Journal of Business and Economic Options

RESDO

Examining the Relationship among Unemployment, Inflation, and Economic Growth

Auwal Abubakar Muhammad[a]

Abstract

This study aims to investigate the impact of unemployment and inflation on economic growth. Through regression analysis, the research reveals insightful findings regarding the relationship between these key macroeconomic variables. The regression results demonstrate that the coefficient of inflation is positive and statistically significant, indicating a notable effect on economic growth. This suggests that inflation exerts a substantial influence on the overall trajectory of economic growth, highlighting the importance of effectively managing inflationary pressures to support sustainable economic development. In contrast, the analysis finds that while unemployment is positively associated with economic growth, it does not exhibit statistical significance. This implies that while unemployment may have some influence on economic growth, its impact is relatively minor compared to other factors such as inflation. These findings underscore the importance of addressing inflationary trends as a priority for policymakers seeking to promote robust and sustainable economic growth. By implementing effective monetary policies and measures to control inflation, policymakers can create an environment conducive to investment, productivity, and overall economic stability. While unemployment remains an important concern, the study suggests that policies aimed at reducing unemployment may not have a significant direct impact on economic growth. Nonetheless, efforts to address unemployment through targeted interventions such as job training programs, labor market reforms, and social safety nets remain essential for promoting social welfare and inclusive economic growth. The study provides valuable insights into the complex dynamics between unemployment, inflation, and economic growth, highlighting the need for comprehensive policy approaches to foster a resilient and prosperous economy.

Keywords: Unemployment, Inflation, Economic growth
JEL Codes: E24, E31, E32

1. INTRODUCTION

The international statistic portraying that about two-thirds of the unemployed in developing regions are industrial and service workers underscores a significant challenge facing economies in these areas (Patterson et al., 2006; Ali, 2018). This statistic highlights the importance of addressing unemployment in key sectors such as industry and services to achieve sustainable economic development and reduce poverty. Industrial and service sectors play crucial roles in driving economic growth, creating jobs, and generating income for individuals and households. However, challenges such as technological advancements, globalization, and structural changes within these sectors can lead to job displacement and unemployment, particularly in developing regions where workforce skills and education levels may not always align with evolving industry needs (Khan and Zahra, 2016; Khalid and Sultan, 2017). Addressing unemployment in industrial and service sectors requires a multifaceted approach that includes policies and initiatives aimed at promoting job creation, skills development, entrepreneurship, and workforce training (Patterson et al., 2006; Zafar and Younis, 2019; Kumar and Kumar, 2020). Governments, businesses, and civil society organizations can collaborate to implement programs that support employment generation, upgrade workforce skills, and enhance labor market flexibility. Investments in education, vocational training, and lifelong learning are essential to equip workers with the skills and competencies needed to succeed in evolving industrial and service sectors. Additionally, fostering an enabling environment for entrepreneurship and innovation can stimulate job creation and economic diversification, thereby reducing reliance on traditional employment sectors. Furthermore, social protection measures, including unemployment benefits, job placement services, and labor market policies, can provide a safety net for workers affected by unemployment, helping them transition to new employment opportunities and maintain economic stability. Friedman (1977) argued that uncertainties related to inflation have significant impacts on both the inter-temporal and intra-temporal allocation of resources. These impacts manifest through various channels, including the effect of inflation on interest rates and its influence on relative prices in the presence of nominal rigidities.

Inter-temporal allocation refers to decisions made over time, such as investment choices and savings behavior. Inflation uncertainties can affect these decisions by influencing expectations about future inflation rates and thereby impacting real interest rates. High inflation expectations may lead to higher nominal interest rates to compensate for the erosion of purchasing power over time. This can discourage investment and savings, thereby distorting inter-temporal resource allocation. Intra-temporal allocation, on the other hand, refers to decisions made within a given period, such as consumption choices and production decisions. Inflation uncertainties can affect these decisions by distorting relative prices. When prices are sticky or rigid in nominal terms, inflation can lead to changes in real prices, affecting the

---

[a] Department of Economics, Modibbo Adama University of Technology, Yola, Nigeria

profitability of different goods and services. This can result in misallocations of resources across sectors and industries. Friedman's (1977), Ademu (2006), Ali (2015) analysis highlights the importance of understanding the effects of inflation uncertainties on resource allocation decisions in both the short and long term. Policymakers need to consider these effects when formulating monetary and fiscal policies to ensure efficient allocation of resources and promote macroeconomic stability. Nwaobi (2009), Akintoye (2006), and Arshad and Ali (2016) argue that unemployment can have far-reaching social consequences, particularly among youth populations. One significant consequence highlighted is the potential increase in social vices, such as crime and delinquency, among unemployed youth. With limited opportunities for gainful employment, young people may turn to illegal activities as a means of survival or out of frustration and disillusionment with societal norms. Additionally, Nwaobi (2009) and Alok (2008), Ahmad and Ali (2016) discusses the issue of prostitution, particularly among young females, as a consequence of unemployment. Economic hardship and lack of viable employment options may push some individuals, particularly women, into the sex trade as a means of earning income. This phenomenon not only has personal implications for those involved but also broader societal and economic impacts. The proliferation of social vices and the rise in prostitution can have detrimental effects on the overall performance of the economy. These consequences include increased crime rates, strain on social services, and negative perceptions that may deter investment and economic growth. Therefore, addressing unemployment becomes not only a matter of economic policy but also a social imperative to safeguard the well-being and stability of society as a whole.

Umora and Anyiwe (2013) conducted a study to analyze the relationship between inflation and unemployment dynamics using the vector error correction method. Their analysis spanned a period of twenty-seven years, allowing for a comprehensive assessment of these economic variables over time. The study revealed a positive relationship between inflation and unemployment, indicating that increases in inflation tend to coincide with rises in unemployment levels. Additionally, the researchers identified the presence of stagflation within the economy, a situation characterized by high inflation rates coupled with high levels of unemployment, which poses significant challenges for economic stability. In light of these findings, Umora and Anyiwe (2013) proposed policy recommendations aimed at addressing the observed dynamics. One key suggestion was the implementation of interest rate reduction measures to stimulate economic activity. By lowering interest rates, borrowing becomes more affordable for businesses and individuals, leading to increased investment, consumption, and overall economic growth. Additionally, they advocated for the careful control of money supply to prevent excessive inflationary pressures, which could further exacerbate unemployment issues. The study highlights the complex interplay between inflation and unemployment in the economy and underscores the importance of targeted policy interventions to mitigate adverse effects and promote sustainable economic development. Konstantinos, et al (2015) conducted a comprehensive analysis of unemployment across 20 countries, employing neoclassical, Keynesian, and radical/Marxian approaches to explore the dynamics of this economic phenomenon. Their study focused specifically on unemployment as a single variable but offered unique insights by examining a diverse set of countries within the OECD (Organization for Economic Co-operation and Development). One of the notable aspects of their research is the application of dynamic panel data analysis, which allows for a nuanced understanding of the relationships between various factors and unemployment trends over time. By utilizing this methodological approach, Konstantinos, et al (2015) Persefoni were able to capture the complex interplay of economic, social, and policy factors that contribute to variations in unemployment rates across different countries. Their study contributes to the existing literature on unemployment by offering comparative insights derived from a broad sample of nations, shedding light on both common trends and unique characteristics observed within different national contexts. This approach enhances our understanding of the multifaceted nature of unemployment and provides valuable insights for policymakers seeking to address this critical issue on a global scale.

The study conducted by Bruno and Ken (2011) investigated the trajectory of unemployment in OECD (Organization for Economic Co-operation and Development) countries amidst the recent recession. This research aimed to provide insights into how unemployment patterns evolved during the economic downturn and how various factors influenced the labor market dynamics across different countries within the OECD. By focusing specifically on the period of recession, Bruno and Ken's (2011) study offered valuable insights into the impact of economic downturns on unemployment rates and labor market conditions. Their analysis likely considered factors such as changes in GDP growth, fluctuations in demand for labor, shifts in industrial composition, and the effectiveness of government policies aimed at mitigating unemployment during periods of economic crisis. The findings of their study would have implications for policymakers, economists, and stakeholders interested in understanding the resilience of labor markets to economic shocks and devising effective strategies for managing unemployment during challenging economic times. By shedding light on the experiences of OECD countries during the recent recession, Bruno and Ken's (2011) Adawo, et al (2012) research likely contributed to the broader understanding of the relationship between economic cycles and labor market dynamics.

In Thomas's (2012) study, the Phillips curve was applied to real-world phenomena, focusing on the distinction between the formation of inflation expectations and the incorporation of inflation expectations. This research delved into the relationship between inflation and unemployment, a cornerstone of macroeconomic theory and policy analysis. By examining how inflation expectations are formed and how they influence economic decision-making, Thomas's (2012) study likely provided valuable insights into the dynamics of price stability and labor market conditions. The Phillips curve framework offers a theoretical foundation for understanding the trade-off between inflation and unemployment, and Thomas's (2012) research likely shed light on how this relationship manifests in different economic contexts. Moreover, Thomas's (2012) conclusion regarding the importance of the Phillips curve in macroeconomic policy

analysis for both developed and developing nations underscores the enduring relevance of this concept in guiding policy decisions. By recognizing the significance of inflation expectations and their impact on economic outcomes, policymakers can design more effective monetary and fiscal policies to achieve their macroeconomic objectives. Thomas's (2012) study likely contributed to advancing our understanding of the Phillips curve and its implications for macroeconomic policymaking, providing valuable insights for policymakers, economists, and researchers interested in managing inflation and unemployment dynamics. The literature on the nexus between unemployment, inflation, and economic growth is indeed vast, with numerous studies shedding light on various aspects of this relationship. Despite the considerable body of research, there remains a need for further examination to gain a deeper understanding of how unemployment and inflation significantly impact economic growth. While studies such as those by Bruno and Ken (2011) and Constantinos and Persefoni (2009) have contributed valuable insights into unemployment dynamics, and others like Phillips (1958) and Tobin (1972) have explored the relationship between unemployment and inflation, there is still no consensus or clear elaboration on the extent to which these variables affect economic growth. Given the complexity of economic systems and the multifaceted nature of unemployment and inflation, more research is warranted to disentangle their effects on economic growth. A comprehensive investigation could consider various factors such as structural changes in labor markets, monetary policy effectiveness, and the role of expectations and uncertainty. By delving deeper into these issues, researchers can provide policymakers with more nuanced insights and evidence-based recommendations for addressing unemployment and inflation dynamics to promote sustainable economic growth. Moreover, interdisciplinary approaches that integrate insights from economics, sociology, and other fields could offer fresh perspectives on this complex relationship.

The study by Chang-Shuai and Zi-juan (2012) is just one among many that have attempted to explore the relationship between unemployment, inflation, and economic growth. However, despite the efforts of various researchers, there remains a notable gap in the literature regarding a comprehensive explanation of how unemployment and inflation significantly impact economic growth. This gap presents an opportunity for further research to address practical, empirical, and methodological aspects of the relationship between these macroeconomic variables. By filling this void, Lawanson (2003) and Phelps, (1967) researchers can contribute to a deeper understanding of the mechanisms through which unemployment and inflation influence economic growth, thereby providing valuable insights for policymakers and practitioners. Practical research in this area could involve analyzing real-world data to identify patterns and trends in the behavior of unemployment, inflation, and economic growth across different time periods and geographical regions. Empirical studies could employ advanced econometric techniques to estimate the causal relationships between these variables and assess the magnitude of their impact on economic performance. Methodological research could focus on refining existing models and methodologies for studying the unemployment-inflation-growth nexus, taking into account factors such as non-linearities, structural breaks, and endogeneity. By enhancing the robustness and reliability of analytical frameworks, researchers can ensure that their findings contribute meaningfully to the body of knowledge in this field.

2. LITERATURE REVIEW

Irving Fisher's quantity theory of money, as articulated in his seminal work "The Purchasing Power of Money" (1911), posits a direct and proportional relationship between changes in the quantity of money in circulation and corresponding changes in the price level of goods and services. This theory is often expressed through what is known as the equation of exchange. According to Fisher's theory, an increase in the quantity of money in circulation will lead to a proportional increase in the price level, assuming that the velocity of money and the volume of transactions remain constant. Conversely, a decrease in the quantity of money would result in a decrease in the price level, again assuming constant velocity and transaction volume. Fisher's quantity theory of money has been influential in shaping economic thought and policy, particularly in the realm of monetary economics. While it has faced criticisms and modifications over the years, Fisher's insights into the relationship between money supply and price level remain foundational in understanding inflationary dynamics in modern economies. Keynesian economics, as expounded by John Maynard Keynes, (1936) in his seminal work "The General Theory of Employment, Interest, and Money" (1936), presents a nuanced perspective on the relationship between changes in the quantity of money and their impact on prices. Unlike the classical quantity theory of money, Keynes, (1936) argued that changes in the money supply may not necessarily lead to changes in prices in the short run. According to Keynes, (1936) the effects of changes in the money supply are mediated through their impact on the interest rate, which in turn influences investment decisions, output levels, employment, and income. Keynesian theory provides a causal mechanism by which changes in the money supply affect economic variables such as investment, income, and employment.

Keynesian economics emphasizes the importance of aggregate demand in driving economic activity. In the short run, changes in aggregate demand, influenced by changes in the money supply, can have significant effects on output and employment levels. Keynesian economists argue that changes in real money balances, which result from changes in the money supply, can affect aggregate demand and ultimately impact output and employment levels. The neo-Keynesian synthesis, which emerged in the mid-20th century, combines elements of Keynesian economics with classical economic theory. It recognizes the short-run effects of changes in aggregate demand on output and employment, Samuelson, et al (1960) but also incorporates long-run considerations such as the role of aggregate supply and productivity. In the neo-Keynesian framework, changes in productivity can affect the economy's long-run growth potential and its capacity to produce goods and services. Declining productivity, signaling diminishing returns to scale, can lead to inflationary pressures in the economy, particularly if demand exceeds the economy's capacity to supply goods and services. This can

result in overheating of the economy and widening output gaps, contributing to inflationary pressures. Overall, Keynesian and neo-Keynesian economics provide a comprehensive framework for understanding the complex interactions between changes in the money supply, aggregate demand, aggregate supply, and their effects on economic variables such as prices, output, and employment.

Umo (2007) elucidates the concept of demand-pull inflation as a phenomenon wherein the total demand for goods and services surpasses the available supply of output, resulting in an upward pressure on the general price level. This inflationary trend is driven by heightened aggregate demand across the economy, which in turn pushes prices upward.

According to Umo, (2017) demand-pull inflation is typically facilitated by an excess supply of money in the economy, which fuels increased purchasing power and spending. This excess liquidity leads consumers and businesses to bid up prices as they compete for limited goods and services. To address demand-pull inflation, Umo's (1977) suggests that fiscal and monetary policies can be effective tools. Fiscal policy involves government actions related to taxation and spending, while monetary policy involves central bank actions related to the money supply and interest rates. By implementing measures to reduce aggregate demand, such as raising taxes or reducing government spending, fiscal policy can help dampen inflationary pressures. Similarly, monetary policy tools such as increasing interest rates or reducing the money supply can help curb excessive demand and stabilize prices. Yesufu (2000) introduces the notion that unemployment can stem from attempts to manage the economy using policy instruments that are inappropriate, poorly conceived, or prematurely implemented relative to the country's stage of development. This perspective suggests that misguided economic policies can exacerbate unemployment by disrupting the functioning of labor markets and hindering job creation. According to Yesufu (2000 analysis, policymakers may sometimes implement measures that are not aligned with the current economic conditions or the level of development in the country. These policy interventions, which may include fiscal, monetary, or regulatory measures, could inadvertently distort market signals, discourage investment, or create barriers to employment. Yesufu (2000 findings highlight the importance of adopting context-specific and well-calibrated policy measures that are tailored to the unique economic circumstances and development stage of each country. By ensuring that policy interventions are appropriate and effectively targeted, policymakers can help mitigate the risk of exacerbating unemployment and promote sustainable economic growth and job creation.

Chang and Zi-juan's (2012) study delved into the dynamics between unemployment rate, economic growth, and inflation, investigating both long-run equilibrium relationships and short-term correlations. Their findings revealed a stable long-term equilibrium relationship among the variables, suggesting that they tend to move together over extended periods. In the short term, however, their analysis uncovered distinct correlations. Economic growth exhibited a positive correlation with the unemployment rate in the short run, implying that during periods of economic expansion, there may be an increase in unemployment as businesses expand operations and demand for labor adjusts. Conversely, inflation and unemployment were found to have an inverse correlation in the short term, indicating that periods of rising inflation may coincide with lower levels of unemployment, possibly due to increased demand and economic activity. These short-term correlations provide valuable insights into the dynamic interplay between economic variables during different phases of the business cycle. By understanding these relationships, policymakers and economists can better anticipate and respond to fluctuations in economic conditions, fostering more effective strategies for promoting sustainable growth and employment stability.

Umaru and Zubairu's (2012) research delved into the impact of inflation on economic growth, employing Granger causality analysis to discern the directional relationship between gross domestic product (GDP) and inflation. Their findings yielded an intriguing result: GDP Granger caused inflation, while inflation did not Granger cause GDP. This implies a unidirectional relationship where changes in the output of the economy, as measured by GDP, influence fluctuations in the price level, rather than the other way around. In other words, variations in economic activity, such as changes in production, investment, and consumption, drive movements in prices, rather than inflation directly impacting the level of economic output. This insight has significant implications for policymakers and economists seeking to understand the dynamics of inflation and economic growth. By recognizing the primacy of output in driving price changes, policymakers can focus on fostering conditions conducive to sustainable economic expansion, which in turn may help mitigate inflationary pressures and promote overall economic stability.

Umora and Anyiwe's (2013) study delved into the dynamics of inflation and unemployment across a span of twenty-seven years, aiming to elucidate the relationship between these two key macroeconomic indicators. Their findings revealed a positive relationship between inflation and unemployment, indicating that as inflation rates increased, unemployment rates also tended to rise. Moreover, their analysis identified the presence of stagflation in the economy, characterized by high inflation rates coexisting with high levels of unemployment—a phenomenon that poses significant challenges for policymakers. In light of these findings, Umora and Anyiwe (2013) proposed several policy recommendations aimed at addressing the economic implications of inflation and unemployment. Specifically, they suggested implementing measures to reduce interest rates and exercise greater control over the money supply. By lowering interest rates, policymakers can stimulate investment and consumption, thereby fostering economic growth and potentially mitigating the adverse effects of unemployment. Additionally, exerting control over the money supply can help manage inflationary pressures and stabilize prices, contributing to overall macroeconomic stability. Umoru and Anyiwe's (2013) research underscores the importance of understanding the complex interplay between inflation and unemployment in shaping economic outcomes. Their policy recommendations offer valuable insights for policymakers seeking to design effective strategies for promoting economic growth, reducing unemployment, and managing inflationary risks.

Taiwo's (2011) empirical study focused on investigating the impact of investment and inflation on economic growth, aiming to elucidate the relationships between these variables. His analysis revealed a negative relationship between inflation and real gross domestic product (RGDP), suggesting that higher inflation rates were associated with lower levels of economic growth. This finding underscores the detrimental effect that inflationary pressures can have on overall economic performance. In light of these results, Taiwo (2011) proposed a set of policy recommendations aimed at addressing the challenges posed by inflation and promoting economic growth. Specifically, he advocated for the implementation of supply-side and demand management policies designed to mitigate inflationary pressures in both the short and long run. By adopting measures to enhance productivity, efficiency, and competitiveness in the economy (supply-side policies), policymakers can help alleviate inflationary pressures and create a more conducive environment for sustainable economic growth. Additionally, demand management policies, such as monetary policy interventions, can be employed to regulate aggregate demand and stabilize prices, thereby contributing to macroeconomic stability and fostering long-term economic prosperity. Taiwo's (2011) research highlights the importance of adopting a comprehensive approach to inflation management and economic growth promotion. By implementing a combination of supply-side and demand management policies, policymakers can effectively address the challenges posed by inflation while creating conditions conducive to sustained and inclusive economic development.

Fatukasi's (2011) study delved into the determinants of inflation in Nigeria, aiming to identify the key factors driving inflationary pressures in the country. Through empirical analysis, he examined several explanatory variables, including fiscal deficit, money supply, interest rates, and exchange rates, to assess their impact on inflation dynamics. The findings of Fatukasi's (2011) research revealed that all the explanatory variables investigated—fiscal deficit, money supply, interest rates, and exchange rates—exerted a positive impact on inflation. In other words, increases in these variables were associated with higher inflation rates in Nigeria. This suggests that factors such as government budget deficits, expansionary monetary policies leading to higher money supply, elevated interest rates, and currency depreciation all contribute to inflationary pressures within the Nigerian economy. Based on these results, Fatukasi (2011) emphasized the significance of understanding and monitoring inflation as a critical macroeconomic variable. Given its pervasive effects on economic performance, price stability, and overall welfare, he underscored the importance of having a comprehensive understanding of the determinants of inflation to formulate effective policy responses. By gaining insights into the drivers of inflation and their respective impacts, policymakers can develop targeted interventions aimed at mitigating inflationary pressures and promoting macroeconomic stability.

In his study, Thomas (2012) delved into the theory of the Phillips curve, a widely studied concept in macroeconomics that explores the relationship between inflation and unemployment. Specifically, Thomas (2012) aimed to elucidate the nuances between the formation of inflation expectations and the incorporation of inflation expectations within the framework of the Phillips curve. Through his analysis, Thomas (2012) found that the Phillips curve primarily focuses on the formation of inflation expectations. This aspect of the theory revolves around how individuals, firms, and policymakers anticipate future inflation rates based on current economic conditions, policy actions, and other relevant factors. Understanding how inflation expectations are shaped is crucial for predicting future inflation trends and informing decision-making processes in monetary policy, wage negotiations, and investment strategies. By delineating between the formation of inflation expectations and their incorporation into economic decision-making, Thomas (2012) shed light on the complexities inherent in the Phillips curve framework. While the formation of inflation expectations plays a central role in shaping economic behavior and outcomes, the extent to which these expectations are accurately incorporated into decision-making processes can vary based on factors such as information asymmetry, cognitive biases, and institutional arrangements. Thomas (2012) findings contribute to a deeper understanding of the mechanisms driving inflation dynamics and the role of expectations in shaping economic outcomes. By elucidating the nuances of the Phillips curve theory, his research provides valuable insights for policymakers, economists, and researchers seeking to better comprehend the relationship between inflation, unemployment, and other macroeconomic variables.

In their research, Engelbert and Simon (2012) investigated the influence of monetary policy on unemployment hysteresis, a phenomenon where temporary increases in unemployment during economic downturns have persistent effects on the long-term unemployment rate. Their study aimed to uncover how the response of monetary policy during recessions influences the duration and extent of unemployment hysteresis. Through their analysis, Engelbert and Simon (2012) found that the occurrence of unemployment hysteresis during recessions is closely linked to the actions and reactions of monetary policymakers. Specifically, they revealed that the effectiveness of monetary policy measures in mitigating the impact of recessions on unemployment plays a crucial role in determining the duration and severity of hysteresis effects. Their findings suggest that proactive and well-targeted monetary policy interventions, such as interest rate adjustments, liquidity provision, and unconventional measures like quantitative easing, can help counteract the negative consequences of recessions on unemployment. By providing support to the economy during downturns, monetary policymakers can prevent temporary increases in unemployment from translating into long-term structural unemployment. Engelbert and Simon's (2012) research underscores the importance of monetary policy as a tool for managing unemployment dynamics and mitigating the persistence of hysteresis effects. Their findings highlight the need for policymakers to adopt forward-looking and flexible approaches to monetary policy that are responsive to changing economic conditions and capable of addressing the challenges posed by unemployment hysteresis.

In their study, Bruno and Ken (2011) examined the trajectory of unemployment across OECD countries during the recent recession, aiming to understand the diverse effects of the economic downturn on employment dynamics. Their research shed light on how variations in employment legislation and collective bargaining mechanisms influenced the magnitude of unemployment increases across different countries. Their findings revealed that the impact of the

recession varied significantly among OECD countries. Specifically, they observed that countries with stricter employment legislation, which provided greater protections for workers, experienced smaller increases in unemployment compared to countries with more flexible employment regulations. This suggests that regulatory frameworks aimed at safeguarding workers' rights and job security played a role in mitigating the adverse effects of the recession on employment levels. Furthermore, Bruno and Ken (2011) found that countries with higher collective bargaining coverage, where labor unions negotiate wages and working conditions on behalf of workers, tended to have lower increases in unemployment during the recession. In contrast, countries with less comprehensive collective bargaining mechanisms, which afforded employers greater flexibility in hiring and firing decisions, experienced higher rates of unemployment growth. Their research highlights the importance of both legal frameworks and institutional arrangements in shaping labor market outcomes during economic downturns. By providing insights into the differential impacts of employment legislation and collective bargaining practices, Bruno and Ken's (2011) study contributes valuable information for policymakers seeking to design effective strategies for managing unemployment and promoting economic resilience in the face of recessions.

3. THE MODEL

The study conducted by Chang-shuai and Zi-juan (2012) delved into the intricate relationship between the macroeconomic variables of unemployment rate, economic growth, and inflation in China. Their research uncovered distinct patterns in both the long term and short term dynamics among these variables. In the long term, Chang-shuai and Zi-juan identified a stable equilibrium relationship among the Chinese unemployment rate, economic growth, and inflation. This suggests that over extended periods, changes in one of these variables would eventually lead to adjustments in the others, resulting in a balanced state. This long term equilibrium reflects the underlying structural relationships within the Chinese economy. However, in the short term, their analysis revealed different dynamics. They found that economic growth exhibited a positive correlation with the unemployment rate in the short term. This implies that during periods of rapid economic expansion, there may be a temporary increase in the unemployment rate as labor markets adjust to changing demand conditions. Conversely, unemployment and inflation were inversely correlated with economic growth in the short term. This suggests that during periods of economic downturns or stagnation, unemployment tends to rise while inflationary pressures decrease, reflecting the cyclical nature of the economy. The study conducted by Adewo et al. (2012) and Todaro (2000) sheds light on the phenomenon of jobless growth in the Nigerian economy by analyzing the relationship between labor force growth and GDP growth over a period of 33 years. Their findings reveal important insights into the dynamics of economic development and employment in Nigeria.

Adewo et al (2012) and colleagues observed that while the labor force in Nigeria grows at a relatively steady rate of 0.3% annually, the GDP growth rate at factor cost grew at a significantly higher rate of 3.5% over the same period. This disparity between labor force growth and GDP growth highlights a situation where economic expansion is not accompanied by proportional increases in employment opportunities. Based on these statistics, Adewo et al. (2012) concluded that Nigeria is experiencing jobless growth, where economic growth is not translating into sufficient job creation to absorb the expanding labor force. They identified several factors contributing to this phenomenon, including poor infrastructure, insecurity, a deficient educational system, and the lack of diversification in the economy. The findings of Adewo et al (2012) and his team underscore the importance of addressing structural issues and implementing targeted policies to foster inclusive growth and employment generation in Nigeria. Improving infrastructure, enhancing security, reforming the educational system, and promoting economic diversification are essential steps towards achieving sustainable and inclusive development that benefits all segments of the population.

The traditional Cobb-Douglas production function is a widely used framework in economic analysis to model the relationship between inputs and outputs in production processes. In the context of studying the relationship between inflation (inf) and unemployment (unep) on real GDP (RGDP), the Cobb-Douglas production function can be specified as follows:

$RGDP = A \times (inf)\alpha \times (unep)\beta$

Where:

- $RGDP$ represents real GDP, which is the output of the production process.
- inf represents inflation, which is a measure of the rate at which prices of goods and services are rising.
- $unep$ represents unemployment, which refers to the percentage of the labor force that is unemployed and actively seeking employment.
- A is the total factor productivity (TFP), representing the level of technology and efficiency in the economy.
- α and β are the output elasticities of inflation and unemployment, respectively, which indicate the responsiveness of output to changes in these variables.

The function captures the joint impact of inflation and unemployment on real GDP, with the parameters α and β determining the degree of influence each variable has on output. The coefficients α and β can be estimated empirically using statistical methods to assess the magnitude and significance of their effects on RGDP.

4. RESULTS AND DISCUSSIONS

The Table 1 displays the regression analysis conducted using Ordinary Least Squares (OLS) method for the dependent variable RGGDP reveals several important findings. The coefficients, standard errors, t-statistics, and associated probabilities are presented in the table. The intercept term (C) has a coefficient of 8.826476 with a standard error of

11.58846 and a t-statistic of 0.761661. However, its associated probability (Prob.) is 0.4544, indicating that it is not statistically significant at conventional levels. For the variable UNEMPLO, the coefficient is 0.206127 with a standard error of 0.799199 and a t-statistic of 0.257917. The probability value (Prob.) is 0.7989, suggesting that there is no statistically significant relationship between UNEMPLO and RGGDP. In contrast, the variable INFLA shows a statistically significant relationship with RGGDP. It has a coefficient of 0.843868 with a standard error of 0.243965 and a t-statistic of 3.458974. The associated probability value (Prob.) is 0.0022, indicating a statistically significant relationship between INFLA and RGGDP at conventional levels. The overall fit of the regression model is evaluated using R-squared and adjusted R-squared values. The R-squared value is 0.397775, indicating that approximately 39.78% of the variability in RGGDP is explained by the independent variables included in the model. The adjusted R-squared value, which accounts for the number of predictors in the model, is 0.343027. Other diagnostic statistics such as the standard error of regression, Akaike information criterion, Schwarz criterion, and Durbin-Watson statistic are also provided to assess the goodness of fit and the overall reliability of the regression model. The F-statistic tests the overall significance of the regression model, with a Prob(F-statistic) of 0.003779, indicating that the model is statistically significant at conventional levels. Overall, the regression analysis suggests that while the variable UNEMPLO does not have a statistically significant impact on RGGDP, the variable INFLA demonstrates a significant positive relationship with RGGDP.

Table 1: Ordinary Least Squares (OLS)

Dependent Variable: RGGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.826476	11.58846	0.761661	0.4544
UNEMPLO	0.206127	0.799199	0.257917	0.7989
INFLA	0.843868	0.243965	3.458974	0.0022
R-squared	0.397775	Mean dependent var		29.70800
Adjusted R-squared	0.343027	S.D. dependent var		26.44348
S.E. of regression	21.43345	Akaike info criterion		9.079950
Sum squared resid	10106.64	Schwarz criterion		9.226215
Log likelihood	-110.4994	Hannan-Quinn criter.		9.120517
F-statistic	7.265604	Durbin-Watson stat		2.369192
Prob(F-statistic)	0.003779			

5. CONCLUSIONS

The twin macroeconomic challenges of unemployment and inflation are formidable hurdles that confront the economy, impacting various facets of economic and social life. Their persistent presence not only disrupts economic stability but also reverberates across different sectors, affecting the livelihoods of individuals and the functioning of businesses. Unemployment, characterized by a surplus of labor resources, creates a ripple effect throughout the economy. It diminishes household incomes, constrains consumer spending, and dampens aggregate demand, leading to inefficiencies and underutilization of resources. This idle workforce translates into lost output and productivity, exacerbating economic stagnation and hindering long-term growth prospects. Inflation, on the other hand, erodes purchasing power, diminishes real wages, and distorts price signals in the market. Businesses face rising production costs and input prices, squeezing profit margins and impacting their competitiveness. Moreover, inflationary pressures undermine consumer confidence, affecting spending patterns and investment decisions, further dampening economic activity. These macroeconomic challenges also have broader implications for the political landscape. Persistent high levels of unemployment and inflation can erode public trust in government institutions and fuel social discontent. Citizens may become disillusioned with policymakers' ability to address these issues effectively, leading to social unrest and political instability. Inadequate responses to economic challenges can undermine democratic governance and breed resentment among the populace. Addressing unemployment and inflation requires a multifaceted approach, encompassing fiscal policies, monetary interventions, labor market reforms, and social safety nets. Effective policy measures are needed to stimulate job creation, promote price stability, and restore confidence in the economy. Failure to tackle these challenges comprehensively can have far-reaching consequences, jeopardizing the overall well-being and prosperity of society. This paper sought to empirically examine the significant impact of unemployment and inflation on economic growth. The findings from the unit root test indicate that all variables included in the model exhibit stationarity. Additionally, the causality test reveals interesting dynamics: unemployment does not Granger cause economic growth or inflation, and vice versa. However, there exists Granger causality between economic growth and inflation, suggesting a unidirectional relationship from inflation to GDP. These results shed light on the nuanced relationship between these macroeconomic variables. While unemployment does not appear to exert a significant causal influence on economic growth or inflation, inflation emerges as a key determinant of economic performance. The one-way causation from inflation to GDP implies that fluctuations in price levels have a substantial impact on overall economic activity. This empirical analysis underscores the importance of monitoring inflationary pressures and implementing effective monetary policies to maintain price stability and support sustainable economic growth. While addressing unemployment remains a critical policy objective, the findings suggest that inflation management may hold greater sway over economic outcomes. By understanding the intricate interplay between these variables, policymakers

can devise targeted strategies to foster a conducive environment for robust and inclusive economic growth. Indeed, addressing the complex interplay of unemployment, inflation, and economic growth requires concerted efforts and collaboration across various institutions. Strong institutional coordination is essential for formulating and implementing effective policies that aim to mitigate the adverse effects of these macroeconomic challenges. Collaboration among government agencies, central banks, academic institutions, and other relevant stakeholders is crucial for developing comprehensive strategies to tackle unemployment, inflation, and stimulate economic growth. Such collaboration can facilitate the exchange of expertise, data, and resources, enabling policymakers to make informed decisions and implement targeted interventions. Moreover, coordination at the regional and international levels can also be beneficial, as macroeconomic challenges often transcend national borders. Sharing best practices, lessons learned, and coordinating policy responses can enhance the effectiveness of measures aimed at addressing unemployment, inflation, and promoting sustainable economic growth. By fostering strong institutional collaboration, countries can strengthen their capacity to navigate the complexities of these macroeconomic variables and promote stability, prosperity, and inclusive development. This collaborative approach underscores the importance of collective action in addressing multifaceted economic challenges and building resilience in the face of global economic uncertainties.

REFERENCES

Adawo, M. A. Essien, E. B. and Ekpo, N. U. (2012). Is Nigeria's Unemployment Problem Unsolvable? *Current Research Journal of Social Sciences,* 4(6), 389-395.

Ademu, W. A. (2006). The Informal Sector and Employment Generation in Nigeria: The Role of credit, Proceedings of Nigerian Economic Society 2006 Annual Conference held at Abuja.

Ahmad, K., and Ali, A. (2016). Rising Population and Food Insecurity Linkages in Pakistan: Testing Malthusian Population Growth Theory. *International Journal of Economics and Empirical Research (IJEER)* 4 (1), 1-8.

Akintoye, I. R. (2006). Enhancing the Performance of the Informal Sector for the Development of Nigeria: A Case Study of Lagos state. *International Journal of Social Sciences,* 5(1), 24-30.

Ali, A. (2018). Analyzing Macroeconomic Indicators in Pakistan: Insights from Unemployment, Inflation, and Interest Rates. *Journal of Business and Economic Options*, *5*(2), 17-28.

Ali, M. (2015). Inflation, Interest and Exchange Rate Effect of the Stock Market Prices. *Journal of Business and Economic Options*, *2*(1), 1-6.

Alok, K. (2008). Inflation and Dispersion of real Wages. *International Economic Review* 49 (2), 377-399.

Arshad, S., & Ali, A. (2016). Trade-off between inflation, interest and unemployment rate of Pakistan: Revisited. *Bulletin of Business and Economics (BBE)*, *5*(4), 193-209.

Bruno, A. and Ken, M. (2011). Unemployment in the OECD. *Oxford Review of Economics Policy*, 27(2), 207 220.

Chang-Shuai, L. and Zi-juan, L. (2012). Study on the Relationship among Chinese Unemployment Rate, Economic Growth and Inflation, *Advance in Applied Economics and Finance,* 1(1), 1- 6.

Constantinos, A. and Persefoni, T. (2009). Unemployment Revisited; Empirical Evidence from 20 OECD Countries, *Contribution to Political Economy,* 28(1), 23-34.

Engelbert, S. and Simon, S. (2012). The Impact of Monetary Policy on Unemployment Hysteresis, *Applied Economics,* 44 (21), 2743-2756.

Fatukasi, B. (2012). Determinant of Inflation in Nigeria: An Empirical Analysis, *International Journal of Humanities and Social Sciences,* 1(18), 262-271.

Friedman, M. (1977). Nobel lecture, Inflation and Unemployment. *Journal of Political Economies*, 85, 451-472.

Keynes, J. M. (1936). *The General Theory of Employment, Interest, and Money,* Harvest Brace Jovanovich, New York and London (reprinted in 1964 edition).

Khalid, M. W., & Sultan, M. (2017). Understanding the Interplay of Poverty, Inflation, and Unemployment: An Empirical Analysis. *Journal of Business and Economic Options*, *4*(2), 18-27.

Khan, R., & Zahra, H. (2016). Analyzing the Relationship between Domestic Interest Rates and FDI Inflows: Evidence from Pakistan. *Journal of Business and Economic Options*, *3*(3), 99-109.

Konstantinos, K., Persefoni, M., Evangelia, F., Christos, M., & Mara, N. (2015, October). Cloud computing and economic growth. In *Proceedings of the 19th Panhellenic Conference on Informatics* (pp. 209-214).

Kumar, D., & Kumar, M. (2020). Navigating the Inflation-Growth Nexus: Insights from Threshold Regression Analysis in India. *Journal of Business and Economic Options*, *7*(2).

Lawanson, O. I. (2003). High Rate of Unemployment in Nigeria: The Consequences on Human Resource Management, 7th Global Conference on Business and Economics.

Nwaobi, G. C. (2009). Inflation, Unemployment and Nigeria Families: An Empirical Investigation, Publication of Quantitative Economic Research Bureau Nigeria, MPR paper No.14596.

Patterson, N. Okafor, O. and Williams, D. (2006). Globalization and Employment Generation: Evaluating the Impact of Trade on Aggregate Employment in Nigeria's Industrial Sector, Proceedings of Nigerian Economic Society, 2006 Annual Conference held in Abuja.

Phelps, E. S. (1967). Phillips Curves, Expectations of Inflation and Optimal Employment over Time, *Economica,* 34(3), 254-81.

Phillips, A. W. (1958). The Relationship between Unemployment and the Rate of Change of Money Wage in the United Kingdom, 1861-1957, *Economica*, 25(100): 283-299.

Samuelson, P. A. and Robert, M. S. (1960). Analytical Aspects of Anti-Inflation Policy, *American Economic Review,* 50(2), 177-94.

Taiwo, M. (2011). Investment, Inflation and Economic Growth: Empirical Evidence from Nigeria. *Research Journal of Finance and Accounting,* 2(5), 68-76.

Thomas, P. (2012). The Economics of Phillips Curve: Formation of Inflation Expectation versus Incorporation of Inflation Expectations, *Structural Change and Economic Dynamics,* 23, 221-230.

Tobin, J. (1972). Inflation and Unemployment, *American Economic Review*, 62, 1- 18.

Todaro, M. P. (2000). A Model of Labour Countries, *American Economic Review*, 59, 450-459.

Umaru, A and Zubairu, A. A. (2012). Effect of inflation on the Economic Growth and Development of the Nigerian Economy. An Empirical Evidence. *International Journal of Business and Social Science*, 3(10), 183-191.

Umaru, A. and Zubairu, A. A. (2012). An Empirical Analysis of the Relationship between Unemployment and Inflation in Nigeria, *Economic and Finance Review,* 1(12), 42-61.

Umo. U. J. (2007). *Economics: An African Perspective*, 2nd edition, Millennium Text Publishers Ltd. Lagos.

Umoro, D. and Anyiwe, M. A. (2013). Dynamics of Inflation and Unemployment in a Vector Error Correction Model, *Research on Humanities and Social Sciences,* 3(3), 20-29.

Yesufu, T. M. (2000). *The Human Factor in National Development: Business and Economics*, Nigerian Spectrum Books Ltd, Ibadan.

Zafar, B., & Younis, M. (2019). Social Media Influence on Consumer Behavior Insights from Supermarket Shoppers in Lahore. *Journal of Business and Economic Options*, 6(2).