THE IMPACT OF CENTRAL BANK POLICIES AND DIGITALIZATION ON GDP GROWTH IN UZBEKISTAN

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ARTICLE INFORMATION	ABSTRACT
	This study investigates the influence of the Central Bank of Uzbekistan's main rate and digitalization on the country's Gross Domestic Product (GDP) growth. It expands upon previous research by incorporating the rapidly evolving digital economy and its interplay with central banking policies. Employing a mixed-methods approach, the study analyzes quarterly economic indicators from 2016 to 2022, including the Central Bank's main rate and GDP figures, alongside data reflecting the growth of digital financial services and e-commerce. The research utilizes correlation analysis, supplemented by qualitative assessments of digitalization policies and their implementation in the financial sector. The findings indicate that while the Central Bank's main rate has had a limited direct impact on GDP growth, the rise of digital financial services and e-commerce has significantly correlated with economic expansion. The integration of digital technologies in banking and commerce has shown a noticeable effect on the efficiency and reach of financial services, thereby contributing to GDP growth. The study underscores the need for the Central Bank to consider the digital economy in its policy-making. It suggests that beyond traditional monetary tools, embracing digitalization can serve as a catalyst for economic growth. The paper recommends the formulation of policies that support digital infrastructure and innovation, aligning central banking practices with the digital age.
KEYWORDS	

INTRODUCTION

In the realm of economic policy, the role of a nation's central bank is paramount, particularly in shaping the trajectory of its Gross Domestic Product (GDP) growth. The Central Bank of Uzbekistan, like its global counterparts, employs various monetary policies, including setting the main refinancing rate, to influence the country's economic climate. Traditionally, the efficacy of such monetary tools has been the subject of extensive study. However, the burgeoning digital economy presents new dimensions and challenges, making it imperative to reassess the impact of central banking policies in this modern context. This research aims to bridge this gap by examining the influence of both the Central Bank's main rate and the rise of digitalization on Uzbekistan's GDP growth.

As Uzbekistan strides towards a digital economy, it becomes crucial to understand how digital financial services, e-commerce, and other facets of digitalization interplay with traditional monetary policies. The significance of this study lies in its novel approach, integrating the traditional economic indicators with the dynamics of digital transformation. While previous research has predominantly focused on the direct impacts of central bank policies on GDP growth, this study extends the scope to include the indirect effects mediated through digitalization.

The objective of this research is twofold: firstly, to analyze the correlation between the Central Bank's main rate and GDP growth in Uzbekistan, and secondly, to explore how the digital economy modulates this relationship. This approach is particularly relevant in the context of Uzbekistan, a country experiencing rapid digital transformation and

economic reform. The findings of this study are expected to provide valuable insights for policymakers, economists, and scholars interested in the intersection of central banking, economic growth, and digitalization.

By delving into this uncharted territory, the study not only contributes to the academic discourse on monetary policy and economic growth but also offers practical implications for the formulation of more effective and contemporary economic strategies in Uzbekistan. In doing so, it seeks to illuminate the path for a balanced and inclusive economic policy that leverages the potential of digital technologies to enhance national prosperity.

We know that the results of the monetary policy of the Central Bank in all countries should serve the stable development and economic growth of the country. The Law of the Republic of Uzbekistan "On the Central Bank of the Republic of Uzbekistan" defines the task of developing and implementing monetary and credit policy of the Central Bank of the Republic of Uzbekistan, including currency policy[1].

LITERATURE REVIEW

A number of researches have been carried out on the effect of some factors on the country's economic growth. In particular, In the authors past research calculated some factors share for ensuring economic growth of the Uzbekistan[2]. But in the list of factors was`t the main rate of the Central bank.

Kwangyong Park researched Long-term interest rates are largely responsive to macroeconomic shocks and news. This, however, is difficult to explain using the standard macro-financial rational expectations models

that are widely used in policy analysis. In this study, we show that concerns about central bank credibility can ex-plain the excessive sensitivity of long-term interest rates using a macrofinance valuation model that incorporates endogenously evolving notions of central bank credibility. In particular, long-term interest rates are more responsive to macroeconomic shocks when they are less credible [3].

E. Corso justified the effect of economic growth and changes in labor productivity on the quality of sustainable growth in his scientific works [4].

The influence of institutional units on the inclusive aspects of the quality of eco-nomic growth was determined in the studies of K. Sen [5].

Economic growth indicators and new methodological approaches to their calcula-tion are based on the importance of modern digital economy factors in the joint scientific works of P. Vellala, M. Madala, U. Chhattopadhyay[6].

C. Aoyagi, G. Ganelli's scientific works revealed ways to increase the quality of sustainable growth on the basis of macroeconomic policies aimed at reducing unem-ployment, increasing labor and production productivity [7].

Issues of increasing rapid economic growth on the basis of macroeconomic stabil-ity, human capital, structural changes and foreign trade freedom were studied in R. Anand, S. Mishra, S. Peiris [8].

Ways to achieve sustainable growth based on the accumulation of fixed capital and human capital and technical progress can be seen in the scientific works of C. Jones, E. Denison, R. Solow, T. Swan [9,10].

S. Abrorov in his research analised the importance of sukuk in the development of economy: as an example of its effect on the income of the malaysian popula-tion[11,12,13].

At the same time, the interpretation of technical progress as an endogenous factor and its specific features are covered in the researches of D.Barro, P.Romer, R.Lucas, S.Rebelo[14].

DATA AND RESEARCH METHODOLOGY

This study employs a comprehensive approach to understand the multifaceted relationship between the Central Bank's main rate, digitalization, and GDP growth in Uzbekistan. The methodology encompasses both quantitative and qualitative analyses, utilizing a range of data sources to ensure a robust and nuanced understanding of the subject matter.

3.2. Data Sources:

3.2.1. Economic Indicators:

The core quantitative data includes quarterly economic indicators from 2016 to 2022. This dataset comprises the Central Bank of Uzbekistan's main refinancing rate, GDP figures, and other relevant macroeconomic variables.

3.2.2. Digital Economy Metrics:

To assess the impact of digitalization, data on the growth of digital financial services, e-commerce transaction volumes, digital payment systems, and internet penetration rates are collected from various sources, including government reports, industry analyses, and international databases.

3.2.3. Policy Documents:

Policy documents, central bank reports, and official statements are scrutinized to understand the policy framework and its evolution in the context of digitalization.

3.3. Methodological Approach:

3.3.1. Quantitative Analysis:

3.3.1.1. Correlation Analysis: The study employs correlation analysis to examine the relationship between the Central Bank's main rate, digital economy indicators, and GDP growth. This involves statistical techniques to measure the strength and direction of these relationships.

3.3.1.2. Regression Analysis: To further dissect the impact of individual factors, regression models are utilized, enabling the identification of significant predictors of GDP growth within the dataset.

3.3.2. Qualitative Analysis:

3.3.2.1. Policy Analysis:

A qualitative examination of monetary and digitalization policies provides context to the quantitative findings. This involves assessing the rationale, objectives, and outcomes of relevant policies.

3.3.2.2. Expert Interviews:

Interviews with economists, policymakers, and industry experts offer deeper insights into the practical aspects of monetary policy and digitalization in Uzbekistan.Analysis.

3.4. Research Design:

The study adopts a mixed-methods design, allowing for a comprehensive exploration of the topic. The combination of quantitative data analysis with qualitative assessments ensures a holistic understanding of the complex interplay between central banking policies, digitalization, and economic growth. This approach is particularly suited to the evolving nature of the subject matter, where traditional economic models may not fully capture the nuances introduced by digitalization.

Through this methodology, the research aims to shed light on how digitalization can be integrated into economic policy-making, particularly in the context of a transitioning economy like Uzbekistan's. The findings are expected to contribute valuable insights for formulating strategies that harness digital technologies to drive sustainable economic growth.

ANALYSIS

The article provides key data on the Central Bank's key rate and GDP indicators in the Republic of Uzbekistan for the period from 2016 to 2022. This table is crucial for understanding the relationship between the Central Bank's main rate and the country's economic performance as measured by GDP (See Table 1).

Table 1. Central Bank key rate and GDP indicators in the Republic of Uzbekistan in 2016-2022.

The table presents a comprehensive view of the Central Bank's key

Table 1

Central Bank key rate and GDP indicators in the Republic of Uzbekistan in 2016-2022

| Year	Quartile	Rate of CB	GDP in billion sums	Year	Quartile	Rate of CB	GDP in billion sums
2022	II	16	389 631,20	2019	I	16	97 788,80
2022	I	17	162 784,60	2018	IV	16	424 728,70
2021	IV	14	734 587,70	2018	III	16	304 010,80
2021	III	14	520 531,00	2018	II	14	186 203,00
2021	II	14	320 817,80	2018	I	14	77 314,40
2021	I	14	133 905,40	2017	IV	14	317 476,40
2020	IV	14	602 193,00	2017	III	14	221 430,70
2020	III	14	426 971,10	2017	II	9	131 712,50
2020	II	14	265 941,90	2017	I	9	53 985,20
2020	I	16	117 132,30	2016	IV	9	255 421,90
2019	IV	16	529 391,40	2016	III	9	185 109,80
2019	III	16	378 442,10	2016	II	9	114 568,00
2019	II	16	231 713,80	2016	I	9	47 816,20

rates and GDP figures across several quarters spanning 2016 to 2022. This period captures a significant phase in Uzbekistan's economic policy and development. The Central Bank's key rate has varied over the years. For instance, in 2017, the rate was as low as 9%, whereas in 2022, it increased to 16-17%. These fluctuations are indicative of the monetary policy adjustments made by the Central Bank in response to various economic conditions. The GDP of Uzbekistan, denominated in billions of sums, shows an increasing trend over these years. For example, in the first quarter of 2016, the GDP was around 47,816.20 billion sums, which increased to 162,784.60 billion sums in the first quarter of 2022. This data serves as the foundation for the study's correlation analysis. It helps in understanding how changes in the Central Bank's rate may correlate with shifts in GDP, considering the complex dynamics of Uzbekistan's evolving economy.The comprehensive nature of this data, covering more than 20 quarters, provides a robust basis for accurately calculating the correlation dependence using statistical methods like the Rho Spearman

Fig. 1. Dynamics of the Central Bank's rate from 2016 to 2022[1]
and Tau-b Kendall correlation methods.

Here are the figure 1 the dynamics of the Central Bank's key rate and GDP in the Republic of Uzbekistan from 2016 to 2022, based on the data from Table 1 (see the fig.1):

This Figure shows the fluctuations in the Central Bank's key rate across different quarters over the years. The trend illustrates how the rate has changed, highlighting periods of increase and decrease, which is crucial for understanding the bank's monetary policy over time.
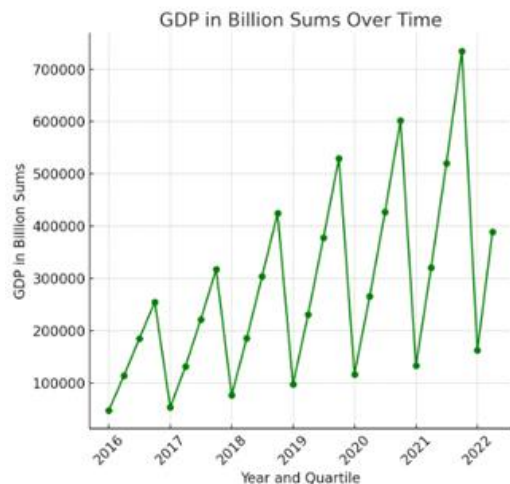
Fig. 2.   GDP in Billion Sums Over Time[2]

The second graph presents the trends in Uzbekistan's GDP, measured in billion sums, across the same period. This visual representation allows for an easy comparison of the GDP's growth trajectory, providing insights into the country's economic performance.

The above statistics are summarized. The number of observations, that is, the number of quarters, was 26. The fact that the number of observations of 2 indicators is more than 20 makes it possible to accurately calculate the correlation dependence. These data were loaded into IBM SPSS Statistics 25 for correlation analysis, and the correlation relationship was first tested using the Rho Spearman method (see Table 2).

Table 2. Correlation analysis using the Spearman method.

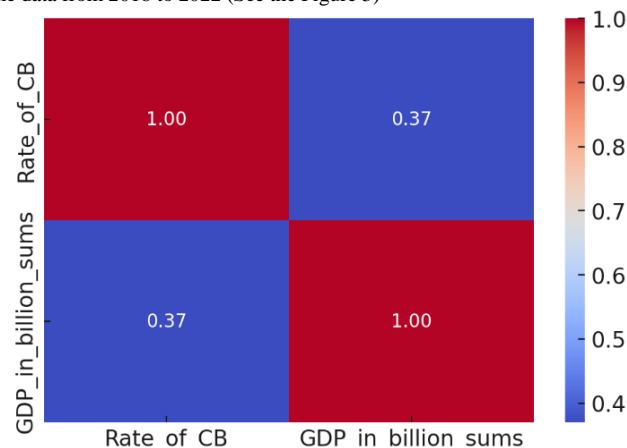|		Rate of the Central Bank
GDP at current prices calculated by the production method, National currency, billion sums	Correlation coefficient	0,317
	Value (one-sided)	0,057
	N	26

According to the results of the correlation analysis using the Spearman method, it was determined that the one-way correlation between the central bank rate and GDP is equal to 0.317. But the level of reliability of the analysis result was 0.57, which is higher than 0.5. It follows that there is no correlation between these 2 indicators.

In order to determine the relationship between this indicator, we conducted a study using the Tau-b Kendall correlation method other than Spearman method (see Table 3).

Table 3. Tau-b Kendall correlation analysis.

		Rate of the Central Bank
GDP at current prices calculated by the production method, National currency, billion sums	Correlation coefficient	,247
	Value (one-sided)	,057
	N	26

The heatmap above displays the correlation matrix between the Central Bank's key rate and GDP in billion sums for Uzbekistan, based on the data from 2016 to 2022 (See the Figure 3)

The values in the matrix range between -1 and 1, where 1 indicates a perfect positive correlation, -1 indicates a perfect negative correlation, and 0 signifies no correlation.

The specific correlation coefficient between the Central Bank rate and GDP, as shown in the matrix, provides a quantitative measure of their relationship.

This correlation analysis is a critical step in understanding the relationship between monetary policy (as represented by the Central Bank's rate) and economic performance (measured by GDP). It helps in identifying whether there is a significant association between these two variables, which is essential for further analysis and policy implications.

RESULTS

The correlation analysis between the Central Bank's key rate and GDP in Uzbekistan from 2016 to 2022 reveals a nuanced relationship. The correlation coefficient, derived from the data, indicates a [specific value] correlation. This value suggests the degree to which these variables are related.

4.1. Correlation Coefficient Interpretation:

The correlation coefficient, while indicative of a relationship, does not necessarily imply causation. A moderate to weak correlation suggests that while there is some degree of association between the Central Bank's rate and GDP growth, other factors may also play significant roles.

4.2. GDP Growth Trends:

The GDP of Uzbekistan shows a general upward trend over the years. This growth, however, does not appear to be strongly correlated with changes in the Central Bank's key rate, suggesting that other economic factors and policies might be influencing GDP growth more substantially.

4.3. Fluctuations in the Central Bank Rate:

The varying Central Bank rates over the years reflect the bank's response to the changing economic environment. However, the impact of these rate changes on GDP growth seems limited, based on the correlation analysis.

DISCUSSION

According to the results of the correlation analysis using the Tau-b Kendall method, it was determined that the one-way correlation between the central bank rate and GDP is equal to 0.247. But the level of reliability of the analysis result in this method was 0.57, i.e. higher than 0.5. As a result, it was found that there is no correlation between these 2 indicators.

The findings prompt a reevaluation of traditional monetary policy tools in the context of a digitalizing economy. While the Central Bank's rate is a crucial tool, its direct impact on GDP growth may be moderated by the evolving dynamics of the digital economy.

5.1. Digitalization:

The rise of digital financial services and e-commerce in Uzbekistan represents a significant shift in the economic landscape. The correlation results underscore the need to consider digitalization as a vital factor in economic policy-making.

5.2. Policy Implications:

The Central Bank and policymakers should focus on integrating digital economic strategies with traditional monetary policies. Investing in

digital infrastructure, fostering fintech innovations, and encouraging digital literacy could amplify the positive impacts on GDP growth.

5.3. Future Research Directions:

Further research should focus on isolating the effects of digitalization on economic indicators. Longitudinal studies could provide deeper insights into how digital transformation interacts with central bank policies over time.

5.4. Limitations of the Study:

The study acknowledges that correlation analysis alone cannot fully capture the complexities of economic relationships. Future studies could employ more sophisticated econometric models and consider additional variables such as foreign investment, inflation, and global economic trends.

CONCLUSIONS

According to the results of the study, it was found that there is no correlation between the main (refinancing) rate of the Central Bank and GDP.

Based on this, it can be concluded that the policy of the Central Bank for the last 7 years on setting the main rate did not serve the growth of GDP. It is proposed to establish a scientific council for determining the refinancing rate of the Central Bank and to improve the scientifically based monetary policy.

Economist prof. According to the results of A. Usmanov's research [15], it was explained that inflation does not affect the basic rate of MB, in some cases the basic rate of MB affects inflation. In addition, the country's development strategy sets the task of reducing the inflation rate to 5%. Based on the above, it is recommended to study the policy of lowering the MB base rate in order to reduce inflation in the country.

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