International Journal of Contemporary Issues in Social Sciences
Volume 3, Issue 1, 2024 ISSN(P):2959-3808 | 2959-2461

A STUDY OF THE EFFECT OF INFLATION ON GDP PER CAPITA IN PAKISTAN

Syed Laulak Haider[1], Saif Ullah[2], Sarwar Khan[*3], Muazzam Raza[4], Sheraz Ali[5]

[1] School of Economics and Finance, Xi'an Jiaotong University, China;
[2]School of Economics and Finance, Xi'an Jiaotong University, China;
[*3] Faculty of Economics & Commerce, Superior University, Lahore, Pakistan;
[4]School of Economics and management, Xidian University, China;
[5]Higher School of Economics Saint Petersburg, Russia.

[1] kazmiemm@stu.xjtu.edu.cn, [2] xaifoo313@gmail.com, [*3]Sarwar01khan@gmail.com,
[4]muazzamraza54@gmail.com, [5]sherazalijutal@gmail.com

Corresponding Author: *

Received: 15 November, 2023 **Revised:** 24 December, 2023 **Accepted:** 29 December, 2023 **Published:** 14 January, 2024

ABSTRACT

This research examines the complex link between inflation and GDP per capita in Pakistan from 1964 to 2022. The study employs a robust methodology to analyze the historical trends, short-term implications, and long-term consequences of inflation on GDP per capita, utilizing secondary time series data sourced from the World Bank data repository. In alignment with the tenets of the Phillips curve hypothesis, our findings indicate a positive impact of inflation on GDP per capita. However, the influences of exchange rates and government spending are intricate, and over the long term, their impact on GDP per capita appears to be minimal. The relationship between inflation and GDP per capita is characterized by a negative correlation, with the exchange rate demonstrating a noteworthy negative effect, as revealed by the Error Correction Model (ECM) in the short-term analysis. The results of the diagnostic tests confirm that the model is resilient. To keep the economy stable, policymakers should think about targeted interventions for the exchange rate and government spending after carefully weighing the short-term costs and benefits of inflation and real GDP growth. More variables impacting these dynamics across different locations might be the subject of future investigation.

Keywords: Economic growth; Inflation; GDP per capita; Pakistan

INTRODUCTION

The significance of comprehending the connection amidst the interplay of inflation and the growth of the economy has long been a point of contention among economists and policymakers. A nation's GDP growth rate is indicative of its capacity to increase output. Interest and inflation rates are two of the most important macroeconomic variables because of the enormous impact that changes to either one can have on the growth of the economy.

According to research by (Aßhoff et al., 2021) ,who looked at how unconventional monetary policy (UMP) affected Euro area inflation expectations, UMP measures tend to increase real GDP growth in the medium term, However, the positive influence they exert on expectations of inflation tends to diminish over the medium term. On the other hand, there are academics who have pointed out that while nominal interest rates are stable, economic activity is positively impacted by rising inflation expectations.

Using the World Bank Atlas method to change statistics from the local currency, the World Bank divides countries into low-, lower-, upper-, and high-income groups based on their GNI per head in US dollars. A country is called low-income if its GDP per person is $1035 or less in 2019. If it is $1036 to $4045, it is lower-middle-income. If it is $4046 to $12,535 or more, it is high-income. These categories

are based on 2019 GDP per capita levels. The World Bank Atlas proposed this system of categorization. When it comes to gross national product (GNP), Pakistan falls within the lower-middle-income category, exhibiting a per capita income ranging from $1036 to $4045. As variations in inflation may greatly affect the rate of economic growth, price stability is crucial for developing economies like Pakistan. Inflation in Pakistan, for instance, has more than doubled in only two years, from 2017 to 2018, and it has fluctuated violently during that time. The interest rate is another component that influences the growth of the economy. The cost of borrowing money rises in response to changes in the interest rate, which in turn impacts investment levels. This study endeavors to utilize an innovative technique known as the wavelet transformation approach to examine the connections among interest rates, inflation, and economic growth (Hayat et al., 2021).

This study delves into the intricate connections between inflation and GDP per capita, considering key control variables such as exchange rates and government expenditure. In navigating this intricate web, we unravel the dynamics that shape Pakistan's economic landscape. The significance of price stability cannot be overstated in the pursuit of macroeconomic stability and sustained economic growth. Inflation, marked by a persistent increase in the overall price level over time, introduces a formidable challenge to this equilibrium. Balancing the imperative of achieving long-term economic growth with the critical need for price stability places the country's policymakers at the crossroads. Effective management and judicious implementation of fiscal policies emerge as indispensable elements in this challenging endeavor.

Many scholars (Azam & Khan, 2022) (Ndoricimpa, 2017) (Ullah et al., 2020) have differing opinions on the matter of whether inflation and economic growth are correlated or not, and if so, what kind of link exists. Economists' perspectives on this relationship are evolving in tandem with the development of the macroeconomic literature. Since inflation raises the cost of production for businesses, traditional economists held that it stunts economic development.

Additionally, there is a great deal of theoretical discussion around the interest rate-growth link. Several hypotheses address the inverse correlation between interest rates and investment-driven economic development. According to Tobin's monetary growth model, the demand for capital is expected to decrease in the medium run as a result of a higher money return (Gillman & Kejak, 2002). This inverse correlation is explained by the neoclassical theory of investment, which states that a higher interest rate raises the cost of capital for enterprises. As a result of the high cost of manufacturing, output is reduced. According to the actual theory of the economic cycle, interest rates rise in response to technological shocks. Because fewer people are willing to work when interest rates are high, production drops.

This study is organized into five sections, the first, an introduction, gives a background on the topic. Section 2 then proceeds to conduct a thorough literature review, extracting important results and points of view that are pertinent to our research. Section 3 is about the objectives of this study. The way used to get significant insights is explained in Section 4, which dives into the methodology and data collecting procedure. The research concludes with a narrative synthesis of the results in Section 5, which also includes recommendations based on the data analysis.

LITERATURE REVIEW

Several studies have conducted experiments to investigate the relationship among's financial and expansion, as well as the causal direction between these variables (Gokal & Hanif, 2004). When examining the growth-inflation link, they all relied on time domain analysis.

It was once possible to explain economic development and advancement only in terms of inputs into the manufacturing process, as pointed out by (Garside, 2007). More than twenty years ago, (Clague, 1997) said that there is a lot of evidence in the literature that some countries have little economic growth even though they accumulate physical capital at high rates, and other countries have little growth or no growth at all even though their education systems are very advanced. By focusing on the processes that cause some countries to grow and others to fall compared to others in the global economy, (Chowdhury, 2002) analyzed the effects of less developed nations becoming newly industrializing. Also, according to (Deardorff, 2000),

rich countries' income inequality would deteriorate as a result of developing nations' economic progress, and the incentives for developing nations' growth will be undermined due to a protectionist reaction. Economic development and growth are distinct but sometimes conflated processes in a place's lifecycle; thus, it is crucial that the two be not confused or misunderstood. As an example, the rise in aggregate production a common metric for economic growth has solid theoretical foundations (Feldman et al., 2016). While (GDP), GDP per capita (GDP/C), and GDP/C growth have long been the go-to metrics for economists and policymakers, the Human Development Index (HDI) offers a more comprehensive and compelling alternative.

When controlling for factors like education level, fertility rate, and other demographic characteristics, Inflation and GDP growth are inversely related, as (Gokal & Hanif, 2004) finds out. With the use of a set of regression equations that assume all other growth factors to be constant, the exploration investigates the impact of expansion on monetary development, as analyzed through data from over a hundred economies covering the years 1960–1990. According to (Chimobi, 2010) (Barro & Sala-i-Martin, 1995), this framework is built around an enlarged version of the neoclassical growth model. There exists a robust correlation between inflation and economic growth, as indicated by the statistical data. As an example, real GDP growth decelerates by 0.5 to 0.7 percentage points for every 1% rise in average yearly inflation.

To determine the main factors that contribute to inflation in Pakistan, (Khan et al., 1996) used yearly time domain data from 1971 to 1995. They break inflation down into food and non-food categories and find that the money supply is a major factor in Pakistan's rising inflation rate. Currency depreciation and value addition in the agricultural sector are other elements that the researchers looked into as potential causes of inflation.

Large contractions, short recessions, unpredictable GDP growth, and exchange rate volatility have all been part of Pakistan's economic trajectory since the 1970s. Due to the country's history of fiscal and monetary policy volatility, macroeconomic instability1 has persisted for an extended length of time (Azam et al., 2020). Typical emerging nations saw high inflation, high debt-to-GDP ratios, credit limitations in the banking sector, and severe and persistent budget deficits while they were experiencing chronic instability. The outcome has been a history of poor economic development relative to South Asian nations, extreme and unpredictable inflation, macroeconomic instability, and sharp slowdowns in the country's economic activities. In South Asia, the highest inflation rate was 7.3% in Pakistan, followed by 5.5% in Bangladesh, 4.6% in Nepal, 3.5% in India, and 3.1% in Sri Lanka, According to data collected by the Asian Development Bank, (Dhar, 2021) .The highest GDP growth rate was 8.1% in Bangladesh, followed by 7.1% in Nepal, 6.5% in India, 3.3% in Pakistan, and 2.6% in Sri Lanka. According to this economic performance, the existence of macroeconomic instability in Pakistan is likely to impact environmental pollution.

For the Brazilian economy, which has been experiencing a persistent inflationary shock for a long time, (Faria & Carneiro, 2001) look at the correlation between inflation and production. If inflation affects output in the long term, they may test this hypothesis using a bivariate vector auto-regression that considers expansion and result development. Additionally, they assess the short-run connection between inflation and real production using the data from 1980 to 1995. Their research backs up (Salehi Asfeji & Balaghi Inaloo, 2019) theory of monetary super neutrality, which states that inflation does not affect long-term production and productivity. According to their findings, inflation does impact production in the near term.

Based on this thorough examination of existing literature, further investigation is required to address the ongoing discourse surrounding the nature of the relationship between growth and inflation. Moreover, it is evident that a significant portion of the research employs time series analysis to empirically explore the connections among interest rates, inflation, and economic growth.

OBJECTIVES OF STUDY

1. To examine the historical trends of inflation and GDP per capita in Pakistan.
2. To examine the immediate effects of inflation on GDP per capita.
3. To explore the enduring impact of inflation on GDP per capita.
4. Methodology and Data collection

DATA COLLECTION AND SOURCE

We have used secondary temporal data extracted from the year 1964 to 2022 of Pakistan. The data consists of yearly observations for each variable. The source of the secondary series data is World Bank's data bank.

Variables and Descriptive statistics

In this study we have used total of four variables. The dependent variable in our study is GDP per capita, while the independent variables consist of Inflation measured by the GDP deflator exchange rate and Government spending.

Gross Domestic Product (GDP) per capita is a way to look at how much a nation or region typically produces for every individual living there. Resulting from the division of a country's GDP by its population. An area's average quality of living or income level may be captured by this measure.

We have used the GDP deflator to account for inflation in Pakistan. The GDP deflator measures whether an economy is experiencing inflation or deflation. It compares all of the goods and services produced to a base year, which helps to indicate how prices have affected Gross Domestic Product (GDP).

The exchange rate is a numerical representation that determines how much of one currency can be exchanged for another. This shows the ratio of one currency in terms of another.

The term Government spending refers to the spending by Governments at local, regional and national levels. This includes a broad array of government socioeconomic and administrative activity and programs.

Descriptive statistics of variables

Descriptive statistics briefly describe central tendency (mean, median, mode), degree of variation (range, variance, standard deviation) and distribution form. From these statistics we can see average, standard deviation and distribution, which help the researchers to get a grasp of the basic nature of variables being used.

Table 1

Variable	Obs	Mean	Std. Dev.	Min	Max
Lgdppc	59	6.051051	0.8052085	4.598125	7.39064
Inf	59	9.279082	6.230665	0.4692886	38.51199
Ler	59	1.437018	0.4904168	0.6777803	2.311472
GovtSpd	59	5.734487	10.11028	-15.02828	46.48188

The log transformed variable GDP per capita (lgdppc) has a mean near 6 and a standard deviation of about 0.8. The values range from 4.6 to 7.4, which indicate some disparity in the values of variable.

The variable Inflation (inf) has a mean of 9.28 and an extremely large standard deviation of 6.23, suggesting great diversity in rates of inflation over the years. The minimum value of 0.47 shows a very low inflation, and the maximum value of 38.51 shows the highest level of inflation achieved.

Descriptive statistics reveal that the mean of the log transformed variable exchange rate (ler) is 1.44, indicating that on average one unit of a currency can buy 1.44 units of another. But this will mean that either the second currency is much appreciated or the first much depreciated, depending on which currency is in consideration. The standard deviation is 0.49, meaning that exchange rate variations tend to be moderate. The minimum value of exchange rate is 0.68, while the maximum values shows an exchange rate as high as 2.31 which shows a wide spread of exchange rate over the years.

The descriptive statistics for the variable Government spending (GovtSpd) shows a mean value of 5.73, but its standard deviation is very high at 10.11, which suggests a substantial variation in government spending levels across the years. The minimum value of -15.03 shows a negative percentage change in government spending as compared to a previous year. The maximum value of 46.4 shows that the maximum increase in government spending is 46.4 percent as compared to a previous year.

Unit root test for stationarity

When examining the characteristics of the data, extracted from, including its mean, variance, and autocorrelation, do not change with time, we say that the data is stationarity in time series. For time series data to be considered stable, it must have constant underlying statistical features such as mean, variance, and autocorrelation. If the statistical properties of a time series remain unchanged, it is called stationary and thus easier to analyze. In reality this implies that the average value and scale of variable remain fixed, and there should not be any trend or seasonality which may affect the overall functioning of the series. The second point is that stationarity is usually an essential assumption in time series analysis and modeling.

The variables GDP per capita and Exchange rate are log transformed. The Log transformation is widely employed to linearize extremely skewed data, reduce variance and correct heteroscedasticity in regression analysis. The log transformation is especially helpful for those variables that reflect percentage differences or multiplying relationships, where multiplication becomes addition. It also helps to eliminate dimension, particularly for data whose units are different by orders of magnitude. Moreover, log transformation makes relationships more additive in nature and therefore easier to analyze.

After the log transformation, we used the improved dick fuller method to look for a unit root. To check whether units root is present or not, one uses the ADF. A unit root proves that the temporal data is non-stationary, as the mean and variance change as the data points do. To enhance the Dickey-Fuller test's capacity to represent autoregressive processes, the ADF test employs extra lag components. In the ADF test, the null hypothesis is the assumption of non-stationarity, which is the detection of a unit root, is evident. There is also the possibility of stationarity, which means there is no unit root. Analysts and researchers may compare the test statistic with important values to refute the null hypothesis, demonstrating that the time series exhibits stationarity.

Table 2

Variables	At levels		First difference		Decision
	t-Statistics	Prob.***	t-Statistics	Prob.***	
GDP per capita	-0.857	0.9	-6.18	0.0000	I (1)
Inflation	-4.48	0.0000			I (0)
Government Spending	-5.93	0.0000			I (0)
Exchange rate	-3.55	0.001			I (0)

Table 2 shows that as a result of Augmented Dicky fuller test the variables Inflation, At a 1 per significance level, the acquired p-values for government expenditure and exchange rate are below 0.01, suggesting their stationarity at the level.

A p-value of 0.9 suggests that there is no significant difference from zero in the GDP per capita variable. To ensure stationarity, we created the first difference of this variable.

In time-series analysis, first differencing is a simple method of transforming the data so that it becomes a series of differences. The aim in most cases is to stabilize the data to make its mean and variance to be unchanged over time.

For a time series yt, the first difference series is calculated as:

$$\Delta yt = yt - yt-1$$

Where Δyt is the first difference at time t, and yt and yt−1are consecutive observations in the original time series. The idea behind first differencing is to remove the trend component from the data. If a time series has a trend or exhibits seasonality, differencing can help in stabilizing the mean and making it easier to model and analyze.

After first differencing the variable GDP per capita has also became stationary at 1 percent level.

ARDL Method

After employing the Augmented Dicky fuller method, we can see that three of our variables namely Inflation, The significance is observed at the level for Exchange Rate and Government spending, whereas

for GDP per capita, significance is found at the first difference. The utilization of the ARDL approach in regression analysis becomes pertinent when dealing with variables that exhibit stationarity at both the level and first difference levels.

It is possible to analyze time series using the ARDL model, which stands for Autoregressive Distributed Lag. The model is a combination of autoregressive and moving average parts with lagged levels of variables. This makes it useful for resolving non stationarity and spurious regression. ARDL is often used on cointegration tests, which examine the long-term connections between variables. It is very versatile and can be applied to both variables of order zero (I) and those of order one (I(1)). The model interface not only provides flexibility in selecting lag lengths but also employs tests, such as the bounds test, to determine the existence or absence of a long-term equilibrium.

The ARDL equation for the regression analysis is given below.

$$\Delta \text{lgdppc}_t = \alpha + \beta_1 \Delta \text{lgdppc}_{t-1} + \beta_2 \Delta \text{inf}_t + \beta_3 \Delta \text{inf}_{t-1} + \beta_4 \Delta \text{GovtSpd}_t + \beta_5 \Delta \text{GovtSpd}_{t-1} + \beta_6 \Delta \text{ler}_t + \beta_7 \Delta \text{ler}_{t-1} + \gamma \text{ECM}_{t-1} + \epsilon_t$$

ECMt−1 is the ecm, and it is calculated as :

ECMt−1=lgdppct−1−β2inft−1−β4GovtSpdt−1−β6lert−1ECMt−1=lgdppct−1−β2inft−1−β4GovtSpdt−1−β6lert−1

Incorporating the short-term trends into the research is what the error adjustment term is for. What are the changes from the long-term balance and how do these changes affect the current change in the dependent variable? The rate of adjustment towards the long-term equilibrium is denoted by the coefficient γγ. Cointegration among the variables is indicated if γγ is noticeably non-zero.

For short-run estimation, we can use the coefficients β1, β2,…….,β7,

For long-run estimation, we can use the coefficients β2, β4, β6 in order to assess the effects of price increases, public expenditure, and exchange rate on the long-run equilibrium level of lgdppc.

ARDL Bound test to determine co-integration

In order to analyze co-integration, the bound test for autoregressive distributed lag is employed. In this test, the short-term dynamic relationship is estimated using first lagged variables only, while a number of additional lagged dependent variable terms are added to account for long run relationships. The bounds test compares the coefficients in these models to find out if they are cointegrated. Under this assumption, if there is no cointegration, the short-run estimates are unbiased estimates of the long-run one; if there is cointegration, the short-term estimate will be biased. The bounds test offers relevant values for such a determination, and is one way to use new techniques to learn more about the eternal relationship between variables in time series data.

Table 3

K	F-statistics	Significant %	I (0)	I (1)
3	377.480	10	2.77	3.77
		5	3.23	4.35
		2.5	3.69	4.89
		1	4.29	5.61

The absence of a level connection, or long-term cointegration, between the variables is the null hypothesis for the ARDL bound test.

H0: No level relationship

When the F-statistic falls below the critical values linked with the lower threshold of I (0) regressors, it becomes plausible to accept the null hypothesis, signifying the absence of a level connection. On the contrary, we would reject the null hypothesis asserting the non-existence of levels When the F-statistic surpasses the key parameters that have been set associated with the upper limit of I(1) regressors. According to Table 3, at various degrees of significance, the upper limit I (1) regressors' critical values exceed the 377.480 F-statistic. Since we find evidence of co-integration between the variables, we may reject the null hypothesis of no levels connection. A statistical correlation between the variables has been seen over an extended period of time. Implementing a model for error correction is the next phase in order to get a sense of the relationships, both short- and long-term.

Error correction model

The ARDL Error Correction Model stands as a statistical approach employed in econometric time series analysis. When it comes to cointegration and error correction, it's quite important. When taking into consideration both the independent and dependent variables' historical values, it combines both distributed lag and autoregressive features. The error correction term aims to simulate the adjustment process and accounts for departures from long-run equilibrium. It also means that investigating long-term links between variables, especially those involving nonstationary time series data, as well as short-term interactions is suitable.

Long run estimates

Table 4

Variable	Coefficient	Std. Error	t-Statistics	Prob.
inf	.0073534	.0004577	16.07	0.000*
ler	-.000722	.0044513	-0.16	0.872
GovtSpd	.0002752	.0002219	1.24	0.221

*Significant at 1 percent level

The long-term estimates presented in Table 4 indicate a favorable and meaningfully statistically coefficient for inflation at the 1per (p-value = 0.000). As per the results, GDP per capita, to be more precise, demonstrates a positive association with inflation will rise by.0073534 percent for every one percent increase in the independent variable, inflation. The theory of the Philips curve, which contends that real GDP growth and inflation are mutually exclusive, is compatible with the long-term, minimal change in GDP per capita. In short run higher inflation may lead to temporarily higher output (GDP) as prices and wages adjust, but in the long run, this relationship tends to break down, and an increase in inflation is not associated with sustained or considerable higher GDP per capita.

The coefficients of the other two independent variables exchange rate and Govt Spending are not statistically significant in the overtime.

ECM of ARDL Model Short run estimates

In short run, the short run estimates represent how the system responds to external disturbances in the short term. The immediate dynamics capture the adjustment process of the system in response to short-term shocks. The ARDL model includes autoregressive and distributed lag components, as well as a correction factor for errors. The term for correcting errors is key to representing the short-run adjustment mechanism. The ECM signifies how quickly the system adjusts for departures from long-run equilibrium.

In the near term, a one percent rise in the first difference of inflation is linked to a 0.0018827 percent drop in GDP per capita, according to the data in table 5. The discoveries demonstrate a negative relationship among's expansion and Gross domestic product per capita in the close to term, while the impact of expansion on Gross domestic product per capita in the close to term is negligible.

With an exchange rate coefficient of -1.039054, We notice a negative connection between's the two

variables and GDP per capita in the short term, GDP per capita, decreases by 1.039054 percent for every one percent rise in the initial difference of the exchange rate.

The rate at which the equilibrium is being adjusted is indicated by the coefficient of ECM. It displays the amount of time that the current period's errors from the prior period were fixed. The annual adaptation for transitioning from the short term to the long term is 132.8302 percent, as shown by the coefficient value of -1.328302. It should be mentioned that economies adjust to their equilibrium rate of growth more quickly the greater the error period.

Table 5

Variable	Coefficient	Std. Error	t-Statistics	Prob.
Inf				
D1	.0018827	.0005141	-3.66	0.001*
ler				
D1	-1.039054	0.678043	-15.32	0.000*
LD	-2.374023	0.856234	-27.73	0.000*
ECM	-1.328302	.0359389	-36.96	0.000*

R-Square	Adjusted R-Square
0.9815	0.9788

*Significant at 1 percent level

Having an R-Square value of 0.9815 signifies the strength and appropriateness of our model, as it elucidates 98% of the variability observed in the dependent variable.

Diagnostics tests of the regression residual

Diagnostic tests in regression analysis are conducted to assess the validity of the underlying assumptions of the regression model and to identify potential problems such as heteroscedasticity, autocorrelation, and outliers.

Portmanteau test for white noise

When looking for randomness or white noise in time series data, the Portmanteau test is a good tool to utilize.

Portmanteau Q statistics	19.0932
Prob >chi2	0.8325

We obtain a p-value of 0.8325 and a Portmanteau (Q) statistic of 19.0932. Taking into account an importance level of 5%, we don't have adequate proof to dismiss the invalid speculation, which asserts that the residuals exhibit characteristics of white noise. To rephrase, the evidence for a serial correlation of the residuals is insufficient.

Breush-Godfrey LM test for autocorrelation

Regression model residuals up to a certain lag order may be autocorrelated using the Breusch-Godfrey LM test. Up to a specific slack request, the shortfall of sequential relationship in the residuals is the invalid speculation that the test is trying.

Lags(p)	Chi2	Df	P-value
1	1.885	1	0.1698

H0: No serial correlation

The invalid speculation won't be dismissed at the 5% importance level in light of the fact that the worth of 0.1698 exceeds the threshold of 0.05. This indicates that, at the 5% level of significance, there is insufficient evidence to draw the conclusion that the residuals exhibit serial correlation.

White's test for homoskedasticity and (IM) test

To check whether the residuals of a regression model exhibit heteroskedasticity, White's test is often used. If the error variance remains consistent across observations, then the test is considered successful. There are different versions of White's test, including

the standard White's test and the White's Information Matrix (IM) test.

Chi2(35)	35.11
P-value	0.4630

H0: Homoskedasticity

Ha: unrestricted Heteroskedasticity

The null hypothesis (Ho) for White's test is homoskedasticity meaning that there is constant variance of residuals. The alternative hypothesis (Ha) is unrestricted heteroskedasticity meaning that there is varying variance of the residuals.

The p-value is 0.4630, which is higher than the normally accepted 0.05 threshold of significance. Thus, we would not rule out the possibility of heteroskedasticity by rejecting the null hypothesis.

CONCLUSION AND RECOMENDATION

This study utilized a thorough approach to examine the interconnections between important economic factors using historical data spanning from 1964 to 2022. Reputable sources, such the World Bank's data bank, were used to gather the data. The research focused on four main variables: GDP per capita (as the variable of interest) and three independent variables which included Inflation (measured by GDP deflator), Exchange Rate, and Government Spending. The utilization of descriptive statistics allowed for a comprehensive understanding of the central tendencies, variations, and distributions of these variables.

The study employed rigorous statistical tests, specifically the (ADF) method, to assess the stationarity of the economic variables under investigation. It was found that Inflation, Exchange Rate, and Government Spending exhibited stationarity without the need for any transformation. However, GDP per capita required log transformation and first differencing to achieve stationarity. To account for this mixed stationarity, the study utilized the (ARDL) method that verified the presence of cointegration among the factors, indicating a long-run relationship. The findings indicated a significant positive impact of inflation on GDP per capita, supporting the Phillips curve theory. On the other hand, Exchange Rate and Government Spending did not demonstrate significant effects on GDP per capita in the overtime. The analysis also utilized the (ECM) for short-term evaluation, uncovering an inverse correlation between inflation and GDP per capita. with Exchange Rate exerting a significant negative impact. Diagnostic tests verified the accuracy and reliability of the model by confirming the absence of serial correlation, heteroskedasticity, or deviations from white noise in the residuals.

Based on the results of this study, policymakers need to carefully consider the potential trade-offs that exist regarding the short term, there exists a relationship between price increases and original GDP growth. It is important to recognize that the impacts of Exchange Rate and Government Spending are nuanced and may necessitate specific policy interventions to maintain economic stability. To enhance the understanding of these economic relationships, future research could explore other factors that influence these dynamics and examine the validity of the findings in different countries or regions, expanding the scope of analysis.

REFERENCES

Aßhoff, S., Belke, A., & Osowski, T. (2021). Unconventional monetary policy and inflation expectations in the Euro area. Economic Modelling, 102, 105564.

Azam, A., Rafiq, M., Shafique, M., Ateeq, M., & Yuan, J. (2020). Causality relationship between electricity supply and economic growth: evidence from Pakistan. Energies, 13(4), 837.

Azam, M., & Khan, S. (2022). Threshold effects in the relationship between inflation and economic growth: Further empirical evidence from the developed and developing world. International Journal of Finance & Economics, 27(4), 4224-4243.

Barro, R. J., & Sala-i-Martin, X. (1995). Economic Growth McGraw-Hill. New York.

Chimobi, O. P. (2010). Inflation and economic growth in Nigeria. Journal of sustainable Development, 3(2), 159.

Chowdhury, A. (2002). Does inflation affect economic growth? The relevance of the debate for Indonesia. Journal of the Asia Pacific Economy, 7(1), 20-34.

Clague, C. K. (1997). Institutions and economic development: Growth and governance in

less-developed and post-socialist countries. Johns Hopkins University Press.

Deardorff, A. V. (2000). Developing country growth and developed country response. conference "Dynamic, economic growth, and international trade, V,

Dhar, U. (2021). Asian Development Bank (ADB), Asian Development Outlook 2020: What Drives Innovation in Asia? In: SAGE Publications Sage India: New Delhi, India.

Faria, J. R., & Carneiro, F. G. (2001). Does high inflation affect growth in the long and short run? Journal of applied economics, 4(1), 89-105.

Feldman, M., Hadjimichael, T., Lanahan, L., & Kemeny, T. (2016). The logic of economic development: A definition and model for investment. Environment and Planning C: Government and Policy, 34(1), 5-21.

Garside, W. R. (2007). Introduction: Economic Growth and Development—An Institutional Perspective. In Institutions and Market Economies: The Political Economy of Growth and Development (pp. 1-13). Springer.

Gillman, M., & Kejak, M. (2002). Modeling the effect of inflation: Growth, levels, and tobin. Proceedings of the 2002 North American Summer Meetings of the Econometric Society: Money. http://www. dklevine. com/proceedings/money. htm,

Gokal, V., & Hanif, S. (2004). Relationship between inflation and economic growth (Vol. 4). Economics Department, Reserve Bank of Fiji Suva.

Hayat, M. A., Ghulam, H., Batool, M., Naeem, M. Z., Ejaz, A., Spulbar, C., & Birau, R. (2021). Investigating the causal linkages among inflation, interest rate, and economic growth in Pakistan under the influence of COVID-19 pandemic: A wavelet transformation approach. Journal of Risk and Financial Management, 14(6), 277.

Khan, A. H., Qasim, M. A., & Ahmad, E. (1996). Inflation in Pakistan revisited [with comments]. The Pakistan Development Review, 35(4), 747-759.

Ndoricimpa, A. (2017). Threshold effects of inflation on economic growth: is Africa different? International Economic Journal, 31(4), 599-620.

Salehi Asfeji, N. O., & Balaghi Inaloo, Y. (2019). Analysis the Non-Neutrality of Monetary Policy Effects through Nominal Interest Rate in the Generalized Sidrauski's Model in Iran's Economy: Optimal Control Approach. Monetary & Financial Economics, 26(17), 109-136.

Ullah, S., Apergis, N., Usman, A., & Chishti, M. Z. (2020). Asymmetric effects of inflation instability and GDP growth volatility on environmental quality in Pakistan. Environmental Science and Pollution Research, 27, 31892-31904