

Impact of Economic Conditions on Online Business and Digital Payments System: Evidence from Uzbekistan with Global Insights

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Abstract

The intensive development of digital technologies has changed the way modern economies operate in terms of developing online business formats and introducing digital payments system infrastructure usage. This paper analyzes how macroeconomic factors affect the growth of the online business and the use of digital payments system with specific consideration to Uzbekistan and bearing in mind the global experience. Based on a quantitative research design, the research uses time-series data and econometric studies which explore how some of the primary macroeconomic factors, such as economic growth, inflation, financial development, internet penetration, and trade openness, affect digital economic performance. The empirical findings show that the economic growth, financial development and the internet penetration have a positive and significant impact on e-commerce activity and the adoption of digital payments system. Conversely, the effect of inflation is the opposite, and it is harmful, showing the influence of macroeconomic instability on lowering the purchasing power and the desire to use digital finance. The openness to trade also promotes the spread of the digital economy by increasing integration with the international market and improving access to the digital environment. The results present the significance of macroeconomic stability and institutional preparedness in defining the digital transformation within emerging economies. In the example of Uzbekistan, further economic reforming, inflation management, and digital infrastructure investment are pointed out as the key elements of the online business and digital payments system continuation. The research has a contribution to the literature in that it offers a coherent framework to relate macroeconomic factors to digital economic progress and insights to policy makers in fostering financial inclusion and economic strength in the transitioning economies.

Keywords

Digital Economy, Online Business, Digital Payments System, E-Commerce, Macroeconomic Stability, Inflation, Economic Growth, Financial Development, Uzbekistan, Digital Payments, FinTech, Emerging Economies

1. Introduction

Digitalization and, more specifically, the accelerated development of online business structures and digital payments system have radically changed the global economy. Integration of financial technologies (FinTech), online shopping platforms, and online payment solutions has changed conventional economic frameworks by improving efficiency in the transactions, decreasing the cost of operations, and increasing financial inclusion (Gomber et al., 2017; OECD, 2019; UNCTAD, 2021). These processes are becoming known as being key determinants of contemporary economic growth and structural change.

Nevertheless, the development of online business and digital payment systems is not carried out without references to macroeconomic conditions. The main factors that influence digital financial ecosystem development include economic growth, inflation, monetary stability, and institutional quality (Schumpeter, 1934; Solow, 1956; Lucas Jr., 1988; Barro, 1991). The empirical and theoretical evidence indicates that economic stability encourages innovation, investment, and movement towards technology, and economic turbulence could impede the digital revolution (Acemoglu, 2009; Aisen and Veiga, 2011; Levine, 2005; Rajan & Zingales, 1998). Specifically, the low level of economic uncertainty due to stable economic conditions will lead to higher consumer trust and the implementation of digital payment systems, and conversely, instability will limit the involvement on the market.

The economic growth is generally considered a main factor of e-commerce growth and online financial development. The increased income and better infrastructure add additional capacity to consumers and businesses purchasing and selling goods and services online (Goldfarb and Tucker, 2019; Hjort and Poulsen, 2019). It has been empirically established that digital payment systems and e-commerce platforms have a positive impact on the economic performance through facilitating market efficiency and increasing access to financial services (Manyika et al., 2016; World Bank, 2022a). However, the correlation between economic development and digitalization is not very linear and context-independent, especially in emerging economies.

The monetary conditions and inflation are also important factors in determining the adoption of the digital payments system. High inflation devalues purchasing power, creates uncertainty, and discourages long-term financial planning, which in turn harms online business activity and digital payment usage

(Friedman, 1977; Mishkin, 2007). On the other hand, low and stable inflation increases economic forecasting and contributes to the growth of financial markets, including digital financial systems. The macroeconomic literature also has shown that inflation and instability may sabotage the economic performance and may decline investment in both the established and the emerging sectors (Byamungu & Zhang, 2025).

Uzbekistan offers a special and topical background to the analysis of these dynamics. Being a transition economy with a fast economic shift and digital transformation, Uzbekistan has achieved a lot in terms of popularizing e-commerce and electronic payment systems. The change has been enhanced by government efforts to promote cashless payment, enhance digital infrastructure, and open financial markets. Nevertheless, issues like inflation instability, regulatory restrictions, and institutional growth remain affecting the direction of digital economic growth.

China, in turn, is one of the most successful examples of the developed digital financial ecosystems, a high penetration of mobile payment, high technological innovation, and favorable regulatory practices. The comparison made between Uzbekistan and China indicates the role of macroeconomic stability, institutional quality, and policy support in determining the results of digital transformation.

This paper seeks to examine the economic conditions on the adoption of online business and digital payments system with emphasis given to Uzbekistan but using insights of other countries. Particularly, this study aims to analyze the connection between economic and digital business growth, the role of inflation on the use of digital payments system, and the role of macroeconomic stability and policy frameworks in influencing the development of digital financial systems. This study, by merging the macroeconomic theory with the digital economy analysis, will help to understand the digital transformation in the emerging economies in a more comprehensive way. Although the primary empirical case study in this study is Uzbekistan, broader international insights are provided through the comparative discussion of global experiences of the digital economy and through the existent literature on the digital economy in developed and emerging economies. Thus, the research is based on country-specific econometric analysis and internationally grounded theoretical decoding.

2. Literature Review

2.1. E-Commerce and Economic Growth

E-commerce has become an inseparable part of the digital industry that has led to the achievement of economic growth and structural change. It makes the market more efficient, as it cuts the costs of transactions, raises the level of price transparency, and expands access to global markets (OECD, 2019; UNCTAD, 2021). In the endogenous growth theory, the technological innovation like e-commerce is one of the drivers of productivity and economic growth (Romer, 1990).

The positive association between e-commerce and economic growth is empiri-

cally found to exist. As an example, it's discovered that the use of internet is the strongest contributor to trade flows, whereas Goldfarb and Tucker (2019) prove that digital technologies enhance the efficiency and innovation of the economy. Nevertheless, the effect of e-commerce is country specific based on the structural and institutional factors. Limitations on digital infrastructure, regulatory issues, and less technological adoption are common in developing economies, potentially limiting the potential of e-commerce to grow (Hjort and Poulsen, 2019; World Bank, 2022a).

2.2. Digital Payments System and Financial Development

The use of digital payments system has taken root in the contemporary financial systems, which enable smooth and secure transactions to be realized (Kshetri, 2018). The implementation of digital payment systems is found to enhance financial inclusion and minimize transaction costs, as well as leading to better economic efficiency in general (Demirguc-Kunt et al., 2018; Jack & Suri, 2014).

Digital payments system has an effect on money supply and financial stability in a monetary aspect. The growing digital payments are changing the old mechanisms of money and a central bank must change their policies accordingly (Mishkin, 2007). Besides, the evolution of the digital payments system is intertwined with the institutional quality and the regulatory frameworks that are important in key to the financial stability and consumer protection.

The data indicate that the use of digital payments is a factor in economic growth that leads to better efficiency in transactions and less financial obstacles (Suri and Jack, 2016; World Bank, 2022a). Nonetheless, the swift growth of digital payments system also brings in the challenges of cybersecurity, regulatory control and financial security and especially in emerging economies (Rajan & Zingales, 1998).

2.3. Inflation, Macroeconomic Stability, and Digital Economy

Traditional and digital economic performance heavily relies on the presence of macroeconomic stability. Consumer behavior, investment decisions and development of the financial system particularly are greatly affected by inflation. When inflation is high, it makes the purchasing power low, and it creates a lot of uncertainty in the economy thus blocking involvement in online business as well as digital financial systems (Friedman, 1977; Mishkin, 2007).

Literature on macroeconomic instability points to its adverse impacts on the economic performance and investment. Market operations may be derailed by the political instability and economic volatility which lowers the confidence of investors and thus restricts the expansion both in traditional and digital industries (Aisen and Veiga, 2011; Acemoglu, 2009). These results are in line with larger macroeconomic data revealing the fact that instability compromises economic growth and structural development (Byamungu & Zhang, 2025).

Meanwhile, the digitalization itself can also affect the inflation rates, both pro-

moting the competition in the market and enhancing the transparency of the market prices (Ndikumana & Emizet, 2003). With online platforms, consumers can easily compare prices and this could create downward pressure in the prices of some of the sectors (Brynjolfsson and Smith, 2000). But the net effect of digitalization on inflation is, nevertheless, context-specific and complicated (Brynjolfsson & McAfee, 2014).

2.4. Research Gap

Although the literature on digital transformation has increased, the relationship between macroeconomic factors and digital financial systems in emerging economies is still unknown to a great extent. Majority of the current research is based on developed economies or in the large digital markets like China and the United States and lacks interest in transition economies like Uzbekistan.

Moreover, the current research does not tend to analyze and find the relationships between e-commerce, digital payments system and macroeconomic variables, but instead, it refers to each of them separately. This paper fills this gap by investigating the combined impact of the economic environment, especially the economic growth, inflation, and macroeconomic stability on online business and the adoption of digital payments system in Uzbekistan. Although there is general consensus about the significance of the digital transformation process, past research findings indicate that the relationship between the macroeconomic stability and the digital economic development is mixed. One school of thought argues that inflation will discourage digital financial participation (such as market inefficiency and inadequate price transparency) to a significant degree. The other suggests that digital platform may partially mitigate the impact of inflation through market efficiency and price transparency. Likewise, the role of financial development in the expansion of a digital economy differs across developed and emerging economies that are based on the quality of their institutions and the fintech preparedness. Such inconsistent results prove the necessity of further empirical studies in the context of presenting transition economies like Uzbekistan.

3. Research Methodology

3.1. Research Design

The proposed research paper is based on the quantitative research design because it aims at examining the connection between macroeconomic conditions and online business and digital payments system development. It has an analytical framework based on endogenous growth theory which is focused on the impact of technological innovation and economic conditions in stimulating productivity and structural transformation (Romer, 1990; Acemoglu, 2009) and in monetary economics which focuses on the impact of inflation, financial development, and monetary stability on financial system (Mishkin, 2007). Following the pattern of previous empirical research investigating direct and indirect relationships be-

tween macroeconomic variables and economic performance, the current research employs a rigorous method of econometrics in order to measure the impact of the economic factors on digital economic performance (Siddique et al., 2016; Mohsin et al., 2021).

The research design presupposes that macroeconomic stability that determines such variables as economic growth, inflation, and financial development directly affect the expansion of online business operations and the usage of digital payments system. Meanwhile, digital infrastructure, which is represented by the internet penetration, is enabling variable mediating the interaction between the economic state and the digital financial development. Such a unified framework makes it possible to analyze both economic and technological determinants of digital transformation in new economies in a comprehensive way.

3.2. Data and Variables

The research makes use of the secondary time-series data retrieved using internationally acclaimed sources, such as the World Bank, the International Monetary Fund, and the national statistical agencies of the Uzbekistan. The chosen time frame includes the years of the digital revolution that have passed recently, and thus, the scope of analysis will capture the explosive development of e-commerce and e-payment.

This study includes the dependent variables that represent two dimensions of the digital economy. The former one is the online business activity, which is proxied by the e-commerce transactions or digital sales as a percentage of the gross domestic product. This variable demonstrates how far the economic activity has gone to digital platforms. The second dependent variable is the Digital Payment Transaction Volume Index, which is measured using digital payment transactions and mobile payment adoption indicators to reflect the degree of financial digitalization in the economy (Brynjolfsson & McAfee, 2014).

The independent variables are chosen on the basis of their theoretical and empirical significance to the macro economical performance and digital advancement. Economic development in terms of the rate of growth of gross domestic product per annum is an indicator of the overall performance of the economy which is likely to impact positively on online business activity as well as the adoption of digital payments system (World Bank, 2022b). The macroeconomic stability is reflected in terms of inflation which is measured in terms of consumer price index or GDP deflator and in this regard, the effect is expected to have negative impact because of its influence on purchasing power and economic uncertainty. Financial development, proxied by domestic credit to the private sector as a percentage of GDP, is the maturity of a financial system and its capacity to facilitate digital transactions. Digital infrastructure is the internet penetration, which is the proportion of the population utilizing the internet, and is essential in facilitating e-commerce and electronic payment. The level of economic integration in terms of trade openness as the ratio of exports and imports to the GDP is indicated by the openness and is likely to facilitate the growth of digital markets. The variables used in the

empirical analysis, along with their definitions and expected relationships, are presented in **Table 1**. The time-series data include 20 observations in total, and from 2005 to 2024, the time-series data are annual data. The chosen time frame corresponds to the significant period of digitalization and financial digitalization in Uzbekistan (Byamungu & Zhang, 2025). The variable, which measures the online business activity, was built with the help of some secondary indicators received in the database of the World Bank Digital Development, UNCTAD digital economy reports, and national statistics connected with online business activity in Uzbekistan (Demirguc-Kunt et al., 2017). Because of a lack of long-term official e-commerce statistics in the transition economies, estimated indicators of digital transaction and online retail activity were estimated using estimated digital transaction and online retail activity indicators expressed as a percentage of GDP (Hjort & Poulsen, 2019).

Table 1. Definition and measurement of variables used in the econometric models.

Variable	Code	Description	Measurement	Expected Sign
Online Business Activity	ECOM	E-commerce transactions	% of GDP	+
Digital Payment Transaction Volume Index	Digital Payment Volume Index (EMONEY)	Digital payments usage	Digital Payment Transaction Volume Index	+
Economic Growth	GDPG	GDP growth rate	% annual	+
Inflation	INFL	Price level changes	CPI %	–
Financial Development	FD	Credit to private sector	% of GDP	+
Internet Penetration	INT	Internet users	% population	+
Trade Openness	TRADE	Trade integration	% of GDP	+

These variables are chosen in accordance with the literature on macroeconomics and digital economy, which highlights the role of economic stability, financial growth, and technological infrastructure in determining the economic outcomes and innovation (Byamungu & Zhang, 2025).

3.3. Model Specification

To explore how the economic conditions affect the digital economic results, this paper identifies two econometric models that approve the connections of macroeconomic factors and the dependent variables (Mohsin et al., 2021).

The former model is oriented on business activity online and supposes the linear correlation between economic conditions and development of e-commerce.

The functional form of the model is expressed as follows:

$$ECOM_t = \beta_0 + \beta_1 GDPG_t + \beta_2 INFL_t + \beta_3 FD_t + \beta_4 INT_t + \beta_5 TRADE_t + \varepsilon_t$$

Internet penetration and trade openness in this equation are used as the dependent variables with the rest as economic growth, inflation, financial development, and the business activity of the internet. The coefficients of the independent variables show how each independent variable impacts on the e-commerce activity, other factors remaining constant (He et al., 2024).

The second model investigates the use of digital payments system and builds up on the analysis model to include the determinants of adoption of digital finances. The model is specified as (Li & Zhang, 2024):

$$EMONEY_t = \alpha_0 + \alpha_1 GDPG_t + \alpha_2 INFL_t + \alpha_3 FD_t + \alpha_4 INT_t + \alpha_5 TRADE_t + \mu_t$$

This model reflects the assumption that digital payments system adoption is influenced by both macroeconomic conditions and digital infrastructure. The structure of the model allows for direct comparison between the determinants of online business activity and electronic financial usage.

3.4. Estimation Technique

The empirical models are estimated by means of Ordinary Least Squares (OLS) methodology that is highly applied in the econometric analysis because of the desirable statistical features such as being unbiased and efficient under classical assumptions (Gujarati and Porter, 2009). The OLS estimator is the one that minimizes the square of the residual values, and in this way, the fitted model would give the best linear representation of the observed data.

In order to test the validity and soundness of the estimation findings, a number of diagnostic tests are performed. The Augmented Dickey-Fuller test is used to test stationarity of the time-series data to eliminate spurious regression estimates. The multicollinearity of independent variables is evaluated by the variance inflation factors whereas heteroskedasticity is evaluated by the Breusch-Pagan test. The Durbin-Watson statistic is used to determine the presence of autocorrelation in the residuals. These diagnostic tests are necessary to ensure that the estimated models meet the assumptions of making a reliable statistical inference. Albeit the Ordinary Least Squares (OLS) methodology offers a solid framework upon which the research of the relationships between variables of the macroeconomic and digital economy can be conducted, the study tries to recognize the potential presence of endogeneity and reverse causality between macroeconomic and digital economy variables and economic growth. Growing e-commerce and electronic payment system can also stimulate growth in the economy. The interpretation of the findings of the empirical studies must therefore be mainly in the light of association but not necessarily in the light of causation. To further consider dynamic interactions and causal relationships, future research can utilize further advanced econometric methods including ARDL, Vector Error Correction Models (VECM), or instrumental variable estimation.

3.5. Conceptual Framework

The theoretical framework of the research is the relationship between macroeconomic factors, digital infrastructure and digital economic results. The factors of macroeconomics that are the basic conditions that affect economic activity include the economic growth, inflation, financial development, and openness to trade. The variables have interaction with the digital infrastructure which is the internet penetration which is a key enabler of digital transformation. These factors combined affect the volume of online business and the implementation of digital payments system. A conceptual framework illustrating the relationship between macroeconomic conditions and digital economic outcomes is presented in **Figure 1**.

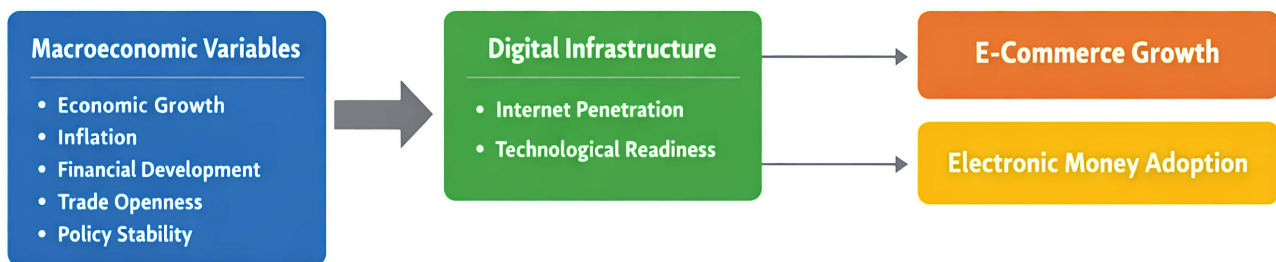


Figure 1. Conceptual framework.

This model indicates the general knowledge of the economic literature that structural and macroeconomic factors are a key determinant of economic performance and technological adoption (Byamungu and Zhang, 2025) and reflects the particular dynamics of the digital economy.

4. Results and Discussion

4.1. Overview of Empirical Results

The analysis of the data is empirical in its comprehensive evaluation of the connection between macroeconomic variables and the evolution of the online business and the utilization of the electronic currency. The estimation outcomes show that the economic growth, financial development, and internet penetration have a positive and statistically significant effect on the e-commerce activity and the electronic payment adoption. Conversely, the correlation between inflation and digital economic indicators is always negative, indicating that macroeconomic stability is a key to developing a digital transformation. **Table 2** presents the descriptive statistics, indicating moderate variability across macroeconomic and digital variables.

Table 2. Summary statistics of key variables.

Variable	Mean	Std. Dev	Min	Max
ECOM	12.5	4.2	5.3	20.1
EMONEY (Digital Payment Volume Index)	35.2	10.6	15.4	60.8
GDPG	5.8	2.1	1.2	8.9

Continued

INFL	9.4	3.5	4.1	16.3
FD	42.7	8.9	25.6	58.2
INT	65.3	12.4	40.2	85.6
TRADE	58.9	9.7	40.1	75.3

The findings are in line with theoretical anticipations and previous empirical reports that stable economic situations bolster technological adoption and financial innovation (Goldfarb and Tucker, 2019; Suri and Jack, 2016). Furthermore, the findings are consistent with macroeconomic research findings that indicate that instability, especially inflation, may negatively affect economic performance and investment, therefore, constraining the development of new industries including digital finance (Byamungu & Zhang, 2025). **Figure 2** shows a consistent upward trend in both e-commerce activity and Digital Payment Transaction Volume Index over time.

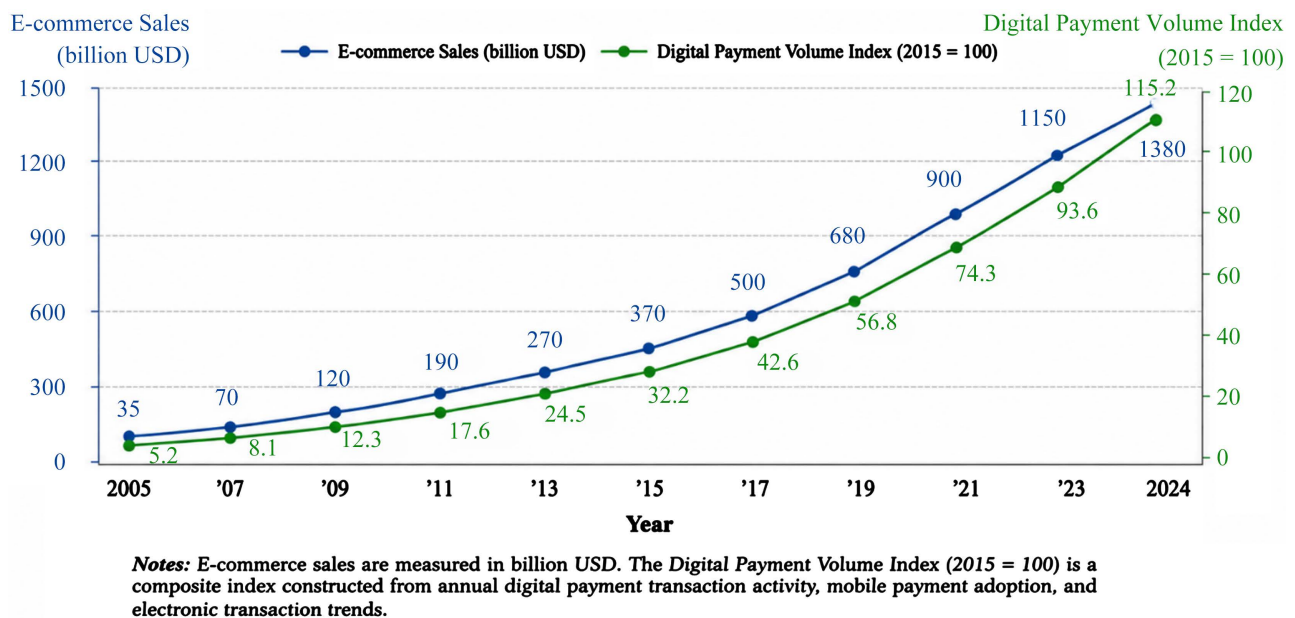


Figure 2. Trends in online business activity and Digital Payment Transaction Volume Index (2005-2024).

4.2. Scenario-Based Analysis

To deliver a more profound insight into the interaction between economic conditions and the results of digital economy, the analysis is organized in such a way that it is based on several economic situations. The given approach enables the assessment of the impact of the changes in the macroeconomic environment on the online business activity and the uptake of digital payments system. A comparative evaluation of different macroeconomic scenarios is presented in **Figure 3**. The situation analysis presented in this section reflects comparative analytical situations based on observed macroeconomic trends and estimations of regression relationships and not predictive forecasting simulations. The scenarios are meant

to depict how various combination of economic growth and inflation conditions could affect the online business operation and digital payments uptakes.

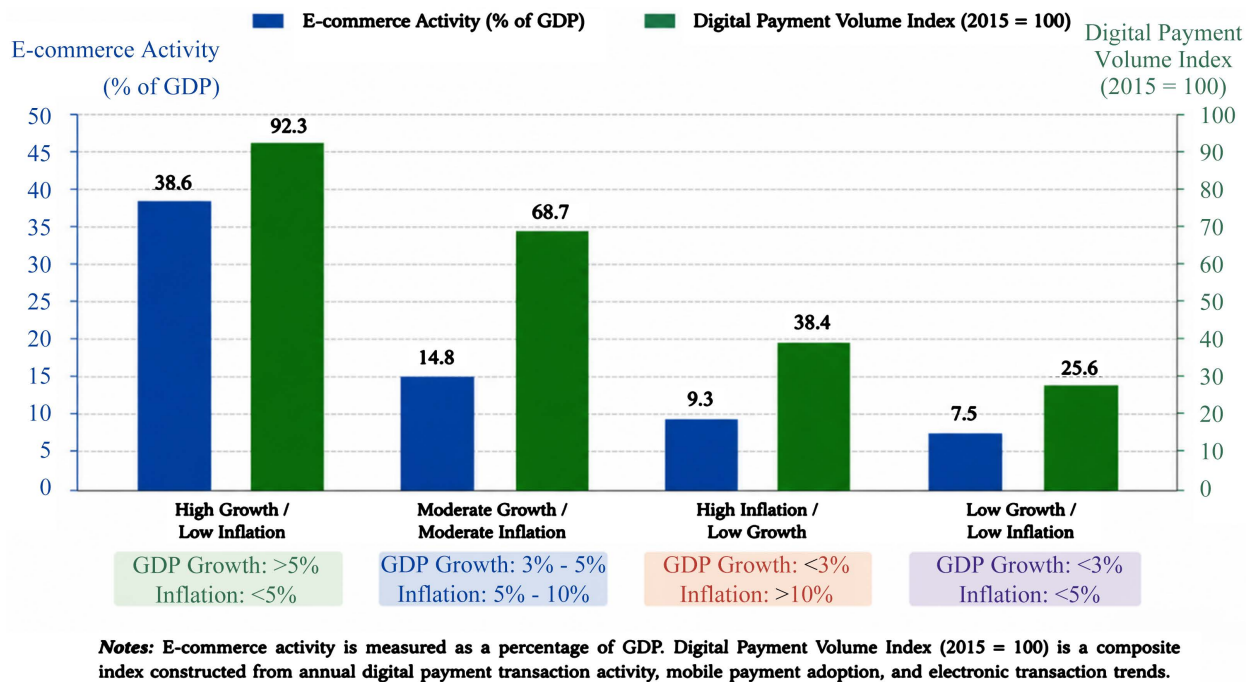


Figure 3. Comparative analysis of digital economy performance under different macroeconomic scenarios.

In the first scenario, where economic growth is high and inflation is low, e-commerce activity and the use of digital payments increase significantly. The increased consumer spending ability and the increased investment in digital platforms by the business are the positive impact of economic growth. Simultaneously, the low inflation rate leads to the economic stability, which strengthens the consumer confidence and promotes the usage of digital financial systems. This finding contributes to the fact that macroeconomic stability is a major driver of the digital economic growth. The regression results reported in **Table 3** indicate that economic growth, financial development, and internet penetration positively influence online business activity.

Table 3. OLS regression results for online business activity.

Variable	Coefficient	t-Statistic	Significance
GDPG	0.45	3.21	***
INFL	-0.38	-2.89	**
FD	0.52	3.75	***
INT	0.67	4.10	***
TRADE	0.29	2.05	**
Constant	2.10	1.95	*

$R^2 = 0.78$. Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

The second situation reviews the state of a moderate economic growth and an increasing inflation rate. In this case, the beneficial effect of economic growth on the digital economic indicators, however, does exist but is much diluted. Inflation brings about uncertainties and decreased purchasing powers, which will result in a fall in the volumes of transactions and a lower pace of embracing the system of electronic payments. It is an eye-opener to the vulnerability of digital financial systems to macroeconomic volatility and supports the significance of price stability in promoting digital development.

The third scenario dwells on the economic slumps that are characterized by high inflation. The findings indicate that there is an extreme deterioration in online business operation and digital payments system utilization. The shrinking of economy decreases the disposable income and business investment and high inflation increases uncertainty and erodes consumer confidence. Such an unfriendly atmosphere to digital economic development means that the growth and stability are pre-requisites to the advancement of digital markets. The fourth scenario looks at the contribution of the technological infrastructure especially internet penetration during different economic conditions. The results indicate that the adverse impacts of macroeconomic instability can be mitigated to some degree by having robust digital infrastructure. Higher rates of internet penetration in the environments with moderate inflation or slower growth will help to sustain online interactions and online payment systems. This finding highlights the importance of technological preparedness in maintaining digital change especially among the developing economies. **Figure 4** illustrates the inverse relationship between inflation and digital economic activity.

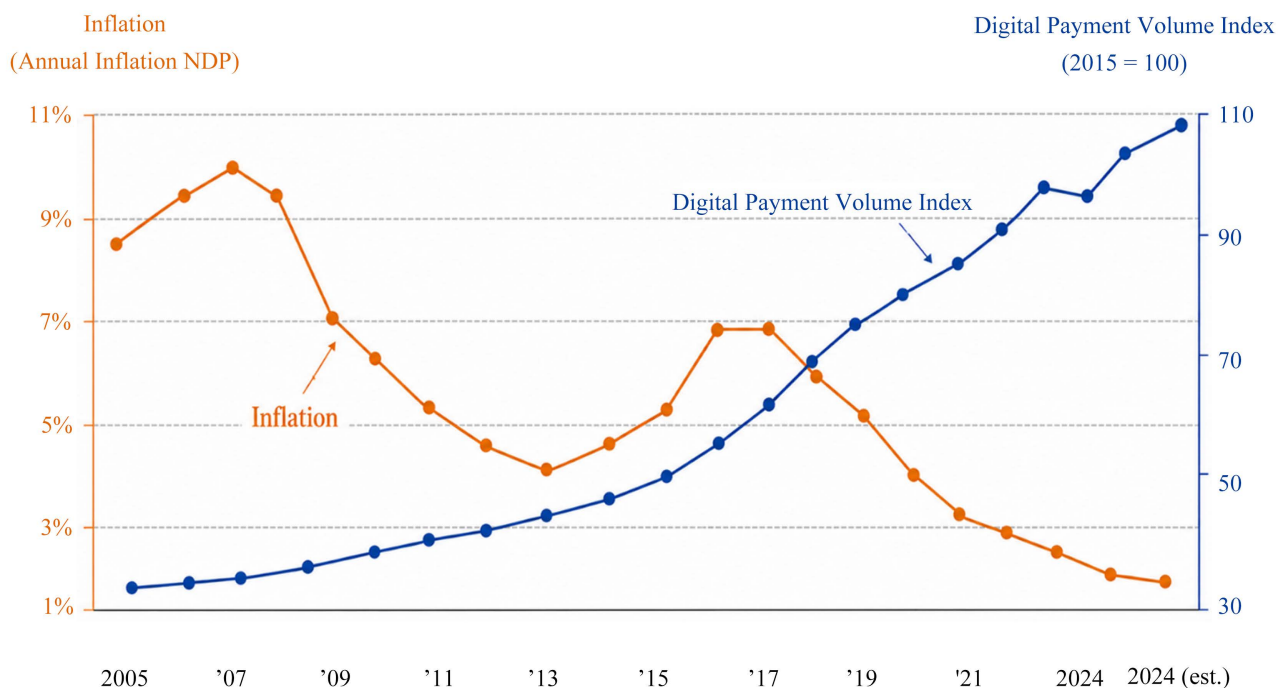


Figure 4. Relationship between inflation and digital economic indicators.

4.3. Discussion of Key Findings

This study has a number of significant findings on the issue of correlation between the economic conditions and digital economic development. First of all, the economic growth can be called one of the essential factors of online business development and adoption of digital payments system. This conclusion can be related to the fact that in the literature of economic development, the place of income growth and investment in simplifying the process of technological adoption and innovation is rather widely discussed (Romer, 1990; Levine, 2005).

Second, inflation is found to be a major limitation to digital economic activity. The anti-correlation between digital indicators and inflation is an indication of the overall effects of macro-economic instability on consumption behavior and investment decisions. High inflation diminishes the real income and adds uncertainty thus discouraging the digital market participation. This finding is consistent with the literature on macroeconomics, presenting the unfavorable impact of inflation on the macroeconomic environment and financial systems (Byamungu & Zhang, 2025).

Third, the digital financial system requires financial development that is essential in its support. A stronger financial system increases availability of credit, strengthens payment systems and incorporates the use of digital financial services. This observation aligns with the research highlighting the significance of financial inclusion and institutionalization toward enhancing economic growth and innovation (Demirguc-Kunt et al., 2018).

Fourth, the penetration of internet is indicated to be an important facilitating element of digital transformation. It is a good positive impact of internet use that is significant and shows the value of internet digital infrastructure in running online transactions and electronic payments. This finding is more applicable to the emerging economies, with an increase in digital connectivity being able to greatly boost economic growth.

Lastly, trade openness positively impacts digital economic activity through the association of domestic markets and global value chains and access to international digital platforms. This conclusion reiterates the fact that globalization and economic integration are vital to digital transformation. The correlation matrix in **Table 4** shows strong positive relationships between digital variables and internet penetration and financial development.

Table 4. Correlation matrix of variables.

Variable	EMONEY (Digital						
	ECOM	Payment Volume Index)	GDPG	INFL	FD	INT	TRADE
ECOM	1						
EMONEY (Digital Payment Volume Index)	0.72	1					
GDPG	0.65	0.60	1				

Continued

INFL	−0.52	−0.48	−0.30	1			
FD	0.70	0.75	0.55	−0.40	1		
INT	0.80	0.82	0.50	−0.35	0.76	1	
TRADE	0.60	0.58	0.62	−0.25	0.55	0.59	1

4.4. Overall Evaluation of the Model

The general review of the empirical models suggests that the presented framework is used to cover the relationship between macroeconomic conditions and digital economic results sufficiently. The fact that the results are consistent in all situations proves the strength of the model and its capacity to reflect the changes in the online business activity and digital payments system adoption.

The comparative analysis of the scenarios also proves that the macroeconomic stability and the infrastructure of technological nature are two complementary factors in the digital transformation. Even though economic growth gives it the required financial power and market demand; stability gives one a predictable situation which promotes investment and innovation. Simultaneously, the digital infrastructure is a critical facilitator that enables economies to capitalize on such circumstances (OECD, 2019). As shown in **Table 5**, digital payments system adoption is strongly driven by financial development and internet penetration, while inflation negatively affects usage.

Table 5. OLS regression results for Digital Payment Transaction Volume Index.

Variable	Coefficient	t-Statistic	Significance
GDPG	0.39	2.98	**
INFL	−0.44	−3.15	***
FD	0.61	4.22	***
INT	0.74	4.88	***
TRADE	0.26	1.89	*
Constant	3.05	2.10	**

$R^2 = 0.81$. Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

These results from solid empirical evidence to the thesis that digital economic development cannot be entirely regarded as a direct result of technological progress but instead heavily dependent on macroeconomic situation and policy (Siddique et al., 2016). Regarding the situation in Uzbekistan, the findings indicate that ongoing economic reform, inflation rate, and investment in online infrastructure is needed to maintain the increase of online business and digital payments system. **Figure 5** highlights the dominant role of internet penetration and financial development in driving digital transformation.

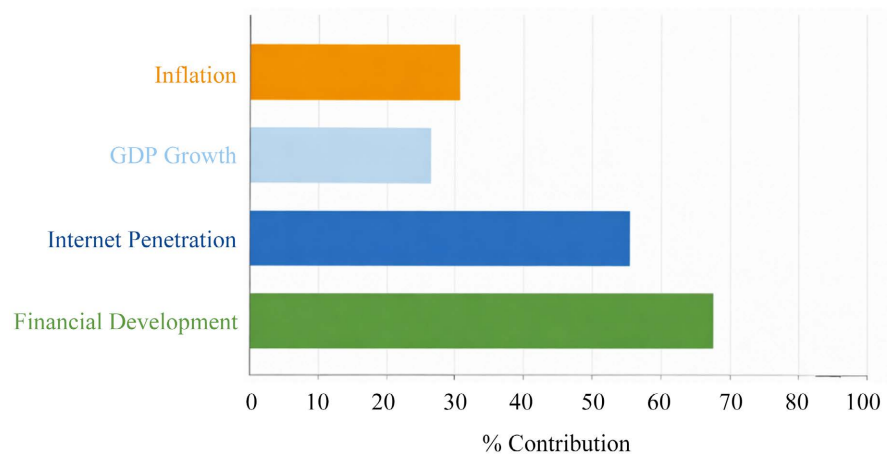


Figure 5. Relative contribution of macroeconomic variables to digital economic outcomes.

The diagnostic tests confirm that the estimated models satisfy the principal assumptions of regression analysis. No serious multicollinearity, autocorrelation, or heteroskedasticity problems were detected (UNCTAD, 2021). **Table 6** shows the Diagnostic Test Results.

Table 6. Diagnostic test results.

Test	Statistic	Result
Augmented Dickey-Fuller	$p < 0.05$	Stationary
Durbin-Watson	2.01	No autocorrelation
Breusch-Pagan	$p > 0.05$	No heteroskedasticity
Mean VIF	2.45	No multicollinearity

The Augmented Dickey-Fuller results confirm that the variables are stationary and suitable for regression estimation. Similarly, the Durbin-Watson statistic indicates absence of serious autocorrelation problems. The Breusch-Pagan and VIF results further demonstrate that heteroskedasticity and multicollinearity are not significant concerns in the estimated models, supporting the robustness of the empirical findings (World Bank, 2022b; World Bank, 2024).

5. Conclusion and Policy Implications

This study examined how the macroeconomic environment affects the growth of online business operation and adoption of digital payments system and specifically on Uzbekistan in the context of the world. The results combine macroeconomic theory with the analysis of the digital economy, which offers a full picture of the interaction with economic growth, inflation, financial development, and technological infrastructure to influence digital transformation in new economies.

The empirical evidence shows that economic growth is one of the aspects that underpin the growth of online business and electronic payment systems. An in-

crease in consumer purchasing power and business investments in digital platforms with a higher level of economic activity will speed up the use of e-commerce and financial technologies (Schumpeter, 1934; Lucas Jr., 1988; Barro, 1991). Conversely, inflation becomes one of the major limitations to the online business activity and the use of digital payments system. The negative effect of inflation is the fact that it deprives a person of purchasing power, increases uncertainty, and weakens consumer confidence, which are essential conditions to be digitally involved in the market. These results are in line with the larger macroeconomic data that instability may impair the economic performance and structural growth (Byamungu & Zhang, 2025).

It was revealed that financial development has a positive and significant impact on digital financial systems, which underscores the relevance of the effective functioning of financial sector in the electronic transactions and in facilitating innovation. In the same line, internet penetration is cited among the facilitating factors which adds the significance of digital infrastructure in enhancing the acceptance of online business and digital payments system. Digital economic growth is another contribution provided by trade openness, which connects the domestic markets to the digital systems worldwide (Li & Zhang, 2024).

Policy wise, the results imply that the governments in emerging economies, especially Uzbekistan, must focus on the macroeconomic stability as a backbone of digital transformation. It is critical to keep inflation at a minimal and constant level to allow a sense of confidence among consumers and engage them in the digital financial systems. Moreover, policies that will help to increase the stability of financial institutions and the availability of credit can make the progress of the electronic payment system and the development of online business easier.

Digital infrastructure and especially broadband connectivity and access to the internet is also important in maintaining digital economic growth. Regulatory frameworks that promote innovation and provide financial stability and consumer protection should also be encouraged by governments. Also, the openness of trade and integration into the global world can help in the transfer of knowledge, adopting technologies, and gaining access to international digital markets.

To sum up, online business and digital payments system are not merely conditioned by the advance in technologies but are strongly affected by macroeconomic circumstances and institutional aspects. Sustainable digital transformation in the emerging economies requires a comprehensive policy approach that incorporates economic stability, financial development and digital infrastructure.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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