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-RESEARCH ARTICLE-

MEASURING AND ANALYSING THE DYNAMICS OF THE RELATIONSHIP BETWEEN MACROECONOMIC VARIABLES AND EXCHANGE RATE IN IRAQ

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—Abstract—

The sustainability of exchange rates has turned a global concern which necessitates the contemporary research and policymakers. So, this work examines the impact of macroeconomic variables which includes economic growth (EG), inflation, population growth (PG), and industrialization, on the exchange rate in Iraq. It used secondary data sourced from the World Development Indicators (WDI) for 1991–2023. To show the suitable analytical technique, we conducted a unit root test, followed by applying the Dynamic Autoregressive Distributed Lag (DARDL) model for assessing the relationships among the variables. According to the findings, EG, inflation, PG, and industrialization significantly affect the exchange rate in Iraq. It provided insightful information to policymakers, suggesting that rules created that support industrialisation, moderate inflation, and sustainable exchange rates through successful economic growth strategies.

Keywords: Macroeconomic Variables, Economic Growth, Inflation, Population Growth, Industrialization, Exchange Rate

INTRODUCTION

As the world becomes increasingly interconnected, fostering greater global connectivity among individuals and groups, financial and economic international relations have emerged as a critical necessity in the modern era. Consequently, exchange rates have become a prominent topic of discussion among researchers and academics. An exchange rate represents the value of a country's currency when exchanged for another (Fang et al., 2024). According to Boburmirzo and Boburjon (2022), it can also be understood as a measure of how much more or less a country can purchase goods or services abroad (through currency conversion) compared to its domestic marketplace for a given amount. Exchange rates facilitate currency conversion and enable global trade across borders, including the exchange of goods and services, investments, financial transactions, and human mobility. A favourable exchange rate allows a country to benefit from increased export earnings, procure goods and services at reasonable prices to meet domestic demands, attract foreign investors, and strengthen international relations (Feng et al., 2021).

A favourable exchange rate fosters economic growth and national prosperity, while being significantly influenced by a country's economic conditions. The effect of macroeconomic variables on exchange rates, such as EG, inflation, PG, and industrialisation, is investigated in this paper. According to Morina et al. (2020), EG, which is the production of goods and services inside an economy over a given period of time, encourages exports, draws investments, and boosts sectors like tourism, all of which improve exchange rates. Inflation, the rise in prices of domestically traded goods and services, often weakens a currency's purchasing power and negatively impacts

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exchange rates. However, it can also stimulate the economy, increasing the national currency's value and improving foreign exchange outcomes (Olamide et al., 2022). PG, the rate of population increase, may strain domestic resources and weaken the economy, but it also enhances human capital, enriches cultural diversity, and drives productivity, contributing to stronger economic performance and exchange rates (Shah et al., 2022). Industrialisation, characterised by a shift from resource-based to mechanised manufacturing, improves productivity, product quality, and business expansion, while attracting foreign interest in the domestic economy, ultimately strengthening exchange rates (Orji & Ezeanyaeji, 2022).

The present study investigates the macroeconomic conditions and exchange rate dynamics of Iraq's economy. Iraq, with a population of 46,504,560 as of 2024, ranks as the 35th-most populous country despite a modest population growth rate of 2.3%. Its GDP stands at $264.149 billion, placing it 46th globally, while its purchasing power parity (PPP) is $655.420 billion, ranking it as the 48th largest economy. However, Iraq's GDP growth rate has declined significantly, from 8.8% in 2023 to 3.66% in 2024 (Kibet et al., 2022). The Human Development Index (HDI) is recorded at 0.720, and the employment rate remains low, with only 10,378,577 people employed, reflecting a 36.4% employment rate in 2024. Furthermore, 25% of the population lives below the poverty line, earning less than $9.50 per day. Inflation, which was 4.99% in 2022, has decreased to 0.8% by 2024 (Gabriel et al., 2020). Despite its potential, Iraq faces significant economic challenges, including a poor exchange rate that hinders progress.

This study makes a significant contribution to the existing literature in several keyways. Firstly, while numerous prior studies have explored the relationship between macroeconomic indicators and exchange rates, many have offered a limited perspective. This study provides comprehensive insights into the impact of macroeconomic factors on exchange rates, addressing this gap. Secondly, although previous research has examined the roles of specific macroeconomic factors such as EG, inflation, PG, and industrialisation in relation to exchange rates, these studies typically focus on individual factors in isolation. In contrast, this study advances the literature by evaluating the combined influence of EG, inflation, PG, and industrialisation on exchange rates. Thirdly, this research is distinctive in its focus on the Iraqi economy, providing novel insights by collecting and analysing data specific to this context.

The article comprises five sections. The second section provides a literature review, examining the interrelationships among the components. The third portion delineates the research methods, whilst the fourth section articulates the findings. We finally analysed the results, followed the study's limits and concluded.

LITERATURE REVIEW

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The exchange rate is prominent in economic literature which attracts considerable attention from researchers. Many studies have examined the relationships between macroeconomic factors such as EG, inflation, PG, and industrialisation and their effects on exchange rates. Yet, these studies present many viewpoints on the nature and strength of these relationships. Subsequent sections review the views various authors, analysing these factors interaction with exchange rates.

Economic Growth and Exchange Rate

Higher EG helps country to produce more goods and services and improves its products, develop infrastructure, and invest in human capital attracting foreign investors and help in favourable exchange rates (Ribeiro et al., 2020). Lawal et al. (2022) studied the relationship between EG and exchange rates by data from ten African countries over 1980–2018. Their results show that higher EG helps firms to focus on long-term business sustainability by economic, social, and environmentally friendly projects. These efforts attract foreign investments and strengthen the exchange rates. Likewise, Krekó and Oblath (2020) examined data from European Union (EU) economies between 1995 and 2016, using dynamic panel techniques and pooled OLS methods. So, higher EG supports businesses confirming their production and operation with modern consumer demands which fosters innovation and social well-being. This increases demand for local products and services, appreciating the value of the domestic currency and fostering a favourable exchange rate. Usman (2023) further explored this relationship, emphasising that effective human capital development improves the management of domestic business organisations. Efficiently managed businesses increase production demand both nationally and internationally, enhancing the value of the local currency and positively influencing the exchange rate.

Inflation and Exchange Rate

When, in a country, inflation occurs as a strategy by government to increase financial resources and run some productive, constructive, and developmental processes, it results in improving the country's infrastructure, encouraging the potential use of country resources, and accelerating economic activities. A country making progress in EG catch attention of foreign investors as well as it gets the ability to accomplish foreign demands as exports. It leads to appreciate local currency value (Yakubu et al., 2022). The study of Abdu et al. (2021), explains that that if in a country, there is inflation period, the prices of the goods and services produced by business firms in the country, go upward. The rise of prices gets the cause of high costs and lower quality of goods and services. As a result, the demand for the products and services falls. It leads to depreciate the value of local currency in terms of foreign currency. Thus, higher inflation rate results in unfavourable exchange rate. Ha et al. (2020), integrate the relationship between inflation and exchange rate. The research was conducted in 55 countries with emerging markets and developing economies. Country-specific factor-

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augmented vector auto-regression (FAVAR) models were applied to tests the relation. Authors debate that when there is inflationary period, investment into the local projects could generate lower interests.

Therefore, the investment is less profitable and less attracts the further investment from foreign sources. This results in decrease in demand for local currency and depreciates it as compared to other currencies. So, with the occurrence of inflation into the country, the exchange rate gets unfavourable for it. Sui et al. (2021), examines the relationship between inflation and exchange rate. The study posits that if a country is going through an inflationary period, firms have capability and intention to expand its business and produce more for selling. In this situation, international demand is addressed, and exchange is favourable. Deka and Dube (2021), investigates the relationship between inflation, renewable energy use, and exchange rate. Authors were interested to check relationship between factors in Mexico applying ARDL bounds test approach and yearly data were obtained from the OECD official website for the time of 1990-2019. Descriptive statistics and unit root test performed for analysis. The study of Şen et al. (2020), implies that rising inflation brings infrastructure and technological improvement making the EG high. It attracts the customers and investors from foreign sources and the exchange rate gets favourable for the country.

Population Growth and Exchange rate

An increase in PG leads to a higher number of people within a country, which, in turn, increases demand for resources, goods, and services to meet basic needs and desires for comfort. This heightened demand exerts pressure on various economic sectors, prompting greater productivity and boosting economic activities. As businesses expand to meet these demands, managerial efficiency improves, and investment opportunities grow, attracting both local and foreign investors. The influx of foreign investment in domestic projects positively influences the foreign exchange rate. Therefore, PG is closely linked to the exchange rate (Abbas, 2022). Sinan (2022) conducted a study to assess the relationship between PG, unemployment rate, inflation rate, and exchange rate using secondary data from Turkey.

The ARDL test was employed to analyse the data, revealing that population growth stimulates the production of goods and services, increases exports, and consequently fosters a positive exchange rate for the country. Similarly, (Boburmirzo & Boburjon, 2022) examined the causal relationship between PG, GDP value, consumer price index, and exchange rate across five ASEAN countries (Brunei Darussalam, Thailand, Malaysia, Indonesia, and Vietnam) over the period from 2001 to 2020. This research used the vector autoregressive (VAR) method to analyse the relationship between PG and exchange rate. It reveals that higher PG boosts human capital development, leading to an abundance of skilled labour, improved infrastructure, and EG. As EG increases, exports and foreign investments rise, increasing demand for the local currency and

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positively impacting the exchange rate. Ahmad (2023) analysed PG, economic performance, financial efficiency, trade, and exchange rate in Nigeria using ARDL from 1980-2022. The study found that high PG fosters abundant human capital, reducing reliance on foreign labour and stabilizing the exchange rate.

Industrialization and Exchange Rate

Industrialisation in a country catalyses a comprehensive transformation within the economy by enhancing resource utilisation, increasing productivity, and stimulating economic activity. In such developing nations, international trade, particularly exports, experiences significant growth. This subsequently raises the demand for the local currency, positively influencing the exchange rate (Utouh & Kitole, 2024). Ortiz (2020) explores the relationship between industrialisation, EG, and exchange rates through a comparative analysis of industrialised and non-industrialised countries. The study examines three industrialised economies—United States, New Zealand, and Canada—and three non-industrialised economies—Brazil, Chile, and Mexico—using panel data from 1982 to 2017. The econometric analysis reveals that industrialisation positively impacts the exchange rate by enhancing production efficiency, which aligns with foreign demand, thereby boosting the value of the local currency and improving the exchange rate. Kitole and Utouh (2024) suggest that industrialisation, EG, and exchange rates are interconnected, though the relationships are not particularly strong. Both industrialisation and EG can influence exchange rates in either a positive or negative direction. Industrialisation generally boosts the exchange rate by accelerating production and exports, which appreciates the value of the local currency. However, increased industrial activity may also have negative effects on the environment, natural resources, and human capital, leading to reduced exports and foreign investment, which in turn could result in an unfavourable exchange rate. Therefore, industrialisation does have a significant impact on exchange rates. Similarly, Vechsuruck (2024) examines the relationship between export-led industrialisation and exchange rates using structuralist and post-Keynesian economic theories. The study employs VAR analysis to explore data from South Korea between 1989 Q1 and 2023 Q1. The findings suggest that effective industrial growth creates jobs, boosts resource utilisation, and increases production. This, in turn, satisfies foreign demand for quality products and investment opportunities, ultimately improving the exchange rate.

RESEARCH METHODOLOGY

The study examines the impact of EG, inflation, PG, and industrialisation on the exchange rate in Iraq. Secondary data from 1991 to 2023 were sourced from publications such as the WDI. The following equation represents the relationship between the variables under investigation.

$$ER_t = \alpha_0 + \beta_1 EG_t + \beta_2 INF_t + \beta_3 PG_{it} + \beta_4 IND_t + e_t \quad \textbf{(1)}$$

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Where;
ER = Exchange Rate
t = Time Period
PG = Population Growth
INF = Inflation
IND = Industrialization
EG = Economic Growth

The research views the exchange rate as the dependent variable, quantified by the actual effective exchange rate index. Furthermore, four predictors are analysed: EG, quantified by GDP growth (annual percentage); inflation, assessed by consumer prices (annual percentage); PG, determined by the yearly population growth rate; and industrialisation, evaluated by the value generated by industry as a proportion of GDP. The variables and their respective measures are detailed in Table 1.

Table 1: Variables and Measurements

Variables	Measurement	Sources
Industrialization	Industry Value Added (% of GDP)	WDI
Inflation	Inflation, Consumer Prices (Annual %)	WDI
Population Growth	Population Growth (Annual %)	WDI
Economic Growth	GDP Growth (Annual Percentage)	WDI
Exchange Rate	Real Effective Exchange Rate Index	WDI

The study uses descriptive statistics to examine the mean, standard deviation, number of observations, and range of each variable. A correlation matrix is also employed to assess the relationships between variables. The Phillips-Perron (PP) and Augmented Dickey-Fuller (ADF) tests help to detect unit roots and determine the appropriate models. The unit root test is gained by the following:

$$d(Y_t) = \alpha_0 + \beta t + \Upsilon Y_{t-1} + d(Y_t(-1)) + \varepsilon_t \quad \textbf{(2)}$$

In addition, co-integration is tested in this work, crucial for choosing the right model. The use of the methodology by Westerlund and Edgerton (2008), co-integration is studied:

$$LM_{\varphi}(i) = T\hat{\varphi}_i\ (\hat{r}_i/\hat{\sigma}_i\ ) \quad \textbf{(3)}$$
$$LM_{\tau}(i) = \hat{\varphi}_i/SE(\hat{\varphi}_i) \quad \textbf{(4)}$$

Also, the researchers used the ARDL model for testing the relationships between the variables. The ARDL approach was chosen because of its particular effectiveness when the constructs are stationary at both levels and first differences (Nazir et al., 2018). In

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addition, the ARDL model addresses issues related to heteroscedasticity and autocorrelation (Zaidi & Saidi, 2018):

$$\Delta ER_t = \alpha_0 + \sum\delta_1\Delta ER_{t-1} + \sum\delta_2\Delta EG_{t-1} + \sum\delta_3\Delta INF_{t-1} + \sum\delta_4\Delta PG_{t-1} + \sum\delta_5\Delta IND_{t-1} + +\varphi_1 ER_{t-1} + \varphi_2 EG_{t-1} + \varphi_3 INF_{t-1} + \varphi_4 PG_{t-1} + \varphi_5 IND_{t-1} + \varepsilon_t \quad \textbf{(5)}$$

First, the study a unit performs root test for determining the appropriate techniques and then applies the DARDL model for examining the relationships between the variables. The DARDL model of Jordan and Philips (2018), is the most suitable for these analyses. Also, the DARDL model is preferred addressing limitations inherent in the standard ARDL model:

$$\Delta ER_t = \alpha_0 + \sum\delta_1\Delta ER_{t-1} + \sum\delta_2\Delta EG_t + \sum\delta_3\Delta EG_{t-1} + \sum\delta_4\Delta INF_t + \sum\delta_5\Delta INF_{t-1} + \sum\delta_6\Delta PG_t + \sum\delta_7\Delta PG_{t-1} + \sum\delta_8\Delta IND_t + \sum\delta_9\Delta IND_{t-1} + \varepsilon_t \quad \textbf{(6)}$$

RESEARCH FINDINGS

By descriptive statistics, this work offers an in-depth test of the variables- sample sizes, mean values, standard deviations, and their highest and lowest values. The results showed inflation was 47.947%, the EG was 5.826%, and the average ER was 6.423%. Yet IND was 60.365%, the average PG 2.868%. Table 2 is findings. In addition, it uses a correlation matrix for examining at how the factors relate to each other's. The findings show a positive correlation between the variables. Furthermore, since all correlation values are less than 0.85, multicollinearity is not an issue. Table 3 presents the findings.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ER	33	6.423	9.781	-16.518	44.331
EG	33	5.826	19.814	-64.047	53.382
INF	33	47.947	107.028	-16.117	448.500
PG	33	2.868	1.134	-0.850	4.832
IND	33	60.365	10.19	39.904	84.796

Table 3: Matrix of Correlations

Variable	ER	EG	INF	PG	IND
ER	1.000				

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EG	0.070	1.000			
INF	0.066	-0.108	1.000		
PG	0.172	0.315	0.290	1.000	
IND	0.288	0.186	-0.037	0.156	1.000

The study investigates the unit root of variables using the ADF and PP tests to select the appropriate model. The results show that ER, EG, PG, and IND do not exhibit a unit root at the level, while INF shows a unit root at the first difference (Table 4). Co-integration is assessed using the (Westerlund & Edgerton, 2008) method, with p-values below 0.05 and t-values above 1.96, confirming co-integration (Table 5). The DARDL model reveals a significant positive relationship between exchange rate and EG, inflation, PG, and industrialisation in Iraq, as summarized in Table 6.

Table 4: Unit Root Test

	ADF		PP	
Series	**Level**	**First Difference**	**Level**	**First Difference**
ER	-2.657***	------	-2.654***	------
EG	-3.091***	------	-2.101***	------
INF	------	-4.542***	------	-4.373***
PG	-2.332***	------	-3.202***	------
IND	-3.108***	------	-3.210***	------

Table 5: Co-Integration Test

Model	**No Shift**		**Mean Shift**		**Regime Shift**	
	t	**p**	**t**	**p**	**T**	**p**
$\mathbf{LM_{\tau}}$	-4.444	0.000	-5.402	0.000	-4.303	0.000
$\mathbf{LM_{\varphi}}$	-4.837	0.000	-5.392	0.000	-4.301	0.000

Table 6: Dynamic ARDL Model

Variable	**Coefficient**	**t-Statistic**	**Prob.**
ECT	-2.101***	-4.392	0.000
EG_{t-1}	0.745***	5.446	0.000
EG	0.453**	2.090	0.032
PG_{t-1}	1.928**	2.007	0.043
PG	0.543**	2.019	0.039
INF_{t-1}	0.463***	5.674	0.000
INF	0.241***	4.381	0.000
IND_{t-1}	0.453***	5.401	0.000
IND	1.928***	5.492	0.000
Cons	2.181***	4.776	0.000

R Square = 63.351 Stimulation = 5000

DISCUSSION

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The results indicate that EG has a significant association with the exchange rate. These findings are consistent with the study by Zhu et al. (2022), which examines the influence of EG on exchange rates. Their research suggests that when a country experiences high EG, economic policies focus not only on the quantity of productivity but also on the quality of products provided by firms. The production of high-quality goods attracts foreign entities to engage in trade, thereby boosting exports and improving the exchange rate. These findings are further supported by Adeleye et al. (2022), who highlight that countries accelerating EG can save funds from traditional economic practices and invest in social and environmentally friendly projects, which in turn attract foreign investment, thereby favouring the exchange rate. Moreover, these confirm Mazorodze (2021) exploring the effects of EG on exchange rates. Mazorodze states that in rapidly growing economies, local firms attract foreign investment because of its innovations, infrastructure improvements, management efficiency, and sustainability projects, making more favourable exchange rates confirming Jayathilaka et al. (2023) on the influence of EG on exchange rates asserting that as EG rises with the demand for the local currency rises with more favourable exchange rates.

According to the results, inflation has a significant association with the exchange rate as with Ahmed et al. (2021) studying the role of inflation in influencing exchange rates and inflation signals a robust economy with rising growth. When economy grows, it produces higher-quality goods meeting both domestic and international demands which boosts exports, appreciating currency value, and improve the exchange rate confirming Amara et al. (2020) that during inflationary periods, firms can produce higher revenues by reducing costs by stored materials, cheap labors, and higher prices for their goods and services. Better financial capabilities help the firms adopt innovative technologies and launch sustainability projects for a better future, attracting foreign investment and further strengthening the exchange rates. In addition, the findings confirm Eregha (2022) stating that inflation issuing large quantities of currency, while the metal backing stblized. This decreased the purchasing power of the currency, so the local currency can buy fewer goods and services globally, lessening its request and depreciating the exchange rate. Thus, inflation meaningfully influences foreign exchange rates.

The results indicate that PG is related to the exchange rate. Jie et al. (2023), suggest that populous regions often exhibit strong cultural and social well-being, boosting tourism and attracting foreigners, which in turn improves the exchange rate. Similarly, Din et al. (2024) highlight that in populous countries, a large, efficient workforce enhances management and productivity, fostering prosperity and positively impacting the exchange rate. However, Grisse and Scheidegger (2021) argue that increased PG raises domestic demand, reducing exports and potentially lowering the exchange rate. Ali and Radhi (2022) stated higher PG drives greater production for meeting higher domestic demands which fosters a favourable balance of trade and improve the exchange rates. This indicates a positive association between industrialization and the exchange rate

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confiming Demir and Razmi (2022) suggesting that industrialization of countries to move beyond reliance on natural resources and traditional production by innovative technologies enhancing quality and productivity, so boosting foreign trade and improving the exchange rates. Effiong and Ekong (2021) state that industrialization generates used, increases resource use, and productivity, attracting foreign investment and raises the exchange rates. In the same way, Oreiro et al. (2020) show that industrialisation improves currency values, positively affecting the exchange rates. Groussin et al. (2021) indicate that industrial growth, with innovation, boosts tourism, in turn improving the exchange rates as foreign demand for services rises.

IMPLICATIONS

This study offers both theoretical and empirical contributions to economic literature, providing valuable insights for researchers by examining the impact of macroeconomic factors such as EG, inflation, PG, and industrialisation on the exchange rate. It is particularly significant as it explores the role of these factors in influencing Iraq's exchange rate, a country facing global competition. The study emphasises that improving EG, which reflects total production in an economy, is crucial to increasing currency demand, strengthening its value, and achieving a favourable exchange rate. Furthermore, the study acknowledges that while inflation leads to an increase in the number of currency units, it reduces the value of each unit. However, inflation also stimulates economic activity, requiring economists to manage its effects effectively to control the exchange rate. The study also emphasises the importance of managing PG to prevent disruptions in economic activity and maintain a favourable exchange rate. Additionally, it suggests that effective management of industrialisation is crucial for improving the exchange rate, as it contributes to increased productivity and foreign investment.

CONCLUSION

The objective of this study is to examine the role of macroeconomic factors such as EG, inflation, PG, and industrialisation in achieving a positive exchange rate. The study uses Iraq’s statistical data as the source of information. The analysis indicates a significant impact of EG, inflation, PG, and industrialisation on the exchange rate. The findings reveal that higher EG increases productivity, fulfilling domestic demand and boosting exports. This, in turn, encourages profitable projects, attracting foreign investment and improving the exchange rate. The results further show that while inflation reduces the purchasing power of the currency, it simultaneously stimulates economic activity, leading to higher demand for the currency. As such, inflation can lead to fluctuations in the exchange rate. The study also indicates that PG can have adverse effects on the environment and resources, discouraging foreign investment. However, it can also enhance human capital and increase overall economic productivity, fostering exports and foreign investment. Both outcomes influence the local currency's value and foreign

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exchange. Additionally, the study concludes that industrialisation boosts economic activity, development, and productivity. It increases the demand for local currency for international transactions, thereby contributing to a favourable foreign exchange rate.

LIMITATIONS

The study has several limitations that future researchers should address. It focuses solely on the role of macroeconomic factors such as EG, inflation, PG, and industrialisation in evaluating the exchange rate. However, other factors, such as trade, taxation, government incentives, interest rates, and sustainability agreements, also influence the exchange rate, but these were not considered in this study. Future research should expand the framework to include these additional factors. Furthermore, the current study examines the relationship between EG, inflation, PG, industrialisation, and exchange rates using data exclusively from Iraq, a developing economy. As such, the findings may not be generalizable to other countries with different economic contexts. Future studies should explore these relationships in different countries to determine whether the results are consistent across varied economic environments.

REFERENCES

Abbas, U. (2022). Assessing the Impact of Exchange Rates on Economic Growth: An Empirical Study. *International Journal of Social Studies*, *2*(1), 23-30. https://doi.org/10.55627/ijss.02.1.0218

Abdu, M., Umar, M. R., Mohammed, B., & Ajannah, J. M. (2021). Exchange Rate Fluctuations and Economic Growth Nexus: An Empirical Evidence from Nigeria. *Asian Journal of Economics, Finance and Management*, 491-498. https://www.journaleconomics.org/index.php/AJEFM/article/view/65

Adeleye, B. N., Ogede, J. S., Rabbani, M. R., Adam, L. S., & Mazhar, M. (2022). Moderation analysis of exchange rate, tourism and economic growth in Asia. *PLoS One*, *17*(12), e0279937. https://doi.org/10.1371/journal.pone.0279937

Ahmad, A. (2023). Financial efficiency, exchange rate variation and investment growth in Nigeria. *International Journal of Research and Innovation in Social Science*, *7*(12), 384-389. https://ideas.repec.org/a/bcp/journl/v7y2023i12p384-389.html

Ahmed, R., Aizenman, J., & Jinjarak, Y. (2021). Inflation and exchange rate targeting challenges under fiscal dominance. *Journal of Macroeconomics*, *67*, 103281. https://doi.org/10.1016/j.jmacro.2020.103281

Ali, N. H., & Radhi, M. A. (2022). The Impact Of Exchange Rate Fluctuations On Economic Growth Rates A Case Study Of The Iraqi Economy For The Period From (2019–2003). . *Webology*, *19*(2), 34-44. https://www.webology.org/abstract.php?id=1943

Amara, S., Idrisb, I. P., & Anisd, A. (2020). Exploring the Link between Income Inequality, Poverty Reduction and Economic Growth: An ASEAN Perspective.

International Journal of Innovation, Creativity and Change, *11*(2), 24-41. https://www.researchgate.net/publication/339599413

Boburmirzo, K., & Boburjon, T. (2022). Exchange rate influence on foreign direct investment: empirical evidence from cis countries. *International Journal Of Management And Economics Fundamental*, *2*(04), 19-28. https://doi.org/10.37547/ijmef/Volume02Issue04-04

Deka, A., & Dube, S. (2021). Analyzing the causal relationship between exchange rate, renewable energy and inflation of Mexico (1990–2019) with ARDL bounds test approach. *Renewable Energy Focus*, *37*, 78-83. https://doi.org/10.1016/j.ref.2021.04.001

Demir, F., & Razmi, A. (2022). The real exchange rate and development theory, evidence, issues and challenges. *Journal of Economic Surveys*, *36*(2), 386-428. https://doi.org/10.1111/joes.12418

Din, S., Din, H., Khan, I., & Naheed, S. (2024). Nexus among Exchange Rate Volatility, Inflation, and Economic Growth: A Panel Data Analysis. *Pakistan Journal of Humanities and Social Sciences*, *12*(1), 200–206-200–206. https://doi.org/10.52131/pjhss.2024.v12i1.1815

Effiong, U. E., & Ekong, C. N. (2021). Global Trends in Financial Sector-Led Industrialization: How did Nigeria Fare? *Asian Journal of Economics, Finance and Management*, 745-768. https://www.journaleconomics.org/index.php/AJEFM/article/view/43

Eregha, P. B. (2022). Asymmetric response of cpi inflation to exchange rates in oil-dependent developing economy: The case of Nigeria. *Economic Change and Restructuring*, *55*(2), 1091-1108. https://doi.org/10.1007/s10644-021-09339-3

Fang, S., Wei, Y., & Wang, S. (2024). 30 years of exchange rate analysis and forecasting: a bibliometric review. *Journal of Economic Surveys*, *38*(3), 973-1007. https://doi.org/10.1111/joes.12572

Feng, G.-F., Yang, H.-C., Gong, Q., & Chang, C.-P. (2021). What is the exchange rate volatility response to COVID-19 and government interventions? *Economic Analysis and Policy*, *69*, 705-719. https://doi.org/10.1016/j.eap.2021.01.018

Gabriel, L. F., de Santana Ribeiro, L. C., Jayme Jr, F. G., & da Costa Oreiro, J. L. (2020). Manufacturing, economic growth, and real exchange rate: Empirical evidence in panel data and input-output multipliers. *PSL Quarterly Review*. http://hdl.handle.net/1843/59363

Grisse, C., & Scheidegger, F. (2021). Covariability of real exchange rates and Fundamentals. *Economics Letters*, *201*, 109782. https://doi.org/10.1016/j.econlet.2021.109782

Groussin, M., Poyet, M., Sistiaga, A., Kearney, S. M., Moniz, K., Noel, M., Hooker, J., Gibbons, S. M., Segurel, L., & Froment, A. (2021). Elevated rates of horizontal gene transfer in the industrialized human microbiome. *Cell*, *184*(8), 2053-2067. e2018. https://doi.org/10.1016/j.cell.2021.02.052

Ha, J., Stocker, M. M., & Yilmazkuday, H. (2020). Inflation and exchange rate pass-through. *Journal of International Money and Finance*, *105*, 102187. https://doi.org/10.1016/j.jimonfin.2020.102187

Jayathilaka, R., Rathnayake, R., Jayathilake, B., Dharmasena, T., Bodinayake, D., & Kathriarachchi, D. (2023). Exploring the growth direction: the impact of exchange rate and purchasing managers index on economic growth in Sri Lanka. *Quality & Quantity*, *57*(3), 2687-2703. https://doi.org/10.1007/s11135-022-01490-x

Jie, H., Khan, I., Alharthi, M., Zafar, M. W., & Saeed, A. (2023). Sustainable energy policy, socio-economic development, and ecological footprint: The economic significance of natural resources, population growth, and industrial development. *Utilities Policy*, *81*, 101490. https://doi.org/10.1016/j.jup.2023.101490

Jordan, S., & Philips, A. Q. (2018). Cointegration testing and dynamic simulations of autoregressive distributed lag models. *The Stata Journal*, *18*(4), 902-923. https://doi.org/10.1177/1536867X1801800409

Kibet, K., Cheboi, J., & Agak, T. (2022). Credit to private sector, investor protection, foreign exchange rate, corruption perception and economic growth nexus among comesa countries. *Econ Res*, *6*(3), 108-122. https://doi.org/10.29226/TR1001.2022.306

Kitole, F. A., & Utouh, H. M. (2024). Foreign direct investment and industrialization in Tanzania admixture time series forecast analysis 1960-2020. *Applied Economics Letters*, *31*(20), 2110-2117. https://doi.org/10.1080/13504851.2023.2211324

Krekó, J., & Oblath, G. (2020). Economic growth and real exchange rate misalignments in the European Union. *Acta Oeconomica*, *70*(3), 297-332. https://doi.org/10.1556/032.2020.00016

Lawal, A. I., Salisu, A. A., Asaleye, A. J., Oseni, E., Lawal-Adedoyin, B. B., Dahunsi, S. O., Omoju, E. O., DickTonye, A. O., Ogunwole, E. B., & Babajide, A. A. (2022). Economic growth, exchange rate and remittance nexus: Evidence from Africa. *Journal of Risk and Financial Management*, *15*(6), 235. https://doi.org/10.3390/jrfm15060235

Mazorodze, B. T. (2021). Exchange rate misalignment, state fragility, and economic growth in sub-Saharan Africa. *Cogent Economics & Finance*, *9*(1), 1898113. https://doi.org/10.1080/23322039.2021.1898113

Morina, F., Hysa, E., Ergün, U., Panait, M., & Voica, M. C. (2020). The effect of exchange rate volatility on economic growth: Case of the CEE countries. *Journal of Risk and Financial Management*, *13*(8), 177. https://doi.org/10.3390/jrfm13080177

Nazir, M. I., Nazir, M. R., Hashmi, S. H., & Ali, Z. (2018). Environmental Kuznets Curve hypothesis for Pakistan: Empirical evidence form ARDL bound testing

and causality approach. *International journal of green energy*, *15*(14-15), 947-957. https://doi.org/10.1080/15435075.2018.1529590

Olamide, E., Ogujiuba, K., & Maredza, A. (2022). Exchange rate volatility, inflation and economic growth in developing countries: Panel data approach for SADC. *Economies*, *10*(3), 67. https://doi.org/10.3390/economies10030067

Oreiro, J. L., Manarin, L. L., & Gala, P. (2020). Deindustrialization, economic complexity and exchange rate overvaluation: the case of Brazil (1998-2017). *PSL Quarterly Review*, *73*(295), 313-341. https://econpapers.repec.org/RePEc:psl:pslqrr:2020:43

Orji, M. C., & Ezeanyaeji, C. (2022). Exchange Rate and Manufacturing Sector Performance in Nigeria. *Lapai Journal of Economics*, *6*(2), 13-33. https://dx.doi.org/10.4314/lje.v6i2.2

Ortiz, R. (2020). Real exchange rates and economic growth: industrialized countries vs. non-industrialized countries. *Journal of Administrative Science*, *1*(2), 1-11. https://doi.org/10.29057/jas.v1i2.4101

Ribeiro, R. S., McCombie, J. S., & Lima, G. T. (2020). Does real exchange rate undervaluation really promote economic growth? *Structural Change and Economic Dynamics*, *52*, 408-417. https://doi.org/10.1016/j.strueco.2019.02.005

Şen, H., Kaya, A., Kaptan, S., & Cömert, M. (2020). Interest rates, inflation, and exchange rates in fragile EMEs: A fresh look at the long-run interrelationships. *The journal of international trade & economic development*, *29*(3), 289-318. https://doi.org/10.1080/09638199.2019.1663441

Shah, M. H., Ullah, I., Salem, S., Ashfaq, S., Rehman, A., Zeeshan, M., & Fareed, Z. (2022). Exchange rate dynamics, energy consumption, and sustainable environment in Pakistan: new evidence from nonlinear ARDL cointegration. *Frontiers in Environmental Science*, *9*, 814666. https://doi.org/10.3389/fenvs.2021.814666

Sinan, O. B. (2022). The Relationship between the Exchange Rate, Inflation, and Unemployment in Turkey, 2014–2021. *Praise for Income Disparity under Welfare and Poverty Dilemma in Emerging Countries*. https://www.researchgate.net/publication/367036267

Sui, M., Rengifo, E. W., & Court, E. (2021). Gold, inflation and exchange rate in dollarized economies–A comparative study of Turkey, Peru and the United States. *International Review of Economics & Finance*, *71*, 82-99. https://doi.org/10.1016/j.iref.2020.08.014

Usman, K. (2023). The nexus between remittance, exchange rate and economic growth of E7 economies: Frequency domain analysis. *Heliyon*, *9*(11). https://doi.org/10.1016/j.heliyon.2023.e21554

Utouh, H. M., & Kitole, F. A. (2024). Forecasting effects of foreign direct investment on industrialization towards realization of the Tanzania development vision

2025. *Cogent Economics & Finance*, *12*(1), 2376947. https://doi.org/10.1080/23322039.2024.2376947

Vechsuruck, T. P. (2024). The Political Economy of Exchange Rates and Export-Led Industrialization in South Korea. *Review of Political Economy*, 1-24. https://doi.org/10.1080/09538259.2024.2312355

Westerlund, J., & Edgerton, D. L. (2008). A simple test for cointegration in dependent panels with structural breaks. *Oxford Bulletin of Economics and statistics*, *70*(5), 665-704. https://doi.org/10.1111/j.1468-0084.2008.00513.x

Yakubu, I. N., Kapusuzoğlu, A., & Ceylan, N. B. (2022). The moderating effect of exchange rate volatility on export diversification and economic growth nexus in the G7 countries. *Journal of Research in Business*, *7*(1), 195-207. https://doi.org/10.54452/jrb.1041057

Zaidi, S., & Saidi, K. (2018). Environmental pollution, health expenditure and economic growth in the Sub-Saharan Africa countries: Panel ARDL approach. *Sustainable cities and society*, *41*, 833-840. https://doi.org/10.1016/j.scs.2018.04.034

Zhu, W., Ahmad, F., Draz, M. U., Ozturk, I., & Rehman, A. (2022). Revisiting the nexus between exchange rate, exports and economic growth: further evidence from Asia. *Economic research-Ekonomska istraživanja*, *35*(1), 7128-7146. https://doi.org/10.1080/1331677X.2022.2059692