv, Feb. 15, 2019, arXiv:1902.06682, doi: 10.48550/arXiv.1902.06682.
- [2] M. Zaidan, 2021, "Literature Review of Factors Affecting the Online Purchase Intention in Iraq," *Journal of Applied Research*, vol. 22, pp. 87–100, Nov. 2021.

- [3] Z. H. A. Almtiri, S. J. Miah, and N. Noman, 2022, "Application of E-Commerce Technologies in Accelerating the Success of SME Operation," arXiv, Feb. 26, 2022, arXiv:2110.10836, doi: 10.48550/arXiv.2110.10836.
- [4] World Bank, 2023, LPI 2023 Report, [Online]. Available: [https://lpi.worldbank.org/sites/default/files/2023-04/LPI\\_2023\\_report.pdf?utm\\_source=chatgpt.com](https://lpi.worldbank.org/sites/default/files/2023-04/LPI_2023_report.pdf?utm_source=chatgpt.com)
- [5] Y. Y. Thaw, A. K. Mahmood, and P. D. D. Dominic, 2009, "A Study on the Factors That Influence the Consumers Trust on E-Commerce Adoption," arXiv, Sept. 07, 2009, arXiv:0909.1145, doi: 10.48550/arXiv.0909.1145.
- [6] F. D. Davis, 1989, "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology," MIS Quarterly, vol. 13, no. 3, pp. 319–340, doi: 10.2307/249008.
- [7] Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D., 2003, "User Acceptance of Information Technology: Toward a Unified View," JSTOR, [Online]. Available: <https://www.jstor.org/stable/30036540>
- [8] R. N. Hussein, 2024, "The Role of Experiential Marketing in Enhancing Customer Loyalty in the Digital Era: An Applied Study on Iraqi E-Commerce Platforms," American Journal of Economics and Business Management, vol. 7, no. 12, Art. no. 12, Dec. 2024.
- [9] N. A. Aziz and S. A. Aivas, 2025, "Consumer Satisfaction in Kurdish Online Shopping: Kurdistan Region of Iraq as a Case Study," International Journal of Science Research and Technology, Mar. 2025, doi: 10.5281/zenodo.15037315.
- [10] OECD, 2025, The OECD Going Digital Measurement Roadmap, [Online]. Available: [https://www.oecd.org/en/publications/the-oecd-going-digital-measurement-roadmap\\_bd10100f-en.html](https://www.oecd.org/en/publications/the-oecd-going-digital-measurement-roadmap_bd10100f-en.html)