An Analysis of the Interrelationship among Trade Openness, Institutional Quality and Economic Growth: Empirical Evidence from Pakistan

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ABSTRACT

Contemporary development economists are focusing more on the influence of trade openness and institutional quality on economic development in developing nations. Effective institutions are thought to be essential for increasing economic progress, especially in developing countries. Trade liberalization has been increasing since the mid-1980s. The term "trade openness" refers to the removal or reduction of trade obstacles between countries and the promotion of free trade. Twenty years ago, a consensus emerged that trade openness strongly promoted economic growth. Developing economies including Pakistan are rapidly moving to free trade due to its numerous advantages. From 1984 to 2018, this research sought to uncover the relationships between institutional quality, trade openness, and Pakistan's economic growth. To achieve the goals of this research, state-of-the-art econometric methodologies were applied to various findings. Descriptive statistics are used to determine the data's center of tendency and skewness. To check the stationary problem of all series, ADF and Philips-Perron unit root tests are used. Both tests recommended using the ARDL bounds test. Two indices were created for this study: one to gauge the institutional quality and the other to measure trade openness. The main factors in Pakistan's economic growth are trade openness and institutional quality, according to empirical findings. According to this empirical research, trade liberalization will only be successful if policymakers seek to improve the quality of Pakistan's political and economic institutions.

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1. Introduction

The globe is fast converting into a global village as a result of globalization. As countries join the international economic system, they can better transfer goods and services, and trade liberalization has been rising since the mid-1980s. Trade liberalization entails reducing trade barriers between countries and fostering free trade. Twenty years ago, there was widespread agreement that trade openness boosted economic growth. Due to the multiple benefits of free trade, developing economies such as Pakistan are swiftly adopting it. This shift is not confined to developed countries; Latin America, Korea, and Turkey are also examples of extremely successful liberalization (Dornbusch, 1992). Developing countries gain sustainable growth as a result of cross-border movement of goods and services. Reduced trade barriers and increased trade volume result in a narrowing of the income disparity (Ben-David, 1996).

For many countries and locations, the poverty and trade liberalization nexus has a range of relationships. Although trade openness improves wellbeing, the gains are not evenly distributed. Poor people's income grows at a slower rate than the norm due to unequal growth distribution (Amelia and Santos, 2012). Although trade liberalization benefits rich countries more than developing countries, it has a positive impact on economic growth in developing countries (Biligin & Seker, 2021).

The causation between the institutions quality and economic progress is very important. A better institutional quality helps in generating more revenue (Valeriani & Peluso, 2011). The basic goal of all economies is to achieve substantial and long-term economic growth. Economic growth is influenced by both economic and noneconomic variables(Nawaz et al., 2014).Developing economies have more capacity to catch up with the world but they are not observed to be effectively catching up; the reason for this is the poor quality of institutions (Knack and Keefer, 1997; Rodrik, 1999, 2003). Poorer countries need a long time to build strong institutions, but they give a great impetus to the economic growth. Higher levels of technological diffusion and institutions with good quality improve commerce and trade activities. Moreover, it has been found that a gradual drop and elimination of tariff accelerates trade growth of a country(Chong & Calderon, 2000;Gani, 2009). Institutions are the constitutionally empowered organizations that design and regulate human interaction and communication in every field of life including economy, society, and even politics (Milgrom, et al., 1990). Remittances affect the economic growth positively provided the institutions are strong (Catrinescu et al., 2009). Institutional quality ignites the growth of the economy as it reduces the transaction cost in the production process. If the institutional quality relegates or goes missing, corruption will increase, and the business organizations will invest only in small scale industries. The saga of Pakistani economic development has surprisingly recorded both beneficial as well as detrimental effects of its institutions(Ahmad & Ahmed, 2014).Relationship between growth and institutions is complicated. Institutions effect growth by bringing changes in the technology, investment, geography, infrastructure, and other socio-economic factors. Political stability also affects the economic growth; instability in the working of the institutions causes promotion of the black economy.

To avoid such types of negative effects of institutions on economic growth its quality must be improved. In Indonesia economic crises hit in 1997, lack of good institutions and policies made it difficult to overcome the situation. Bilateral connections among the variables of institutional quality and economic growth occupies central space in any political economy (Cole et al.1992). Pakistan is also a developing country with a trade deficit despite liberalizing its trade; in the 1980s, Pakistan's trade deficit was 8.9% of GDP. Exports as a percentage of GDP fell to 7.7% in 2011-12, down from 9.8% in the 1980s. Pakistan's exports totaled $13.55 billion, with $52.44 million in imports. Similarly, the current rate of economic growth was not encouraging. In 2018-19, it was 3.29 percent. As a result, Pakistan's increasing trade deficit and slow economic growth are detrimental to the country's economy. Pakistan changed its trade policy from restricted to openness, after 1988 (Issues in Pakistan's Economy, 2005; 2015). All the restriction on trade was removed, except custom duty. This liberalization policy improved the balance of trade and average value of trade openness moved towards improvement (Abidin et al., 2013). The imports value was higher as compared to exports, since from 2002 to 2018. This imbalance of trade is the main hurdle in balance of trade (Pakistan Economic Survey, 2017-18).

On the other hand, with regards to economic growth, it has fluctuated over the years and even became negative a few times in Pakistan. Although the performance of institutional quality has improved over the years, this improvement has not been much impressive. Law and order index ranges from 0 to 6 (0 Poor; 6 Good), and the index value observed in the past years show that the law-and-order condition in Pakistan is not adequate. Trend shows a slight improvement in law-and-order condition from 1984-1997. In the year 1998, its value decreased from 3.92 points to 3.00 points and remained the same till 2009. After that, the law-and-order condition improved and reached 3.50 points in 2012, and during the year 2016, its value again dropped to 3.00 points for Pakistan (International Country Risk Gide, 2016). Institutions are considered an important component in analyzing a country's macroeconomic progress, but in Pakistan, only a small number of researchers have worked on institutions to demonstrate their importance. In recent years, the relationship between economic performance and institution quality has become a hot topic of research. The main goal of this

research is to figure out why trade openness is unsuccessful for Pakistan, and why institutions must play a role, which has been overlooked in previous studies. Due to this research gap, a fresh study on this issue is inevitable and it is expected that this study will fill this gap.

2.   Literature Review

Contemporary development economics is trying to discover how trade openness, institutional quality, and economic growth relate with one another. Many studies have been carried out to measure these relationships in various countries. As a result of these studies, the world now considers trade openness and institution quality as major contributors of the economic progress especially in the developing economies. Trade liberalization has been increasing since the last mid-eighties. Trade liberalization is very common phenomenon in the modern world. Trade liberalization includes reducing obstacles to trade among different countries and promoting free trade. Twenty years ago, a consensus had emerged that trade openness strongly promoted economic growth. According to Prebisch (1950) in developing country hastily liberalization policy is not beneficial. Trade liberalization impacts the output through exports, investment, and imports(Khan & Ahmed, 2012).Kneller & Yu (2016) found that economic growth increases 1.6% per capita over 10 years due to trade openness. Parikh & Stirbu (2004) found results which show that GDP increases by 1.62 % as a consequence of 1 % increase in trade openness. Yanikkaya (2003) estimates positive relation between trade and economy. He found 0.18 % yearly improvement of economy entailed by 10 % increase of trade openness. Similarly, the same variables showed 1 % increase of former generates 0.70% increase of the latter (Yeboah et al., 2015). The same type of relation is found in trade openness, labor force, capital and economy. Import-export increases with trade openness (Jaffri et al., 2015). Labor force and capital are also noted to have same effect on economy (Hye et al., 2013). One percent change of labor force would lead to 7.19 % change in economic growth and 1% change in capital increases 1.46% economic growth. Manni & Afzal (2012)discovered that relationship of trade openness and economy was although positive yet weak. Trade liberalization has impacts on output through exports, investment and imports. Kneller & Yu (2008)found that economic growth increases 1.6% per capita over 10 years due to trade openness.Parikh & Stirbu (2004)found results which show that GDP increases by 1.62 % because of 1 % increase in trade openness. Based on above-mentioned literature, we can draw the hypothesis,

H$_A$: trade openness has significant positive impact on economic growth of Pakistan.

The causation between the institutions quality and economic progress is very important. A better institutional quality helps in generating more revenue (Valeriani & Peluso, 2011). A positive and significant effect of institutional quality was recorded on GDP of developing and developed nations alike. The calculated coefficient for the developed countries was 0.303, and for the developing countries, it was 0.159. Sarwar, et al., (2013) also came up with the same types of results with both the variables where 1% improvement in institutional quality resulted in 0.309% increase in growth of economy. Maya and William (2011) it is suggested to bring improvement in the institutions for the secured property rights and good governance along with improvement in the production sector. Roderick et al (2004) empirically checked the role of institutions Their results reveal that institutions exert positive and significant impact on trade economic growth of these countries. The paper also has the result for policy makers who want to improve economics growth that geography is not important as the act of institutions. Daren and Robinson (2010) theoretically checked the impact of institutions on development. According to the researchers the development of the country highly depends on institution. The difference in prosperity among countries is basically the difference in economics institutions. And the performance of economics institutions is the mirror image of political decisions. After review these literatures, we can be hypnotized that;

H$_B$: Better quality of institutions enhances the economic growth in Pakistan.

Moshirian (2007) critically studied the relationship between globalization, growth and institutions. Data of different countries has been collected and has been explained through different variables like life expectancy, education, economic integration, FDI and GDP etc. Technological advancement is also playing an imperative role in improving globalization and economic growth. More research is needed in this regard(Khan & Ahmed, 2012). Yanikkaya (2003) estimates positive relation between trade and economy. He found 0.18 % yearly

improvement of economy entailed by 10 % increase of trade openness. Similarly, the same variables showed 1 % increase of former generates 0.70% increase of the latter (Yeboah et al., 2015). The same type of relation is found in trade openness, labor force, capital and economy. Import export increases with trade openness (Jaffri et al., 2015). Labor force and capital are also noted to have same effect on economy(Hye et al., 2013). One percent change of labor force would lead to 7.19 % change in economic growth and 1% change in capital increases 1.46% economic growth.

The preceding discussion points to certain gaps in the study of the influence of many variables on economic advancement in several countries around the world. The role of institutions as a variable in econometric case studies, for example, has yet to be investigated from a Pakistani viewpoint. A new study on this topic is unavoidable as a result of the research gap, and it is predicted that this study will cover that gap by the empirical relationship between trade openness, institutional quality, and economic growth, and trace the reasons for unstable economic growth in Pakistan. Our empirical findings show that trade openness, institutional quality, capital and labor force have significant impact on economic growth both in short-run and long-run except the financial development which has positive influence found in the short-run only.

3. Data and Methodology
3.1 Description of the variables
This study uses time series data from 1984 to 2018 covering 35 years for the data on some of the variables from 1972 to 1983 i.e., institutional index was not available[1]. Gross domestic product (GDP) is taken as GDP constant $ 2010 which is the dependent variable. We use five independent variables mentioned in detail. Trade openness index is the combination of four partial series: import / GDP, export / GDP, import-export /GDP, and terms of trade/GDP all variables are in real terms. Similarly, the proxy for financial development is used as domestic credit to private sector (constant $ 2010), Data for institutional index is taken from World Governance Indicators (WGI).Gross fixed capital formation is taken as proxy for the capital, and it is measured in constant $ 2010 and lastly. The proxy for labor is taken in the form of total labor force in Pakistan and the data for this variable is drawn from Pakistan Economic Survey. All these variables are further transformed in to logged form to reduce the sharpness from the data.

3.2 Empirical Model
In order to analyze the long-run association of the variables, the Cobb-Douglas Production Function has been applied.

$$Y = AL^{\alpha_1}K^{\alpha_2}e^{\mu} \qquad (1)$$

This above model is the basic Cobb-Douglas production function. Y is the output level, A is constant term, L represents labor, K represents capital and e represents the error term. The log-linear functional form of Cobb-Douglas production function is as follows;

$$logY_t = logA + \alpha_1 logL_t + \alpha_2 logK_t + \mu_t \qquad (2)$$

Since we are adding some new variables in existing CD production function, the new model of the study is:

$$Y = AL^{\alpha_1}K^{\alpha_2}TO^{\alpha_3}INS^{\alpha_4}FD^{\alpha_5}e^{\mu} \qquad (3)$$

In equation (3), TO is representing trade openness index, INS is representing institutions, FD is representing financial development and other variables discussed in the below paragraph. The log-linear form of Cobb-Douglas production function is as follows;

$$lnY_t = \alpha_0 + \alpha_1 lnTO_t + \alpha_2 lnINS_t + \alpha_3 lnFD_t + \alpha_4 lnK_t + \alpha_5 lnL_t + \mu_t \qquad (4)$$

In equation (4), GDP/Output (lnY_t), trade openness index (lnT_t), institutional index (lnI_t), financial development (lnF_t), capital (lnK_t), and labour (lnL_t) are taken.

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[1]See Table A1 for variables description and data sources in Appendix.

3.3 Econometric Methods
3.3.1 Unit Root Test
To check the non-stationary in the dataset, this study applies Augmented Dickey Fuller test (Dickey & Fuller, 1981) and Phillips-Perron unit root test. ADF test has the capability of tackling the serial correlation problem and structural break problem.

$$\Delta LY_t = \alpha + \beta T + \rho LY_{t-1} + \sum_{i=1}^{p+1} \gamma_{t-1} \Delta LY_{t-1} + \varepsilon_t \tag{5}$$

Where $i = 1,2,3,\dots,n$. There are two hypothesis which we test through this equation, null hypothesis and alternate hypothesis.

$$H_0(null\ hypothesis) = There\ is\ a\ unit\ root\ problem$$
$$H_a(alternate\ hypothesis) = There\ is\ no\ unit\ root\ problem$$

In case the probability value of t-statistics is greater than 0.10, the null hypothesis will be accepted meaning that there is a unit root problem in the data and vice versa.

3.3.2 ARDL Bounds Testing Approach for Cointegration
"Cointegration is a statistical property of time series variables. Two or more time series are cointegrated if they share a common stochastic drift. In other words, if there exists a stationary linear combination of non-stationary random variables, the variables combined are said to be cointegrated". The ARDL bounds testing approach to cointegration was first developed by Pesaran et al. (2001) to check the cointegration in the series when series has mix order of integrations. They also developed two critical value-based criterions to give the best estimates for long-run and short-run association. If the calculated value is greater than upper critical value then there exists long run cointegration in the model and if the calculated value is less than lower critical value then there is no correlation in the model but if the calculated value falls between upper and lower critical value then the results would be ambiguous. In this study, all data is expressed as the logarithms. The log is taken to ease the interpretation of the result and to reduce possible heteroskedasticity. The equation is as follows.

$$\Delta lnY_t = \beta_0 + \sum_{i=1}^{p_0} \gamma_i \Delta lnY_{t-1} + \sum_{i=0}^{p_1} \delta_i \Delta lnTO_{t-1} + \sum_{i=0}^{p_2} \theta_i \Delta lnINS_{t-1} + \sum_{i=0}^{p_3} \vartheta_i \Delta lnFD_{t-1} + \sum_{i=0}^{p_4} \mu_i \Delta lnK_{t-1} + \sum_{i=0}^{p_5} \tau_i \Delta lnL_{t-1} + \alpha_0 lnY_{t-1} + \alpha_1 lnTO_{t-1} + \alpha_2 lnINS_{t-1} + \alpha_3 lnFD_{t-1} + \alpha_4 lnK_{t-1} + \alpha_5 lnL_{t-1} + \epsilon_t \tag{6}$$

In equation (6), p_j is the chosen lags, β_0 is the intercept, α_j is the coefficients of long-run variables. The unrestricted error correction equation can be seen in equation 7.

3.3.3 Unrestricted Error Correction Equation

$$\Delta lnY_t = \beta_0 + \sum_{i=1}^{p_0} \gamma_i \Delta lnY_{t-1} + \sum_{i=0}^{p_1} \delta_i \Delta lnTO_{t-1} + \sum_{i=0}^{p_2} \theta_i \Delta lnINS_{t-1} + \sum_{i=0}^{p_3} \vartheta_i \Delta lnFD_{t-1} + \sum_{i=0}^{p_4} \mu_i \Delta lnK_{t-1} + \sum_{i=0}^{p_5} \tau_i \Delta lnL_{t-1} + \lambda ECM_{t-1} + \epsilon_t \tag{7}$$

Where ECM_t is error correction term which shows the speed of adjustment from short run to long run.

4. Result and Discussion
4.1 Principle Component Analysis
Principal component analysis (PCA) calculates small number of uncorrelated series from the large number of correlated series. This method was invented in 1901 by Karl Pearson. PCA has been applied in this study to make 2 different indices, Trade openness Index and Institutional Index. All variables weighted at the same percentage. For trade openness index, combined four series: Import/GDP, Export/GDP, (Import + Export)/GDP, and Terms of trade/GDP. All four series are combined and transformed into one single component named as Trade Openness Index. Secondly, the institutional index has been transformed by using the 12 main variables of institutions which are government stability, socioeconomic conditions, investment profile, internal conflict, external conflict, corruption, military of politics, religious

tensions, law and order, ethnic tensions, democratic accountability, and bureaucracy quality. All these variables are combined by using PCA and transformed into a single series named as Institutional index. These two series have passed the normality test and correlation test by applying some diagnostic tests on them.

4.2 Descriptive Statistics

Now the study will measure the central tendency, skewness, and kurtosis of data. Table 1 exhibits the basic characteristics of all the variables being studied. All variables were taken in real terms and then transformed into lagged terms.

Table 1: Descriptive Statistics

	lnY	lnL	lnINS	lnFD	lnK	lnTO
Mean	13.15	1.47	0.18	12.51	12.37	-0.12
Median	13.09	1.46	0.42	12.49	12.36	0.05
Maximum	13.47	1.52	1.47	12.71	12.62	1.04
Minimum	12.99	1.41	-5.06	12.35	12.27	-4.32
Std. Deviation	0.14	0.03	1.15	0.09	0.08	1.03
Skewness	0.82	0.10	-2.98	0.46	1.23	-2.12
Kurtosis	2.50	1.43	13.51	2.15	4.00	9.12
Obs.	35	35	35	35	35	35

Note: All the variables are transformed into natural logarithms

4.3 Unit Root Testing

Stationary problem of data causes the results rigorously. It is one of the major problems of data. If there exists any stationary problem in the data then the results would not present the true picture of data.

Table 2: Unit Root Tests

Variable	ADF Unit Root Test		PP Unit Root Test		Decision
	Level	**1st Diff.**	**Level**	**1st Diff.**	
lnY	1.3527	-3.9765***	1.2259	-3.9765***	*I(1)*
	(0.9984)	(0.0043)	(0.9977)	(0.0043)	
lnTO	-4.7205***	-9.6332	-4.7360***	-22.164	*I(0)*
	(0.0006)	(0.0000)	(0.0005)	(0.0001)	
lnINS	-4.0518***	-8.4799	-4.0538***	-11.844	*I(0)*
	(0.0035)	(0.0000)	(0.0035)	(0.0000)	
lnFD	-1.2903	-3.9007***	-0.9927	-3.9007***	*I(1)*
	(0.6222)	(0.0053)	(0.7447)	(0.0053)	
lnK	0.0490	-3.9561***	-0.3032	-3.9561***	*I(1)*
	(0.9567)	(0.0046)	(0.9142)	(0.0046)	
lnL	-0.4937	-6.1367***	-0.3248	-6.4561***	*I(1)*
	(0.8804)	(0.0000)	(0.9108)	(0.0000)	

Note: ***, **, * indicate 1%, 5% and 10% level respectively.

It is said that the data should fulfill the BLUE properties that include Best, Linear, Unbiased Estimators. So, to address this issue, the present study applies the ADF and PP unit root tests. ADF test developed in 1984 is the augmented version of Dickey-Fuller unit root test which could only be used for known orders but ADF has the capacity of finding the unit root problem even if the data has some unknown order. The criteria for the testing the unit root problem depends on the rejection or acceptance of null hypothesis (H_0 = *There is unit root problem*). In the present research study, GDP, financial development, labor, and capital are significant at first difference. On the other side, trade openness index and institutional index are significant at level. This mix order of integrations refers to the ARDL bounds testing approach, but we need to calculate the optimal lag for the data.

Table 3: Lag-length Criteria

Lag	Log L	LR	FPE	AIC	SC	HQ
0	142.3231	NA	1.04e-11	-8.262007	-7.989915	-8.170457
1	280.7589	218.1412	2.18e-14	-14.47024	-12.56559	-13.82938
2	348.5591	82.18211*	3.9e-15*	-16.3975*	-12.8603*	-15.2073*

4.4 ARDL Bounds Testing Approach

Although many tests like Johenson Cointegration test, OLS, ARDL bounds test, combined cointegration test, etc. are available for cointegration testing, but ARDL bounds test is one of the best cointegration tests in this type of data where mix cointegration exists.

Table 4: ARDL Bounds Testing

$ARDL(1,2,1,2,2,2)$	$F-stats$	Diagnostic Tests			
$F_{lnY}(lnY|lnTO, lnINS, lnFD, lnK, lnL)$	11.13***	$\chi^2 serial$	$\chi^2 BPG$	$\chi^2 ARCH$	$\chi^2 RAMSEY$
		2.34	0.24	0.01	2.87
		(0.12)	(0.99)	(0.90)	(0.11)
Significance Level		**Critical Values**			
		$I(0)$		$I(1)$	
10%		2.26		3.35	
5%		2.62		3.79	
1%		3.41		4.68	

ARDL / Bounds Testing method developed by Pesaran et al. (2001) is applicable to this study as it has mix order of integration. When estimated for cointegration, bounds test gives two bounds with three possibilities of presence, absence and ambiguousness of long run cointegration depending on the calculated value being higher, lesser, or within the bound values respectively. The table 4 shows the calculated value being higher than upper bound value and is significant at 1% level of confidence. The model was found fit when checked for reliability with no problem or serial or auto correlation. It is also found that the variance of standard deviation is constant over the time.

4.5 Unrestricted Error Correction Model (ECM)

Table 5 shows that the error correction model for short-run analysis. The value of Error correction term (ECT) is -0.7148 which indicates the speed of adjustment from short run to long run being 71.48% per year. The value of constant is 1.5826 which indicates that the economic progress will increase 1.58% if other things remain constant. Capital leaves a positive effect on economic growth in short run with coefficient of 0.5764 meaning that a 1% increase in capital increases economic growth by 0.57%. This strengthens the conclusion of Stupnikova & Sukhadolets (2019); Gibescu (2010); Ongo &Vukenkeng (2014); Gill (1976) and Meyer & Sanusi (2019).

Table 5: Error Correction Model

Short-run Results: Dependent Variable: ΔlnY

$Variable$	$Coef.$		$S.E.$	$t-Stat$	$Prob.$
$Constant$	1.58		0.16	9.39	0.0000***
$\Delta lnFD$	0.06		0.03	1.71	0.1062
ΔlnK	0.57		0.04	11.88	0.0000***
$\Delta lnINS$	0.01		0.00	8.42	0.0000***
ΔlnL	0.46		0.19	2.36	0.0313**
$\Delta lnTO$	0.00		0.00	2.32	0.0338**
ECM_{t-1}	-0.71		0.07	-9.36	0.0000***
Diagnostic Test					
R^2	0.94				
$Adj.R^2$	0.91				
$D.W. stat$	2.40				
$F-stat$	34.66				
$Prob.$	0.00				

Note: ***, **, *indicate 1%, 5% and 10% level respectively.

The capital formation enhances economic activities including trade through big projects. So, in advance economies like China, economies invest more on capital formation to increase accessibility and lower travels cost and hence achieve a better economic growth.

Similarly, the Institutional index coefficient is 0.0115. This can be interpreted that 1% improvement in institutional quality will lead to 0.01% development of economy. Again, this endorses Nawaz et al. (2014); Siddiqui & Ahmed (2009); Madni & Chaudhary (2017) and Faruqee & Kemal (1996). Good quality institutions develop a better incentive structure that enhances overall economic growth of country. Labor has a coefficient value 0.4606 which means that by employing 1% more labor will promote economic performance of the country in short run. These findings confirm to the results of Rahman (2018) as well as Shahid (2014). The rationale behind it is the same as in microeconomics it is said that that more the labor, more the output will be. Trade openness, with an increase of 1%, contributes to the economic performance and gives 0.0027% rise. Just like Siddiqui & Ahmed (2009); Madni & Chaudhary (2017); Bibi et al. (2014); Jawaid (2014); Kakar & Khilji (2011); Din et al. (2003) and Khan et al. (2006) the calculation results of this study also suggest a positive relationship among the two variables.

Considerably enough, the financial development goes in insignificant relation with economic growth even when both the variables are positively related. The results show no autocorrelation problem and R^2 is reflecting the same findings that 94% dependent variable is explained by independent variables.

4.6 Long run Model

Financial development and economy are associated positively. With 1% increase, it augments 0.22% improvement in economy. This confirms Khan et al. (2006); De Gregorio & Guidotti (1995); Afonso & Blanco-Arana (2022); Puatwoe & Piabuo (2017); Levine (1997). Trade openness lets the financial markets grow. Consequently, the liquidity increases, and associated risks decrease considerably. This lets economy grow. Institutions and economic growth show positive relationship with estimated coefficient of 0.035. It means 1% increase in institutional quality leads to 0.035% growth. This endorses Nawaz et al. (2014); Younis (2015);Siddiqui & Ahmed (2009) and Madni & Chaudhary (2017).

Table 6: Long-run Results

Long-run Results: Dependent Variable: lnY				
Variable	*Coef.*	*S.E.*	*t − Stat*	*Prob.*
Constant	1.5826	0.5297	2.9875	0.0087***
lnFD	0.2222	0.0623	3.5620	0.0026***
lnK	0.3185	0.0776	4.1045	0.0008***
lnINS	0.0355	0.0036	9.7049	0.0000***
lnL	2.8693	0.1469	19.522	0.0000***
lnTO	0.0217	0.0055	3.8912	0.0013***
Diagnostic Test				
R^2	0.9982			
$Adj. R^2$	0.9966			
$D.W. stat$	2.4088			
$F − stat$	606.90			
Prob.	0.0000			

Note: ***, **, * indicate 1%, 5% and 10% level respectively.

Efficient institutions assure proper and lawful utilization of the work force to augment sustainable growth in economic sector. The same way, if quality of institutions goes poor, it relegates the economic performance by promoting corrupt practices. Similarly, capital and economic growth are also positively associated as an increased capital galvanizes economic growth by 0.31% in the long run. Stupnikova & Sukhadolets (2019); Gibescu (2010); Ongo &Vukenkeng (2014);Gill (1976)and Meyer & Sanusi (2019) also shared the same type of results. Capital formation is the backbone of any economy. If there's no road system, there'd not take place any trade and the travel cost will be high but if an economy is enriched with these facilities, then it would help them in trading at lower cost.

Labor and trade openness impact positively. 1% addition in the labor quantity contributes 2.86% increase in growth. In Pakistan's economic growth, trade openness has small and positive impact which is 0.021%. The findings of Siddiqui & Ahmed (2009); Madni & Chaudhary (2017); Jawaid (2014); Kakar & Khilji (2011)and Khan et al. (2006) are also similar. Trade openness has multidimensional effects of the expansion of an economy. It results in frequent, efficient, and easy access to and management of resources both goods and services. This is achieved through exchange of advanced technology and knowledge fostering more productivity. Diagnostic tests are showing the fitness of the model. No autocorrelation problem was identified in the series. R^2& adjusted R^2 indicate the fitness of the independent variables in the model. Moreover, the model remains significant at 1% level of confidence according to F-statistics. The study has also checked the structural adjustment under a specific condition of 5% level of confidence interval (see figure 1). Red dotted lines show the upper and lower bound of the test and blue line shows the value of CUSUM and CUSUM of squares.

Figure 1 CUSUM and CUSUMSQ at 5% significance level
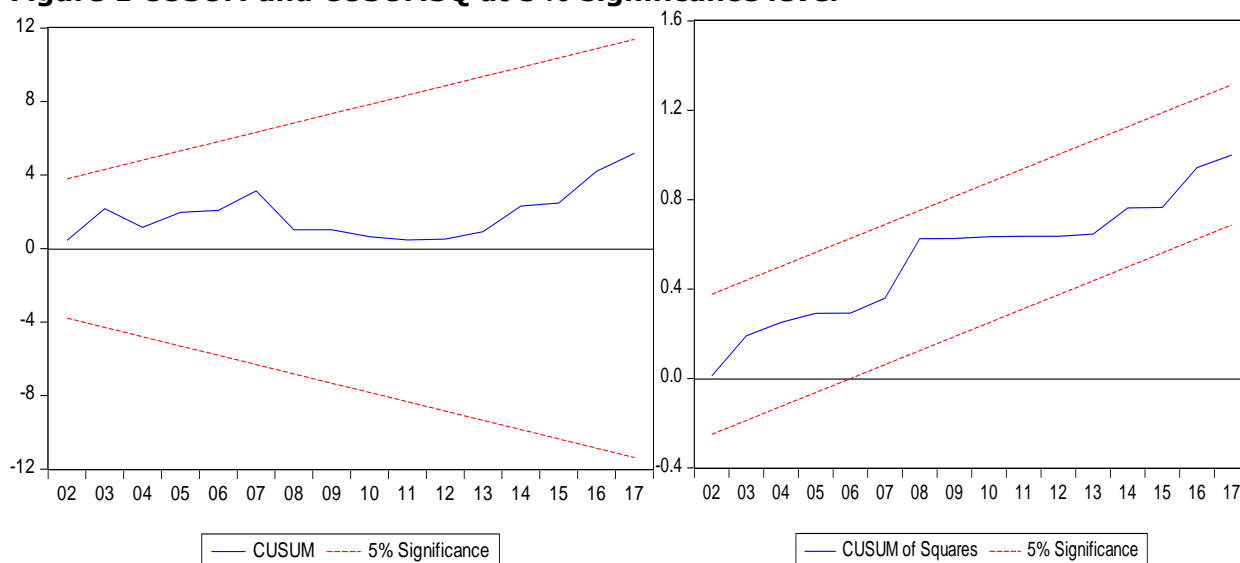
5.   Conclusion & Policy Recommendation

The present research endeavor aims at studying the interlinkages between the variables of institutional quality, trade openness and economic growth for Pakistan. To meet its objective, the present study develops a model to test three null hypotheses. The model is found statistically significant. CUSUM and CUSUM of squares confirm the fitness of the model. Short run results reveal a positive impact of all independent variables on economic performance except financial development which is although positive yet insignificant. Case with the long-run results is almost the same where all the independent variables are associated positively with the economic growth. So, the hypotheses of the study are proven to be true confirming a positive association between institutions quality, trade openness, and economic growth; thereby, finally rejecting the null hypotheses.

In the previous studies, the role of trade openness has been found significant in the growth of Pakistani economy. The present research study goes a step forward in discovering the key to sustain the economic development and suggests that better quality of institutions is instrumental in securing the benefits of trade openness. The policy makers need to improve the role and efficiency of institutions in Pakistan because economy can grow under justice, rule of law and opportunity of fair play possible only in the presence of high quality regulatory and facilitating institutions. By improving its institutions, Pakistan can clearly get the comparative advantage among the competing countries.

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Appendix

Table A1: Description of Variables, Sources of Data and Availability

Var.	Description	Source of Data	Data Availability
lnY_t	"GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products." **Proxy used:** GDP constant 2010 $	WDI (CD-ROM 2019)	1984 – 2018
lnT_t	"Trade liberalization is the removal or reduction of restrictions or barriers on the free exchange of goods between nations." **Formation of the index:** Import/GDP, Export/GDP, (Import + Export)/GDP, & Terms of trade/GDP.	WDI (CD-ROM 2019)	1984 – 2018
lnI_t	"There are different variables which measure the quality of institutions like Control of corruption, Government effectiveness, Political stability and absence of violence/terrorism, Regulatory Quality, the rule of law, and Voice and accountability."	WGI	1984 – 2018
lnF_t	"Financial sector development occurs when financial instruments, markets, and intermediaries ease the effects of information, enforcement, and transaction costs and therefore do a correspondingly better job at providing the key functions of the financial sector in the economy. [**Proxy used:** Domestic credit to private sector (Constant 2010 $)	WDI (CD-ROM 2019)	1984 – 2018
lnK_t	Gross fixed capital formation includes land improvements; plant, machinery, and equipment purchase; and the construction of roads etc. **Proxy used:** Gross fixed capital formation (Constant 2010 $).	WDI (CD-ROM 2019)	1984 – 2018
lnL_t	"Labor force comprises people ages 15 and older. It includes people who are currently employed and people who are unemployed but seeking work as well as first-time job-seekers." **Proxy used:** Total labor force	Pakistan Economic Survey 2018-19	1984 – 2018