The Causal Relationship between Openness and Economic Growth: Empirical Evidence In Case Of Pakistan

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Abstract

Evaluation of long run relationship of the openness policy and Pakistan's economic growth is the prime objective of the study. Two different econometric techniques i.e. Johnson co-integration technique and Error Correction Model are applied to estimate the relationship with annual data span from 1970 to 2012. Export, import and Foreign Direct Investment are taken as variables which show a broader sense of openness. The result of our study shows that there is a long run relationship between openness and economic growth with reference of Pakistan. Further, the study proofs the Export Led Growth hypothesis in case of Pakistan.

Keywords: Openness, Economic growth and long-run relationship.

1. Introduction:

The debate relating to the import substitution and export promotion is found in development economic literature pros and cons have been argued on it. The big push theory, import substitution theory and protection of domestic industry were the challenging issues in 1950s and 1960s as important factors of economic growth and development. In the 1970s and 1980s a serious effort were made by the development economists to evaluate import substitution strategy and found it imperfect and obstacle to economic growth. Economists belongs to classical school of thought have extended the opinion to capital formation based economic growth and that model is in the perception of Harrod Domar and Solow growth model of closed economy. Romer (1986) has advocated "Export led Growth Hypothesis". He said that export plays a major role to enhance production and economic growth, which increases the efficiency and reduces the cost of production. Due to openness the country gets benefits by comparative advantage "Ricardo to the neoclassical model is quite clear about the benefits of trade between

nations based on comparative advantage and relative factor endowments" (Hecksher-Ohlin). Due to comparative advantage on other countries production become cheap for the country and encourage the country to be "export led growth".

Many under developed and developing countries rely on the benefits of openness and integrated economies with the global economy particularly through financial flows and trade since early 1980s. These countries not only open their economy for trade but also for foreign direct investment for the others countries. Due to openness policies these countries become heaven for foreign direct investment. Due to which private capital flow in these countries is increased by 19% ($212 billion). Beside this liberalization, structural changes in recipient and source countries, assets diversification of multinational corporations have paid a major contribution to greater integration. With liberalization in trade global financial market in developing countries also offered short term and long term finance, foreign direct investment. As a result, FDI enhanced $18 billion on average between1986-90 to $ 115 billion in 1996 in developing countries. Developing countries from Asia and Latin America got benefits from capital flows and come into sight as major contributor in globalization.

ELG hypothesis suggests an augmentation in export may cause to increase in endogenous growth by means of multiplier effect and this effect depends on MPC, MPE and MPI etc. "One technique is to identify the important role of trade is to notice on the effectiveness of export promotion (outward-looking strategy) in fostering economic growth. In this strategy, the countries initiate adding-on the existing export structure of some standard manufactured goods exports, but without the scheme of reducing the importance of the primary product export base within the overall export structure" (Cyper and Dietz, 1997)

After 1970's there has been significant progress towards trade liberalization in which most of the less developing economies have adopted export oriented approach rather than import substitution approach. After 1980's Pakistan has significantly moved towards the trade liberalization and pattern was designed to have less control on it and tariff rates were set at lower levels it was a concrete initiative towards the openness of the economy.

ELG hypothesis considers a correlation positively between export and economic growth and relating export-oriented policies may support to economic growth. Thus international trade and development suggest both export growth contribute positively to economic growth within framework which has been mentioned above most of the empirical works reflect strategy relating to the export promotion followed developing economies and openness evaluated with foreign trade quantum evaluation of liberalization process has associated with export as a salient mean for economic growth. The domestic economic growth theories evaluated by [(Khan (1995); Akbar, (2000); Ahmed, et al. (2000)] for Pakistan.

It is stated that trade liberalization is used as a tool of trade openness but ignores the FDI which may also be used as a key element of open economy. Developing and developed countries are making an agreement in which they promote the FDI in their economies. FDI is very helpful to transfer the technology from developed countries to developing countries due to which the technology gap among countries is reduced nonetheless it is assumed trading partners are applying identical technology. This is also in the case of endogenous firms which make them a competitive firm in the world economy.

In last few decades we see a rapid growth in FDI. If we take at a glance of World Bank report (World Investment Report, 2006), we find that the world GDP has been increased 5% to 11% during 1980 to 2006. Studies have proved that FDI is one of the major elements to enhance the GDP. In this study it is also said that FDI helps in reduction of unemployment. According to a study 82 million people got employment due to FDI during this session. Due to FDI cost of production has reduced from 10% to 20% which is a land mark.

The basic aim of this study is to evaluate the relation between openness and its impact on economic growth in Pakistan. In this study we use FDI, export and import as a proxy of openness.

Pakistan has also opened its economy for FDI and foreign trade. The desire for the liberalization move toward to make adaptation in the indefensible deficit balance of trade in the late 1980s that the countries' BOT as a result of the reduction in demand for its exports due to down turn in the industrial economies.

1.1 Structure of the paper

Section-1 allocates for introduction Section-2 for the policy of trade openness of Pakistan. Section-3 postulates literature review. Section-4 reserves for Econometric model, its methodology and data sources. Section-5 presents the empirical result & conclusion is in section-6.

2. Trade Liberalization Policy of Pakistan

Early 1980s,Pakistan's policy makers have started economic reforms policy that was market based till 1988, aftermath the government has adopted a gradual liberalization process towards the investment and trade regime by using open handed fiscal and trade motivations to foreign investors by means of facilities to credit, reduction in custom tariff, tax concession and soft foreign exchange policy in corporately, new trade policy was designed wherein tariff slabs have been reduced from 17 to10 and strived to tax uniformity in lieu of consumption based sales tax indeed government has focused to enhance participation of private sector in the economy in that decades. It was a perception that private sector may increase competitiveness in the economy in general and particularly in the domestic Industrial sector further it may promote export. Government framed a policy and extended different fiscal incentives such as tax exemption, consumption rationalization of custom tariff structure, opportunity to maximize profit for the export sector and custom tariff was reduced at large.

Table 1: Average Custom Tariff rate and average Share of Custom Tariff in Total Tax Revenue

Year/ Decades	Average custom Tariff rate %	Average Custom Tariff Share in total taxes Revenue
1987-90	133.3	41.83
1990-00	41.5	29.54
2000-10	19.6	23.03

Source: Economic survey of Pakistan 2010 and summarized by authors

Economic managers of Pakistan remained tangent to the extremely protective regime more than four decades (1947-86) .The above cited facts and figures exhibited that Pakistan has started a journey towards the openness from 1988-1989 and strived to remove tariff and non tariff barriers.

Table 2: Inflow of FDI in Different Years

Year	Greenfield Investment	Privatization Proceeds	Total FDI	Private Portfolio Investment
2001-02	357	128	485	-10
2002-03	622	176	798	22
2003-04	750	199	949	-28
2004-05	1161	363	1524	153
2005-06	1981	1540	3521	351
2006-07	4873.2	266	5139.6	1820
2007-08	5019.6	133.2	5152.8	19.3
2008-09	3719.9	-	3179.9	-510.3
Jul-Mar-10	1553.9	-	1553.9	378.6
Total	**20037.6**	**2805.2**	**22303.2**	**2195.6**

Source: Economic survey of Pakistan 2010

In 1990s, the government of Pakistan has opened different sectors of economy for foreign investment and exercised a liberal economic policy therefore FDI had an access such as the agriculture sector, energy sector, telecommunication sector and insurance sector etc. The access to the said sectors were first time in Pakistan's history but unstable political system law and order situation paradoxical economic policies, corruption, Red tapism etc. were the main obstacles to FDI and get the less advantages to the openness policies and ultimately to the FDI if we compare to the other developing countries of the world with Pakistan however data of FDI inflow shows outstanding improvement with the passage of time especially during the reform period of 90's. Later on reduction is noted in FDI after 2010.

Post 2002 scenario the Foreign Direct Investment inflows significantly from United States of America $326 million, UAE $21 million and UK $30.3 million in Pakistan (SBP report 2008-09). A momentous quantum of foreign direct investment was recorded in 2007-08 which has worth of $1,309.30 million by United States, $589 million by United Arab Emirates and $460 million by United Kingdom this FDI has asserted in financial sector. Whereas the cumulative amount of FDI reached to $5,139.6 million. The enhancement of this FDI was due to existing investment gap and high interest rate.

3. Literature review:

Afzal (2009) has evaluated the impact of trade openness on economic growth with reference to Pakistan. The data span from 1960 to2009 in his study. He strived to find out long run relationship among trade openness, financial integration and financial growth

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applying Johnson co integration method. The study concluded a positive association among the chosen variables.

Seemab et. al. (2010) have evaluated the impact of openness on economic growth, etc. the data span from (1972 to 2010).The study focus on the long run association among trade openness, economic growth, poverty and income inequality. The study exhibits due to openness, poverty and income inequality have increased and that impacted negatively on economic growth in Pakistan. In this study Johnson co integration multivariate technique were used.

Ishrat (2007) the manufacturing and tax revenue increased in the protection regime by approximately 5% per annum but it was evident that a rapid augmentation in manufacturing, export and tax revenue when tariff reforms were on its height since 2002-2003 and tangent to the double digits.

Powell (2003), takes 47 under developing countries to evaluate and estimate the relationship between openness and economic growth. Applying two stage least square method. He found that there is a positive relation in economic growth and openness.

Ghali (2000) investigated the "ELG Hypothesis" on Tunisain economy with using the time series data (1965-2000) along with Johansen co integration technique to find out the long run relationship between economic growth and openness. further Vector Error Correction model was applied to check out correlation and found that there was a positive relationship between export and economic growth. Andrew C. Jordan (2005) examined the causality test for Nemibian economy with using the data of 1970 to 2005, he applied co-integtaion test to find out the long run relationshiop between export and growth. His result shows a positive relationship between export and growth in Nemibian economy.

Dritaski (2005) has evaluated to find out trade or overseas direct investment and economic growth with reference to Greece, with the time period 1960 to 2002. He uses the co-integration approach to conclude long run relation between these variables. After getting result he concluded and suggested that economic growht, foreign trade and foreign direct investment are simultanously reinforcing in open door policy.

Tsen (2005) examined Granger causality test among export, domestic demand and economic growth using time series data span from 1978-2002, further Johnsen co integration test was applied to evaluate the relationship among selected variables and it is found in his study that openness and economic growth have a long run relationship in case of China. Hassan (2005) defined that how does international trade helpful in reducing poverty in Bangladesh, he has used time series data from 1986-2000 and applied co-integration test to investigate long run relationship of selected variables and further he applied granger causality test for investigation the direction of variables, and found a positive relationship among said variables. Marius-Corneliu (2004) attempts to analyze the relationship among the different economic variables i.e. capital formation, export, import, and economic growth extend of Romania using multivariate co-integration VAR (vector autoregressive) model, co-integration vector for dynamic analysis and ECM. His results show FDI and export influence the steady state level of growth.

Ahmed (2004) find out the relationship amongst FDI, export, import and domestic production by using VAR model at r=3 co integration equation, Granger causality test with using 1972-2002 time series and found that there is a long run relationship among

foreign direct investment, import, export and economic growth. Vedpal and Sudesh (2004) apply Granger causality, VAR model and Error Correction Model to find out the long-run relationship between economic growth of India and openness of external sector with using the period from 1952-2002, his finding prove extensive connection of openness of trade with increasing growth performance in case of India.

4. Econometrics methodology, Data sources and Model:

We usually use three techniques to check the long-run relationship along with the variables namely

> Ordinary least square method (OLS)
>
> Engle Granger (EG)
>
> Johansen Co integration Technique (JJ)

In this study, we used Johansen Co Integration Technique (JJ) because most of the variables used in this study are co related Ordinary Least Square method is not suitable for this situation. Empirically it is proved that the most of macroeconomic series variables are non-stationary at level and OLS gives the possibility of wrong regression result/relationships amongst variables.

In this perspective, we use "Error correction model" and "Co-integration Method". Co-integration method deals with spurious regression and Error correction describe short run dynamics of their causal correlation.

ADF testing regression equation as follows:

$$\Delta Y_t = \alpha + \beta Y_{t-1} + \sum \beta_t t + \beta_2 \Delta Y_{t-1} + \mu_i$$

Where
Y^t Time series,

     First difference operator,

T   Linear trend,

     Constant,

     Error term,

The null hypothesis of unit root is $\beta = 0$

If we find non stationary in variables than they will be tested to find out stationarity at its first difference form. If any variable shows the stationarity in its first difference form then we use co-integratioin test to find out the relationship among these variables.

Whereas, Co-integration test is apply to find out the number of co-integration vectors. If there is co-integration between the variables then there must be disequilibrium in short run, and this problem is captured by Error Correction Model as follows:

$$\Delta Y_t = \alpha + \beta_1 \Delta I + \beta_2 \Delta FDI + \beta_3 \Delta X + \beta_4 \mu_{t-1} + \varepsilon$$

In ECM

μ_{t-1} Coefficient significant

Whether it may be positive or negative, this relation shows the short run dynamics of the model.

4.1 Data

In this paper time series data have been used for Pakistan's economy from 1970 to 2012 using log operator for the data which shows the elasticity of the variables. The series of import, export and foreign direct investment are converted into real term by using the deflator of net external income at aggregate level. Time series data is taken from WDI.

5. Empirical Results and Analysis

Table 3: Unit root test (Augmented Dicky Fuller)

Variable	Level (with trend and intercept)	First difference (with trend and intercept)
Log Export	-1.969787 (0)	-4.198774 (0)
Log GDP	-0.99769 (3)	-6.132763 (2)
Log Import	-2.558427 (0)	-3.450946 (0)
Log FDI	-3.273924 (0)	-4.782102 (0)

ADF test general equation= $\Delta X_t = \phi_0 + \phi_1 X_{t-1} + \sum_{j=1}^{k} \alpha_j \Delta X_{t-j} + \eta_t$

The table no.3 result of unit root test which shows non stationary is found in all selected variables at level. The result shows that time series variables are not stationarity. Later on stationarity is found in the variables at first difference. In brackets' values show the lag length of difference variables where all the variables are integrated at order one i.e. is I(1), Next step to check the long run relationship among variables whether it exists or not, for this purpose we have used the Johansen co integration test, Johansen developed two likelihood ratio statistics: Trace statistics (λ_{trace}) and maximum eigen value statistic (λ_{max}). The results of co integration tests are reported in Table-4.

Table 4: Johanson Test for Co-integration

Trace test (λ_{trace})		K=2		Maximum eigenvalue test (λ_{max}) k=2			
H0	HA	(λ_{trace})	Critical Values 5%	H0	HA	(λ_{max})	Critical Values 5%
$r \leq 0$	$r > 0$	59.68*	47.85	$r = 0$	$r = 0$	38.48*	27.58
$r \leq 1$	$r > 1$	21.19	29.79	$r = 1$	$r = 1$	13.73	21.131
$r \leq 2$	$r > 2$	7.46	15.49	$r = 2$	$r = 2$	6.551	14.27
$r \leq 3$	$r > 3$	0.91	3.845	$r = 3$	$r = 3$	0.915	3.841

*significance at 5% level

Note: "r" represents number of cointegrating vectors and k represents the number of lags in the unrestricted VAR model.

Table no. 4 The Johansson- Juselius co-integration test shows that all these four cases are co-integrated where vector one as shown in table no.4, the null hypothesis r=0 is rejected. Optimal lag of VAR structure model is 2 lag by using Shewariz criterion. Eigen value test also shows the same result of trace value and rejected the null hypothesis r=0 and accepted the r=1. Hence, the one co-integration equation in the model shows the long run relationship among the variables.

Table 5: Long Run Co Integration Equation (Normalized First Cointegration Vector)

Variables	Coefficient	Standard errors	t values
Log Export (X)	0.870834*	0.24705	3.52493
Log Import (I)	-2.735282*	0.30532	8.95781
Log FDI	0.783321*	0.27892	2.80841

*significance at 5% level

Table no.5 illustrates the long run co-integration equation. This equation shows that the economic growth is highly effected with export, import and FDI. All the values of independent variables are highly significant at 5% level. Export impacts positively to economic growth while import impact negatively to economic growth and FDI effects positively to economic growth.

General equation of ECM = $\Delta Y_t = \alpha + \beta_1 \Delta I + \beta_2 \Delta FDI + \beta_3 \Delta X + \beta_4 \mu_{t-1} + \varepsilon$

The result of ECM shown in table 6.

Table 6: Error Correction Model

Error Correction Method Result			
Variables	**Coefficient**	**Std Error**	**t - Value**
C	5.3324	2.311	2.3073
D(Export)	0.2336	0.064	3.651
D(Import)	-4.4559	3.048	1.46191
D(FDI)	0.2478	2.311	0.106
μ_{t-1}	-0.05593	0.007	7.88331
R-squared	0.87	Adjusted R-squared 0.85	
D – Watsan	2.01	F-statistic 37.02	

Coefficient of Error correction is negative which shows that overestimated the economic growth in short run and negative sign is adjusted this long run estimation, Error correction coefficient is statistically significant at 5% level. The decision to add the number of lag in Error correction model is taken on the basis of Vector Auto Regression (VAR) model. Value of error correction is near to zero which highlighted that slow process of adjustment towards equilibrium.

6. Conclusion and Recommendation

This paper applies co-integration and ECM to test causal relationship between openness and growth. Here openness is taken in broader sense by taking the export, import, and FDI such as variables. (FDI) and trade liberalization (openness of the economy) come into being an important factor relating to the economic growth in the globalization process. It is noticed that those countries which have secured speedy economic growth rate declared successful and this success was accomplished attracting a considerable size of FDI and efforts relating to the trade liberalization further it is noticed saving investment gap in developing countries which is also narrowed by FDI further noticed that multinational corporations establish and expand business in host countries on the base of lower production cost, tangible efficiency, availability of related primary material and demand of the products it is also noticed broad spectrum benefits like as new pattern of working, update knowledge, transfer of prevailed technology, required level of training to manpower, market linkages and networking and many other implicit and explicit are availed by the host countries after globalization foreign investors have a lot of opportunities and options towards the investment as per requirement Pakistan and other developing countries have designed their economic policies, incentives and economic reforms effectively to attract foreign investor and FDI. local condition may be obstacle to get benefits which are generated by FDI it is noticed in our study export may play a role as engine of growth and has a positive correlation between export and economic growth which provides strength and effectiveness of this engine (export), base on the nature of production and export which are being produced and export. Performance of those

countries which are producing primary goods and exporting primary goods is not well if it is compared to those countries which are producing finished goods or manufacturing goods. But history of Pakistan's trade shows that most of the time its export associated with raw material not the manufactured items. Effects on economic growth due to trade liberalization in different forms such as to motivate the countries to concentrate on those goods wherein they have comparative advantage as a result productivity may be enhanced, technology updated further production skill may also be compliment to enhance productivity thus trickled down effects such as more job opportunities, poverty alleviation, availability of goods at competitive price, augmentation in consumer choices etc. it is also noticed that economic growth in Pakistan and openness supplement to each other and found intensive association of openness with economic performance.

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