The Impact of Trade Openness on the Economic Growth of Pakistan: 1980-2010

*Wajahat Ali
Universiti Teknologi PETRONAS

Azrai Abdullah
Universiti Teknologi PETRONAS

*Universiti Teknologi PETRONAS, Bandar Seri Iskandar,
31750 Tronoh, Perak, Malaysia
Email: wajahat2613@gmail.com

Abstract
This study examines the relationship and impact of openness of trade on the economic growth of Pakistan. The study proposed on the basis of past literature that there is a positive impact of trade openness on the economic growth and attempt to see whether it is true for Pakistan.The study finds out a negative relationship between liberalization of trade and economic growth in the case of Pakistan during the study period of 1980-2010. The VECM and Johanson multivariate approach were adopted to find out the short and long-run estimates. The stationarity properties of the data were checked and found to be co-integrated of order one I (1) using the Phillips Perron (PP) and Augmented Dickey Fuller (ADF) unit root tests. The results of the study showed a short-run positive relationship between trade openness and GDP growth of the country. The long-run results state a negative impact of trade liberalization on the economic growth of Pakistan. This may be due to the weak conflict management institutions and lack of quality institutions in the country. The negative impact may be due to the raw material exports instead of final goods. Export oriented trade policies and quality conflict management institutions are the policy recommendations.

Keywords: Trade Openness, Economic growth, Financial development, Quality of labor, Gross Fixed capital

INTRODUCTION

The role of international trade is very crucial to the development of any economy and it is assumed that trade liberalization works as an engine for the growth of the economy. The belief, that openness of trade is positively related to economic growth of the countries, has helped the trade liberalization to be a necessary part of the developing countries policy advice. By trade openness we mean the reduction or complete removal of trade barriers and this idea has become very popular in the policy making of both the developed and developing countries. There are so many forms of trade like the transfer of technology, education flow and ideas sharing besides the trade in terms of commodities. The restrictive trade policies were followed by the developing countries in the start but they moved towards the liberalization of trade as the world moved towards globalization. There is a strong support present in the literature of the idea that trade openness works as an engine of the economic growth and the existing literature support the positive relation between them. However, in most of the studies concentration is on developed countries. Looking into the results of the openness in the developing economies it is concluded that there are far more

less benefits of liberalization of trade than expected.The economies have experienced fastest economic growth as a result of the liberalization of the economies due to exports liberalization (Winters, 2004).

Pakistan from the day of independence started the multilateral trading system.In the beginning years of the independence the basic tool to control economy was the tariffs. There is a debate on how openness of trade can bring benefits to the developing countries like Pakistan. Excessive regulations, government interventions and uncertain economic policies play their role as constraints to growth everywhere. Formally, the main problem of the research is

stated as "to what extent is growth influenced by trade openness in Pakistan". This study will try to answer the questions like, is free trade beneficial for developing counties or not and in Pakistan the government should adjust free trade or restricted trade and how to bring maximum fruits of trade openness to the country? The main objective of the study is to find out is there any relation present between the variables in the long and short-run. This study will also try to find out the direction of causality.

LITERATURE REVIEW

There are some past studies presented in order to understand the study.

Positive Impact of Trade Openness on GDP:

The study of Vamvakidis (2002), on ross-sectional data of developed and developing economies covering the time period 1920-1990 in order to investigate the relation between openness of trade and economic growth found no positive relationship between economic growth and liberalization of trade before 1970. The study showed that positive relationship between openness of trade and GDP growth is a recent phenomenon because the relationship between trade liberalization and GDP growth was even negative in 1930s.

Salinas and Aksoy (2006) conducted an empirical study of 39 world economies before and after the liberalization of their trade in order to find out the economic growth situation that either it is increased or decreased for the time period 1970 to 2004 showed a positive impact of trade liberalization on the economic growth as there was a 1.2 times increase in the growth after the liberalization. The benefits of trade reforms were seen in almost all the countries as they were followed by acceleration in the exports of goods and services, investment and there occur increase in the manufacturing exports too.

The study of Greenaway *et al*. (2002) concluded that there is a significant positive impact of openness of trade on the economic growth with a lag while studying the data for 73 developing economies. Khan and Qayyum (2005) studied the data on trade openness, real interest rate, financial development and economic growth for the time period 1961-2005 in order to find out the impact of the above variables on the economic growth of Pakistan found a positive impact of all the three variables on the real GDP of the country for the time period. The impact of liberalization of trade was found to be positive both in the long and short-run.

The study of Yanikkaya (2003) used two types of liberalization of trade measures in order to investigate the relationship per capita income growth and openness of trade covering the data of 120 countries for the time period 1970-1997. In first place the openness of trade was measured by using the volumes of trade including different trade ratios with GDP. The results showed a positive and significant relationship between openness and economic growth using Generalized Method of Movement (GMM). On the other hand the study measured the openness of trade on the basis of restrictions on the bilateral trade, foreign exchange and current transactions. The results based on the restrictive measure of openness

also showed positive and significant relationship between openness and per capita income, thus the study concluded that GDP growth may grow faster in developing countries due to trade restrictions.

The work of Anderson and Babula (2008) concluded that there is a link between liberalization of trade and GDP in the long run and this positive relationship between economic growth and international trade and suggested to include investments in education facilities, build up institutions and to ensure property rights. The role of institutions is considered to have a deeper influence on growth and development while trade works as a facilitator in order to tackle the conflicting theoretical predictions. Supporting studies include those of Dollar and Kraay (2003), Winters (2004), Aghion *et al.* (2005) and Borrmann *et al.* (2006). In other words the study concludes that the good and positive impacts of trade openness can arise only if there is a good support by institutions and other good policies that encourage investment, promote human capital accumulations and allow conflict resolution effectively. The study of Lee *et al.* (2004) concluded that openness of trade has a positive but small and particularly no robust effect on the economic growth by using the heteroscedasticity on panel data. The study relied on the non-testable assumption that there is no correlation in the simultaneous equation structural shocks.

Adebiyi (2006) used vector autoregressive technique in order to find out the relationship between openness of trade and economic growth of Nigeria using the time series data set and tried to investigate the impact of openness of trade on the growth performance. The study concluded that it is possible to get the economic growth sustainability if a comprehensive program of trade openness is applied.

Din *et al.* (2003) concluded that there is a long-run significant and positive relationship between GDP growth and liberalization of trade in case of Pakistan but there is no such relation in the short-run.

The study stated that there are three difficulties regardless of choosing the proxy for liberalization of trade that are the problem in measuring the trade across countries, the need to combine other good policies and trade policies in order to ensure the long-run impact on economic growth and also the to establish the causality direction Winters (2004).

Negative impact of Trade Openness on GDP:

The study of Yucel (2009) investigated the causal relationship between economic growth of Turkey and openness of trade for the time period 1989-2007, using the Johanson and Juselius co-integration and granger causality techniques. The study concluded that financial development has negative effect while the impact of the openness of trade was found positive on the economic growth. The study found that there is bidirectional causality present between trade openness, GDP and financial development, favoring the view that those economic policies will have statistically significant impact on the economic growth which is directed at openness of trade and financial development. There are some studies whose conclusions show that there is no relationship between openness of trade or even some other studies also claim that there is a possibility of negative relationship between economic growth and liberalization of trade.

Shafaeddih (2005) stated that according to the liberalization recommendation under the Washington consensus, the liberalization will lead to the destruction of the industries especially those one which are quite new and are in their initial stages. This leads to the policies of import substitutions or towards outward orientation, looking into future capacity by increasing imports of capital goods. The study of Rigobon and Rodrik (2005) concluded that the trade openness proxy as (trade share in GDP) found that the openness of trade has a significant negative effect on the economic growth using the same technology as above.

Siddiqui and Iqbal (2010) studied the data on trade openness and GDP growth for Pakistan for the time period 1972 to 2002 to find out the relationship between the variables and concluded that openness of trade has negative relationship with economic growth of the country.

Short-run Positive Relationship between Openness and GDP:
Sarkar (2008) stated that there is no long-run positive relationship between economic growth and trade liberalization, while studying the relationship for the short-run the results showed that there is a short-run positive relationship between the variables. The study of Khan and Qayyum (2007) stated that there is a positive impact of the openness of trade and policies of financial sector on the growth of the economy.

Ahmed, Yusuf and Anoruo (2000) used the data for five south Asian countries, Indonesia, the Philippines, Malaysia, Singapore and Thailand covering the time period 1960 to 1997, in order to investigate the long run relationship between openness of trade and economic growth using the rate of exports plus imports as a proxy for openness. The study found no relationship between economic growth and openness of trade in the long-run and the error correction term was found to be significant as per hypothesis. The study also found bidirectional causality between the variables.

Dollar and Kraay (2003) found a significant effect of liberalization of trade on the GDP growth while studying the relationship between variables by taking the lagged values of trade as a fraction of GDP. The study assumed that the trade volumes are uncorrelated with the GDP growth in the future but are correlated with the concurrent and lagged values of GDP growth.

Despite using different variables as proxies for openness and methodologies most of the studies reported the positive relation between openness of trade and economic growth. Some of the studies also reported the indirect impact of liberalization of trade on the economic growth involving the investment or productivity before effecting the economic growth of the country.Some of the studies related to the developing economies have shown that there is negative relationship present between the liberalization of trade and economic growth.

DATA AND METHODOLOGY
The present study examines the data of Pakistan for the time period 1980 to 2010 in order to find out the relationship whether the liberalization of trade has with the economic growth of the country. The data used in the study is secondary and time series in nature. The data was collected from different years of Economic Survey of Pakistan and World Development Indicators (WDI, 2012). The econometric framework of the study is in line with the studies of Seetanah and Khadaroo (2008) whereby they used a derived standard production function using the augmented Solow-type model. This framework is also in line with the work of Romer (1990), Levine and Renalt (1992) in order to develop a new growth theory and to find out the new model variables for growth respectively by Easterly and Levine (2001) and Li and Liu (2005).

The analytical technique of the study depends on the type of research data. The data used in the study is secondary and time series so the Augmented Dickey Fuller (ADF) and Phillips Peron (PP) unit root tests do apply here. Johanson Co-integration Test and Granger Causality were used for the detection of co-integrating factors and direction of causality. The study used VECM framework to find out the short-run relationship between the variables. The multivariate causality analysis was used for the analysis of the variables of the model.

The economic model in the functional form is as below:

GDP = ƒ (PRIVT, PUB, OPEN, EDU, FD)……. (1)

The variable **GDP** refers to Real Gross Domestic Product of the country; **PRIVT** shows the Gross Fixed Capital Formation by Private Sector, **PUB** represents the data for the Gross Fixed Capital Formation by Public Sector, **EDU** is terms of Secondary Enrollment ratio is used as a proxy for the quality of labor and the financial sector development is represented by **FD.** In order to make easy and facilitate the regression analysis, the double log econometric model is used instead of equation (1).

LogGdp = β₀ + β₁ log (privt) + β₂log (pub) + β₃ log (open) + β₄ log (edu) + β₅ log (FD) + μ

Where μ is the error term.

RESULTS AND DISCUSSIONS:
The data used in this study is time series secondary data covering the time period 1980 to 2010. To overcome some common problems the following tests were carried out.

Table 1: Unit Root results in Level and 1st Difference form

Variables in Log form	Log Level Form				Log 1ˢᵗ Difference form			
	ADF Level	PP Level	C.V	ADF Prob.	ADF 1ˢᵗ Diff.	PP 1ˢᵗ Diff.	C.V Diff.	ADF Prob.
GDP	-2.03	-1.89	-2.963	0.2708	-4.00	-3.97	-2.967	0.0046
Privt	-2.53	-2.51	-2.963	0.1180	-6.95	-6.94	-2.967	0.0000
Pub	-1.03	-0.33	-2.963	0.7262	-3.89	-3.82	-2.967	0.0060
Open	-2.50	-2.45	-2.963	0.3212	-6.12	-6.52	-2.967	0.0000
Edu	-0.44	-0.46	-2.963	0.8878	-5.27	-5.18	-2.967	0.0002
Fd	-2.48	-2.21	-2.963	0.1288	-4.38	-5.09	-2.967	0.0017

Unit Root Tests:
The unit root test plays a very important role in deciding which econometric framework should be applied after looking into the data and their order of integration. The ADF and PP tests were applied for the purpose and the results concluded that they are integrated of order one I (1). The results are shown in the table:

Johanson Co-integration Test:
The next step in checking the nature of data is the Co-integration test in order to know whether the data variables are having any long-run relationship between them or not. A prior point to be noted here is that the presence of the deterministic components play an important role in determining the asymptotic distribution of the co-integration test. This shows that for the long-run relation there must be a constant or a linear deterministic trend present in the system.The Johanson co-integration test was applied for the purpose and the results showed that there is one (1) co-integrating vectors in the model. The results of both the Maximum Eigenvalue and Trace statistics confirmed the presence of 1 co-integrating equation in the system. The results are shown in the table below:

Table 2: The Johanson Co-integration Test Results

	Null Hypothesis	Alternative Hypothesis	Test Statistics	C. value 5%	Prob. P- value
Maximal Eigenvalue	None*	r =1	64.71	40.07	0.0000
	At most 1	r =2	34.31	34.87	0.0538
	At most 2	r =3	25.74	27.58	0.0834
	At most 3	r =4	18.90	21.13	0.0997
	At most 4	r =5	8.71	14.26	0.3107
	At most 5	r =6	1.98	3.84	0.1584
Trace of the Stochastic matrix	None*	r =1	166.5	95.75	0.0000
	At most 1	r =2	69.82	73.81	0.0600
	At most 2	r =3	45.54	47.85	0.0811
	At most 3	r =4	27.34	29.79	0.1095
	At most 4	r =5	10.70	15.49	0.2304
	At most 5	r =6	1.98	3.84	0.1584

LM Serial Correlation Test:

The LM serial correlation test is used to check out the data set for the correlation among the variables of the model and itself over various time intervals. It is used to remove the Durbin Watson autocorrelation drawbacks. The LM test indicates that there is no serial correlation in the variables and their lagged values. The results of the test are as follows:

Table 3: The Results of Breusch Godfray LM serial Correlation Test

F Statistics	1.740443	Probability	0.1082
Observed *R square	2.470563	probability	0.1270

Heteroscedasticity Test:

The homoscedastic distribution of the residuals varianceof the model is very important for the model to give good results. The Heteroscadesticity test is used to find out that the residualvariance of the model is distributed with the same spread or not. The data was tested for the presence of Heteroscadesticity and the results of Breusch Godfray test showed that the residual variance is normal meaning that the residuals are homoscedastic. The table shows the results:

Table 4: The results of Breusch Godfray Heteroscadesticity Test

F Statistics	0.391393	Probability	0.9569
Observed *R square	12.29425	Probability Chi-Square	0.8317
Scale explained SS	3.54387	Probability Chi-Square	0.9999

The Jarque-Bera Test:

The normal distributions of the residuals of the model are very important in order to arrive at good results. The Jarque-Bera test was used to find out that the Kurtosis and Skewness of the data is the same as that of the normal distribution or not. The results of the test showed that the residuals are normally distributed meaning that the Kurtosis and Skewness values are within the range of normal distribution. The values of Kurtosis and Skewness are 3.67440 and 0.720937 respectively. The probability value of the test is 0.228069 which is greater than 5% so we cannot reject the null hypothesis of normal distribution.

ESTIMATION AND ANALYSIS

VECM Long- Run Results:

Having known that co-integration exists in the model, therefore the long-run relationship is present in the variables of the model we go for the Vector Error correction model, a restricted form of the Vector Autoregressive (VAR) model, in order to know about the long-run and short-run results. Error Correction Models are used for the data which is non-stationary at level and become stationary at 1st difference and they are useful to deal with this integrated data. The presence of co-integration confirms the presence of long-run relationship between the variables of the model so the estimates of the VECM and the co-integrating Vector Error Term (ECT) are specified by the dynamic nature of the model. The long-run results of the model shows that almost all the variables of the model are affecting the economic growth significantly except gross fixed capital by private sector. The economic growth of the country is seen to have fostered by all the variables of the model except the liberalization of trade. Trade openness is having negative impact on the growth of the economy in this case. If there is a 1% increase in the openness proxy, the economic growth of the country will go down by 4.29% which is large. The development of financial institutions is the second large player which plays an important role in increasing the GDP growth of the country in the given time period by 2.79% in the long-run in case of 1 unit increase in the Financial development proxy. A 1 unit increase in the quality of labor proxied by Education at Secondary level will lead the economy to grow by 0.89%in the long-run which is a good sign for the economy. The role of public capital ratio is positive in fostering the growth of the economy by 0.42%. The value of the error correction term (ECT) is 0.069 and is presenting the speed of adjustment towards equilibrium.

Table 5: VECM Long Run Results

Variable in Log form	Coefficients	t- ratios
GDP	1	
Privt	0.004	0.16
Pub	0.42	3.17
Open	-4.2	-10.55
Edu	0.89	4.22
Fd	2.79	6.39

VECM Short-Run Results:

The impact of variables in the short-run on the GDP growth is very good and positive. Important to note is that openness of trade has also a short–run positive impact on the economic growth of Pakistan. The GDP growth of the country is influenced positively by 0.078% as a result of 1% increase in the liberalization of trade. The results of Li and Liu (2005) and Romer (1990) were also the same positive and short-run. All other variables of

the model also play an important increasing role in the economic growth of the country in the short-run in the study period. Openness of trade, quality of labor and financial development plays a very vital role in increasing the GDP growth of the country in the short-run as a 1% increase in quality of labor can enhance the economic growth by 0.03% and the rise due to a 1 unit increase in financial development is 0.07%. Out of total variation in the dependent variable, approximately 69% of the variation is explained by the explanatory or independent variables of the model denoted by the R-Square value.

Table 5: VECM Short-Run Results

Variables	D (log GDP)	D (log Privt)	D (log Pub)	D (log Open)	D (log Edu)	D (log Fd)
D (log GDP)	0.159150	4.540513	0.038210	-4.651734	0.746365	-3.495936
D (log Privt)	0.018127	- 0.196900	0.032883	0.239973	0.037265	0.135766
D (log Pub)	0.087468	-0.264592	0.152297	0.139027	0.088435	-0.181280
D(log Open)	0.042880	-0.060480	-0.125198	0.516780	-0.063421	0.451419
D (log Edu)	-0.097407	-1.241989	0.183312	0.264718	0.110815	0.239385
D (log Fd)	-0.028482	-0.921844	- 0.370871	0.165372	0.390684	0.257238
ECT	0.069207	0.244829	-0.073246	0.013005	0.108235	0.232289
R^2	0.694395	0.421195	0.687117	0.590747	0.697101	0.672101

Having Openness of trade as dependent variable the short run equation shows a negative impact of GDP on the openness. The methodology of the study is helpful in establishing the determinants of trade liberalization. The values of the private physical capital, public capital ratio and quality of labor are triggering the liberalization of trade in the 2nd lag in the short-run. Thus it is concluded that there is a short run causality present between economic growth and liberalization of trade.

CONCLUSIONS AND RECOMMENDATIONS
This study has attempted to analyze the factors that influence the increasing or decreasing behavior of the economic growth of Pakistan and also focused empirically on the role of liberalization of trade in determining the economic growth for the time period 1980-2010. The study used the VECM framework to find out the relationship between liberalization of trade and GDP, and also employed the Johanson co-integration test for the detection of the long-run relationship between the variables of the model. The study adopted the ADF and PP unit root tests to find out the level of stationarity of the variables and the results conclude that the data was stationary at first difference and the order of integration was found one I (1). The Johanson multivariate approach was applied to find out the long-run relationship and co-integration vectors, which showed that there exists one (1) co-integrating equation in the model thus confirms the presence of the long-run relationship in the model. After the confirmation of the co-integrating vector in the model the VECM was

applied to find out the short-run and long-run estimates of the model. The long-run estimates of the Vector Error Correction model states that there exists a negative relationship between liberalization of trade and economic growth of the country. The short-run estimates showed a positive impact of openness of trade on the GDP growth of the country. These results states that in the later time period the absolute effect of the trade openness will be seen on the economic growth. The short-run results also confirmed the presence of bidirectional causality between GDP and liberalization of trade. Important to note is that there is an increasing but indirect impact of trade liberalization on the GDP growth in the short-run by increasing the private physical capital of the country which in turn increases the GDP growth. Thus the openness of trade can be considered an important instrument in boosting up the economic growth, at least in the short-run in Pakistan.The impact of institutions and performance of institutions are noted to have great impact on the trade policies that is why trade policies have experienced different results in different countries. The policy makers should take into account the situation of the country while formulating the trade policy. The findings and results also indicate that liberalization of trade may also be not important factor in rising the economic growth if the conflict management institution are weak. The researchers, who are of the view that outward orientation and long-run growth is possible if there are strong and quality institutions, may also be supported by these implementations.

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