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The Impact of Trade Openness on Pakistan's Economic Trajectory: Lessons in Stability and Growth during Financial Crises

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ABSTRACT

The primary objective of this research is to assess the influence of trade liberalization on Pakistan's economic trajectory over the period from 1980 to 2022. The study employs the Autoregressive Distributed Lag (ARDL) model to evaluate the statistical significance of specified variables. The analysis reveals a positive long-run relationship between Trade Openness and GDP Per Capita. Furthermore, the ARDL technique indicates that all model variables are statistically significant in the short run at the 5% level. In the long run, however, Trade Openness, Broad Money, Labor, and Final Consumption Expenditure retain significance, while Capital and Inflation Rate are found to be statistically insignificant at the 10% level. Based on these findings, it is recommended that policymakers focus on enhancing labor productivity and capital efficiency to stimulate growth. Additionally, measures should be adopted to provide strategic protection to high-value-added domestic industries and to encourage export-oriented production. Inflation control measures, particularly price stabilization for essential goods, are deemed pivotal for achieving sustained economic growth. Finally, effective regulation of the money supply and the efficient functioning of financial intermediaries are crucial for directing resources toward productive investments and mitigating the negative impacts of broad money on long-term growth. Successful adoption of these policy prescriptions is necessary to maximize the benefits of trade liberalization and secure sustainable economic expansion for Pakistan.

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1. Introduction

Trade policies are examined occasionally in the prolonged period due to instability in the world economy. The appropriateness of trade policy for development and advancement has been contended broadly in the writing. It was moved to during 1980s overall exchange trade policy from import replacement (IS) to Export Promotion (EP) (Lawal et al., 2016).

In 1950s and ahead for quite a long time, many emerging nations, for example, Pakistan goes along with IS arrangements to reshape the economy's future. However, in the mid-1970s, there has been significant shift in the trade policies that follow Export Led Growth Policy. For example, this emphasis on export promotion advancement facilitates productive designation of assets, capital formation, technological transfer and ultimately contributes to the country's financial development and economic growth.

Pakistan proceeded with its progression strategies aimed at promoting export led growth. The key measures include adopting flexible exchange rate, exempting tax on raw

material and essential equipment of export industries. These steps proved to be significant drivers of export growth (Hye, 2015).

Furthermore, Pakistan's Government took several steps to promote imports in 1983. As a result of these strives, the share of manufactured and semi manufactured exports increased from 58% to 80% till 1990. The proportion of semi-finished goods and capital goods in total imports increased significantly, rising from 78% to 86% in 1988. In Pakistan, trade patterns in imports expanded in the early 1990s, driven by the liberalization policies and rising international oil prices. Since 2000, Pakistan has implemented trade strategies aimed at further expanding trade to foster economic growth by promoting trade and investment (Ghazi et al., 2022).

At the same time, portion of semi-finished goods and capital good in complete imports increased appreciably from 78% in 1979 to 86% in 1988.In Pakistan, the trade patterns recommend that imports increased because of advancement of liberalization strategies and international increase in oil prices. Since 2000, the trade strategies followed in Pakistan are important for trade expansion and to foster economic growth by promoting trade and investment. Since the 1970s, Pakistan has adopted trade openness policies aimed at promoting investment and production as well as transfer of technology to improve social welfare in the country (Shakil & Imran, 2022).

Openness of trade, which reflects a country's level of engagement in international trade, has been a subject of enduring debate among economists. Theories such as the Heckler-Olin model and the Ricardian model suggest that trade openness can lead to increase specialization, economies of scale, and the allocation of resources to more productive sectors, ultimately contributing to higher GDP growth. However, other theories like the Prebisch-Singer hypothesis and the infant industry argument propose that trade openness can also lead to trade deficits, decreased domestic production, and increased dependence on foreign markets, potentially hindering GDP growth (Klieber) 2022. This study seeks to empirically examine the link between free trade policy and GDP growth, providing insights into the validity of these contrasting perspectives and informing policy decisions aimed at achieving sustainable economic development.

Most of the studies referenced in the subsequent section, cross country or panel and time series analyses to independently examine the association between reduction of trade barriers and monetary development at an aggregate level or through commodity or import. The use of panel data is important for addressing more noteworthy inquiry overall. It primarily provides the total typical aftereffects of test however it neglects to make sense of the impact on every individual country to figure out and deal with the homegrown arrangements. The negative relation between Pakistan's trade liberalization and economic growth has been confirmed by Hye, 2012.

2. Literature Review

Research on the rise of internet-based financial models shows that digital platforms have steadily altered the way commercial banks carry out their core financial functions. Early discussions described internet finance mainly as an extension of electronic banking, designed to simplify transactions and reduce operational friction (Buitenhek, 2016). As digital systems evolved, however, scholars began viewing internet finance as a distinct financial ecosystem supported by online platforms, data-driven decision tools, and algorithmic credit assessment methods (Vives, 2019). These innovations have reduced banks' traditional advantage in accessing and processing financial information, an advantage historically central to their role as intermediaries in credit and deposit markets.

The association between trade openness and economic growth has been a timeless topic of debate in the field of economics. Multiple scientific studies have analyzed the influence of free trade policy on GDP growth, yielding mixed results. While some studies suggest that there exists strong and meaningful association between free trade and economic growth (Hussain et al., 2021), others highlight the complexity of this relationship, and it is contingent

upon various factors such as institutional quality (Ayub et al., 2023). As in Pakistan, a variety of studies have explored the trade -growth nexus with some finding a positive relationship.

Sheikh et al. (2022) analyzed influence of free trade on Switzerland's economic growth by applying the ARDL Technique on the annual data from 1990 to 2014. In this research, GDP acts as the dependent variable, while Foreign Direct Investment (FDI), the Employment Rate (EMP), and Trade Openness (measured as the sum of exports and imports) act as independent variables. The study demonstrated that free trade policy and foreign direct investment exert strong and meaningful impression on economic growth both in the short and long run. Additionally, a strong and meaningful long-term relationship was analyzed between employment and economic growth. The error correction term (-0.81) signifies that any deviation from the long-term growth path due to shocks is corrected by 81% annually. Furthermore, the CUSUM and CUSUM squares tests reveal that the model is stable.

Syofya (2022) analyzed the impression of free trade on economic growth across 150 countries. The Generalized Method of Moments (GMM) technique is applied on the data from 1995 to 2015.In this study economic growth acts as dependent variable while MTP (Multilateral Trade Policy Liberalization),DTP (Domestic Trade Policy Index),IGDPC (Initial Real GDP Per Capita Income),FINOPEN (Financial Openness Index),FINDEV (Indicator of Financial Development Depth),EDU (Gross Enrollment Rate in Secondary Education),GOVCONS (Government Consumption as a Percentage of GDP),GFCF (Gross Fixed Capital Formation as a Percentage of GDP),POP (Population Size),INST (Institutional and Governance Quality) act as independent variable. Finally, this analysis demonstrates that there exists a pivotal and impactful effect of free trade policy on economic growth. The analysis emphasizes the pivotal role of free trade policies and associated factors in influencing growth outcomes across the sampled countries.

examined the vigorous effect of trade openness on economic growth in case of Nigeria by applying the ARDL Technique on the data from 1980 to 2016. The variables used in this research are Trade Openness (TO), Real Gross Domestic Product (RGGDP), Import (IMP) and Export (EXP). The result of this research reveals that all the variables i.e. exports, imports, real GDP and trade liberalization are stationary at the first difference and the values of probability of diagnostic tests i.e. normality test, heteroskedasticity and serial correlation are greater than 5% so the data is free from heteroskedasticity, serial correlation and the model is stable and normally distributed. The result also shows that the upper bound value and lower bound value is less than F-statistic value. The value of error term is (-0.52 %) so it is significant and it is converging back to equilibrium as time progresses at a speed of 52 percent.

Kashtu et al. (2019) evaluated the relationship between financial development, trade policies, and Malaysia's economic growth by applying ARDL and Granger Causality Technique on the data from 1982 to *2014.* The ARDL and Granger Causality Techniques are applied on data. The variables like GDP played the role of dependent variable while Money and Quasi money, domestic credit to the private sector to GDP and trade to GDP played the role as independent variables in this study. The sum of paper money and quasi money to GDP act as proxy for financial development. The result of this investigation reveals that all the variables are integrated of order one. Granger causality shows that trade influences financial development, which in turn affects economic growth via trade openness.

Afolabi (2022) investigated the Consequences of trade liberalization for Nigeria's economic growth. Using ARDL methodology, this study analyzes data from 1980 to 2017, Real GDP serves as the dependent variable, while trade openness (exports + imports)/real GDP, financial development (broad money/real GDP or credit to the private sector/real GDP), and capital serve as independent variables in this analysis. The result of this analysis demonstrates that all the variables except credit to the private sector exert supportive and considerable impression on economic growth. The policy recommendation of this article is that the foreign investment should be promoted, to increase credit, to increase financial development will lead to increase the interest rate and burden on the economy so such an environment should be created which is favorable for foreign investment and private investment and there should be consistency in the policy reforms i.e. the policies do not contradict each other.

Daquila (2005) investigated disproportionate influence of free trade policies on economic growth in case of specific Asian countries like Indonesia, Malaysia, Singapore, Philippine, Singapore, Thailand. Using ARDL methodology, this study analyzes the data from 1970 to 2017 with GDP as dependent variable while trade openness, Foreign Direct Investment, Life expectancy, and gross capital formation act as independent variables in it. The result of this analysis exhibits that variables like gross fixed capital formation act as proxy of life expectancy at birth. All the variables are supportive of economic growth, and they are significant in influencing economic growth.

Malefane (2020) has evaluated the role of free trade in Botswana's Economic Growth. The ARDL methodology is employed to analyze data spanning from 1980 to 2017. The ratio of exports plus imports to GDP is used as first proxy for trade openness. The ratio of exports to GDP is used as 2nd proxy for trade openness. For the third proxy, the import-to-GDP ratio is utilized while trade liberalization index serves as fourth proxy. Additional explanatory variables include the ratio of Gross Fixed Capital Formation to GDP as measure of investment, final consumption-to-GDP ratio as a proxy for government spending, the ratio of liquid liabilities to GDP as a measure of financial development, and the annual CPI change as a measure of inflation (Ishaq et al., 2021). All three proxies for trade openness namely, the export-to-GDP ratio, the ratio of exports plus imports to GDP, and the trade index to GDP—have a significant impact on GDP, except for the imports-to-GDP ratio. The result demonstrates that the three proxies to trade openness i.e. ratio of exports to GDP, ratio of exports plus imports to GDP and trade index to GDP, all exert significant impact on GDP except ratio of imports to GDP (Rasheed et al., 2021). Government expenditure and indicators of financial development have negative and considerable link with economic growth while inflation has negative but supportive associative link with economic growth. The result also demonstrates that all the variables are integrated at order 1.

Awan and Latif (2020) has evaluated role of trade openness in Pakistan's Economic Growth. ARDL Technique is applied on the data from 1990 to 2016 with real GDP serves as dependent variable while FDI, real exports, real imports, labor force and Gross capital Formation acts as independent variables. The result of this analysis confirms that export is positively while import is negatively associated with GDP while free trade exerts considerable impression on GDP of Pakistan.

Keho (2020) has worked on accessing the link between trade openness and economic progress. Fully Modified OLS and Dynamic Modified OLS are applied on the data taken from 1965 to 2014. GDP, capital, labor and trade openness are the variables used in this research. The result of this research reveals that all the variables are positively and significantly contributed to economic growth. This study seeks to analyze the literature under discussion by re-examining the influence of expansion of free trade on GDP growth in Pakistan, using a robust econometric framework and recent data.

3. Theoretical Framework

Trade Openness is positively and directly related with Gross Domestic Product. Rasee et al. (2021) approached on this conclusion that trade openness is highly necessary for achieving stable economic growth of a country. But some authors agree that trade openness and economic growth are negatively related. (Ali and Abdullah, 2015; Rasheed et al.,2022). Robinson and Lucas proposed that economic growth contains two fundamental sources, physical and human capital, and financial development has no considerable impact on these two factors (Rasheed et al., 2016). (H-O-S) model works on the proposition that an increase in a product's price leads to increase income for the factor most intensively used in its production. Ishaq et al. (2015) also proposed that an efficient export policy will provide the best possibilities for economic growth (Rasheed et al.2022). According to the Neo Classical e.g. (Solow, 1956) growth is determined by capital, which decreases slowly in the long run. Consequently, in the long run, the country will reach a "stable equilibrium," One of the possible outcomes of this growth model is that the less developed countries with open economies will manage to catch up the developed countries as capital moves from the wealthier to poorer countries. As a result, per capita income of developing countries grows at faster rate than developed countries; (Rasheed, Ishaq, & Malik, 2022); (Rasheed, Ishaq, &

Imran, 2022). New growth theory proposed that trade is helpful in the producer's approach to the large markets and enables the developing countries to approach to the capital market for getting development. If the growth is based on the innovation then the trade will play its role in approaching new establishments (Ishaq et al., 2016)

4. Research and Methodology

4.1 Data Sources

To construct the model, a time series data set spanning 43 years, from 1980 to 2022 has been selected. For developing the models, the time series data of 43 years i.e. the time from 1980-2022 has been selected. WDI (World Development Indicators) provided all the data from1980 to 2022.

4.2 Data Sources

Data is collected from articles (downloaded from Google Scholar and Sci-hub)

4.2.1 Specification of Variables:

The model specified in this study takes GDP Per Capita as dependent variable while TO (Trade Openness), BM (Broad Money), FCE (Final Consumption Expenditure), IR (Inflation Rate), K (Capital), Total Labor Force (Total Labor Force) as independent variables.

- GDP Per Capita= Gross Domestic Product per Capita (Annual Percent)
- TO = Trade Openness (proxy for trade openness)
- BM = Broad Money (proxy for Financial Development) (percent of GDP)
- K =Capital (percent of GDP)
- L =Labor
- FCE =Final Consumption Expenditure (percent of GDP)
- IR = Inflation Rate (Annual Percent)

4.2.2 Model Specification

The model designed in this \research is as follows:

$$GDPPC = \alpha_0 + \alpha_1 TO + \alpha_3 BM + \alpha_4 L + \alpha_5 K + \alpha_6 FCE + \alpha_7 IR + \varepsilon$$

Table 1
Model Specification

Variables	Description of variables	Unit of measures:	Sources of data
Dependent variable:			
GDPPC	Gross Domestic Product Per Capita	Annual percentage	WDI
Independent variable:			
TO	Trade Openness	Percentage of GDP	WDI
K	Capital	Percentage of GDP	WDI
L	Total Labor Force	Total	WDI
BD	Broad Money	Percentage of GDP	WDI
FCE	Final Consumption Expenditure	Percentage of GDP	WDI
IR	Inflation Rate	Annual Percent	WDI

4.3 Methodology

The Augmented Dickey-Fuller (ADF) test is conducted to analyze the presence of a unit root. Then, the Bound test is conducted to determine if there's long-run relationship exists among the variables. Finally, the ARDL test is applied to assess the significance of the variables.

Diagnostic tests are then applied to verify the assumptions. Linearity, Normality, Auto correlation, Multicollinearity and Heteroskedasticity of Classical Linear Regression Model are satisfied or not.

4.3.1 ARDL (Autoregressive Distributed lag Model)

The rise of third-party payment platforms has significantly impacted banks' intermediary businesses. Table 2 shows the fee comparison between traditional banking and third-party payments.

Various econometric techniques, such as the Juselius Test and the Engle-Granger Approach, have been widely utilized for the empirical analysis of time series data. However, these methods are often criticized for their limitations, as they fail to provide reliable results for both small and large sample sizes. Accurate outcomes from these approaches can only be achieved by significantly extending the time span of the data.

Besides these shortcomings, an alternative approach is needed to assess the relationship and significance between variables, one that overcomes these shortcomings and provides reliable results for both the short and long run is the Auto Regressive Distributed Lag (ARDL) method."

It combines the features of Auto-regressive (AR) and distributed Lag (DL) models, allowing for:

- Co integration analysis
- Error Correction mechanisms
- Dynamic relationships

4.3.2 Error Correction Model: (ECM)

Once the long run relationship between the variables is verified the next step is to examine the short-run dynamics. To do this, the Error Correction Model (ECM) is used. The ECM is used to evaluate the convergence or divergence of the model, providing insights into its short-term adjustments.

4.3.3 Descriptive Statistics

"In Descriptive Statistics, the mean, median, standard deviation, maximum and minimum values, as well as the kurtosis and skewness of the variables are examined.

Table2
Descriptive Statistics

	GDP Per Capita	Broad Money	Final consumption Expenditure	Inflation Rate	Capital	Labor	Trade Openness
Mean	2.09568	46.25206	88.68263	8.466501	0.867629	62.32672	32.22644
Median	1.909287	45.41030	89.05063	7.921084	0.620823	62.42100	32.89710
Maximum	5.818349	58.86769	96.24301	20.28612	3.668323	67.64000	38.89710
Minimum	-2.970295	34.79942	82.60073	2.529328	0.102667	57.60600	24.70158
Std. Dev.	1.992867	5.784433	4.010902	4.086538	0.770939	2.837701	3.676870
Skewness	-0.343394	0.122731	-0.055907	0.844079	2.354327	0.156570	-0.407569
Kurtosis	2.633670	2.158351	1.699842	3.935431	8.205762	1.716209	2.256093
Jarque-Bera	1.085530	1.377119	3.051053	6.673800	88.27789	3.128568	2.181978
Probability	0.581139	0.502299	0.217506	0.035547	0.00000	0.209238	
Sum	90.15242	1988.838	3813.353	364.0595	1385.737	2680.049	
Sum Sq. Dev.	166.8038	1405.306	675.6682	701.3913	37.30807	338.2069	
Observations	43	43	43	43	43	43	

Author's Analysis using e views

The mean and GDPPC is 2.09568 and 1.909287 respectively. While the maximum value and minimum value of GDPPC is 5.818349and -2.970295 respectively and its standard deviation is 1.992867 and its skewness is negative i.e. -0.343394 while the skewness of Final Consumption Expenditure and Trade Openness are negative and of Broad Money, capital, labor and inflation are positive and the value of kurtosis for GDP Per Capita, Broad Money, Final Consumption Expenditure, Labor and Trade Openness is platokurtic and for capital and inflation is leptokurtic and all the variables are normally distributed.

The mean of GDP Per Capita is 2.09568, with a median of 1.909287. The maximum value of GDPPC is 5.818349, while the minimum value is -2.970295. Its standard deviation is 1.992867, indicating variability around the mean. The skewness of GDPPC is negative (-0.343394), suggesting a slight leftward skew. Similarly, the skewness of Final Consumption Expenditure (FCE) and Trade Openness (TO) is negative, whereas the skewness of Broad Money (BM), Capital (K), Labor (L), and Inflation is positive.

The kurtosis values indicate that GDPPC, BM, FCE, L, and TO exhibit platykurtic distributions, while K and Inflation display leptokurtic distributions. All variables have been found to follow a normal distribution.

4.3.4 Correlation Analysis

The correlation analysis exhibits the strength of relationship between the variables. The range of correlations is -1 to +1.

Table 3
Correlation Analysis

	GDPPC	**Broad Money**	**Final Consumption Expenditure**	**Inflation Rate**	**Capital**	**Total Labor Force**	**Trade Openness**
GDPPC	1.000000	0.071695	0.175637	-0.171984	-0.107291	-0.012513	-0.115236
Broad Money	-0.01695	1.000000	0.422807	0.195693	0.566770	-0.698850	-0.131001
Final Consumption Expenditure	0.175637	0.422807	1.000000	0.219002	-0.139546	0.431544	-0.218162
Inflation Rate	-0.171984	0.195693	0.219002	1.000000	0.2825567	0.085205	0.493986
Capital	-0.107291	-0.566770	-0.139546	0.285205	1.000000	0.223356	0.190625
Total Labor Force	-0.012513	-0.698850	0.431544	0.085205	0.223356	1.0000000	-0.602194
Trade Openness	-0.115236	-0.131001	-0.218162	0.493986	0.190625	-0.602194	1.0000000

Author's Analysis using e views

The correlation between GDPPC and Broad Money is weak and positive i.e.0.0716 as well as the correlation between GDP Per Capita and Final Consumption expenditure is weak and positive i.e.0.176 while there exists weak and negative correlation between GDP Per Capita and Inflation Expenditure i.e. -0.171984 as well as there exists weak and negative correlation between GDP Per Capita and Capital i.e. -0.107291.The weak and negative correlation also existed between GDP Per Capita and Total Labor Force i.e. -0.012513 as well as between GDP Per Capita and Trade Openness i.e. -0.012513. In the same way, Broad Money has weak and negative correlation with GDP Per Capita, Final Consumption Expenditure and Trade Openness while it has positive and weak relation with Final Consumption Expenditure, Inflation Rate and Capital. Other variables i.e. Inflation rate, Capital, Labor, and Trade Openness have correlations like the above.

4.3.5 Test of Stationarity
4.3.5.1 ADF (Augmented Dickey Fuller Test)

"The ADF test reveals that if the probability value of a variable is below 0.05, the null hypothesis is rejected, meaning that the variable is stationary. On the other hand, if the probability value of a variable is above than 0.05, meaning that the variable is non-stationary, is accepted."

When the ADF test is applied to GDP Per Capita, its P-value is 0.0005, which means it is significant at the level. When applied to the Inflation Rate, its P-value is 0.0001, indicating significance at the level. When applied to Capital, its P-value is 0.0436, signifying significance at the level. When applied to Broad Money, Total Labor Force, and Final Consumption Expenditure and Trade Openness for Intercept, trend and intercept and none, their P-value is (0.2694), (0.9551), (0.6767) and (0.1490) respectively meaning that they are non-stationery at level while they are stationery at first difference.

Table 4
Stationarity of Variables

Variables	Stationarity Level	Intercept	Trend and Intercept	None	Decision
GDP Per Capita	At Level	-4.68426 (0.0005)	-4.783792 (0.0020)	-1.2781 (0.1821)	I=(0)
Final consumption Expenditure	At Level	-117456 (0.6767)	-1.884197 (0.6449)	-0.206825 (0.7474)	I≠0
	At first difference	-7.364131 (0.0000)	-4.743792 (0.005)	-7.013002 (0.0000)	I=(1)
Capital	At Level	-2.996090 (0.0436)	-2.954090 (0.1572)	-1.863969 (0.0600	I=(0)
Labor	At Level	-0.020262 (0.9551)	-2.776196 (0.2136)	-4.106734 (1.0000)	I≠0
	At First Difference	-6.439043 (0.0000)	-6.353254 (0.0000)	-4.434454 (0.000)	I=(1)
Trade Openness	At Level	-2.395927 (0.1490)	-2658651 (0.2581)	-0.477302 (0.5029)	I≠(0)
	At First Difference	-6.540210 (0.0000)	-6.553429 (0.0000)	-6.625310 (0.000)	I=(1)
Inflation Rate	At Level	-5.191298 (0.0001)	-5.362261 (0.0005)	-0.650861 (0.4293)	I=(0)
Broad Money	At Level	-2.039667 (0.2694)	-3.252062 (0.0688)	-0.049317 (0.6606)	I≠(0)
	At first difference	-5.455413 (0.0000)	-5.509350 (0.0004)	-5.15194 (0.0000)	I=(1)

4.3.6 Bounds Analysis

Table 5: Results of Bounds Analysis

	At 5% significant Level		At 10% Significant Level	
F Statistic	**Lower Bound**	**Upper Bound**	**Lower Bound**	**Upper Bound**
4.594974	2.27	3.28	1.99	2.94

Author's Analysis using eviews

In the above model, the statistical value of F- statistics is 4.594974 which exceeds critical upper bound value i.e. 3.28 (at 5%), 2.94 (at 10%) and lower bound value at 5% i.e.2.27 and 10% i.e.1.99 respectively. Consequently, the null hypothesis, which suggests no long-run relationship among the variables in the specified model, is rejected. Instead, the alternative hypothesis is accepted, indicating the presence of long run relationship among the variables in the long run.

4.3.6 Long Run analysis

In model discussed, GDPPC is negatively affected by Broad Money and Inflation Rate i.e. their coefficient value is -0.907343 and -0.253730 while it is positively affected by Final Consumption Expenditure, Capital, Labor and Trade Openness i.e. their coefficient value is 0.449191,1.956428,1.966523 and 1.966523respectively.The negative relationship between Broad Money (BM) and GDPPC exhibits that there is the requirement for changes in monetary policy. There is need that the policy makers should concentrate on improving financial access, promoting loans to businesses, and making the banking system more efficient. The State Bank of Pakistan should concentrate on providing loans to productive sectors on concessional basis instead of just increasing the money supply. Monetary policy will work in a better way if digital payments are encouraged and cash transactions are reduced. Along with these measures, infrastructure should be improved, taxing system should be simplified and exports should be promoted, all these will lead to increase Economic Growth. (Annual Report, State Bank of Pakistan,2022; Pakistan Bureau of Statistics,2022; GDP Growth Rate, IMF, 2022.Pakistan: Staff Report for the 2022 Article IV Consultation).

In addition to this, Trade Openness, Broad Money, Final consumption Expenditure and Total Labor force are significant in explaining GDPPC i.e. their P-value is 0.0816,0.0757,0.0685 and 0.0522 respectively while Inflation Rate and Capital are insignificant i.e. their P-value is 0.1263 and 0.1288 respectively.

Table 6
Results of Long Run analysis

Variables	Coefficient
Trade Openness	0.751
	(0.0816)
Broad Money	-0.907
	(0.0757)
Final Consumption Expenditure	0.449
	(0.0685)
Inflation Rate	-0.25
	(0.1263)
Capital	1.95
	(0.1288)
Labor	1.96
	(0.0522)
C	-143
	(0.0500)

The value in () shows the P-value.

4.3.6 Short Run Analysis

Value of GDPPC but it is arithmetically significant i.e. its P-value is 0.0280. The lagged value of Broad Money exerts negative impression on the current value of GDPPC, but it is significant arithmetically.

Table 7
Results of Short Run Analysis

Variables	Coefficient
D(GDPPC)	-0.259384
	(0.0280)
D(BM)	-0.493160
	(0.0001)
D(BM(-1))	0.876635
	(0.0000)
D(BM(-2))	0.702609
	(0.0000)
D(BM(-3))	0.750315
	(0.0000)
D(FCE)	-0.586125
	(0.0018)
D(FCE(-1))	-0.911444
	(0.0001)
D(FCE(-2))	0.356624
	(0.0268)
D(K)	-0.808243
	0.0155
D(K(-1))	-1.647450
	(0.0299)
D(K(-2))	-0.265839
	(0.6991)
D(K(-3))	-2.432342
	(0.0022)
D(TO)	0.870241
	(0.0000)
D(TO(-1))	-0.234607
	(0.0869)
D(TO(-2))	-0.405079
	(0.0036)
D(TO(-3))	-0.512287
	(0.0009)
CointEq(-1)	-0.994307
	(0.0000)

One year, two year and three-year lagged value of the Broad Money has an adverse impact on the current value of GDPPC, yet it remains statistically significant. The immediate

past value and one -year lagged value of Final Consumption Expenditure has a negative effect on the recent value of GDPPC, but it is arithmetically significant. Likewise, the immediate past value of Capital as well as one year, two year and three-year lagged value of Capital also negatively affect the recent value of GDPPC while maintaining statistical significance. The previous period lagged value of principal variable i.e. Trade Openness (TO) along with its one year, two year and three-year lagged values of TO also affect the immediate value of GDPPC negatively but they all are arithmetically significant with P-value is 0.0000,0.0869,0.0036 and 0.0009 respectively.

The lagged value of GDPPC i.e. -0.259384 exerts negative impression on the immediate. As can be analyzed from the table that the value of error correction model is -0.994307 indicates that this model will converge towards the equilibrium at a speed of 99 percent as time passes.

4.4 Diagnostic tests on ARDL

Before drawing conclusion or policy inferences from any estimated regression model, it is essential to perform diagnostic tests to ensure the model's validity of the regression models.

4.4.1 Histogram Normality Test

Table 8
Results of Histogram Normality Test

JB-Value	Probability	Value
0.202837	0.903555	

Since the probability value is above than 0.05 i.e. 0.903555 so the null hypothesis describing that the model has no normality is rejected while the alternative hypothesis describing that the model has normality is accepted.

4.4.2 Serial Correlation: (Breush-Godfrey Serial Correlation LM Test)

Table 9
Results of Breush-Godfrey Serial Correlation LM Test

F_statistic	Prob_F	Obs R_squared	Prob Chi Squares
0.453851	0.6449	2.545377	0.2801

Given that probability value is more than 0.05 i.e. 0.6449 so the null hypothesis describing that the model has no serial correlation is rejected while the alternative hypothesis describing that the model has serial correlation is accepted.

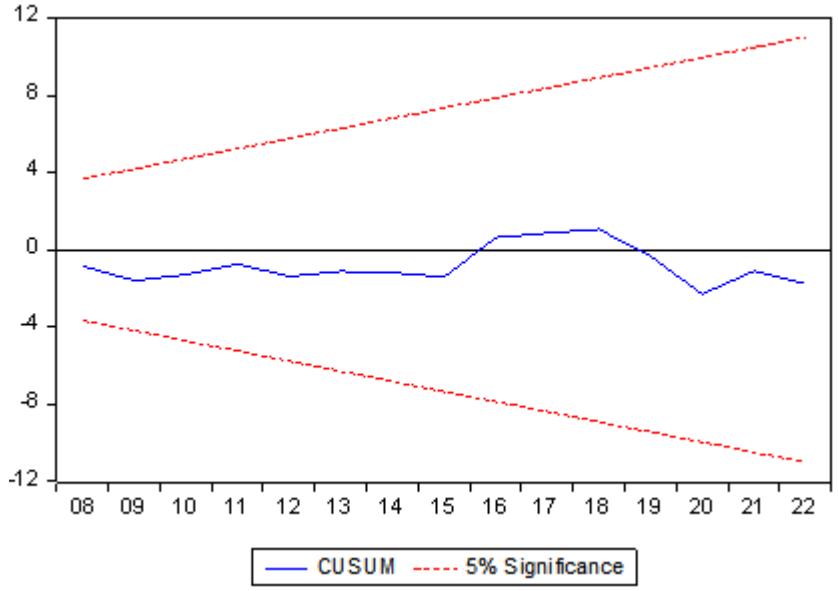
4.4.3 Heteroskedasticity Test: (Breush-Godfrey Serial Correlation LM Test)

Table 10
Results of Breush-Godfrey Serial Correlation LM Test

F-statistic	Prob-F	Obs R-squared	Prob Chi Squares
1.713464	0.1418	28.24823	0.2065

Since the probability value is greater than 0.05 i.e.0.1418 so the null hypothesis which states that the model is heteroskedastic, is accepted while the alternative hypothesis describing that the model is homoscedastic, is rejected.

4.4.4 Stability Test (Cusum Test)



Since the blue line is confined within the two red lines without touching them, the model is considerable stable.

5. Conclusion

The problem researched in this study is that trade liberalization, which is basically a process of reducing trade obstacles like tariffs, quotas, and subsidies, is a great determinant of economic growth. This article evaluates that trade openness fosters economic growth. Both exports and imports increase with the free trade policy. But if the trade liberalization policy is adopted with necessary measures, it can have prominent hazardous effects for the economy like Pakistan.

6. Policy Implication

On the basis of this study, it is recommended that to tackle these challenges facing by Pakistan, policy makers should concentrate on increasing labor productivity and capital efficiency, diversifying exports to high-growth markets, provide considerable protection to the industries making most precious items and exported items. Inflation control measures, such as stabilizing essential goods prices are pivotal for achieving sustainable growth. Finally, regulating the money supply and ensuring efficient functioning of financial intermediators will help to direct the resources into productive investments and to remove negative impacts of broad money on growth. By adopting these measures, trade liberalization will be highly beneficial for Pakistan and non-refutable growth will be achieved.

Conflict of Interests/Disclosures

The authors declared no potential conflicts of interest w.r.t the research, authorship and/or publication of this article.

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