OPEN ACCESS

Kashf Journal of Multidisciplinary Research
Vol: 02 - Issue 1 (2025)
P-ISSN: 3007-1992 E-ISSN: 3007-200X
https://kjmr.com.pk

THE IMPACT OF FINANCIAL MONETARY ECONOMIC VARIABLES ON ECONOMIC GROWTH

Aniba Zia
Research Scholar, Economics Department, Khawaja Fareed Government Post Graduate College, Rahim Yar Khan, Pakistan.

Mir Zeeshan Ali
School of Economics and finance, Henan University, Kaifeng, China.

Muhammad Naveed Jamil
Institute of Business Administration, Khwaja Fareed University of Engineering and Information Technology, Rahim Yar Khan, Pakistan.

Zeeshan Mukhtar
Institute of Business Administration, Khwaja Fareed University of Engineering and Information Technology, Rahim Yar Khan, Pakistan.

Kamaran Qader Yaqub
Technical College of Administration, Department of Accounting Technique, Sulaimani Polytechnic University, Iraq.

Kashif Javed
Institute of Business Administration, Khwaja Fareed University of Engineering and Information Technology, Rahim Yar Khan, Pakistan.

****Corresponding author: Aniba Zia (anibazia@gmail.com)***

DOI: https://doi.org/10.71146/kjmr185

Article Info

Abstract

Examining the effects of GDP, FDI, inflation, interest rates and currency rates on Pakistan's economic growth is the primary goal of this research. Pakistan's capacity to lower poverty and raise living standards has been hampered by its erratic economic growth in recent decades. The macroeconomic factors (GDP, FDI, inflation, interest rate and exchange rate) and their effects on Pakistan's economic growth between 1970 and 2022 are examined in this paper. The study investigated the short and long term impacts of macroeconomic factors on Pakistan's economic growth using an Auto Regressive Distributed Lag (ARDL) model. In this model, the Augmented Dickey-Fuller (ADF) unit root test is utilized for Stationarity. The ARDL bond test validated the variables long-term association. The findings indicate that, over the long run, FDI and the exchange rate have a positive and large impact on economic growth, while inflation and the real interest rate have a negative and negligible impact. Additionally, this study shows a strong long-term correlation between the factors. In order to achieve sustainable economic growth, the study's findings suggest that policymakers should prioritize keeping inflation low and promoting investment through advantageous interest rate.

Introduction

Any nation's economic development, including Pakistan's, is greatly influenced by macroeconomic factors, which, depending on how they are handled, can either promote growth or impede advancement (Avelino and Coronel 2021). Let's examine the main macroeconomic factors that affect Pakistan's economic development. The most commonly used measure of a nation's economic performance is its GDP (Irshad, Hussain et al. 2022). More job possibilities, better public services, and higher living standards might result from an increasing economy, which is generally shown by a growing GDP (Easterlin 2013). Pakistan's GDP growth rate has varied throughout time, experiencing both times of fast expansion and slowdowns brought on by external economic shocks, political unrest, and security concerns (Sheikh, Ahmed et al. 2022, Rathore, Mahesar et al. 2023). Increased GDP growth draws in both international and domestic capital, which fuels the development of infrastructure, technological advancement, and industrial growth (Osano and Koine 2016). Researchers consider GDP to be one of the most important indicators of a country's economic development. The government and all financial decision makers utilize GDP as a tool for planning and policymaking. According to (Mohsin and Naseem 2018), a country's GDP is the total market value of all the commodities and services it has generated during a given time period. The most important macroeconomic variables affecting a country's GDP are inflation, interest rates, foreign direct investment and currency exchange rate (Huawei 2022).The main objective of this study is to examine how a few important macroeconomic issues affected Pakistan's economic development from 1972 and 2022. Similar empirical studies indicated that local resources were the best choice for funding growth (Iqbal and Zahid 1998). A country's sustained growth was aided by macroeconomic variables. Another study (Chughtai, Malik et al. 2015) examined the influence of key economic factors on Pakistan's economic growth. The variables of interest rates and inflation rates were the focus of this empirical investigation, which gathered data from the Federal Bureau of Statistics, the World Bank and the Pakistan economic survey for the years 1981-2013. Multiple linear regression modeling, the method employed in this study, showed that macroeconomic factors contribute to Pakistan's economic growth. The currency rate has a beneficial effect on Pakistan's economic growth, whereas inflation and interest rates has a negative one.

This study looked at how exchange rate regimes were affected by GDP growth, GDP per capita, inflation, foreign direct investment, exports, imports, interest rates, foreign debt, and foreign reserves. The sample consisted of five countries from the MSCI developed markets index, emerging markets index, and frontier markets index, respectively, and covered the years 1970–2020. Using binary Logit (quadratic hill climbing) and machine learning (ML), the study investigates the impact of macroeconomic factors on exchange rate regimes. According to the empirical results, the developed markets of Australia, Hong Kong, Japan, New Zealand, and Singapore are the result of prompt and precise exchange rate regime decisions. The failure to adopt exchange rates is a significant barrier that keeps emerging and frontier markets from expanding in tandem with developed markets (Jamil, Rasheed et al. 2023). A study Analyze the impact of GDP, imports, exports, inflation, and interest rates on Pakistan's economic expansion. In recent decades, Pakistan's economic growth has been erratic, which has hampered its efforts to lower poverty and raise living standards. Long-term economic growth is negatively and negligibly impacted by exports, inflation, and interest rates, but positively and significantly by imports. Additionally, the analysis shows that the variables have a substantial long-term association (Aniba Zia, Gorsi et al. 2024). Monetary policy controls; pricing levels have no effect on production or the exchange rate. Monetary policy is the only thing that can modify the direction of the exchange rate and consumer price index. Currency devaluations, like those in Japan, were very successful in fostering stability, and the real exchange rate policy was set. The central bank can stabilize several macroeconomic indicators and disturbances by using a monetary exchange rate and consumer price index system (Jamil 2022). The total monetary value of a nation's goods and services is referred to as its annual GDP, which is a measure of economic activity that

is calculated annually (Ijirshar 2019). Gross domestic product, or GDP, is a key metric that economists use to assess a nations level of economic development. For a given time period, the market price of all goods and services in a nation determines its domestic product. There is a correlation between GDP, inflation and exchange rates according to empirical studies. A nation's economic development is positively impacted by exchange rates and less by inflation (Ang, Piazzesi et al. 2006, Mohsin and Naseem 2018). The impact of foreign direct investment and currency rates on economic development has been empirically studied. One of the widest indices, FDI includes the equities, mutual fund, insurance, and pension fund and securities markets. According to the findings of earlier research, it has a particularly positive impact on a nation's economic development (Wu, Tang et al. 2010). A trade imbalance will affect the government and have a detrimental effect on the economy if nation's exports surpass its imports. On the other hand, a trade surplus will be faced by the government if exports surpass imports. Will a favorable trade balance affect the nation's economic development if it is excessive?

According to financial analysts, the trade openness policies and the higher ratio of the trade size are associated with a country's economy (Ghani 2011, Rahimi and Shahabadi 2011). Foreign direct investment (FDI) is defined as: investments linking a long term relationship and shiny a lasting interest and control a local entity in one economy in creativity resident in an economy other than that of the foreign direct investors (Shar and Malik 2017, Satyanand 2021).

While economic development explained as: economic development is an increase in the capacity of an economy to produce goods and services associated from one period of time to another period of time (Schumpeter and Swedberg 2021). Foreign direct investment (FDI) has a vast positive impact of developing countries economic development (Mottaleb 2007, Herzer 2012). Many international institutions, economists and politicians consider FDI using as a major tool of the economic development of a country to solve the solution of economic issues (Lall 2002). FDI plays a vital role in the economic expansion when there is a lack of domestic savings (Khan 2007). FDI has been developed as a substance for rushing the economic development of developing countries (Akyüz 2015). It is important capital inflows and also a major source of technology transfer in the swarm country. The technology transfer and capital inflows are measured as accelerators for economic development, that's why FDI is more likely to promote the economic development of the warm country (Rauf, Ali et al. 2023). FDI encourages the economic development of a warm country through several channels but the most important channels are technology transfer and quiet overs. Relationship between two factors economic development and FDI is an unsettled topic between economist from both theoretical and empirical view. Different studies have been approved out on finding the standing and causality between variables. Foreign direct investment provides access to resources needed by developing like capital, managerial skills, access to the market, technology and business abilities. FDI is considered as a catalyst for economic development. Developing countries have shortage of managerial practices, technology and poor financial development system (Sabir, Latif et al. 2019). Foreign direct investment (FDI) contributes to economic development by increasing employment creation, capital flow, technology transfer and increase in exports (Osano and Koine 2016). Transition and developing countries frequently shortage of the necessary capital resources and advancement of technology, to fill this gap developing and transition countries towards foreign investment.

An in-depth analysis of the 195 countries, a study of exchange rate regimes, covered their impact on macroeconomic stability and national development period 1961 to 2020. High, upper-middle, middle, and lower-middle economies' income levels are under controlled by new measures of foreign exchange regimes, such as GDP growth, inflation, per capita GDP, and foreign trade. Macroeconomic stability and the impact of exchange rate regimes on economies are investigated using the Generalized Method of Movements (GMM). Globally, the US dollar was by far the most widely used currency. Exchange rate stabilization, currency influence reduction, and exchange barrier removal are the goals of international governments. The currency rate regime a country selects has a direct impact on its growth. While the

choice of exchange rate arrangement has little effect on a country's long-term growth, exchange rate anchor currencies—such as the US dollar, British pound, euro, Chinese yuan, French franc, and Deutschmark—have a significant impact on the growth of countries with different income levels. Provide new exchange rate management measures and the Chinese Yuan as a possible substitute anchor currency for the world economy (Jamil 2022). Exchange rate shows that how much unit of one nation's currency can be purchased with one unit of domestic currency. Exchange rate is a factor that determines the currency's rate of exchange. It is settled on supply and demand of nation's currency; it may turn out fastest moving currency's price and bring all the foreign capital in the economy. Exchange rate can influence the decision of policy makers and affect the exports and imports volume. It may also affect the allocation of goods, imports, exports, balance of payments and reserve money .(Rogoff 2001, Schembri 2024), stated that exchange rate flexibility generates significant problem for imports and exports. (Ahmad, Maqbool et al. 2024) also proposed that negative relationship between exchange rate instability, imports and exports exists in the short run and long run. The main aim of this research is to present an efficient concept of the theory and structure of exchange rate that are required to solve the important economic problems facing the economy in the country, such as volatile exchange rate, frustration of government and unbalanced financial circumstances to have control over domestic money market. Exchange rate displays that how much unit of one nation's currency can be purchased with one unit of domestic currency can be purchased with one unit of domestic currency. Moreover, exchange rate is a change feature that determines rate of change of currencies. While exchange rates volatility displays that exchange rate is stable on demand and supply one nation's currency, it may go out fastest moving price of currency and take all the foreign capital in the economy. Exchange rate volatility can affect the decisions of policy makers and affect the volume of imports and exports. It can also affect the distribution of industrial of goods, imports, exports, reserve money and balance of payments. Exchange rate volatility chances to domestic investors to invest in foreign currency to obtain higher profits and the impact of exchange rate volatility level raises of exports, improves balance of payments and provides a large incentive to domestic economy's growth. Furthermore, the investors increase global diversities in the asset market. A statement is made-up that exchange rate volatility and selected macro-economic variables play a pivotal role in the foreign and domestic economy. So, it is considered that an appropriate time for an analysis for the Pakistan's economy. However, theory commends that imports, exports, exchange rate, reserve money and manufacturing products in the open economy have profound relationship with each other. The primary purpose of this study is to see whether exchange rate affects the other variables. Problem stated the primary macroeconomic factors that affect a nation's economic development are foreign direct investment (FDI), the exchange rate, inflation and interest rate. Thus, is evident that the economy is experiencing issues due to a decrease in foreign investment and high levels of inflation, interest rate and currency rates. Pakistan faces a number of difficulties and issues related to those signs of instability and this study ignores the problem and come up with a remedy. Study objectives described to assess the performance of macro-economic variables and explore the relationship between FDI, exchange rate, Inflation, interest rate with economic development of Pakistan. Study raised research questions; what impact does the macroeconomic variable have on Pakistan's economic development performance? What part does the macroeconomic variable play in improving Pakistan's economic development performance? Why do macroeconomic factors affect Pakistan's economic development performance? When does Pakistan's economic development performance depend on macroeconomic variables? The study findings will provide a baseline for future research and help researchers focus on additional aspects resulting in low macro-economic indicator performance and economic development of Pakistan.

Literature Review

This review of the literature examines the main financial and monetary factors that influence economic growth and summarizes the results of numerous studies. The relationship between financial and monetary economic variables and economic growth has been thoroughly examined in economic literature;

policymakers and economists need to understand this relationship in order to develop effective economic strategies that promote sustainable development. An economy's financial development is the expansion and enhancement of its financial markets, financial institutions, and financial tools. It encompasses credit availability, financial services accessibility, and the breadth and effectiveness of financial markets. By facilitating innovation, lowering the cost of capital, and converting savings into profitable investments, a strong financial system can promote economic expansion. According to Schumpeter (1911), banks and other financial intermediaries are essential for fostering economic growth because they help entrepreneurship and channel savings into investments (King and Levine 1993, Festré and Nasica 2009). When King and Levine (1993) used cross-country data, they discovered a positive correlation between economic growth and financial development, as indicated by metrics like private credit to GDP. By enhancing capital allocation and encouraging technical innovation, they contend that financial institutions support economic growth (Handa and Khan 2008, Cheng, Ho et al. 2014). (Beck, Levine et al. 2000) used a number of metrics, including the size of stock markets and the ratio of credit to GDP in the private sector, to validate the beneficial effect of financial development on economic growth.

Exchange rates show how much one currency is worth in relation to other currencies. Promoting trade and investment requires a stable or competitive exchange rate since it influences the price of imports, exports, and foreign investment flows.

While (Edwards 1988) found that exchange rate regimes (fixed vs. flexible exchange rates) do not significantly affect long-term growth, instability and volatility in exchange rates can create uncertainty that harms investment. Further looked at the relationship between exchange rate policies and economic growth in developing countries and found that a stable exchange rate, along with sound monetary policies, supports growth by reducing uncertainty and promoting international trade. Sachs and Warner (1995) suggested that countries with overvalued exchange rates frequently experience economic stagnation due to distorted trade and investment flows (Sachs 1999, Rodrik 2007). Financial development was very important and asymmetrical connections with a nation's growth (Jamil and Rasheed 2024).

Because interest rates have an impact on the cost of borrowing and saving, they have a significant impact on economic activity. Interest rates are changed by central banks to control inflation and either boost or hinder the economy. Mishkin (1996) came to the conclusion that steady and low interest rates encourage economic growth by increasing the appeal of borrowing for consumers and enterprises (Mang’eli 2012). According to Aghion et al. (2004), low interest rates encourage investment in technical advancement and innovation, which eventually propels economic growth (Aghion, Howitt et al. 2018). Mankiw (2016) shown that the central bank's power to determine interest rates has a major effect on economic expansion, with low rates encouraging investment and consumption (Obim, John et al. 2018).

The study investigates the impact of major economic variables on economic development of Pakistan. The variables used in this study were inflation rate, exchange rate and interest rate. In this study the data was collected from the economic survey of Pakistan, World Bank and federal bureau of statistics during the time period of 1981 to 2013. Moreover, the technique used in this study was multiple linear regression models. Thus, this study concluded that in Pakistan economic development both inflation and interest rate has negative impact while exchange rate was positively significant on the economy (Chughtai, Malik et al. 2015). The analysis of GDP and macroeconomic variables on economic development of Pakistan, The variables used in this study were unemployment, foreign direct investment, inflation and GDP. In this study the data was collected from the State Bank of Pakistan, World Bank and Pakistan economic survey during the time period of 1983-2012.Moreover, Ordinary least square model was used to analyze the data. Thus, this study concluded that there was no long run relationship of unemployment with inflation, GDP and import. While in short run causality of inflation on unemployment (Ademola and Badiru 2016, Daniel, Israel et al. 2021). The impact of macro-economic variables on economic development of Pakistan, study

the data was collected from the economic survey of Pakistan, World Bank and Federal bureau of statistics during the time period 1971 to 2020. Moreover, the technique used in this study was multiple linear regression models. Thus, this study concluded the significant positive impact on the economic development of Pakistan (Anwar, Sinha et al. 2022).

The impact of macroeconomic variables on GDP growth of Pakistan, The variables used in this study was GDP, foreign direct investment, balance of trade and exchange rate. In this study the data was collected from the state bank of Pakistan and World Bank during the time period of 1980 to 2013. Moreover, the technique used in this study was multivariate regression test. Thus, the study concluded that the inflation and interest rate has negative impact on GDP (Tsai, Morse et al. 2020). One of Schumpeter's most significant works and the one that first brought him notoriety is The Theory of Economic Development. He raises an important query: why does economic growth occur in cycles as opposed to uniformly? Schumpeter challenges the dominant economic theory, which viewed economics as equilibrium, by arguing that this is because economics is continually changing due to internal forces (Schumpeter and Swedberg 2021). Impact of trade openness and macroeconomics variables on GDP growth of Pakistan, The variables used in this study were GDP, trade openness, employment rate, exchange rate and inflation rate. The annual time series data was used in this study. Moreover, the technique used in this study was Ordinary least square. Thus, this study concluded that the foreign direct investment and exchange rate have positive impact on GDP growth of Pakistan (Ramzan, Asif et al. 2013). Explored the impact of macroeconomic variables on GDP growth of Pakistan, The variables of this study were GDP, exchange rate, interest rate and foreign direct investment. In this study the data was collected from World Bank and state bank of Pakistan during the time period of 1980 to 2013. Moreover, the technique used in this study was multivariate regression test. Thus, this study concluded that the relation with GDP of interest and inflation rate were negative (Jilani and Asim 2010, Saymeh and Orabi 2013). (Ahmad and Bashir 2013) investigated the role of investment in the course of economic development in Pakistan. The variables used in this study were public investment, private investment, GDP and public consumption. In this study the data was collected from economic survey of Pakistan and state Bank of Pakistan during the period (Bint-e-Ajaz and Ellahi 2012). Furthermore, the technique used in this study was vector autoregressive approach (Salmanov, Zaernjuk et al. 2016). Thus this study concluded that private and public Investment were positive impact on economic development of Pakistan but the growth was largely driven by private investment than public investment. In short run the private investment was positively affected the growth of a country but also the negative impact on public investment and government consumption expenditure on the growth (Bou-Habib and Utz 2024).

The impact of exchange rate and economic development in Pakistan, The variables used in this study were economic development, inflation rate, foreign direct investment and nominal exchange rate. In this study the data was collected from economic survey of Pakistan and WDI during the time period 1975 to 2011. Moreover, the technique used in this study was ordinary least square. Thus, this study concluded that foreign direct investment has positive affect on economic development of Pakistan (Ahmad, Ahmad et al. 2013). The economic development and exchange rate volatility in case of Pakistan. The variables used in this study were import, export, growth and exchange rate. In this study the data was collected from IMF and economic survey of Pakistan during the time period of 1982 to 2007. Moreover, the technique used in this study was OLS, F- test, error correlation modelling and co-integration analysis. Thus, this study concluded that reserve money was negative impact on economic development. May reduce the international reserve and increase in domestic reserve (Kemal and Qadir 2005, Nayak and Baig 2019). The role of FDI inflow in economic development, the variables used in this study was GDP, population growth, government consumption and inflation. In this study the data was collected from Word Bank during the period of 2000 to 2019. Moreover, the method used in this study was regression. Thus, this study concluded that FDI inflow has positively effect on economic development (Abdouli and Hammami

2017, Chorn and Siek 2017). The macroeconomic determinant of economic development in Pakistan, The variables used in this study was GDP, import, export and foreign debt. In this study the data was collected from Pakistan economic survey during the period of 1959 to 1997. Moreover, the method used in this study was OLS. Thus, this study concluded that the budget deficit has negative relation to both output growth variables, also negatively related the external debt to growth and the domestic resources was the best alternative to finance growth (Iqbal and Zahid 1998). The effect of FDI on economic development of Pakistan, the variables used in this study was GDP, FDI, inflation, financial consumption expenditure and military expenditures. In this study the data was collected from State Bank of Pakistan during the period of 1974 to 2018. Moreover, the co-integration test was used in this study. Thus, this study concluded that the variable such as FDI and military expenditure have positive impact on economic development (Alptekin and Levine 2012, Arshad, Syed et al. 2017, Aziz and Khalid 2019). Foreign direct investment exports and domestic output in Pakistan, The variables used in this study were FDI, export, real exchange rate and foreign income. In this study the data was collected from international financial statistic and economic survey of Pakistan during the period 1972 to2001. Moreover, the method used in this study was TYDL argument lag method TYDL argument lag method. Thus, this study concluded that founded the long run relation between domestic growth, FDI and export (ul Husnain, Khan et al. 2011). The study used ARDL models and indicated foreign direct investment failed to significantly impact any of the five models over the short- or long-term (Jamil and Rasheed 2024). The impact of foreign direct investment on economic development of Pakistan, the variables used in this study were GDP, domestic capital, labor force, foreign capital and total export. In this study the data was collected from State Bank of Pakistan during the period 2008 to 2013. Moreover, the method used in this study was co-integration and regression analysis. Thus, this study concluded that positive relation between FDI and growth during the period 2008 to 2013 and also shows positive and long run relation with GDP (Narayan, Narayan et al. 2010, Swift 2011, Makris and Stavroyiannis 2019).

The response of Pakistan's economic development to macro-economic and variables as asymmetric analysis; the variables used in this study were education index, FDI and infrastructure index. In this study the data was collected from World Bank during the period 1990 to2020. Moreover, the method used in this study was VECM. Thus, this study concluded that the variable like quality of FDI inflow, education and infrastructure development was playing positive role in the economic development of Pakistan (Sohail, Ullah et al. 2023). Macro-economic factors determining the growth of Pakistan, the variables used in this study were GDP, TOT and education. In this study the data was collected from World Bank during the period 1997 to 2019. Moreover, the method used in this study was ARDL and augmented dickey fuller. Thus, this study concluded that the continuous increase in consumer price index will generate inflation and GDP decrease (Malenković 2023). The population growth and economic development in Pakistan (Afzal 2009), The variables used in this study were population growth, real gross domestic investment growth and export growth. In this study the data was collected from IMF during the period 1950 to 2001. Moreover, the method used in this study was OLS. Thus, this study concluded that the cross countries evidence on population growth and economic development relationship was not uniform and consistent (Afzal 2009).

The impact of oil price volatility and macroeconomic variables on economic development of Pakistan, The variables used in this study were GDP, oil price, trade balance and public sector investment. In this study the data was collected from the World Bank and international financial statistics during the period 1973 to 2014. Moreover, the method used in this study was correlation coefficient. Thus, this study concluded that the public sector investment and trade balance has negative relation consider with oil price volatility. Price volatility also has weak negative relation with trade balance. Public sector investment has moderate positive relation with trade balance (Jawad and Niazi 2017). The macroeconomic instability and its impact on GDP (Ali and Rehman 2015). The variables used in this study were inflation rate, trade

deficit, budget deficit and unemployment rate. In this study the data was collected from World Bank and Pakistan economic survey during the period 1980 to 2012. Moreover, the method used in this study was algorithm. Thus, this study concluded that the cyclical output has positive impact on unemployment and in the long run there is positive relationship between GDP and financial development (Mhadhbi 2014, Ibrahim and Alagidede 2018). The impact of FDI on the economic development of Pakistan (Falki 2009, Siddique, Ansar et al. 2017, Khan, Xue et al. 2023), the variables used in this study were GDP, FDI, inflation rate, exchange rate and interest rate. In this study the data was collected from World Bank and state bank of Pakistan during the period 1991 to 2015. Moreover, the method used in this study was time series data. Thus, this study concluded that FDI has positive impact on the Pakistan's economic development (Rehman 2016, Siddique, Ansar et al. 2017). The international incidences, macroeconomic variables and their volatility effect on economic development. The variables used in this study were capital formation, cash surplus, export, FDI and exchange rate. In this study the data was collected from World Bank. Moreover, the method used in this study was least square. Thus, this study concluded that inflation and exchange rate have positive volatility on economic development (Ahmad, Ahmad et al. 2013, Olamide, Ogujiuba et al. 2022). The impact of inflation rate, imports, exports and tax on the economic development of Pakistan (Aslam, Hakeem et al. 2018), the variables used in this study were GDP, inflation, import, export and tax. In this study the data was collected from world development indicator during the period 1977 to 2016. Moreover, the method used in this study was least square. Thus, this study concluded that the import, inflation rate, export and tax have negative relationship with the Pakistan's economic development but the exports have positive relationship with the economic development. Capital growth becomes Economic Development at the nature rate while equal to population growth, with inventions excluded (Little 1957, Michl and Tavani 2020, Saeed 2021, Michl and Tavani 2022).

H1: Macroeconomic variable have a positive impact on economic development of Pakistan.

Research Methodology

This study focuses on how macroeconomic factors affect Pakistan's economic growth. After reviewing prior research, this chapter will give a general overview of the macroeconomic variables being studied and a step-by-step guidance to the detailed research design and methodology used to evaluate different hypotheses and data gathering methods. This study's main focus will be in diagnosing the following goals: "To investigate the impact macroeconomic variables in economic development inward to improve their Economies of Pakistan." The impact of macroeconomic variables on Pakistan's economic development will be the main topic of this research project. The following query will be addressed by the finding: Do the chosen independent macroeconomic variables have an effect on Pakistan's economic development? If so, how do macroeconomic factors affect Pakistan's economic growth? This research study naturally appeals to a positivistic research paradigm time series data required to achieve and contemporary the objective of macroeconomic variable impact on economic development of Pakistan. The goal of this research project is to determine how certain independent variables in Pakistan affect dependent variables. It also examines the reasons for economic success by doing a thorough analysis between a few chosen businesses. Population and Sample Size of 51 years, from 1970 to 2022, secondary data will be gathered and analyzed. The lack of quarterly data, which would have allowed us to more precisely pinpoint the onset of specific patterns, has limited the scope of this investigation. Using well-known databases like the World Bank, IMF, Central Bank Data Base, Economic Survey and reliable data stream websites, secondary time series data for the sample size was gathered. Through Descriptive, Auto Correlation, Regression, ARDL and Graphical analysis techniques applied data estimations, this research project aims to identify the influence of particular macroeconomic variables on Pakistan's economic growth.

Results and Discussion

Table No. 1 Descriptive Statistic

	GDP	FDI	Inflation	Exchange Rate	Interest Rate
Mean	4.76	0.73	8.88	49.40	142.82
Median	4.78	0.58	7.88	33.86	119.42
Maximum	11.35	3.67	26.66	162.91	237.48
Minimum	-1.27	-0.06	2.53	4.76	96.49
Std. Dev.	2.42	0.76	5.06	43.00	47.61
Observations	52	52	52	52	52

The above table is showing the descriptive statistic of macro-economic variable influencing capacity. Table 1 shows the summary of statistics with mean, median, maximum, minimum and standard deviation. These descriptive statistics shows the projected values of GDP, FDI, inflation, exchange rate and interest rate. The mean value of inflation (consumer prices annual %) stays at 8.88 while GDP carries its mean as 4.76. thus, the mean value of FDI is 0.73 while exchange rates mean value is 49.40 and the interest rate mean value is 142.82, whose variables mean value and standard deviation higher, its mean potential of interest is higher. In this table the mean and standard deviation of interest rate is higher than other variables. Its mean that the interest rate having more potential of interest.

Table No. 2 Correlation

	GDP	FDI	INFLATION	EXCHANGE RATE	INTEREST RATE
GDP	1.0000				
FDI	-0.1522	1.0000			
INFLATION	-0.1151	0.0941	1.0000		
EXCHANGE RATE	0.3436	-0.5524	0.1443	1.0000	
INTEREST RATE	-0.2388	0.2868	0.2272	-0.2144	1.0000

Table 2 describes the correlation coefficient among five variables GDP, FDI, inflation, exchange rate and interest rate. It is described in the above table that GDP has strong positive relation with exchange rate (correlation coefficient value of 0.3436). It viewed that GDP has a negative weak relation exist with FDI (correlation coefficient value of -0.1522). Interest rate has moderate negative relation with GDP (correlation coefficient value of -0.2388). Correlation analysis demonstrates that the research data is free of Multicollinearity and that the focus variables are uncorrelated with one another. The correlation matrix determines the correlation findings based on values that are close to +1 and -1 after checking values between +1 and -1. Consequently, Table 2's findings indicate that the dependent and independent variables do not exhibit any series association.

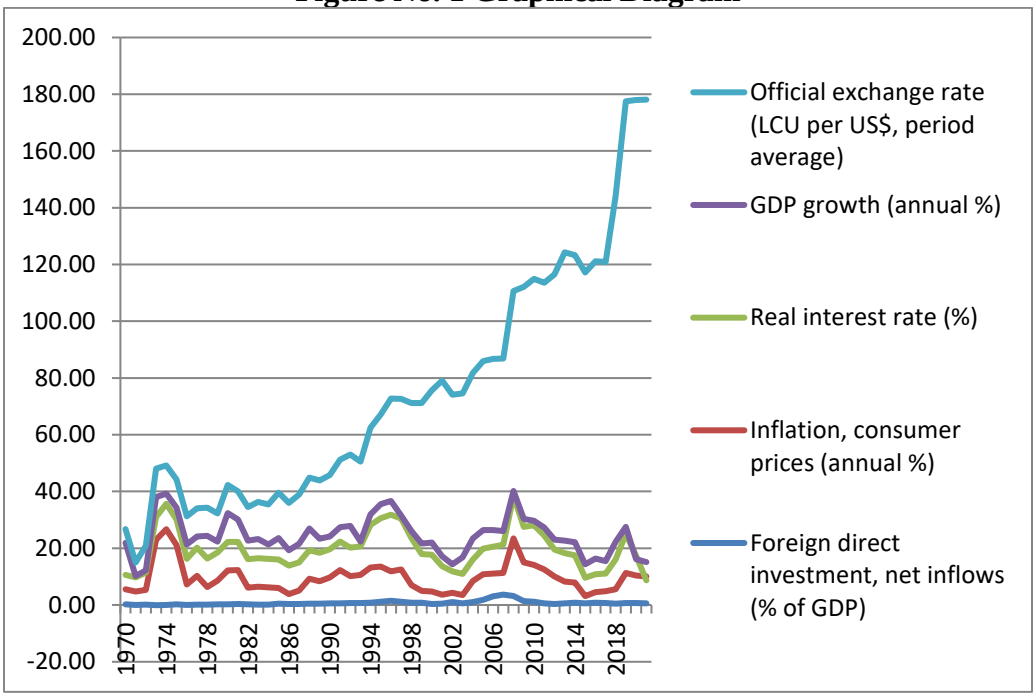
Table No. 3 Unit Root Test Augmented Dickey-Fuller test statistic

ADF Test	Level	Prob.*	First Difference	Prob.*
GDP	-6.6191***	0.0000	-9.8233***	0.0000
FDI	-3.0879**	0.0339	-4.9174***	0.0002
INFLATION	-3.4832**	0.0125	-6.9348***	0.0000
EXCHANGE RATE	-1.046499	0.7297	-5.5437***	0.0000
INTEREST RATE	-2.559277	0.1082	-4.2008***	0.0017

Table 3 describes the results of ADF test. The Augmented Dickey-Fuller (ADF) unit root test, which tells us whether a time series is stationary (i.e., has no unit root) or non-stationary (i.e., has a unit root), as shown in the table you provide. A stationary series is crucial for many statistical and econometric models

because its mean, variance, and auto-covariance remain constant across time. Here is a summary of the main components. This column displays the p-value associated with the ADF test statistic; if the p-value is less than 0.05, it suggests that the null hypothesis (the presence of a unit root) can be rejected, indicating that the series is stationary. The ADF test statistic is compared to critical values to determine whether the series is stationary. All series, with the exception of GDP, which is already stationary at its level, are stationary at the first difference. All over the results of this table is that all the variables are stationary at the 1st different that meet the estimation Requirements.

Figure No. 1 Graphical Diagram



The study Figure 1 shows the relationship between the GDP and macroeconomic variable trend different data period 2001 to 2022. It's important because it set future direction for macroeconomic source which more efficient and development friendly. Exchange Rate performing higher trend as compare to others macro variables.

Table No. 4 Regression of Economic development

Variable	Coefficient	t-Statistic	Prob.
FDI	0.858882*	1.784347	0.0807
Inflation Consumer Price	-0.072217	-1.043231	0.3021
Real Effective Exchange Rate	0.033113****	6.386451	0.0000
Real Interest Rate	-0.006504	-0.077187	0.9388
R-squared			0.111185
Durbin-Watson stat			1.871945
Log likelihood			-116.1945

Prob. 0.01*** 0.05** 0.10*

The above table 4 is showing the macroeconomic variable impact on economic development of Pakistan. Foreign Direct investment coefficient 0.85882* 10% has significant positive impact on economic development of Pakistan. Inflation coefficient -0.072217 has negative impact on economic development

of Pakistan. Real effect of exchange rate coefficient 0.033113*** 1% has high significant positive impact on economic development of Pakistan. Real Interest rate coefficient -0.006504 has negative impact on economic development of Pakistan. The above table shows FDI and Real effective exchange rate have more influencing macroeconomic variable in economic development of Pakistan.

Table No. 5 ARDL Test

Variable	Coefficient	t-Statistic	Prob.*
GDP	-0.273256	-1.79384	0.081
FDI	1.287659	1.808725	0.0786
INFLATION	-0.148052*	-2.019362	0.0507
REAL EFFECTIVE EXCHANGE	0.03239***	3.976843	0.0003
REAL INTEREST RATE	-0.479684**	-2.353447	0.024
C	4.541047**	2.353362	0.024
R-squared			0.546739
Durbin-Watson stat			1.906836
Log likelihood			-87.09224
F-statistic			4.0573***

Prob. 0.01*** 0.05** 0.10*

The table No. 5 showing the ARDL models short run estimation results for Pakistan's economic development result showing the inflation and real interest rate insignificantly impact on GDP. A 1% increase in FDI decreases GDP by approximately 1.28%, with a p-value of 0.0786, indicating statistical significance. Conversely, a 1% decrease in inflation increases the GDP by -0.148%, with significant p-value of 0.0507. The coefficient for GDP suggests an adjustment mechanism in the ARDL model. These findings highlight the importance of these macroeconomic variables in Pakistan's economic development.

Table No. 6 Bond Test

Null Hypothesis		No long run relationships exist		
F-statistic	k	Critical Value Bounds		
14.51976	4	(I0) Bound	Significance	(I1) Bound
		2.45	10%	3.52
		2.86	5%	4.01
		3.74	1%	5.06

Table 6 shows the ARDL bond test results that the F-statistic is 14.51976, which is significantly higher than the critical values at all significance level (10%, 5% and 1%). For example, at the 5% significant level, the critical values are 2.86 for I (0) and 4.01 for I (1). Since the F-statistic surpasses the upper bound value I (1)) across all levels, it confirms the existence of a long run co integration relationship among the variables, indicating stable long term equilibrium.

Table No. 7 ARDL Short and Long Run Estimation

Short Run			
Variable	Coefficient	t-Statistic	Prob.
FDI	1.2877*	1.8087	0.0786
INFLATION	-0.1481*	-2.0194	0.0507
REAL EFFECTIVE EXCHANGE	0.0324***	3.9768	0.0003
REAL INTEREST RATE)	0.1838	1.4486	0.1559
Coint Eq (-1)	-1.2733****	-8.3585	0.0000
Long Run			
Variable	Coefficient	t-Statistic	Prob.
FDI	0.3298	0.9772	0.3348
INFLATION	-0.1626***	-2.7733	0.0086
REAL EFFECTIVE EXCHANGE	0.0254***	4.4843	0.0001
REAL INTEREST RATE	-0.1016	-1.2058	0.2355
C	3.5665**	2.4198	0.0206

Prob. 0.01*** 0.05** 0.10*

Table 7 shows the ultimate result of our ARDL co-integration. Both the long run and short run coefficients of the respective variables are given in this table. Auto Regressive Distributed Lag, or ARDL, is a well-liked econometric model for examining both short- and long-term relationships between variables. It is especially helpful when variables with different orders of integration are present in the time series data; that is, when the variables may be stationary at levels I(0) or at initial differences I(1), but not always integrated of order two or higher I(2). Current values can be explained by using past values of the independent variables (lagged independent variables) and dependent variable (lagged dependent variable) in dynamic modeling made possible by the ARDL technique. The coefficient of FDI in the long run model showed the FDI has a significantly positive impact on the economic development. The coefficients of inflation interest rate in both short run and long run model are significantly negative. While exchange rate has significantly positive in both short run and long run. The long run relationship shows that 1% increase in FDI is associated with higher GDP growth about 0.3298. In short run, we found that FDI has significantly positive effect on economic growth having its coefficient 1.2877, respectively at a significance level of 10%.

2 Conclusion, recommendation and limitation

The study estimates the macroeconomic variable impact on economic development of Pakistan. This study used time series data from 1970 to 2022 to examine how macroeconomic factors affected Pakistan's economic growth. The impact of macroeconomic indicators on Pakistan's economic growth is estimated using two different methods. The first is the historic trend of macroeconomic indicators, while the second is the ARDL estimation of macroeconomic indicators with Pakistan's GDP. Consequently, the historical trend of Pakistan's macroeconomic indicators from 1970 to 2022 includes GDP, real interest rates, inflation, foreign direct investment and exchange rates. It showed how Pakistan's gross domestic product might be impacted by macroeconomic indicators. The pattern indicates that the real interest rate declines when the exchange rate exceeds GDP.

The ARDL model is a flexible and effective method for examining both short-term and long-term relationships between variables. A thorough grasp of the connections between economic factors is offered by the ARDL model, which estimates both the immediate (short-run) and persistent (long-run) effects. The error correction term is very helpful in time series econometrics since it captures the adjustment process back to equilibrium. According to the results of the Auto Regressive Distributed Lag (ARDL)

model, Pakistan's economic development is positively impacted by foreign direct investment and exchange rates. On the other hand, Pakistan's economic development is negatively impacted by inflation and real interest rates. Data study indicates a long-term negative correlation between inflation and economic growth. The real interest rate coefficient indicates a negative correlation with GDP. This study used the Auto Regressive Distributed Lag (ARDL) technique to examine the relationship between independent and dependent variables. Inflation and GDP were stationary at the level, whereas foreign direct investment, the exchange rate and the real interest rate were stationary at the first differential. Pakistan's GDP is significantly impacted by foreign direct investment (FDI) and exchange rates. This study's findings indicate that while FDI and the exchange rate have a favorable correlation with economic development, inflation and interest rates have a negligible and negative link with Pakistan's economic development. The dynamic link or the influence of FDI, inflation, real interest rates and exchange rates on Pakistan's economic development should be examined using estimation technique. The results of this conclude the all macroeconomic variable important for economic development of Pakistan but FDI and Real effective exchange rate have more influencing macroeconomic variable in economic development of Pakistan.

Reference

Abdouli, M. and S. Hammami (2017). "Economic growth, FDI inflows and their impact on the environment: an empirical study for the MENA countries." Quality & Quantity **51**(1): 121-146.

Ademola, A. and A. Badiru (2016). "The impact of unemployment and inflation on economic growth in Nigeria (1981–2014)." International Journal of Business and Economic Sciences Applied Research **9**(1).

Afzal, M. (2009). "Population growth and economic development in Pakistan." The Open Demography Journal **2**(1).

Aghion, L., et al. (2018). Financial development and innovation-led growth. Handbook of finance and development, Edward Elgar Publishing**:** 3-30.

Ahmad, A., et al. (2013). "Exchange rate and economic growth in Pakistan (1975-2011)." Ahmad, Arslan, Najid Ahmad, and Sharafat Ali." Exchange Rate and Economic Growth in Pakistan (1975-2011)."(2013): 740-746.

Ahmad, F. and T. Bashir (2013). "Explanatory power of macroeconomic variables as determinants of non-performing loans: Evidence form Pakistan." World Applied Sciences Journal **22**(2): 243-255.

Ahmad, S., et al. (2024). "Analyzing the dynamics of import demand function in Pakistan: Long-term and short-term relationships with key economic factors." Asian Journal of Economics and Empirical Research **11**(2): 50-59.

Akyüz, Y. (2015). "Foreign Direct Investment, Investment Agreements, and Economic Development: Myths and Realities." Ekonomi-tek **4**(1): 1-47.

Ali, A. and H. U. Rehman (2015). "Macroeconomic instability and its impact on gross domestic product: an empirical analysis of Pakistan." Pakistan Economic and Social Review: 285-316.

Alptekin, A. and P. Levine (2012). "Military expenditure and economic growth: A meta-analysis." European Journal of Political Economy **28**(4): 636-650.

Ang, A., et al. (2006). "What does the yield curve tell us about GDP growth?" Journal of econometrics **131**(1-2): 359-403.

Aniba Zia, M. N. J., et al. (2024). "THE IMPACT OF MACRO ECONOMIC VARIABLES ON ECONOMIC GROWTH OF PAKISTAN." Contemporary Journal of Social Science Review **2**(04): 38-56.

Anwar, A., et al. (2022). "The nexus between urbanization, renewable energy consumption, financial development, and CO 2 emissions: Evidence from selected Asian countries." Environment, Development and Sustainability: 1-21.

Arshad, A., et al. (2017). "Military expenditure and economic growth: a panel data analysis." Forman Journal of Economic Studies **13**(1-12): 161-175.

Aslam, A., et al. (2018). "Impact of Inflation Rate, Imports, Exports and Tax on the Economic Growth of Pakistan." Inter. J. Res. Sci. Innov **5**: 51-56.

Avelino, G. and D. A. Coronel (2021). "Macroeconomic Determinants of Economic Growth in Developing Countries: A Cross-Sectional Analysis." Journal of Business and Economic Options **4**(1): 16-24.

Aziz, N. and U. Khalid (2019). "Armed conflict, military expenses and FDI inflow to developing countries." Defence and Peace Economics **30**(2): 238-251.

Beck, T., et al. (2000). "Finance and the Sources of Growth." Journal of financial Economics **58**(1-2): 261-300.

Bint-e-Ajaz, M. and N. Ellahi (2012). "Public-private investment and economic growth in Pakistan: an empirical analysis." The Pakistan Development Review: 61-77.

Bou-Habib, C. and J. N. F. R. J. Utz (2024). "Public Investment, Government Consumption, and Growth: A Long-run Analysis."

Cheng, S.-Y., et al. (2014). "The finance-growth relationship and the level of country development." Journal of Financial Services Research **45**: 117-140.

Chorn, S. and D. Siek (2017). "The impact of foreign capital inflow on economic growth in developing countries." Journal of finance and economics **5**(3): 128-135.

Chughtai, M. W., et al. (2015). "Impact of Major Economic Variables on Economic Growth of Pakistan." Acta Universitatis Danubius: Oeconomica **11**(2).

Daniel, S. U., et al. (2021). "Relationship between inflation and unemployment: Testing Philips curve hypotheses and investigating the causes of inflation and unemployment in Nigeria." Traektoriâ Nauki= Path of Science **7**(9): 1013-1027.

Easterlin, R. A. (2013). "Happiness, growth, and public policy." Economic Inquiry **51**(1): 1-15.

Edwards, S. (1988). "Real and monetary determinants of real exchange rate behavior: Theory and evidence from developing countries." Journal of development economics **29**(3): 311-341.

Falki, N. (2009). "Impact of foreign direct investment on economic growth in Pakistan." International Review of Business Research Papers **5**(5): 110-120.

Festré, A. and E. Nasica (2009). "Schumpeter on money, banking and finance: an institutionalist perspective." The European Journal of the History of Economic Thought **16**(2): 325-356.

Ghani, G. M. (2011). "The impact of trade liberalisation on the economic performance of OIC member countries." Journal of Economic Cooperation and Development **32**(1): 1-18.

Handa, J. and S. R. Khan (2008). "Financial development and economic growth: a symbiotic relationship." Applied Financial Economics **18**(13): 1033-1049.

Herzer, D. (2012). "How does foreign direct investment really affect developing countries' growth?" Review of International Economics **20**(2): 396-414.

Huawei, T. (2022). "Does gross domestic product, inflation, total investment, and exchanges rate matter in natural resources commodity prices volatility." Resources policy **79**: 103013.

Ibrahim, M. and P. Alagidede (2018). "Effect of financial development on economic growth in sub-Saharan Africa." Journal of Policy Modeling **40**(6): 1104-1125.

Ijirshar, V. U. (2019). "Impact of trade openness on economic growth among ECOWAS Countries: 1975-2017." CBN Journal of Applied Statistics (JAS) **10**(1): 4.

Iqbal, Z. and G. M. Zahid (1998). "Macroeconomic determinants of economic growth in Pakistan." The Pakistan Development Review: 125-148.

Irshad, M., et al. (2022). "Macroeconomic variables the indicators for the economic growth of Pakistan." Pakistan Social Sciences Review **6**(2): 58-72.

Jamil, M. N. (2022). "Impact the choice of exchange rate regime on country economic growth: which anchor currency leading the 21st century." Journal of Environmental Science and Economics **1**(1): 18-27.

Jamil, M. N. (2022). "Monetary policy performance under control of exchange rate and consumer price index." Journal of Environmental Science and Economics **1**(1): 28-35.

Jamil, M. N. and A. Rasheed (2024). "Dynamic effect of external financing on the achievement of eco-efficiency and sustainable development objectives." Journal on Innovation and Sustainability RISUS **15**(4): 72-89.

Jamil, M. N. and A. Rasheed (2024). "Financial, markets, impact of environmental stability on economic development and sustainable development goals, evidence from developed and emerging countries." Journal on Innovation and Sustainability RISUS **15**(3): 78-97.

Jamil, M. N., et al. (2023). "Cross-cultural study the macro variables and its impact on exchange rate regimes." Future Business Journal **9**(1): 9.

Jawad, M. and G. S. K. Niazi (2017). "Impact of oil price volatility and macroeconomic variables on economic growth of Pakistan." Review of Innovation and Competitiveness: A Journal of Economic and Social Research **3**(1): 49-74.

Jilani, S. and M. Asim (2010). "Exploring impact of macro economic variables on GDP of Pakistan." Journal of Management and Social Sciences **6**(2): 65-73.

Kemal, M. A. and U. Qadir (2005). "Real exchange rate, exports, and imports movements: A trivariate analysis." The Pakistan Development Review: 177-195.

Khan, I., et al. (2023). "Nexus between FDI, economic growth, industrialization, and employment opportunities: empirical evidence from Pakistan." Journal of the Knowledge Economy **14**(3): 3153-3175.

Khan, M. A. (2007). Foreign direct investment and economic growth: The role of domestic financial sector, Pakistan Institute of Development Economics.

King, R. G. and R. Levine (1993). Financial intermediation and economic development, Cambridge: Cambridge University Press.

Lall, S. (2002). "FDI and development: research issues in the emerging context." Foreign Direct Investment: 339-359.

Little, I. (1957). "Classical growth." Oxford Economic Papers **9**(2): 152-177.

Makris, I. A. and S. Stavroyiannis (2019). "Short and long-run linear and nonlinear causality between FDI and GDP for the US." International Journal of Economics and Business Research **18**(4): 466-479.

Malenković, N. (2023). "The effect of the inflation rate on gross domestic product: an economic analysis for the Western Balkans countries." Strategic Management-International Journal of Strategic Management and Decision Support Systems in Strategic Management **28**(1).

Mang'eli, M. Y. (2012). Relationship between interest rate spread and financial performance of the commercial banks in Kenya.

Mhadhbi, K. (2014). "Relationships between financial development and economic growth: A new approach by inputs." Journal of Empirical Studies **1**(2): 62-84.

Michl, T. R. and D. Tavani (2020). "Path dependence and pandemics in a classical growth model." Available at SSRN.

Michl, T. R. and D. Tavani (2022). "Path dependence and stagnation in a classical growth model." Cambridge journal of economics **46**(1): 195-218.

Mohsin, M. and S. Naseem (2018). "Impact of inflation rate and exchange rate on GDP: evidence from Pakistan." American Journal of Research **2**(3): 25-30.

Mottaleb, K. A. (2007). "Determinants of foreign direct investment and its impact on economic growth in developing countries."

Narayan, P. K., et al. (2010). "A note on the long-run elasticities from the energy consumption–GDP relationship." Applied Energy **87**(3): 1054-1057.

Nayak, S. and M. A. Baig (2019). "International reserves and domestic money market disequilibrium: empirics for India and China." International Journal of Emerging Markets **14**(5): 1081-1101.

Obim, E. N., et al. (2018). "Interest rate policy and the growth of the Nigerian economy (1990-2016)." Journal of Banking and Financial Dynamics **2**(1): 16-23.

Olamide, E., et al. (2022). "Exchange rate volatility, inflation and economic growth in developing countries: Panel data approach for SADC." Economies **10**(3): 67.

Osano, H. M. and P. W. Koine (2016). "Role of foreign direct investment on technology transfer and economic growth in Kenya: a case of the energy sector." Journal of Innovation and Entrepreneurship **5**: 1-25.

Rahimi, M. and A. Shahabadi (2011). "Trade liberalization and economic growth in Iranian economy." Available at SSRN 1976299.

Ramzan, M., et al. (2013). "Impact of trade openness and macroeconomic variables on GDP growth of Pakistan." A Research Journal of Commerce, Economics and Social Sciences **7**(1): 37-47.

Rathore, M. P. K., et al. (2023). "Pakistan and Global Economy." Integrated Business and Financial Studies **1**(02): 17-36.

Rauf, A., et al. (2023). "Foreign direct investment, technological innovations, energy use, economic growth, and environmental sustainability nexus: new perspectives in BRICS economies." Sustainability **15**(18): 14013.

Rehman, N. U. (2016). "FDI and economic growth: empirical evidence from Pakistan." Journal of Economic and Administrative Sciences **32**(1): 63-76.

Rodrik, D. (2007). The real exchange rate and economic growth: theory and evidence, Citeseer.

Rogoff, K. (2001). "Why not a global currency?" American Economic Review **91**(2): 243-247.

Sabir, S., et al. (2019). "Financial development, technology and economic development: the role of institutions in developing countries." Annals of financial Economics **14**(03): 1950012.

Sachs, J. D. (1999). Resource endowments and the real exchange rate: a comparison of Latin America and East Asia. Changes in exchange rates in rapidly developing countries: Theory, practice, and policy issues, University of Chicago Press**:** 133-154.

Saeed, K. (2021). Limits to growth concepts in classical economics. Feedback Economics, Springer**:** 217-246.

Salmanov, O. N., et al. (2016). "Investigating the Impact of Monetary Policy using the Vector Autoregression Method." International Journal of Economics and Financial Issues **6**(2): 273-282.

Satyanand, P. N. (2021). "Foreign direct investment and the digital economy."

Saymeh, A. A. F. and M. M. A. Orabi (2013). "The effect of interest rate, inflation rate, GDP, on real economic growth rate in Jordan." Asian Economic and financial review **3**(3): 341.

Schembri, L. L. (2024). "Flexible Exchange Rates, Commodity Prices and Price Stability." Methods.

Schumpeter, J. A. and R. Swedberg (2021). The theory of economic development, Routledge.

Shar, M. A. and I. R. Malik (2017). "Impact of foreign direct investment on economic growth of Pakistan." Published in **3**(2).

Sheikh, M. A., et al. (2022). "Economic security in Pakistan: indicators, issues, impacts and way forward." Pakistan Journal of Social Research **4**(1): 990-999.

Siddique, H. M. A., et al. (2017). "Impact of FDI on economic growth: Evidence from Pakistan." Bulletin of Business and Economics (BBE) **6**(3): 111-116.

Sohail, H. M., et al. (2023). "Response of Pakistan's economic growth to macroeconomic variables: an asymmetric analysis." Environmental Science and Pollution Research **30**(13): 36557-36572.

Swift, R. (2011). "The relationship between health and GDP in OECD countries in the very long run." Health economics **20**(3): 306-322.

Tsai, L. L., et al. (2020). "Building credibility and cooperation in low-trust settings: persuasion and source accountability in Liberia during the 2014–2015 Ebola crisis." Comparative Political Studies **53**(10-11): 1582-1618.

ul Husnain, M. I., et al. (2011). "Public spending, foreign direct investment and economic growth." International Research Journal of Finance and Economics **61**: 20-28.

Wu, S.-Y., et al. (2010). "The impact of government expenditure on economic growth: How sensitive to the level of development?" Journal of Policy Modeling **32**(6): 804-817.