



Emirati Journal of Business, Economics and Social Studies

Vol 3 Issue 1 (2024)

Pages (89 –103)

Available at www.emiratesscholar.com

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Effect of Macroeconomic indicators on Financial Inclusion: A Study of EAGLES Economies

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ARTICLE INFO

Published on 27th of May 2024

Doi: 10.54878/n0vztn18

KEYWORDS

Macro Economics, Financial Inclusion, Inflation, Interest rate, Economic growth

HOW TO CITE

Effect of Macroeconomic indicators on Financial Inclusion: A Study of EAGLES Economies. (2024). *Emirati Journal of Business, Economics, & Social Studies*, 3(1), 89-103. <https://doi.org/10.54878/n0vztn18>

ABSTRACT

The effect of macroeconomic variables on financial inclusion in EAGLES economies is examined in this study. The Eagles economy, comprising nine nations—Brazil, China, India, Indonesia, South Korea, Mexico, Taiwan, and Turkey—is the foundation of the analysis. The data was examined from the other eight prefectures because Taiwan's data isn't available from 1992 to 2022. The findings demonstrate that the connection between financial inclusion and GDP is very weak—nearly zero—and linear. There is a very slight negative link between exchange rates and financial inclusion. Additionally, there is a very modest negative link between interest rates and financial inclusion. Interest rates and financial inclusion have a very weakly negative association. A very slight positive linear association is suggested between the inflation rate and financial inclusion. There is a slight positive link between financial inclusion and the unemployment rate.

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1. INTRODUCTION:

For the progress of society and the national economy, finance has become an important part of the economy. To achieve this goal, both developed and underdeveloped countries need strong financial systems to achieve sustainable growth. We can promote the country's equitable and inclusive growth through financial inclusion. Financial inclusion refers to the provision of adequate financial services to vulnerable groups, such as low-income groups and more disadvantaged groups, who lack access to services. The most basic banking, at affordable and timely rates (Garg et al, 2014).

Globally, financial inclusion is considered one of the most talked about systems that can help improve people's living standards. According to the World Bank, financial inclusion means that households and businesses have access to financial services that meet their needs that they can afford, and that are provided in a timely manner responsible and sustainable. That is, financial inclusion is where households and businesses can access financial services such as savings, payments, credit and insurance that are accessible and affordable. (Nsiah et al, (2023).

“Eagle economy” is a frequently used term used to refer to a group of emerging economies that share the same potential for full growth and development. This group typically includes countries from different regions, characterized by economic resilience, large populations, abundant natural resources, and growing consumer markets. In Eagles economy, it is imperative to understand the impact of macroeconomic indicators on financial inclusion. Macroeconomic indicators such as GDP growth, interest rates, unemployment rates, exchange rates and inflation rates play a central role in shaping the financial landscape and thus the comprehensiveness of financial services.

In the Eagle economy, the level of financial access is important in determining the level of economic growth and social progress. However, these countries often face challenges related to uneven access to financial services, inadequate infrastructure, and limited financial literacy among their populations.

1.1. PROBLEM STATEMENT

The objective of this thesis is to explore the complex relationship between macroeconomic indicators and financial inclusion in the specific

context of EAGLE economics. Macroeconomic indicators such as GDP growth, inflation rates, employment levels, inflation rates and exchange rates play an important role in shaping access to and use of financial services of different segments of the population.

By comprehensively analyzing these interactions, we aim to explore patterns, causal relationships, and the extent to which macroeconomic dynamics influence financial inclusion. The knowledge gained from this research will enable policymakers, financial institutions and stakeholders to design and implement targeted strategies to promote greater financial inclusion.

Additionally, it will facilitate evidence-based decision-making to ensure that economic prosperity is distributed equitably among all sectors of society. Although this is an in-depth study of Eagle's unique economic context, this study is intended to make a significant contribution to knowledge to the field of economics and financial policy. These findings are expected to inform policy reforms, promote an inclusive financial ecosystem, and ultimately promote sustainable economic growth for the benefit of all Eagle citizens.

1.2. RESARCH OBJECTIVES

The main objective of this thesis is to analyze the impact of key macroeconomic indicators on the level of financial inclusion in the Eagle economy. More specifically, our objective is to:

- Investigate the relationship between GDP growth and financial inclusion, understanding how economic growth affects access to services and resources financial force.
- Examines the role of inflation in financial inclusion, understanding its impact on individuals' purchasing power and financial behavior.
- Explores the link between unemployment and financial inclusion, aiming to understand how higher levels of unemployment may affect individuals' ability to participate in the financial system and their efforts to stabilize their finances.
- Examines the impact of interest rates on financial inclusion, determining whether lower interest rates encourage greater participation in financial services and their implications for inclusive growth.

- Study how exchange rate fluctuations affect financial inclusion, focusing on their impact on access to foreign financial services, remittances and cross-border transactions for with underserved communities.

These goals will guide my research on the relationship between macroeconomic indicators and financial inclusion in the Eagle economy.

1.3. Research novelty

The novelty of this study lies in the in-depth study of the complex relationship between macroeconomic indicators and access to finance in the special socio-economic context of the "Eagle economy". The "Eagle Economy" represents an emerging and dynamic economic entity, characterized by a unique set of challenges, growth prospects, and policy environment.

This study aims to provide a comprehensive understanding of how specific macroeconomic indicators, including GDP growth, inflation rates, unemployment levels, exchange rates and interest rates, affect affecting affordability and the inclusion of financial services in the Eagle's economy. By analyzing these indicators in the context of the Eagles economy, the study aims to explore the underlying factors shaping the dynamics of financial inclusion in this specific economic environment. This perspective provides valuable information for adapting financial policies and strategies to promote greater financial inclusion.

In addition, the study conducts a comprehensive analysis of recent economic developments and policy changes in the Eagles economy. By exploring these contemporary trends, the study offers new insights that can improve our understanding of the evolving dynamics between macroeconomic and financial inclusion indicators. It attempts to present a forward-looking approach that can guide future policy interventions to effectively close the financial inclusion gap.

In summary, the novelty of the study is defined by its contextual approach, which delves into the unique nuances of the Eagles economy and provides state-of-the-art analysis that illuminates new perspectives on the relationship between macroeconomic indicators and comprehensive finance.

1.4. Structure of paper

This thesis is divided into five chapters. In the first chapter, the current chapter introduces financial inclusion, overview of the thesis. After presenting the problem and novelty of the thesis and at the end of the first chapter, the structure of the thesis will be mentioned. The second chapter then provides an in-depth look at the literature, presenting the theoretical framework and synthesizing existing research on financial inclusion and macroeconomic indicators. The name of the third chapter is methodology, which includes a description of the research methods and data collection techniques used, an explanation of the variables studied and how they were measured. Then comes the fourth chapter, titled analysis, which deals with the presentation of data analysis results related to macroeconomic and financial inclusion indicators, followed by the interpretation of the results. Results and ideas. Last but not least, the fifth chapter includes a summary of the study, its findings and limitations, and suggestions for future research.

2. LITERATURE REVIEW

2.1. FINANCIAL INCLUSION

Financial inclusion can be defined as the provision of affordable banking services to the vast majority of disadvantaged and low-income groups. Financial inclusion is also defined as the use of formal financial services. These definitions all have one thing in common: they emphasize that every member of the population should have access to financial services (ozli, 2020). Financial services include a range of quality payments, savings, credit and insurance services that meet their needs seriously and fairly. Financial inclusion has become central to economic policies around the world. Increasing the access of the weakest groups in society to formal financial services will not only serve the individual level but also benefit the national level. (Mehry, et al 2021).

2.2. Gross Domestic Product and Financial Inclusion

According to Gerter, gross domestic product indicators can clearly reflect whether the situation appears to be improving or worsening. Gross domestic product (GDP) is a measure of a country's total economic output, which includes manufacturing deliveries, agricultural harvests, retail sales, and construction spending, among other things. This is a

number that he summarizes in one very dense data point, the enormous size of the country's economy. It is generally believed that when GDP grows, countries and their people perform better (Gertner, 2010). Many microeconomic and macroeconomic factors influence the rate of growth of an economy. Special consideration is given to economic and financial instruments in direct relation to GDP trends. Economic growth is influenced by investment activities, bank loans, and government spending in its realization (Fatmawati, 2022). Theoretically, GDP can be viewed in three different ways.

The production approach sums up the "value added" at each stage of production. Value added is defined as total sales minus the value of intermediate inputs to the production process. For example, an architect's services are an intermediate product and a building is the final result. Flour is an intermediate product and bread is a final product. The spend approach totals end-user purchases, including: Personal consumption of food, television, and medical services. Business investment in machinery. Spending on government and foreign goods and services. The income approach adds up all income from production such as: B. Employee salaries and operating surplus (basically sales minus expenses) (Callen, 2012).

(Capili, et 2022) studied the relationship between financial inclusion and economic growth in the Philippines. Since FI is acknowledged to be a multidimensional concept, this study found it necessary to adopt strategies to have a comprehensive measure of FI for its various aspects and use them to examine the relationship its relationship with economic growth, especially with GDP growth rate. The Euclidean distance method proposed by previous researchers is used to estimate the FI utilization and access indices used to study the relationship between FI and GDP growth rate. This study determines the long-run and short-run relationships between the dimensions of FI and GDP growth rate in the Philippines from 2010 to 2017. According to the results of the Johansen Cointegration test, the Cointegration relationship is found to exist in the aspects of FI and GDP growth rates. Since this was found to exist, a vector error correction model was used to model the above-mentioned variables and relationships, where a significant long-run relationship was found as GDP growth rate and usage scale are the target variables. These results show that aspects of financial inclusion influence long-term economic

growth. Furthermore, the built relationship models are also considered to have the ability to accurately predict GDP growth rate and FI dimensions.

Study (Dewi, et al 2023) discusses the impact of financial inclusion, crypto currency infrastructure and inflation on economic growth in Indonesia, from an economic perspective, using a quantitative approach, by collecting monthly secondary data from January 2014 to December 2021, which is the starting year Financial Inclusion Variable contributes 35% between the sixth and tenth periods, This proves that it has a significant positive impact on the growth variable. (Pettersson, et al 2022) examines the relationship between financial inclusion and economic growth, specifically whether financial inclusion is an important factor for economic growth. A secondary question is also asked whether the six financial inclusion measures have a corresponding impact on economic growth. To help examine this area of research, they compiled panel data from 20 countries with varying income levels over a 19-year period. The period this study focuses on is 2002-2020. The tests performed in this study are the Dickey-Fuller unit root test and the Arellano-Bond dynamic panel GMM method. Looking at the dynamic panel estimation results, they find that financial inclusion has a positive relationship with economic growth. The results also show that three out of six financial inclusion indicators are statistically significant and have a positive relationship with economic growth. In summary, the study finds empirical evidence that financial inclusion is an important factor in economic growth.

2.3. Unemployment and Financial inclusion

Unemployment is perhaps one of the most serious social problems. Economically, the cost of unemployment for both individuals and communities are very high (Jahoda, 1982). Unemployed people are unemployed people who are actively looking for work. Perhaps the most frequently cited indicator of labor market conditions and economic performance is the unemployment rate or the proportion of unemployed people in the labor force. The unemployment rate is often used as a summary indicator of the general state of the economy and the success or failure of economic policy, and it occupies an important place in political debates and in the media (Murphy, 1997).

According to research by (Bourainy et al, 2021), financial inclusion contributes to reducing unemployment rates in emerging countries. According

to their empirical study, in developing countries, unemployment rates decrease as the level of financial access increases. Furthermore, the unemployment rate is strongly negatively affected by education levels, inflation rates, and economic growth. On the other hand, the Granger causality test was used and showed a bidirectional causal relationship between financial inclusion and unemployment rate. Next, a modified application of Okun's Law is used to examine the impact of financial inclusion on unemployment. The results of the random effects model show that real output growth and financial inclusion have a significant negative impact on unemployment. (Alshyab et al 2021) According to the research of (Williams, et al 2023), the results of this study show that unemployment and illiteracy are associated with decline in financial service provision in countries emerging. To make financial services and products as inclusive as possible, this study shows that education and employment rates in rural areas of developing countries need to be increased.

(Mehry, et al 2021) studied the impact of financial inclusion on unemployment rates in developing countries, his research initially aimed to develop a new financial inclusion index for 43 developing countries based on a multidimensional approach, using principal component analysis (PCA), using three dimensions; access, use and quality of financial services. Second, a two-stage dynamic system, the generalized method of moments (GMM), is applied to empirically evaluate the impact of financial inclusion on the unemployment rate of 35 developing countries over the period sample period from 2009 to 2018. The study demonstrated that financial inclusion has an impact on reducing unemployment in developing countries. Empirical results show that an increase in the level of financial inclusion in developing countries reduces their unemployment rate. In addition, education level, inflation rate and economic growth have a significant negative impact on the unemployment rate. On the other hand, the Granger causality test was used and showed that there is a two-way causal relationship between financial inclusion and unemployment rate.

2.4. Inflation Rate and Financial Inclusion

Research literature on the impact of inflation rates and financial inclusion is limited. Most studies focus on the impact of financial inclusion on economic growth, poverty and income equality.

Based on a paper by (Mosco and R. J. 2019) using a VAR model to determine the relationship between financial inclusion variables, inflation and GDP growth rate in Mexico during the period 2002-2018. The results over this period show that there is little evidence that financial inclusion variables have an impact on inflation and GDP growth rates. There are two key findings in this article that support this assertion. First, the statistical significance between inflation and the number of debit cards and the number of ATMs per 1,000 square kilometers is 10%. Second, the statistical significance between GDP growth rate and the number of vending machines and point-of-sale (POS) terminals per 1,000 square kilometers is 10%. This study also shows that several financial inclusion variables are correlated with better economic growth and inflation forecasts.

2.5. Interest Rate and Financial Inclusion

The amount the lender charges the borrower in addition to the principal amount is called interest. A person who deposits money in a bank or other financial institution also earns additional income for the beneficiary, called interest, which takes into account the time value of money (Pahnecke, et al 2021). Interest rates can be an effective tool for policymakers to promote savings in the banking sector and provide credit facilities (Wokabi, et al 2019). According to research by (Eze, et al, 2020), attractive lending rates should be created to promote continuous market access to loanable funds. Therefore, the goal is to create a favorable financial environment with exchange rates determined by available financial capacity. That means interest rates will encourage economic agents to borrow and save to promote the growth of the economy.

According to Wokabi, interest rates and financial inclusion have a slight but positive correlation (Wokabi, et al 2019). Because interest rates are risk-weighted, based on the presence or absence of collateral, riskier borrowers will pay more for the same loan than riskier borrowers. Lower risk. Risk premiums are not refunded at the end of the contract, even though the system recognizes collateral and risk premiums as exchangeable. There is a legal basis for adding a risk premium to the base rate because it protects the lender's assets in riskier environments by accelerating the return of principal (Pahnecke, et al 2021).

(Bourainy, et al 2021) conducted research to evaluate the impact of financial inclusion on inflation rates in developing countries and the purpose of their research was to empirically evaluate the impact of financial inclusion. Comprehensive analysis of inflation rates in 37 developing countries over the 10-year period from 2009 to 2018. Initially, principal component analysis (PCA) was used to construct a comprehensive financial index. New multidimensional interface (IIF) using three dimensions; access, use and quality of financial services. Then, a two-step system, the generalized method of moments (GMM), is applied to empirically evaluate the impact of financial inclusion on the inflation rate. Research shows that increasing levels of financial inclusion have an impact on reducing inflation rates in developing countries. It is also found that interest rates and official reserves have a significant positive impact on the inflation rate. These findings recommend that policymakers in developing countries consider financial inclusion as a tool to reduce inflation rates and thus increase the level of financial inclusion in their countries. Expanding financial inclusion to the informal and rural sectors can help advance financial inclusion in developing countries.

2.6. Exchange Rate and Financial Inclusion

There are two types of exchange rates: fixed and variable. A country's central banks set fixed exchange rates, while market forces such as supply and demand determine floating exchange rates. (Calvo et al. 2002). A flexible exchange rate system, based on market supply and demand, accompanies the financial integration process launched by industrialized countries. A government that is highly regarded by developed countries from a liberal perspective. However, developing countries often have difficulty choosing the best exchange rate regime for their economies due to their special economic structures. Fixed exchange rates remain a strong, flexible economic competitiveness regime, despite the fact that many countries have adopted floating exchange rate regimes and pride themselves on their primacy. Vietnam compared to other exchange rate regimes (Rabhi, A. 2022). The domestic money supply will exceed the domestic money demand if the monetary authority of country A permanently increases the money supply, causing a rapid outflow of money through the balance of payments. The foreign balance of payments surplus must equal the domestic balance

of payments deficit. As a result, the amount of currency circulating abroad will also increase and an average inflation rate will be observed in all countries. (Calvo, et al 2002).

According to the work of (Bacchetta, et al 2000), the basic principles of the monetary approach to balance of payments analysis are extended to a floating exchange rate system with the active participation of government to adjust exchange rate fluctuations. It presents four basic perspectives. First, unlike national output, exchange rates are relative prices of different national currencies and are largely based on the supply and demand of different national currencies. Second, asset holders' expectations about future exchange rates, influenced by perceptions of the future direction of monetary policy, have a significant impact on exchange rates. Third, "real" factors as well as monetary factors play an important role in influencing exchange rate developments. Fourth, a regulated floating mechanism reduces, but does not completely eliminate, the problems of political conflict that arise in a fixed exchange rate system. Some of the implications of "rational expectations" theory are developed in a brief appendix.

2.7. Hypothesis Development

Below are some hypotheses that can be formulated for research examining the impact of macroeconomic indicators on financial inclusion in the Eagles economy 1?

H1 - GDP and financial inclusion: Higher GDP growth is positively correlated with increased financial inclusion in the Eagles economy. This hypothesis assumes that economic growth leads to better access to financial services.

H2 - Inflation and financial inclusion: Moderate inflation rates are positively correlated with higher levels of financial inclusion in the Eagles economy, as they encourage savings and trust in financial services.

H3 - Interest rates and financial inclusion: Lower central bank interest rates are positively associated with better financial inclusion, as reduced borrowing costs encourage participation in the financial system main.

H4 - Unemployment and Financial Access: Lower unemployment rates are associated with higher levels of financial access in Eagle economies, as they indicate good income opportunities than.

H5 - Exchange Rate Stability and Financial Inclusion: Stable exchange rates are positively correlated with increased financial inclusion, as they reduce uncertainty and encourage international financial transactions.

2.8. Conceptual Framework

On the basis of above study, we formulate the conceptual framework of the research, in which one dependent variable and five independent variables are presented.

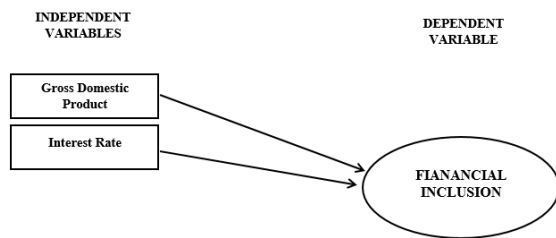


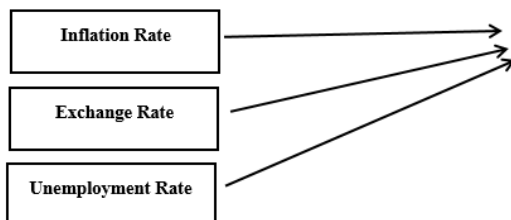
Figure 1: Conceptual Framework

Source: Authors own work

3. Research Methodology

3.1. DATA COLLECTION:

There are two types of data, primary (collected from original sources) and secondary (collected by others for other purposes or data derived from primary data). To support our research objectives, we will use secondary data. We have assembled a time series data collection using annual data from the Eagles economies. We have also incorporated macroeconomic indicators such as GDP, interest rates, inflation rates, unemployment rates and exchange rates. An explanation of the variables used in our analysis and information about the variables is shown in TABLE 1. The data used in this study were obtained from the World Bank Development Indicators and Global Financial Inclusion Database, with annual estimates from 1992 to 2022.



This study is based on the Eagles economy (Brazil, China, India, Indonesia, South Korea, Mexico, Taiwan and Turkey) which includes nine countries, but as data from Taiwan is not available, we analyzed data from eight other countries.

Variable	Abbreviation	Unit	Source
Gross domestic product	GDP	GDP Growth Rate (Annual Rate)	World Bank Development Indicators
Interest rate	IR	Deposit interest rate (%)	World Bank Development Indicators
Inflation rate	INR	Inflation, Consumer Prices (annual rate)	World Bank Development Indicators
Unemployment rate	UNR	Unemployment, Total (% Of Total Labor Force) (Country Estimates)	World Bank Development Indicators
Exchange rate	ER	Official exchange rate (LCU per US Dollar, period average)	World Bank Development Indicators
Financial inclusion	FI		Global Financial Inclusion Database

Table 1: Data Description

Source: Authors own work

3.2. Methodology:

This study applies a quantitative research design to investigate the impact of macroeconomic indicators on financial inclusion in the Eagles economy over a 30-year period. The collected data is cleaned and preprocessed to handle missing values, outliers, and inconsistencies. Any necessary conversion or normalization will be performed to ensure data quality. To evaluate the stationarity of time series data, unit root tests will be performed. More precisely, the extended Dickey Fuller test (Dickey and Fuller, 1979) and the Levin-Lin-Chu unit root test (Levin, Lin, and Chu, 2002) will be applied to each variable.

Unit testing is a statistical test used in time series analysis to determine whether a time series data set is stationary or non-stationary. While the statistical properties (mean, variance, etc.) of non-stationary time series fluctuate over time, the statistical properties of stationary time series remain constant. Because of the stationary assumption in many time series models, unit root testing is important in time series analysis. To produce a time series suitable for modeling, it may be necessary to differentiate or transform it if it is not stationary. Then, Cointegration analysis using the Johansen Cointegration test developed by (Johansen, 1988) will be performed to determine whether there is a long-run relationship between macroeconomic indicators and financial inclusion measures or not. Next, we apply the Heteroscedasticity test, which will be performed to check for the presence of non-stationary variance in the error terms, which may affect the reliability of the regression model. To test for heterogeneity, there are various statistical tests but we use White's test (White, 1980).

Heterogeneity refers to a situation in regression analysis where the variability of the error term (residual) is not constant at different levels of the independent variable(s). In other words, the degree or dispersion of the residuals changes as you move across the range of the independent variable(s).

Serial correlation, also known as autocorrelation, refers to the correlation of a variable with itself over different time periods. In time series analysis, it is

essential to check for serial correlation because it can affect the reliability of statistical inference. The presence of serial correlation indicates that the values in the time series are not independent, which can violate the assumptions of many statistical methods.

4. Research Analysis

Table 2 shows the descriptive statistics of the variables have calculated for FI, GDP, INR, IR, UNR, and EXR. The financial inclusion data shows a large dispersion, as indicated by the standard deviation of 22.68880. The positive skewness of 2.211343 suggests a distribution with longer right tail, implying the presence of potential outliers or higher values in the right side. The kurtosis value 10.09490 indicates heavy tail, signifies the greater number of outliers than normal distribution. Furthermore, Jarque-Bera value of 722.2764, being significantly high, points to a departure from normality in the dataset. In the analysis of GDP, the standard deviation of 4.543534 reflects a moderate degree of variability in economic output. The negative skewness of -1.125215, indicates a left-skewed distribution, suggesting that there may be a concentration of values towards their high end with potential outliers on the left side. The kurtosis value of 5.385073, while elevated, suggests the distribution with heavy tails, potentially containing more extreme values or outliers compared to normal distribution. The Jarque-Bera test statistic of 111.1144, being significantly high, points towards a departure from normality in the GDP data. The statistical profile of the inflation rate unveils distinctive features that provide insights into its behavior over time. A substantial standard deviation of 403.5332 suggests a notable degree of variability or volatility, hinting at the potential for fluctuations in inflation levels. The positive skewness value of 10.62617 points to an asymmetrical distribution, implying that the inflation rate may have a tendency for occasional higher values. Moreover, the remarkably high kurtosis value of 123.0126 indicates heavy tails in the distribution, signifying the influence of extreme inflation values or outliers. The Jarque-Bera value of 153498.4, indicative of departure from normality, underscores the non-normal distribution of the inflation rate data.

In analyzing the interest rate variable for research, the statistical measures provide valuable insights into its distribution and characteristics. The standard deviation of 205.6671 indicates a moderate level of variability or volatility in interest rates, suggesting a

range of potential fluctuations. The positive skewness value of 7.969049 implies an asymmetrical distribution with a tendency for higher interest rates, potentially influencing the overall shape of the distribution. Additionally, the kurtosis value of 71.37250 suggests moderately heavy tails, pointing to the presence of outliers or extreme interest rate values. The Jarque-Bera value of 50931.16, indicating a departure from normality, underscores the non-normal distribution of the interest rate data. The standard deviation of 15.07830 suggests a relatively moderate level of variability in unemployment rates, indicating a certain degree of stability or predictability. The positive skewness value of 2.516706 implies an asymmetrical distribution, with a tail extending to the right. This suggests a tendency for occasional higher unemployment rates, which could be crucial for understanding economic dynamics. The kurtosis value of 8.247485 indicates moderately heavy tails, suggesting the presence of outliers or significant deviations from the mean. The Jarque-Bera value of 546.3371, signaling a departure from normality, emphasizes that the unemployment rate data does not conform to a normal distribution. At the last, substantial standard deviation of 3233.221 implies a high level of variability or volatility in exchange rates, indicating the potential for significant fluctuations. The positive skewness value of 2.850759 indicates an asymmetrical distribution with a longer tail on the right, suggesting a propensity for occasional higher exchange rate values. Additionally, the kurtosis value of 9.891022 signals moderately heavy tails, implying the presence of outliers or notable deviations from the mean. The Jarque-Bera value of 826.5995, indicative of departure from normality, underscores that the exchange rate variable does not conform to a normal distribution. In essence, these statistical findings depict the exchange rate variable as characterized by high volatility, asymmetry, potential for outliers, and a departure from a normal distribution.

Table 3 shows the relationship between macroeconomic indicators and financial inclusion using Pearson correlation method. The correlation analysis value between financial inclusion and GDP -0.006 indicates that the linear relationship between these two variables is very weak and close to zero. A negative sign indicates a slightly opposite relationship. This means that while one variable (financial inclusion) tends to increase or decrease, the other variable (GDP) has a slightly opposite tendency.

However, a correlation value close to zero indicates that this relationship is very weak. The correlation analysis value between financial inclusion and inflation rate of 0.033 indicates that the positive linear relationship between these two variables is very weak and almost negligible. Financial inclusion and interest rates show that the negative relationship between these two variables is very weak, -0.021 , close to zero. A negative sign indicates a slightly opposite association. The value of 0.194 between financial inclusion (FI) and unemployment rate suggests a weak positive linear relationship. The correlation analysis value between financial inclusion (FI) and exchange rate of -0.039 suggests a very weak, almost negligible, inverse relationship.

The correlation analysis value between GDP and financial inclusion (FI) of -0.006 indicates a very weak and almost negligible inverse linear relationship. GDP and inflation show a very weak, almost negligible, inverse linear relationship of -0.008 . GDP and interest rates show a weak negative linear relationship of -0.139 . The correlation value between GDP and unemployment rate of 0.110 indicates a weak positive linear relationship. At a value of -0.022 , there is a very weak and almost negligible inverse linear relationship between GDP and exchange rate

At 0.033, inflation rate and financial inclusion show a very weak positive linear relationship. Inflation and GDP show a very weak, almost negligible, inverse linear relationship of -0.008 . Inflation and interest rates have a strong positive correlation of 0.903. The correlation value between the inflation rate and the unemployment rate of -0.079 indicates a very weak negative correlation. -0.044 , the inflation rate and the exchange rate have a very weak negative correlation. The negative correlation between interest rates and financial inclusion is extremely weak at -0.021 . Interest rates and GDP show a weak negative correlation of -0.139 . Interest rates and inflation have a strong positive correlation of 0.903. The value -0.086 between interest rates and unemployment rate indicates a very weak negative correlation. The negative correlation between interest rates and exchange rates is -0.064 , which is very weak.

Unemployment rate and financial inclusion show a weak positive correlation with value 0.194. At 0.110, there is a weak positive correlation between unemployment rate and GDP. At a value of -0.079 , unemployment and inflation have a very weak

negative correlation. The negative correlation between the unemployment rate and interest rates is -0.086, which is very weak. The unemployment rate and exchange rate have a weak negative correlation of -0.136. Exchange rate and financial inclusion show a very weak negative correlation of -0.039. The relationship between exchange rate and GDP is -0.022, which suggests a very weak negative correlation.

Exchange rate and inflation rate have a very weak negative correlation of -0.044. At -0.064, exchange rates and interest rates have a very weak negative correlation. -0.136 between exchange rate and unemployment rate indicates a weak negative correlation.

Variable	Std. Dev.	Skewness	Kurtosis	Jarque-Bera
FI	22.68880	2.211343	10.09490	722.2764
GDP	4.542534	-1.125215	5.385073	111.1144
INR	403.5332	10.62617	123.0126	153498.4
IR	205.6671	7.969049	71.37250	50931.16
UNR	15.07830	2.516706	8.247485	546.3371
EXR	3233.221	2.850759	9.891022	826.5995

Table 2: Descriptive analysis

Source: Authors own work

Variable	FI	GDP	INR	IR	UNR	EXR
FI	1.000	-0.006	0.033	-0.021	0.194	-0.039
GDP	-0.006	1.000	-0.008	-0.139	0.110	-0.022
INR	0.033	-0.008	1.000	0.903	-0.079	-0.044
IR	-0.021	-0.139	0.903	1.000	-0.086	-0.064
UNR	0.194	0.110	-0.079	-0.086	1.000	-0.136
EXR	-0.039	-0.022	-0.044	-0.064	-0.136	1.000

Table 3: Correlation analysis

Source: Authors own work

Table 4 highlights the unit root estimates of the variables. The first three columns show the augmented Dickey Fuller unit solution and the last three columns show the augmented Dickey–Fuller (ADF) unit solution. According to ADF Test, the three variables do not have a unit root problem at the level. Gross domestic product has no unit root. Inflation rates do not have a unit root at the level. The unemployment rate does not have a unit root problem because it is below the significance level. At the same time, the interest rate does not have a unit problem in the first difference because its value is 0.303, which is larger than the meaningful value. To solve the problem, we

took the interest rate differential first. Exchange rates have a level of uniformity problem; its value was 0.666, which was insignificant, so we took the first difference and the unit root problem was solved. Financial inclusion does not have the problem of the first difference unit because its value is less than the 5% significance level, so the problem is solved by taking the first difference.

On the other hand, according to the Levin Lin Chu test, the three variables do not have a unit root problem at the significance level. Financial inclusion without the first differentiated unit root problem; its value is

Variables	Augmented Dickey Fuller Test			Levin-Lin Chu Test		
	Level I(0)	1 st Dif. I(1)	Decisions	Level I(0)	1 st Dif. I(1)	Decisions
Financial inclusion	0.967	0.000	I(1) has no unifying root	0.784	0.000	I(1) none unit root
GDP	0.000	-	I(0) has no unifying root	0.000	-	I(0) none unit root
Interest rate	0.303	0.000	I(1) have no unified root	0.190	0.000	I(1) has no unified root
Inflation rate	0.0018	0.000	I(0) has no unified root	0.0019	-	I(0) has no unified root
Unemployment	0.0978	0.000	I(0) has no unified root	0.066	-	I(0) has no unified root
Exchange rate	0.666	0.000	I(1) has no unified root	0.99	0.001	I(1) has no unifying root

0.784, which is not significant at the 5% significance level. GDP has no unit problem and is stationary in level. The interest rate does not have a unit problem in the first difference because the value of 0.190 is not meaningful at the level so the first difference was

taken. Inflation has no uniformity problem at this level. Unemployment does not pose a unifying problem at this level. Exchange rates do not have a unit problem at the first spread. At this level, the value is 0.99, indicating an insignificant exchange rate.

Table 4: Unit Root Estimations

Source: Authors own work

Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue)				
Hypothesized no. of CE (s)	Fisher Stat. (from trace test)	Prob.	Fisher Stat. (from max-Eigen test)	Prob.
None	246.8	0.0000	117.4	0.0000
At most 1	125.3	0.0000	92.30	0.0000
At most 2	50.43	0.0000	41.12	0.0005
At most 3	22.89	0.1168	21.59	0.1569
At most 4	12.33	0.7210	12.39	0.7164
At most 5	11.91	0.7499	11.91	0.7499
Note: Statistical significance level: 5%				
Source: Author's own work				

Table 5: Co-Integration Estimations

The outcomes of the cointegration estimations are shown in Table 5. A statistical method frequently employed to assess the long-term relationship between

variables based on a research model is cointegration. That there is no cointegration between the variables is the test's null hypothesis. The other possibility is that

there is at least one cointegrating vector. Since there is no indication of a cointegration issue, a probability value of 0.000 denotes a significant long-run link between the variables. The results seem to support the null hypothesis of no cointegration for all hypotheses up to three, based on the values in the table. At the higher significance threshold of 5%, the P values for Cointegration connections 4 and 5 show that there is not enough data to reject the null hypothesis in these situations. Overall, the Cointegration test results indicate that macroeconomic indices and financial inclusion are related over the long term. This implies that long-term effects on financial inclusion may result from modifications to macroeconomic indices. A cointegration regression model can be used to evaluate the precise effect of macroeconomic factors on financial inclusion.

4.1. Discussion

In this section, we have discussed the results of our study and the important levels of our study, and supported the results with previous studies, and explained the results of the study. Our study is equal to previous studies. Our research shows that higher GDP growth is positively correlated with increased financial inclusion in the Eagle's economy. This hypothesis assumes that economic growth leads to better access to financial services. According to (Evans et al.2017), GDP per capita has a significant impact on financial inclusion, thus showing how an increase in GDP per capita can be used to promote financial inclusion needed in Africa. However, it is interesting to note that financial inclusion has a non-significant but positive impact on GDP per capita. (Callen, 2012) demonstrates that GDP per capita has a significant impact on financial inclusion. However, it should be noted that financial inclusion has a modest but beneficial impact on GDP per capita. (Oruo, 2013) suggests that there is a strong positive correlation between financial inclusion and economic growth in Kenya. (Evans, 2015) shows that economic growth has a significant positive impact on financial inclusion in Africa using the FMOLS panel for the period 2005-2014, meaning that African countries have high economic growth rates. higher will have a more comprehensive financial system. (Eftiovska et al, 2022) studied the impact of financial inclusion on GDP growth, in the case of North Macedonia, and the research model applied is a multivariate regression model implemented according to the average method ordinary least squares (OLS). The results of the study

show a significant contribution to GDP growth and greater access to finance.

According to the results, inflation rate and financial inclusion have a very weak positive linear relationship. Moderate inflation rates are positively associated with higher levels of financial inclusion in the Eagle economy, as they encourage savings and trust in financial services. (Mosco and R.J. 2019) uses a VAR model to determine the relationship between financial inclusion variables, inflation and GDP growth rate in Mexico during the period 2002 - 2018. Results in this period show that there is little evidence shows that comprehensive financial variables have an impact on inflation and GDP growth rate.

Interest rates and financial inclusion have an extremely weak negative correlation. (Evans, 2015) Deposit interest rates have a positive impact on financial inclusion, although not significantly. Low deposit interest rates in African countries discourage inclusive financial systems. This study provides empirical evidence on the impact of economic and financial development on financial inclusion in Africa, using the FMOLS panel over the period 2005-2014. (Wokabi, et al, 2019) Interest rates have a positive but insignificant relationship with financial inclusion.

Lower unemployment rates are associated with higher levels of financial inclusion in the Eagle economy, as they indicate better earning opportunities. Studies by (Okeke et al., 2023) show the impact of financial inclusion on unemployment in Nigeria from 1991 to 2021, using autoregressive distributed lag (ARDL). The results show that among other things, the F-statistic value of (3.071786) is lower than the 5% critical value of (4.01), which suggests that there is no long-term dynamic relationship between unemployment rate and access to finance in Nigeria. But the t-statistic value of (3.819815) is larger than the 5% critical value of (-3.41) in absolute terms, suggesting that there is a short-run relationship between unemployment and finance in Nigeria. The results also show that the F-statistic of the model is 52.21126 with a probability value of 0. 000000. This implies that the impact of the variables on the unemployment rate is statistically significant at the 5 percent level because the calculated F is larger than the tabulated F, even with an actual p value of 0. (Amakor et al., 2021) examined the impact of financial inclusion on unemployment rate in Nigeria from 1986

to 2019 using secondary data from CBN Statistical Bulletin and Mundi Index. Commercial bank loans and advances (CBLA) to rural communities and Microfinance bank loans and advances (MFBLA) to rural communities are used to evaluate the financial inclusion rate and unemployment rate. The hypothesis was tested using the ordinary least squares method. The results show that loans and advances from microfinance banks have an insignificant relationship with unemployment rate. (Mehry et al, 2021) a panel Granger causality test was used and showed that there is a bidirectional causal relationship between financial inclusion and unemployment rate. (Evans, 2015) Unemployment, although statistically insignificant, has a negative relationship with financial inclusion.

Exchange rates and financial inclusion show a very weak negative correlation. (Islam et al, 2023) attempted to investigate an intriguing problem statement considering the link between FI and exchange rate (ER). The authors collected data from the Financial Access Survey (FAS) of the International Monetary Fund (IMF) and the World Development Indicators (WDI) of the World Bank (WB) for the years 2004 to 2020. The study performed a unit root test., Johansson co-integration test, vector error correction model (VECM) and Granger causality test (GCT) aim to address the objective of the study. According to the study results, there is a long-term positive bidirectional relationship between ER and FI, implying that these two factors influence each other due to the increasing demand for currency transactions over time. Policymakers can embrace financial inclusion as a phenomenon by increasing the participation of those who use financial services from formal financial institutions to produce import-substituting goods and export orientation to earn foreign currency to maintain the trade balance while the economy is still in a commercial situation deficit over time.

5. CONCLUSION

In conclusion, financial inclusion means everyone has access to financial services such as savings, payments, credit and insurance, etc. at an affordable price and on time. In this study, we explore the impact of macroeconomic indicators on financial inclusion. The study highlights the significant impact of macroeconomic indicators on financial inclusion in the Eagle economy. Through a comprehensive

analysis of GDP, inflation rates, interest rates, unemployment rates and exchange rates, it becomes clear that these factors play a central role in the comprehensiveness of the financial sector. The analysis is done using several tests such as unit root test, Levin-lin-chu test, ADF test, correlation test, etc. Policymakers should take these findings into account to develop strategies that promote a more inclusive financial environment, thereby contributing to economic growth of the nation. This discovery marks a step forward in our understanding, opening the door to further explore and improve how we make finance accessible to all.

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