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## ASSESSING THE DRIVERS OF ECONOMIC GROWTH IN PAKISTAN: A TIME-SERIES ANALYSIS OF FOREIGN DIRECT INVESTMENT AND OIL PRICE EFFECTS

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### ABSTRACT

This research looks at the factors that drive Pakistan's economic growth, with a particular emphasis on the influence of foreign direct investment (FDI) and oil prices. Using data from 1998 to 2022, the study applies the Auto Regression Distributed Lag (ARDL) model to examine the link between FDI, oil prices, and economic growth. The empirical findings show that FDI has a beneficial impact on economic growth, highlighting its importance as a driver for economic development in Pakistan. In contrast, the study finds that rising oil prices harm economic growth, emphasizing the negative effects of oil price volatility. Considering these findings, the study underlines the need for policies that encourage FDI inflows and industrialization to drive economic growth. Furthermore, the study emphasizes the importance of government involvement to mitigate the negative effects of rising oil costs, since unchecked rises might stymie economic progress. Understanding the determinants of economic growth in Pakistan is critical for both policymakers and investors. FDI is critical for increasing productivity and creating jobs, yet oil price volatility can have a substantial influence on the country's macroeconomic stability and growth trajectory. Analyzing their effects gives useful insights for long-term economic growth initiatives. Overall, the study suggests a dual strategy for Pakistani policymakers: create a climate conducive to attracting FDI while taking steps to reduce the negative consequences of unpredictable oil prices. By prioritizing these policies, Pakistan may accelerate its economic growth and protect itself from foreign economic shocks.

*Keywords: FDI; Oil prices; Economic growth; ARDL; Time-series analysis.*

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### INTRODUCTION

Foreign direct investment is an important and efficient source of economic growth in Pakistan. FDI in a developing country has increased production, employment, and utilization of natural and human resources. FDI can raise capital technology contributing to increased production and it also provides jobs to improve export capability (Rivera & Tullao, 2023; Hermes & Lensink, 2003; Mehmood & Hassan 2015; Husain et al., 2021). FDI increases capital to enhance productivity and technology to increase economic growth (Calaro, 2009; Ali et al., 2023; Kemal et al., 2014). The rising oil prices lead to an increase in government revenue. Import bills create an inflationary environment and imbalance the trade (Nawaz et al., 2023).

Pakistan has a low capital formation means low saving low investment low spending and low economic growth. FDI has an important contribution to capital formation to raise saving investment also it improves the quality of knowledge in developing countries and Pakistan. FDI helps the local firm to take advantage of the technology and knowledge of foreign firms (Rivera & Tullao, 2023). Pakistan has the biggest consumer market with 190 million people and has large resources but the low capital, inflation, high oil

price low investment make it impossible for foreign investors to invest in the country. Pakistan has been never able to get the full benefit of FDI (Rivera & Tullao, 2023).

FDI and oil price are extensively known factors (Sreenu, 2022; Zhang, 2001) foreign direct investment and rising oil prices are concentrated to have a positive impact on the economic growth of Pakistan in the short run. The objective of this paper is to evaluate how much FDI and oil prices are impactful on economic growth. Pakistan has a positive relation to trade openness the result shows that there is a positive relationship between trade openness and the GDP growth of the country but in the long run there is a negative impact of trade liberalization on the economic growth of Pakistan. The negative impacts are due to incorrect policies and unstable political conditions.

This research paper establishes are 4 sections. Section 1 is an introduction This section clarifies the significance study of the variable on economic growth and explains the relationship between FDI, oil prices, and the the economic growth of Pakistan. Section 2 is methodology in this section we discuss the different tests Heteroscedasticity, Autocorrelation, Normality test Jarque-Bera test CUSUM test Bond test unit root test Philips Peron test by using the ARDL method. Section3is the last is dedicated to the conclusion and policy implications. In this section, we discuss the result of the significance variable after applying in test of all variables.

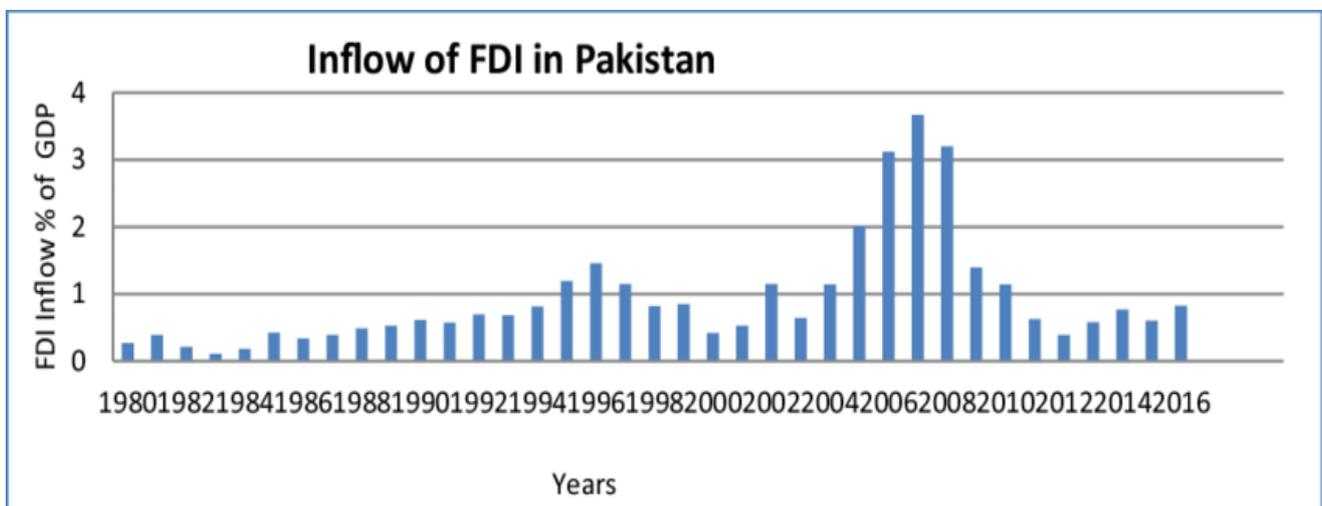


Figure 1. The trend of FDI inflows; Auther's own plotting of graph from E-Views.

This figure explains that FDI declined in the past few years from 1980 to 1984. Kemal et al. (2014) argue that this figure shows the instability of FDI this series shows negative growth in FDI from FDI inflow explains several factors: political and microeconomic instability unstable law and order conditions incorrect government policy lack of infrastructure energy crisis low capital formation inflation low labor force low quality of education.

## LITERATURE REVIEW

Belloumi and Alshehry (2018) analyze the relationship between dependent and independent variables (FDI, OIL Price) on economic growth. This study took data from 1970 to 2015 and analyzed the data using the method of ARDL, and OLS. This study shows how dependent and independent variables affect economic growth. It concluded that the FDI has a positive effect on economic growth by increasing investment, saving, and providing jobs. This study took data from the World Bank and WDI. Shehu (2022) investigated the link between dependent and independent variables. This study shows the effect of oil prices and foreign direct investment on the growth of Pakistan. The data was taken from the period 1970 to 2018 in Nigeria by using the ADL method. This study concludes that oil prices negatively or positively influenced FDI in Nigeria in the short run and long run because of fluctuation of oil prices to conclude this study we take data from WDI (2019) BP statistics and World Bank.

Guder (2011) examined a study on the impact of FDI on economic growth in Pakistan and took data from 1981 to 2010. This study concluded that FDI had a positive impact on economic growth in Pakistan. FDI

increases the investment and productivity of GDP. Alfaro et al. (2009) examine the relationship between dependent (GDP) and dependent (FDI, K, L, Oil rent, INF) on economic growth. It shows that oil prices have different effects on different sectors of economic growth. It shows GDP has a negative effect on the primary sector and has a positive effect on the manufacturing sector. Alfaro et al. (2009) took data from over period 1981 to 1999 in Pakistan with the help of the World Bank.

Shahid et al. (2021) determined the impact of FDI on economic growth. This study shows displays that oil prices have a positive effect on economic growth only in the short run because of the fluctuation of oil prices in Pakistan .it has a negative effect in the long run, this study concludes that the FDI increases GDP and investment in a country if a batter policy condition. It takes data from 1975 to 2012 in Pakistan by using the Engle-Granger cointegration method. This data is taken from the World Bank and economic survey of Pakistan. Jawed (2014) This study examined a different measure of trade (export + import) on the growth of Pakistan. For this research it used time series analysis from 1981 to 2009 by using the ARDL techniques and bond test this study expresses that there is a positive effect of trade openness on economic growth but the long run result states a negative impact of trade liberalization on the economic growth of Pakistan.

Jaradat and Al-Hhosban (2014) give Attention to the relation between inflation and GDP by taking a period from 2000 to 2010. This study concludes that inflation is negatively Related to GDP when inflation is 0.906% GDP will rise by 1% and 0.697 unemployment then GDP drop by 1% which shows the negative effect of inflation on growth. Nazir and Qayyum (2014) Pakistan has been facing oil-related problems for many years rising oil prices have increased demand in the economy for analysis of this fact using the time series approach long and short run test and ADF test. The data has been used from 1972 to 2011. From this analysis it is concluded that oil consumption has a positive impact on the economy in the short-run oil consumption variable shows a very small effect on the growth of Pakistan. All the research data taken from the World Bank

**DATA AND METHODOLOGY**

The purpose of this study is to know the effect of rising oil prices and FDI on the economic growth of Pakistan. This study used the time series analysis from 1998 to 2022and data is taken from the World Development Indicator. GDP is measured by the gross domestic product in \$ million, FDI is measured by current US \$, and Capital is measured by the total capital formation. This research applies the autoregressive distributed lag model to explain the actual change by independent variable in the dependent variable (Jordan & Philips, 2018) in this paper ARDL, unit root test, Bond test, and Philips Peron test are applied to see the significant effect.

Table 1. Description of variables.

Variable	Description of variable	Source of variable
GDP	GDP (current US\$)	WDI
FDI	Foreign direct investment, net inflows (% of GDP)	WDI
OIL PRICE	Oil rent%	WDI
LABOR	Labor force, total	WDI
CAPITAL	Gross fixed capital formation (current US\$)	WDI
INFLATION	Inflation, GDP deflator (annual %)	WDI
EXPORT	Exports of goods and services (% of GDP)	WDI

**Econometric Model**

$$GDP = f(FDI, OP, INF, K, L, TO) \tag{1}$$

The economic model shows that GDP is a dependent variable and foreign direct investment, oil price, inflation, capital labor, and trade openness are independent variables.

$$GDP_t = \beta_1 + \beta_2 FDI_t + \beta_3 OP_t + \beta_4 INF_t + \beta_5 K_t + \beta_6 L_t + \beta_7 TO_t + \epsilon_t \tag{2}$$

To finish the problem of heteroscedasticity of all variables it will transform to a logarithmic form Khan et al. (2021).

$$GDP_t = \beta_1 + \beta_2 \ln FDI_t + \beta_3 \ln OP_t + \beta_4 \ln INF_t + \beta_5 \ln K_t + \beta_6 \ln L_t + \beta_7 \ln TO_t + \epsilon_t \tag{3}$$

$\beta_1$  is intercept and  $\beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ , are the coefficients of the independent variable.

This model explains the long-run association and study of variables.

$$\Delta GDP_t = \varphi_0 + \varphi_1 GDP_{t-1} + \varphi_2 FDI_{t-1} + \varphi_3 OP_{t-1} + \varphi_4 INF_{t-1} + \varphi_5 K_{t-1} + \varphi_6 L_{t-1} + \varphi_7 TO_{t-1} + \sum_{i=1}^q \beta_1 \Delta GDP_{t-i} + \sum_{i=1}^q \beta_2 \Delta FDI_{t-i} + \sum_{i=1}^q \beta_3 \Delta OP_{t-i} + \sum_{i=1}^q \beta_4 \Delta INF_{t-i} + \sum_{i=1}^q \beta_5 \Delta K_{t-i} + \sum_{i=1}^q \beta_6 \Delta L_{t-i} + \sum_{i=1}^q \beta_7 \Delta TO_{t-i} + \epsilon_t \tag{4}$$

Mean it represents the 1<sup>st</sup> difference GDP mean gross domestic product, FDI means foreign direct investment, OP means oil price means capital, L labor, INF means inflation, TO trade openness t-1 mean optimal lag section  $\beta$  and  $\sigma$  mean theses are variable will be explaining the long run association exists are study variable in the long run and short run in the ARDL model.

Null and Alternative hypotheses of the bond test.

$$H_0 = \varphi_1 = \varphi_2 = \varphi_3 = \varphi_4 = \varphi_5 = \varphi_6 = \varphi_7 = 0$$

$$H_1 = \varphi_1 = \varphi_2 = \varphi_3 = \varphi_4 = \varphi_5 = \varphi_6 = \varphi_7 \neq 0$$

$H_0$  are null hypotheses and  $H_1$  is the alternative hypothesis to accept or reject null or alternative hypotheses depending on the value of F-statistics. if the value of the F-statistics value is greater than the upper and lower values the long-run association exists (Pesaran & Shin, 2002).

**ARDL Model**

The ARDL model is explained by Pesaran and Shin (2002). There are differences in the time series model. Wan et al. (2022) say that this model can utilize short-run data and the model is only time to utilized if the series is stationary at upper (0), and lower (I) values. The result of the ARDL, bond test estimates that co-integration exists in variables. Long-run ARDL model is given below.

$$GDP = \alpha_0 + \sum_{i=1}^q \sigma_1 FDI_{t_i} + \sum_{i=1}^q \sigma_2 OP_{t_i} + \sum_{i=1}^q \sigma_3 INF_{t-i} + \sum_{i=1}^q \sigma_4 K_{t_i} + \sum_{i=1}^q \sigma_5 L_{t_i} + \sum_{i=1}^q \sigma_6 OT_{t_i} + \epsilon_t \tag{5}$$

$\sigma$  explain long-run variation t-i Akaka information was used to select significant lags for all variables. The short-run ARDL model uses an error correction model is given below.

$$GDP + \alpha_0 + \sum_{i=1}^q \beta_1 \Delta GDP_{t_i} + \sum_{i=1}^q \beta_2 \Delta FDI_{t_i} + \sum_{i=1}^q \beta_3 \Delta OP_{t_i} + \sum_{i=1}^q \beta_4 \Delta K_{t_i} + \sum_{i=1}^q \beta_5 \Delta INF_{t_i} + \sum_{i=1}^q \beta_6 \Delta L_{t_i} + \sum_{i=1}^q \beta_7 \Delta OT_{t_i} + \epsilon_t \tag{6}$$

ECT means error correction terms are estimates. The error correction term is -1 to 0 Error correction is negative and significant which means any shock is adjusted to equilibrium in another period. Jarque-Bera checks the model residual normality (Jordan & Philips, 2018).

**RESULTS AND DISCUSSION**

This section includes a detailed discussion of the results of the analysis. It includes a discussion on descriptive statistics, correlation analysis, unit root test, Dynamic results of the ARDL model, different diagnostic tests, and CUSUM and CUSUM square of tests.

Table 2. Descriptive statistics.

Statistics	LDGP	FDI	LOP	TO	LL	LK	LINF
Mean	-0.636	1.262	2.105	2.03E-10	23.956	2.877	0.047
Median	-0.643	1.141	2.018	2.05E-10	24.012	2.889	0.132
Maximum	0.081	3.668	3.650	3.73E-10	24.725	3.144	1.299
Minimum	-1.835	0.375	1.181	1.06E-10	22.894	2.583	-0.979
Std. Dev.	0.558	0.865	0.589	7.34E-11	0.551	0.153	0.607
Skewness	-0.433	1.597	0.604	0.399993	-0.461	-0.477	0.289
Kurtosis	2.317	4.783	3.287	2.538819	2.060	2.435	2.691
Jarque-Bera	1.270	13.941	1.609	0.888195	1.805	1.282	0.448
Probability	0.529	0.0009	0.447	0.641403	0.405	0.526	0.799
Sum	-15.902	31.560	52.630	5.07E-09	598.903	71.949	1.193
Sum Sq. Dev.	7.4778	17.981	8.3461	1.29E-19	7.3119	0.5686	8.870

Table 2 includes the results of descriptive analysis, such as mean, median, maximum, and minimum of all variables dependent and independent variables and most importantly Jarque- the Bera test and probability.

Table 3. Correlation analysis.

Correlation	GDP	FDI	LOP	TO	LINF	L_L	L_K
LGDP	1						
LFDI	0.06636	1					
LOP	0.02756	0.0942	1				
LTO	-0.9486	-0.033	-0.0490	1			
LINF	0.2189	0.9381	0.0566	-0.1565	1		
L_L	0.9476	0.2051	0.0671	-0.950	0.3022	1	
L_k	0.4518	0.5051	0.1613	-0.296	0.4897	0.545	1

Table 3 shows the results of correlation analysis among all variables. It shows that there is a very weak 0.218 but positive relation between GDP and inflation. This means to increase in inflation to a small increase in GDP. There is a strong and positive relation between GDP and labor 0.94 means to increase in labor activities to increase the GDP. GDP and trade openness have a strong positive 0.9486 relations meaning trade increases to increase GDP In the long run and short run trade openness has a positive effect on increasing export and import and GDP (Wan et al., 2022). FDI of 0.066 positive but very weak relation with GDP it increases technology, skill labor, and skill transfer in other countries FDI increases the short-term efficiency of the economy (Albulescu et al., 2019) Capital formation has also a positive relation between GDP, increases in capital formation to raise the productivity of firm increase the GDP growth of a country (Eberechuk et al., 2018).

Table 4. Unit Root Test (ARDL).

Variables	ADF		Phillips Peron (PP)	
	P- value	1 <sup>st</sup> difference	P-value	1 <sup>st</sup> difference
LGDP	0.1709	0.0012	0.148	0.003
LOP	0.0032	0.000	0.0032	0.000
FDI	0.091	0.034	0.264	0.034
L-K	0.3619	0.0009	0.3691	0.0009
L -L	0.572	0.001	0.516	0.0017
LINF	0.0039	0.0025	0.291	0.0026

Table 4 presents the results of the unit root test to determine the stationary of each variable or not. If any of the variables is not stationary, it means there is the problem with this variable. It tested the stationary of each variable using the level and 1st difference. We observed that our data is stationary as we have not applied the second difference and our data is showing that there is no unit root because it is significant either at the level or at the first difference. The ARDL and Phillips Peron show that the probability value of all indicators in level or 1<sup>st</sup> difference is significant which shows that all data is stationary and there is no problem in any indicator. The 1<sup>st</sup> difference value of all indicators is significant. This table shows that in the ADF test GDP is significant at 0.0012 at 1<sup>st</sup> difference the data is stationary at the level of 0.1709 is not stationary. FDI is significant at 0.034 at 1<sup>st</sup> difference at a level of 0.091 is not stationary (Ali et al., 2019). Oil prices are significantly 0.000 at a level of 0.0032 is stationary. In the pp test GDP was at a significant 0.0013 at a level of 0.0021. FDI is significant at 0.000 at 1<sup>st</sup> difference at a level of 0.0032 is also stationary.

Table 5. ARDL bounds test.

Test statistics	Value	Significant	I(0)	lower value	I(1)	upper vale
F-statics	12.32424	10%	1.92		2.89	
K	7	5%	2.17		3.21	
		2.5%	2.43		3.51	
		1%	2.73		3.9	

Table 5 includes the result of the bound test which shows that the long-run relation between the dependent and independent exists. It shows that the value of F-statics is 12.324 is more than the lower and upper bond values meaning the long-run relation exists in this model. The bond test in ARDL explains the variable result and explains that co-integration exists among the variables (khan et al., 2021).

Table 6. Long run results of ARDL model.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI	-2.3857	0.4797	-4.9729	0.0011
LOP	-0.4919	0.0894	-5.5017	0.0006
TO	1.64E+10	1.69E+09	9.7309	0.0000
LINF	2.8285	0.6385	4.4298	0.0022
L_K	6.7956	0.6553	10.369	0.0000
L_L	3.58E+10	1.93E+10	0.000	0.000
C	-19.467	1.5808	-12.314	0.0000

Table 6 indicates the long-run results of the ARDL model. It shows that there is a negative relation FDI between and GDP which means an increase of 1 unit of FDI will decrease GDP by -2.38% FDI is negative because foreign direct investment is a risk of economic stability, and dependency on foreign investment (Farooq et al., 2020). Similarly, if we increase 1 unit of capital it increases the 6.79 unit of GDP. There is a positive relation between trade and GDP, but oil price has a negative relation with GDP 1 unit increase in oil price decreases-0.4919 unit of GDP because the rising oil prices are a reason to increase government revenue rising oil price rise. Import bills create an inflationary environment and imbalance the trade (Nawaz et al., 2023). The fluctuation of oil prices affects the current balance and government revenue decreases the GDP growth. There is a positive relation between trade and GDP at 1.64E and 10 units. Trade has given positive impact on economic growth it increases skill transformation, GDP growth of a country, and technology (Ali & Abdullah, 2015; Gardezi et al., 2022). Capital also has a positive effect on GDP at 6.7956 because increases in the capital formation of a country increase the growth rate and increase the employment of a country (Rivera & Tullao, 2023). There is a negative relation between the labor force and GDP in the short run but in the long, there is a positive relation to GDP because life expectancy, literacy rate, gross domestic product, government current expenditures, and fertility rate are positively related to labor supply, on the other hand, GDP deflator reflecting inflation in economy and total taxes are negatively related with labor supply in Pakistan. All the p- the value of the indicator is significant meaning that the

model is stable. All dependent and independent variable p-values are significant (Gardezi & Rafique 2023; Sreenu, 2022; Zhang, 2001).

Table 7. Short-run results of ARDL model.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDI)	-2.6813	0.2422	-11.066	0.0000
D(FDI(-1))	1.9861	0.1820	10.907	0.0000
D(TO)	3.54E+09	1.86E+09	0.0000	0.0000
D(LOP)	-0.7010	0.0694	-10.087	0.0000
D(L_K)	7.3112	0.5404	13.527	0.0000
D(L_K(-1))	-3.4451	0.3474	-9.9157	0.0000
D(LINF)	3.3113	0.2968	11.156	0.0000
D(LINF(-1))	-1.9709	0.1858	-10.605	0.0000
D(L_L)	-5.33E+10	1.23E+10	0.0000	0.0000
D(L_L(-1))	3.58E+10	7.37E+09	0.0000	0.0000
CointEq(-1)*	-0.667018	0.1167	-13.561	0.0000

Table 7 shows the short-run results of the ARDL model where the CointEq (-1)\* value is -0.6670 and the p-value is 0.000 which is significant. this value shows how many years our model or economy will be in equilibrium. The value of cointeq (-0.667) means the the1.515-year model or economy is in equilibrium.-p-value of all the variables is significant it shows the relation of indicator FDI has a negative relation to GDP because of dependency on foreign investment in a country (Latif et al., 2023). And the Oil price has a negative relation to GDP. Raising oil prices imbalance, the economy creates inflation and increases all the prices of goods and services. Trade has a positive relation to GDP it increases employment technology and the growth of a country (Ali & Abdullah, 2015). There is a positive relation between inflation and 2.82 in GDP in the short run because in the very short term increase in all goods prices benefits an economy in the long run it has a negative effect it decreases saving, individual spending, and investment (Gardezi & Rafique 2023). Capital also has a positive effect on GDP because increases in the capital formation of a country increase the growth rate and increase employment of a country (Rivera & Tullao, 2023; Zaib et al., 2023; Alfaro et al., 2009). There is a negative relation between the labor force and GDP in the short run but in the log, there is a positive relation to GDP because life expectancy, literacy rate, gross domestic product, government current expenditures, and fertility rate are positively related to labor supply, on the other hand, GDP deflator reflecting inflation in the economy and total taxes are negatively related with labor supply in Pakistan. But most importantly cointeq (-1) value is less than 1 and significant (Chine et al.2022; Aurmaghan et al., 2022; Sreenu, 2022; Zhang, 2001).

Table 8. Diagnostics statistics.

Diagnostics statistics test	p-value	Conclusion of tests
Brush-Godfrey LM	0.3682	There is no problem in serial correlation
Brush-Pagan- Godfrey	0.2505	There is no problem of heteroscedasticity
Jarque-Bera test	0.4944	Estimated residuals are normal.

Table 8 explains the indicator results of different diagnostic statistics. The tests of the Brush-Godfrey LM test and the Brush-Pagan test, the Jarque-Bera test show that there is no problem of variable in any test. it shows that estimated residuals are normal.

The heteroscedasticity test shows that the value of F-statics is 1.47 means it is insignificant there is no problem with heteroscedasticity. Probability values are all insignificant meaning there is no problem of Heteroscedasticity. If the value of the variable is <0.005 mean the variable is significant and it has the problem of Heteroscedasticity mean, we reject (H1) Alternative hypotheses and accept the Null hypotheses (H0).

The value of F-statics probability value is 1.09, which is insignificant and concluded that there is no problem of autocorrelation. If the value of the variable is <0.005 meaning the model is significant and it has no problem with autocorrelation we reject (H1) Alternative hypotheses and accept the Null hypotheses (H0).

The normality test explains whether the model is stable or not. We see the value of the Jarque-Bera test as 1.408 and p- the value is 0.494 mean model is insignificant there is no problem in this model and the model is stable.

Table 9. Variance Inflation Factor.

Variables	Coefficient Variance	Uncentered VIF	Centered VIF
GDP(-1)	0.0010	46.415	3.2601
LDGP	1.23E+19	6.4645	2.8330
L_K	1.85E+20	1246.1	3.5517
LINF	4.85E+18	1.4555	1.4421
LOP	3.65E+18	14.202	1.0291
C	1.23E+21	1000.622	NA

Table 9 includes the results of the variance inflation factor to diagnose the problem of multicollinearity. If values of VIF are between 0-10, it means our data is free from the problem of multicollinearity. If the value of VIF is greater than 10, it means there is a problem of multicollinearity.

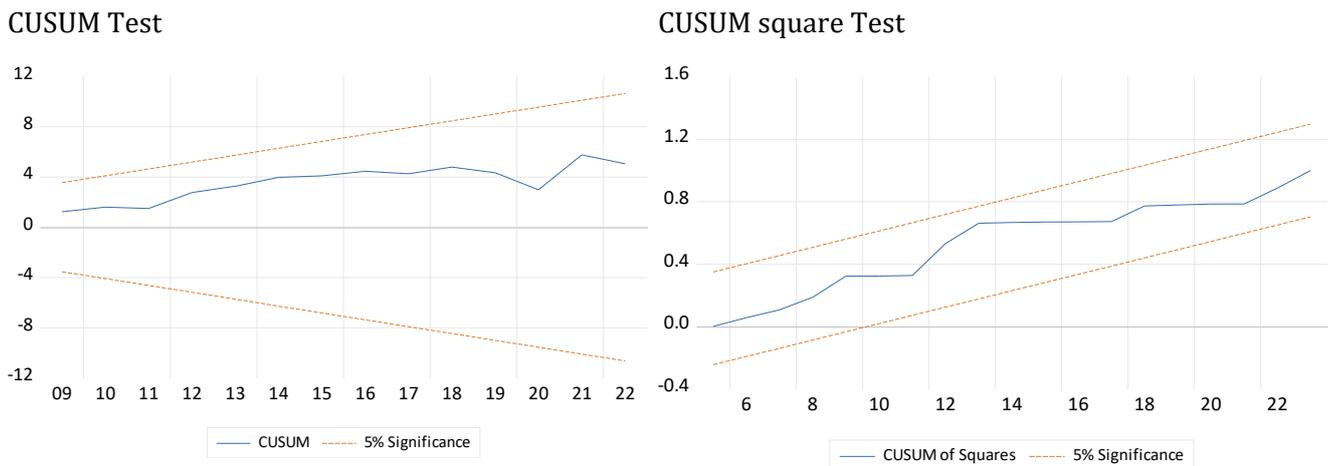


Figure 2. CUMSUM and CUMSUM square test; Auther’s own plotting from E-Views.

In Figure 2, the CUSUM test plots the deviations over the period and concludes that the model is stable and similarly CUSUM of square test plots the square of deviation over time and concludes that the model is stable.

**CONCLUSIONS AND RECOMMENDATIONS**

Foreign direct investment and oil prices play a vital role in the landscape of developing countries like Pakistan (Akbar & Iqbal, 2023) This research explains the relationship between Oil prices and foreign direct investment in the economic growth of Pakistan. This analysis takes the data from 1998 to 2022 and uses the analytical technique of the Auto Regression Distributed Lag (ARDL) model. Results concluded that the FDI and Oil prices have had on significant effect on economic growth in Pakistan. However, fluctuation in oil prices is damaging to economic growth in the long run. This paper empowers the concerned authorities and policymakers to facilitate FDI. Because FDI brings in capital, and technology, and contributes to raising production efficiency it also provides jobs. and to manage the oil price because the

fluctuations of oil prices have a negative effect on growth and the economy because oil prices increase import bills, trade imbalance, and create inflationary pressure (Jahangir et al., 2020). It is important to accumulate capital if it increases growth. The goal of economic growth is to encourage FDI and innovation in the economy to increase economic growth. The study recommended that adequate measures should be taken by considering the investment in another sector of the economy to attract investors and create an atmosphere that is not affected by the oil prices. It recommended that Pakistan adopt a policy that increases FDI, and capital formation controls the inflationary situation of oil prices and increases trade in a positive way to increase imports and decrease export in a country. A diversified strategy is required to solve environmental issues and advance sustainable development in Pakistan. Policies that increase energy efficiency and encourage the use of renewable energy sources should be put in place concurrently (Arshad 2012). This might entail requiring the use of energy-efficient technology in businesses and homes as well as providing tax breaks or subsidies for renewable energy projects. Furthermore, it is critical to promote commercial openness while maintaining Growth sustainability. Trade can make it easier to obtain resources and cleaner technology. This includes encouraging eco-friendly business practices. By putting these all-encompassing policies into practice, Pakistan may strike a healthy balance between environmental preservation and economic growth, promoting long-term sustainability and improving the welfare of its people (Aurmaghan et al., 2022; Sreenu, 2022; Zhang, 2001).

## REFERENCES

- Akbar, M., & Iqbal, Z. (2023) Impact of Human Capital on Economic Growth in D-8 Countries: GMM. Estimation of Panel Models. *FUJBE*, 8(1), 115-129.
- Albulescu, C. T., Tiwari, A. K., Yoon, S. M., & Kang, S. H. (2019). FDI, income, and environmental pollution in Latin America: Replication and extension using panel quantiles regression analysis. *Energy Economics*, 84, 104504.
- Alfaro, L., Kalemli-Ozcan, S., & Sayek, S. (2009). FDI, productivity and financial development. *World Economy*, 32(1), 111-135.
- Ali, H. S., Law, S. H., Lin, W. L., Yusop, Z., Chin, L., & Bare, U. A. A. (2019). Financial development and carbon dioxide emissions in Nigeria: evidence from the ARDL bounds approach. *GeoJournal*, 84, 641-655.
- Ali, L., Akhtar, R., Hussain, J., Khan, G., Mumtaz, S., Akhtar, N., ... & Tao, C. (2023). Economic performance of forest plantations in Asian countries. *Journal of the Knowledge Economy*, 1-21. <https://doi.org/10.1007/s13132-023-01240-w>.
- Ali, W., & Abdullah, A. (2015). The impact of trade openness on the economic growth of Pakistan: 1980-2010. *Global Business and Management Research*, 7(2), 120
- Arshad, M. (2012). Impact of foreign direct investment on trade and economic growth of Pakistan: A co-integration analysis. *Int. J. Eco. Res*, 3(4), 42-75.
- Aurmaghan, M., Shah, A., Zulfiqar, S., Gardezi, M. A., & Nawaz, W. (2022). Foreign Direct Investment and Its Impact on Macroeconomic Performance in Pakistan. *Turkish Online Journal of Qualitative Inquiry*, 13(1).
- Belloumi, M., & Alshehry, A. (2018). The impacts of domestic and foreign direct investments on economic growth in Saudi Arabia. *Economies*, 6(1), 18
- Eberechuk, O. C., Chigozie, M. P., & Eberechukwu, O. E. (2018). Applicability of blue ocean strategy among selected manufacturing firms in south-east, Nigeria. *Scholars Journal of Economics, Business and Management*, 5(10), 916-27.
- Farooq, F., Faheem, M., & Gardezi, M. A. (2020). A Moderating Role of Hierarchy of Institutional Hypothesis in Debt-Poverty Relationship: Empirical Evidence from OIC Member Countries. *Review of Applied Management and Social Sciences*, 5(4), 539-556
- Gardezi, M. A., & Rafique, M. (2023). Dynamics of Public Debt, Political Institutions, and Economic Growth: A Quantile Analysis in Developing Economies (1996-2021). *Review of Education, Administration & Law*, 6(2), 469-480
- Gardezi, M. A., Mehmood, K. A., & Munir, F. (2022). Fiscal Policy, Institutional Quality and Economic Growth: Some Evidence from Pakistan. *Journal of Social Sciences Review*, 2(3), 110-118.

- Hermes, N., & Lensink, R. (2003). Foreign direct investment, financial development, and economic growth. *The journal of development studies*, 40(1), 142-163.
- Husain, U., Javed, S., & Araimi, A. A. (2021). A study of foreign direct investment on manufacturing industries in Sultanate of Oman. *International Journal of Research-Granthaalayah*, 9(3), 1-9.
- Jahangir, M., Lee, S., & Park, S. W. (2020). Effect of foreign direct investment on the economic growth of Pakistan: The Ardl approach. *Global Business & Finance Review (GBFR)*, 25(2), 19-36.
- Jaradat, M. A., & Al-Hhosban, S. A. (2014). Relationship and causality between interest rate and inflation rate case of Jordan. *Interdisciplinary Journal of Contemporary Research in Business*, 6(4), 54-65.
- Jawed, S. M. (2014). The determinants of FDI's in Pakistan. 12th International Conference on Statistical Sciences, Islamic Countries Society of Statistical Sciences, (p.185-190).
- Jordan, S., & Philips, A. Q. (2018). Dynamic Simulation and Testing for Single-Equation Cointegrating and Stationary Autoregressive Distributed Lag Models. *R Journal*, 10(2). <https://journal.r-project.org/archive/2018/RJ-2018-076/RJ-2018-076.pdf>.
- Kemal, M. A., Li, Z., Rafiq, S., Nazeer, A., Khan, K., & Shafi, K. (2014). Inter-Linkage between FDI, Imports and Exchange Rate: An Empirical Evidence from Pakistan. *Pakistan Journal of Applied Economics*, 9(1), 201-218.
- Khan, M., Bari, K. M., Ali, S., & Ahmad, R. (2021). Oil Prices, Early Warning Indicator and Banking Crisis: A Study of an Oil Importing Country, Pakistan. *Psychology and Education*, 58(3), 2322-2332.
- Latif, N., Rafeeq, R., Safdar, N., Younas, K., Gardezi, M. A., & Ahmad, S. (2023). Unraveling the Nexus: The impact of economic globalization on the environment in Asian economies. *Research in Globalization*, 7, 100169.
- Mehmood, K. A., & Hassan, S. (2015). A study on mapping out alliance between economic growth and foreign direct investment in Pakistan. *Asian social science*, 11(15), 113-123.
- Nawaz, A., & Rahman, M. M. (2023). Renewable energy consumption in Sub-Saharan Africa: The role of human capital, foreign direct investment, financial development, and institutional quality. *Energy Reports*, 10, 3383-3393.
- Nazir, S., & Qayyum, A. (2014). Impact of oil price and shocks on economic growth of Pakistan: Multivariate Analysis. <https://mpr.ub.uni-muenchen.de/id/eprint/55929>.
- Pesaran, M. H., & Shin, Y. (2002). Long-run structural modelling. *Econometric Reviews*, 21(1), 49-87.
- Rivera, J. P. R., & Tullao, T. S. (2023). Inclusivity of Factor Flows in a Labor-Surplus Economy: Experience of the Philippines. *Philippine Institute for Development Studies*. <https://pidswebs.pids.gov.ph/CDN/document/pidsdps2332.pdf>.
- Shahid, A., Siddique, H. M. A., Kiani, A. K., & Shafique, U. (2021). Human Health, FDI and Economic Growth Nexus: A Panel Data Analysis. *International Journal of Business, Economics and Finance*, 2(1), 54-66
- Shehu, E. A. (2022). Comparative Analysis of Nigeria's Foreign Policy under Muhammadu Buhari Administration 1983-1985 And 2015-2021. *Asian Journal of Arts, Humanities and Social Studies*, 5(2), 58-68
- Sreenu, N. (2022). Impact of FDI, crude oil price and economic growth on CO2 emission in India: -symmetric and asymmetric analysis through ARDL and non-linear ARDL approach. *Environmental Science and Pollution Research*, 29(28), 42452-42465.
- Wan, Q., Miao, X., & Afshan, S. (2022). Dynamic effects of natural resource abundance, green financing, and government environmental concerns toward the sustainable environment in China. *Resources Policy*, 79, 102954.
- Zaib, A., Rafique, M., Jahanzaib, M. A. G., & Scholar, M. P. (2023). Exploring the Dynamics of Investment Inflow, Political Institutions, Trade, and Economic Growth: A Developing Countries Perspective. *Journal Home Page*, 5(2), 520-531.
- Zhang, K. H. (2001). Does foreign direct investment promote economic growth? Evidence from East Asia and Latin America. *Contemporary economic policy*, 19(2), 175-185.