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THE EFFECT OF TRADE AND FINANCIAL LIBERALIZATION ON ECONOMIC GROWTH OF PAKISTAN (1973-2017)

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ABSTRACT

The present study is based on the objective to see the effect of trade and financial liberalization on economic growth of Pakistan. Specifically two proxies for each trade and financial openness was taken for Pakistan that are common in this area of research. Augmented Dickey-Fullar and Philip-Perron tests for stationary executed and all variable are found stationary at first difference. Autoregressive Distributive Lag model was applied because of its certain advantages followed by bound test of co-integration which concluded with no co-integration or long run dynamic relationship of GDP the dependent variable with selected predictors with two proxies each for trade and financial liberalization. Trade liberalization measures were export to GDP ratio and ratio of exports plus imports to GDP while net Foreign Direct Investment as percentage of GDP and foreign assets of central bank were taken as measures for financial liberalization. The results showed that the both measures of trade liberalization found significant and more elastic and net FDI found insignificant and foreign assets with central bank was found statistically significant but less elastic. Model was found stable successfully validating the necessary stability checks like CUSUM and CUSUMSQ, heteroscedasticity, autocorrelation and normality tests. The study is important and significant in understanding the behavior of liberalization measures in determining GDP in Pakistan but it's an opening debate for many other measures for future research where literature is enriched and suggests as many factor of liberalization determining economic performance.

Keywords: trade liberalization, financial liberalization, ARDL,

INTRODUCTION

Trade in recent time is more than a "trade" only. It is fact that the trade is become now main stream of rapid globalization in recent times, not only economic or business point of view but socially, politically and strategically the trade is now being used as a tool by strategists. Interaction of societies and nations on one side harmonized the trade but as well as the transformation of knowledge, skill, and expertise impetus the pace of development. Rapid development in the means of transportation and communication enhances potentials, empowered the individuals in making policy making, this in turn increases the participation in productive and trade activities. It seems that the economic development, trade openness, globalization are running side by side to each other. Pakistan as being the proactive partner in this new regime of liberal trade and since 2000/01 Pakistan is not only experiencing the overwhelming response by its trading countries but the face of Pakistan trade is more open if compared to other Asian countries like India and Bangladesh. Pakistan has reduced up to 25 percent of its tariff bounds which is lowest from other Asian counties. In spite of this fact that the Pakistan showing more generous in minimizing the trade barriers in the larger interest of growth measures but the growth rate on the average from the last two decade is around its mean rather than showing same robustness like liberalizing the trade. According to the Economic Survey of Pakistan the average growth rate of Pakistan from 1973 to 2017 is 4.82 while from 2000 to 2017 is 4.01 that means the growth in Pakistan in last two decade is not even converging to its true mean of 4.82 which is a big

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question mark. Proponents of open trade or liberal trade like Wacziarg and Welch (2008) and Bekaert, Harvey and Lundblad (2005) have only point of claim that the liberal trade foster growth but the facts lead us to the question whether the step taken by Pakistan towards liberal trade are in accordance with the theory or not? The question stated seems valid when we see the fact above about growth measures and the proactive nature of fiscal policy towards liberalized trade in Pakistan which in fact not in accordance (Khan, 2009).

Liberalization of trade is an important issue that has been raised in last couple of decade. One could easily say that the development in trade and international mutual understanding have been greatly accompanied by trade liberalization. Trade liberalization has fostered the trade as said in last decade though the world output is not that much been expended as compared to pace of trade (Chaudhry& Imran, 2013; De Silva, Malaga & Johnson, 2013). According to Mazumder (2008) world trade has shown remarkable growth after practicing lessened trade barriers. He noted that in first decade of current century the world's export has risen by 6.5 percent. In Asian countries the exports has also shown marvelous growth such as China to $ 762 billion with 28 percent growth, Japan to $ 596 billion with 5 percent and specially India who has been on top in south Asia grown its exports to $ 90 billion with 19 percent growth. While on other hand according to Malik, Ghani and ud Din (2017) export growth in Pakistan is not impressive and shown a consistent decline before 2014. Figure-1.1 shows the export to GDP ratio of 2015 in comparison with 1990 and it can be easily seen that among highly developing and consumer societies Pakistan is at its worst. All other contries shown growth but Pakistan has fallen its export to GDP ratio.

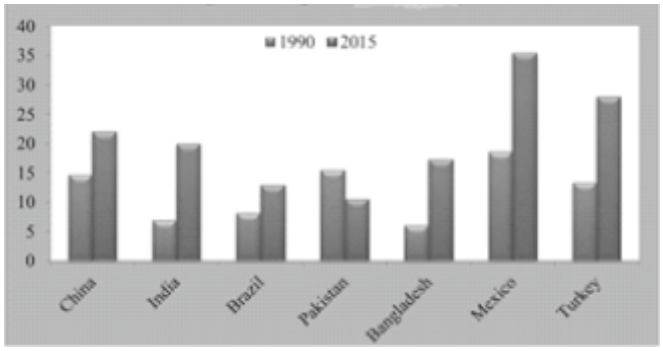


Figure 1: export to GDP ratio **Source:** world develpment indicator

The utmost arguments against trade liberalization is infant industry argument which states that new and small-scale industry will seek a troublesome challenge in case of liberal trade (Shastri, Tripathi & Ali, 2011). They were of the view that the enlarging trade with other countries where our society is more import oriented will not be advisable as this will bring flight of capital in form of payments and social welfare in relevance to income distribution may be compromised. Other arguments are also pointed towards the resource mal-allocation, tilted benefits towards larger economies and likely to have large disruptions in agriculture. These arguments made their significant voice after establishment of World Trade Organization (WTO) in 1993 which has only one agenda of minimizing trade barriers along the world trade, and a pressure over world economies to minimize their trade barriers has bounced back in form of regional integration along with strong debate prolonged to decades over some viable regulatory framework acceptable to these blocks. European Union (EU);

the North American Free Trade Area (NAFTA); Mercosur; APEC; ASEAN and SACU, can be the examples of such integrations. In the research literature the debate is still open on the multidimensional macroeconomic impact of trade liberalization. Although every individual country has its own environmental positions some countries still feel inconvenient with the progress of global liberalization and some are uphill struggling to be compatible with the needs.

Pakistan being a growing and developing economy has also faced some challenges toward WTO and its implications. Its sluggish nature of growth, instable structure of market, heavy dependence on agriculture sector, vulnerable financial structure, and political and social unrest make this country a test case in accommodating the liberal trade or free trade into its veins (Adeel-Farooq, Abu Bakar, & Raji, 2017). This study efforts to investigate the impact of trade liberalization on economic performance. It is true that a huge research work is done so far in same dimension but the need it felt to continue the debate in the light of current scenario. Pakistan is proclaiming a reviving growth after smooth democratic power transfer in 2013 where government of Pakistan is truly interested to take positive consideration for international mutual arrangement for free trade.

Since 1950s Pakistan slowly and gradually introduced the policies to release restriction on trade. In 50s there were highly protection was available to infant industries. In 60s import substitution and export promotion policies followed to enhance volume of international trade which further demanded the relaxation in protection policies and liberalized policies followed in later 80s for restricted import items. In 1980s Pakistan practiced liberalization policy and it reduced its tariff about 225 percent in later 80s but secured and exemption ridden protection policy played intensive effect and it established export bias. In early 90s privatization of state owned enterprises accompanied and followed with the wave of liberalization, minimum role of public sector and deregulation that had happened in the rest of the world. Pakistan initiated reforms in financial sector first by introducing treasury bills and other debt instruments with market driven rate of return, adoption of credit to deposit ratio and encouraging private sector in domestic banking. Relaxation in the SBP's policy structure and more functional and operational autonomy to the banks Khan (2009). While in fiscal side Khan (2009) further elaborated that in 1987/88 the fiscal deficit has increased up to 8 percent and large external borrowing was needed therefore to raise the sources of revenue the tax reforms, expenditure reform and rationalization in foreign exchange regulation and foreign currency deposits were followed. In 1995/96 import duty reduced from 70 to 65 percent along with 7.5 percent devaluation of rupee and introduction of 10 percent regulatory duty on imports later it was eliminated. In the result of such efforts import duties have fallen from 19 to 17 percent. The devaluation and export promotion policy the share of semi-finished goods increased from 30 to 35 percent and primary goods declined from 51 to 46 percent of total exports (Jadoon, Guang, Ahmad & Ali, 2018). Theses liberalization efforts continued later on along with IMF reform structure imposed for harmonizing international trade. IMF played a significant role in liberalizing the trade and in results Pakistan has claimed an appreciable performance in foreign trade in first decade of this century. The proponents of trade liberalization are of the view that the demand for merchandised export has been increased and external current account balance has been improved. Over all external performance found better than earlier but the predictability as a result of liberalizing the trade is found bipolar especially where domestic development measures are concerned (reference). The critiques of liberalization argue that trade liberalization has not similar results to all developing economies it depends on the nature of trading country, some developing countries are export oriented and such countries have gained much from

openness of trade while import led economies do not have greater impact of trade liberalization especially on variable related to domestic economic structure (Githanga, 2015). Even exporting countries of highly technical good have benefited in large as compare to primary or semi-finished exporting countries. In addition to the argument that the developing countries do not have trickledown effect on domestic development measures, economic growth, poverty, employment, investment, total factor productivity, and some other factors as well.

Financial liberalization along with trade liberalization cannot be ruled out because openness of finance also plays a vital role in bringing new dimension in productive structure of the country and as well as social status of the community. Pakistan has been serious in putting efforts in aligning the financial sector regulation with international realization of minimum barriers along with trade reform simultaneously. The purpose was to harmonizing the financial structure with global environment and stability in domestic financial system. Privatization of financial institutions in 1994 followed by interest rate deregulation in 1995 with removal of cap in maximum lending rate specially for trade motives. Prudential regulations by SBP in 1994 have broaden the market for microfinance institution and demand for microfinance in leasing market, investment banks, SMEs, discount house and house finance companies has risen significantly. In same year 1994 rupee turned convertible and in 1999 market based exchange rate system replaced the dual exchange rate system and cap on the exchange rate removed in 2000. Till 2007 many step taken to liberalize the financial market along with reforming the regulations such as credit regulation external, account liberalization etc. (Muhammad Adnan Hye & Wizarat, 2011). A considerable rise in the capital flow into the economy leads to more opportunity for the business and personal plans for the individual (Gehringer, 2014). Though Pakistan's effort not hidden for liberalization but unfortunately the result were not as required. Normally financial liberalization may foster growth and capital account transactions can lead to have more finance in the market and ends with stronger banking system with higher competiveness and brings more investment (Selvarajan, Ab-Rahim, & Awg-Marikan, 2018).

This paper is an effort to contribute in relevant literature with special focus on Pakistan which has vulnerable economic and social structure. The main and simple research question of study is, do trade and financial liberalization with normal proxies have positive effect on economic growth? The question has logic behind that if liberal trade is in fact a high gear toward growth as said earlier in last two decade then how Pakistan shown some volatile empirical facts regarding growth and development in last decade especially? The objective of research are

- To investigate the impact of trade and financial liberalization on economic growth of the Pakistan.
- To investigate normal proxies of trade and financial liberalization that are supposed to have significant and vital role in determining growth.

LITERATURE REVIEW

Stensnes (2006) evolved the fact that the economy is more exposed to international market and its vulnerability in result of trade liberalization. He is of the opinion that the external shocks are more threatening to the country having open borders for trade. These shocks create uncertainty to institutional structure in the economy that can be more challenging to the domestic adjustments and in determining economic growth. Bhattacharyya (2012) also emphasized on the impact of trade liberalization on institutional development, he defined institutional structure in broader ways. He

cited many authors who propounded many facets of economy as institutions like North (1981) who explains market size and technology as stimulating institution of recent economic development. Acemoglu and Robinson (2006) enlightened the transfer of skill-based technology in result of liberal trade which brings radical changes in employment, income share of middle class and social choices in living style. As far as the institutional structure is concerned as said earlier that it has many facets, poverty and income inequality are also considered sensitive to foreign trade liberalization. Vos (2007) generally explained the relationship of free trade and economic growth and also highlighted some controversies and problem in developing economy. He argued that, it is the fact that the trade openness and liberalization has sizable effect on Foreign Direct Investment, transfer of global technology, considerable effect on tax structure and tariff, income inequality and factor productivity. Vos (2007) also cited Rodriguez and Rodrik (1999) who highlighted the controversy of liberal trade and growth factor, they are of the view that the positivity of association in between the trade openness and economic growth is overstated in literature, and there are many other issues which should have considerations in this regard. Trade externalities should be taken into consideration when association is under debate particularly the measures of trade, trade liberalization, openness of trade, growth measures, trade expansion all such technical issue may be cause of different results plus the economic condition and macroeconomic environment also lead to different concluding remarks (also see Eddy, 2005).

So far as the debate on trade openness is concerned the literature is enriched with its implication and viability into different economic conditions and scenarios. The research is still in progress and gaps are continuously explored by authors. Scope of this study limits the author on condensed look into the matter rather than a general overlook on diversified nature of the problem. Pakistan being an developing country facing challenges in adopting liberal trade requisites. Here we are interested in investigating the aftermaths of trade liberalization rather than its antecedents and pre-requisites. A country like Pakistan has volatile economic structure in nature and the opponents of open trade are having strong view on the impact of trade liberalization on developing economy but large literature is showing its positive concentration of liberal trade on economic growth. (Mbabazi, Milner, and Morrissey 2006)found consistent positive association between economic growth and trade openness. With reference to Pakistan (Saeed and Saeed 2011) highlighted the impact of trade liberalization on agro-based industries in Pakistan, they concluded that the trade related reforms have positive and significant association with efficiency of agro-based industries. (Koren and Tenreyro 2007) highlighted some important issues regarding developing economy and economic shocks; he is of the opinion that the poorer countries are sensitive to internal and external shocks (Dell'Ariccia, Mauro, Faria, Ostry, Di Giovanni, Schindler, & Terrones, 2008) they further say that the poorer countries are not enriched in specialization and they are more open to receive macroeconomic shocks therefore these countries witness volatility in economic aggregates. (Dell'Ariccia et al. 2008) concluded that the sectors open to international trade found more volatile and less correlated with other sector of economy, moreover the openness of trade increased specialization.

Pakistan as said earlier, has volatile structure in nature and many facets that can be undertaken for research here we are focused in this study for domestic growth measure. Although there are many more facets where these measure of liberalization may have significant effect but here we will be stick to gross domestic product as our dependent variable.There is an open debate and gap for further research to look into the other indicators form such as development indices that are more exposed to

international trade liberalization like, poverty, unemployment, FDI, and total factor productivity etc. Constructs and Measures:

Trade liberalization or Trade Openness:

so far as measure of trade liberalization is concerned literature is enriched in this regards. Greenaway, Morgan and Wright (1998) have defined trade liberalization in term of bias in the incentives structure between import and export further it can be explained as reduction in tariff, abandon the anti-export or anti-trade policies and other barriers that may affect directly or indirectly the flow merchandise across the border. GMW also included the replacement of trade policy to other with less cost of trade in the definition of trade liberalization. Bhattacharyya (2012) have disclosed many facets where trade liberalization he cited Wacziarg and Welch (2008) who updated Sachs and Warner (1995) index for trade liberalization, the country is said to not liberalized if the average tariff rate is higher than 40% or non-tariff barriers cover 40% or more of its import of capital and intermediate goods. Here point to be noted that this ratio is subject to the economic condition, contemporary demographics and policy specifications Wacziarg and Welch (2008) revisit this ratio twice in different time span. Secondly, black market premium ceiling also taken for liberalization proxy. Thirdly, the nature of economic system is also taken as insignia of trade type, if the economic system is socialist than it is not count as liberal trade structure. Fourthly, the market competitive structure is another promising proxy for trade liberalization. If state enjoys the monopoly especially over exportable goods then the trade is not said to be liberalized. Gwartney and Lawson (2005) used export growth, Wacziarg (2001) used trade volume while Thirlwall (2000) used average import tariff and Clemens and Williamson (2004) used tariff and export growth rate as proxy of trade liberalization (cited in Bhattacharyya (2012). Topalova and Khandelwal (2011) put detailed discussion on trade liberalization in India and they mention all such proxies to explain free trade.

Financial liberalization:

Pakistan now a days is in position of to be highly indebted and according to Uzun, Karakoy, Kabadayi and Emsen (2012) the indebted economy may have certain effects on economic performance such as debt overheating problem (Krugman, 1988), crowding out effect (Bhattacharya &Nguyen, 2003) and uncertainty. Pakistan is supposed to have need to have such remedial measure that take Pakistan out to this financial problem. Financial liberalization may has certain outcome so that the Pakistan may get rid of financial crisis. So far as financial liberalization is concerns (Milesi-Ferretti 2007) pointed towards the aggregate foreign capital assets as measure of open finance. He was of the view that since 1970s the large integration of the world finance resulted in the expansion of foreign capital assets exponentially. Sixty six percent foreign liablities grown up to 132 percent in 1990 along with the larger integration. (Schmukler and Abraham 2017) told that after 1990 the developing countries has found Foreign Direct Investment as main equity holding instrument in result of opening the financial integration. That was due to decreasing popularity of foreign liabilities in form of debt and overwhelming trend to FDI as important factor as foreign liability. (Asciuto 2016) also noted the need of financial integration and as result more foreign holdings that keep consumption pattern affected and trade volatility occurs in Argentina. According to Selvarajan, Ab-Rahim, and Awg-Marikan (2018) financial openness have shown the rise in productivity in result of financial openness but (Yao, He, Chen, and Ou 2018) argued that it depends on other supportive circumstances and economic

realizations. Braun and Raddatz (2007) argued for significant effect of financial openness on the tradable and non-tradable but they seem sensitive to the measurement of factor and timing of the measurement. As literature clearly classifying different measures before and after 1990 as their relevance significance. Here in this study both measures are been taken as proxy for financial openness, first the net foreign assets with central bank and second as net FDI.

Discussion so far lead to establish two main hypotheses for trade liberalization:

H1: ratio of export plus import to DGP has significant impact on GDP of Pakistan.

H2: export to GDP ratio has significant impact on GDP of Pakistan

Two hypotheses for financial liberalization:

H3: foreign direct investment percentage of GDP has significant impact on GDP of Pakistan.

H4: net foreign assets of central bank have significant impact on GDP of Pakistan.

Point to be noted that the study has two proxies for each type of liberalization therefore in the results these hypotheses are to be tested for each proxy separately and the all measures for the liberalization are supposed to be incorporated in the econometric model.

RESEARCH METHODOLOGY

Nature of data

Since the nature of study requires secondary data therefore time series data from 1973 to 2017 is taken from different sources like World Development Indicators and from state bank of Pakistan data base. Some preliminary test of unit root are followed for the selection of appropriate methodology for analysis. Though we have many techniques in time series estimation but the Autoregressive Distributive Lag Model (ARDL) was introduced by Pesaran and Smith. (1998) and suggested by Pesaran, Shin and Smith (2001) and Uzun, Karakoy, Kabadayi and Emsen (2012) as given in previous literature. ARDL has certain characteristics that make this model more suitable and desirable. First it has nothing to do with integrating order of each variable wither they are I(0) or I(1) they can be engaged in ARDL, it means if one has no information about unit root of variable can go easy with this model only it requires to avoid integrated at I(2). Second ARDL model is more significant to determine co-integration in small sample (Pahlavani, Wilson & Worthington, 2005). Any other co-integrating technique require the degree of integration of variables and the specification of endogenous and exogenous in different choices can be avoided in ARDL. The order of lags are also automatically determined in this method while in Johansen technique it is not permitted.

Variables and their measurement

In this study five basic variables are taken into consideration, GDP in current US Dollar, two proxies for financial liberalization (OF1 and OF2) OF1 proxy of financial liberalization measured as net foreign direct investment percentage of GDP and OF2, second proxy financial liberalization measured as the net foreign assets of central bank in million rupees. While two proxies for trade liberalization (OT1 and OT2), OT1 proxy for trade liberalization and measured as the ratio of export plus import to GDP where OT2 second proxy for trade liberalization measured as export to GDP ratio.

Econometric Model

The growth model usually base on Cobb Douglas kind of function therefore we follow the same technique and the economic model as suggested by Yi and Choi (2005) and Gupta (2016) with the liberty to modify the model with our specific predictors, the would be as

$GDP = AOT1^{\beta 1} OT2^{\beta 2} OF1^{\beta 3} OF2^{\beta 4}$ By taking log of the function it become

$$LnGDP = \beta_0 + \beta_1 LnOT_1 + \beta_2 LnOT_2 + \beta_3 LnOF_1 + \beta_4 OF_2$$

$$\Delta LnGDP_t = \beta_0 + \sum_{i=1}^{q_1} \beta_{1i} \Delta LnGDP_{t-1} + \sum_{i=1}^{q_2} \beta_{2i} \Delta OT1_{t-1} + \sum_{i=1}^{q_3} \beta_{3i} \Delta OT2_{t-1} + \sum_{i=1}^{q_4} \beta_{4i} \Delta OF1_{t-1} + \sum_{i=1}^{q_5} \beta_{5i} \Delta OF2_{t-1} + \beta_6 OT1_{t-1} + \beta_7 OT2_{t-1} + \beta_8 OF1_{t-1} + \beta_9 OF2_{t-1} + \varepsilon_t \quad \ldots\ldots\ldots\ldots equation - 1$$

Delta (Δ) sign is first difference operator, while β1, β2, β3, β4 and β5 are short run coefficients showing short run effect of independent variables on dependent variables and β6, β7, β8, and β9 are long term coefficients showing long run effects. Bound test will confirm long run effect in the model therefore ARDL model can be formulated again with the presence of Error Correction Term.

While q1, q2, q3 and q4 represent the optimal lag length and γ shows the speed of adjustment in case of having long run relationship.

Descriptive results are used to see the means and their relevant importance with Standard Deviations and normality of series. Bound test is applied to see the co-integration and long run effect among variables. CUSUM test is applied for model stability. Wald test is applied to see the joint effect of variables in the model.

DATA ANALYSIS

Descriptive

Table-1 gives glance information of descriptive of variables. Our data covers from 1973 to 2017 taken from World Bank database and from Federal Bureau of Statistics Pakistan. The table shows the mean value, minimum and maximum of all included variables. Per Capita income is having the mean of Rs. 78.8 billion positively skewed and bit Mesokurtic with the standard deviation of 72.7 billion which seems high and shows the volatile behavior. Financial liberalization has two proxies one is OF1 the net foreign direct investment percentage of GDP with the mean value is 0.78 this mean shows the huge dependence of economy on FDI but this means is accompanied with larger standard deviation 0.83 which is even more than the mean. This indicates the volatility in investment inflows into the economy. OF1 also shows the high kurtosis with the value of 7.04 high positively skewed both measures are associated with the larger standard deviation. While the second measure of financial liberalization OF2 which is the net foreign assets of central bank, OF2 is also having high standard deviation of Rs. 604230.00 million as compared to the mean of 380420.00. The larger SD shows the instability of the factor again with the Mesokurtic and positively skewed frequencies.

Table 1: Descriptive

	GDP	OF1	OF2	OT1	OT2
Mean	78800000000.000	0.778	5250000000.000	0.113	0.135
Median	51700000000.000	0.546	1800000000.000	0.112	0.135
Maximum	271000000000.000	3.668	20000000000.000	0.144	0.174
Minimum	6320000000.000	-0.063	324000000.000	0.078	0.092
Std. Dev.	72700000000.000	0.822	5870000000.000	0.020	0.023
Skewness	1.238	2.115	1.100	-0.003	-0.028
Kurtosis	3.345	7.233	2.732	1.866	1.981
Jarque-Bera	11.449	65.661	9.003	2.359	1.909
Probability	0.003	0.000	0.011	0.307	0.385

Ot1 and OT2 are the two proxies of trade liberalization and measured as the ratio of export plus import to DGP and export to GDP ratio respectively. OT1 shows 0.1123 mean with the small standard deviation of 0.02 and the distribution of frequencies found platykurtic with almost zero skewness. While OT2 shows the mean of 0.134 and standard deviation of 0.03 with almost zero skewness and platykurtic frequency distribution. The descriptive primarily giving a glimpse that is some problem exists in determining the per-capita that may be the cause of financial openness rather trade openness. Jarque-Berra test shows the normality of distribution and found that the OT1 and OT2 are normally distributed while rest of three variables are not due the facts discussed above.

Unit Root Test

In the following table the results of test for stationary is presented but before we should look at a glance to the individual graph in following figure – 1. Naked eye view suggests that PCAP, OF1 and OF2 have negligible intercept but trend is shown in all variables. Therefore, in deciding about unit root one must consider the trend and intercept both relevant.

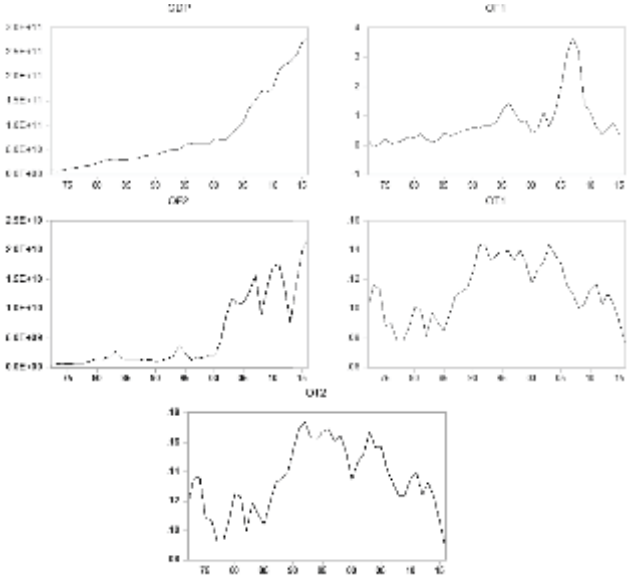


Figure 2: Graphs of the series

Table 2 provide check results for the significance of trend and intercept applying ADF for each variable in compliance with above graphs and their differenced forms with the sign of delta. From the table it can be seen that all variable are not stationary at level but OF1 alone which is found stationary at level. PCAP. OT1, OT2 and OF2 are found stationary at first difference. For unit root analysis Augmented Dickey-Fuller and Philip Perron test are consulted. Only in OT1 both tests are not aligned OT1 is found not stationary neither at level not at first difference in ADF but PP showing OT1 stationary at first difference.

Table 2: Tests for Unit Root

	Augmented Dickey-fuller			Philip Perron		
Variables	Intercept	Trend and intercept	None	Intercept	Trend and intercept	None
LnGDP	5.045	1.250	8.017	5.045	1.438	8.745
	(1.95)	(1.93)	(1.94)	(1.95)	(1.93)	(1.93)
ΔLnGDP	-4.112***	-5.682***	0.001	-4.027***	-5.691***	-2.821***
	(2.04)	(1.94)	(2.13)	(2.04)	(1.94)	(2.19)
LnOT1	-1.744	-1.135	0.374	-1.608	-0.746	-0.333
	(1.58)	(1.64)	(1.67)	(1.58)	(1.64)	(1.67)
Δ LnOT1	-1.744	-1.135	-0.374	-5.616***	-6.533***	-5.698***
	(1.58)	(1.64)	(1.67)	(1.90)	(1.92)	(1.90)
LnOT2	-1.724	-1.077	-0.387	-1.621	-0.599	-0.339
	(1.60)	(1.67)	(1.69)	(1.60)	(1.66)	(1.69)
Δ LnOT2	-5.797***	-6.000***	-5.862***	-5.670***	-6.689***	-5.754***
	(1.92)	(1.94)	(1.92)	(1.92)	(1.94)	(1.92)
OLnF1	-2.721*	-4.661***	-1.871*	-1.823	-2.267	-1.293
	(1.96)	(1.73)	(1.91)	(1.25)	(1.21)	(1.28)
Δ LnOF1	-4.027***	-5.115***	-4.616***	-4.521***	-4.391***	-4.577***
	(1.98)	(2.01)	(1.86)	(1.85)	(1.86)	(1.85)
LnOF2	-1.663	-2.580	-1.779	5.748	3.837	5.768
	(2.33)	(2.06)	(2.33)	(1.60)	(1.54)	(1.61)
Δ LnOF2	-0.764	-4.157**	-1.060	-4.001***	-5.857***	-3.808***
	(2.02)	(1.82)	(2.71)	(1.85)	(1.87)	(1.85)

*, **, *** Significant at 10%, 5% an 1% respectively

In the above table, parenthesis possess Durbin-Watson statistics where the tabulated value of Durbin-Watson at 49 degree of freedom is found 1.30. Any DW value less than 1.30 will confirm positive autocorrelation in the series where for 2.70 is calculated as upper limit and any value of DW more than 2.7 confirms the negative autocorrelation. In the table all DW values in parenthesis lie in between these limits which result no autocorrelation or indecisive for serial correlation.
Optimal lag selection

Optimal Lag Length

Next step is to find the optimum lag length and following table – 3 provide different criteria for lag length. Normally Akaike information criteria is followed which conclusively give lag length of 3 as appropriate length.

Table 3: Optimal Lag Length

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-951.4665	NA	5.01e+15	50.34034	50.55581	50.41700
1	-782.7459	284.1610*	2.64e+12*	42.77610	44.06893*	43.23608*
2	-763.8880	26.79806	3.91e+12	43.09937	45.46956	43.94266
3	-731.8859	37.05499	3.29e+12	42.73084*	46.17839	43.95745
4	-709.1426	20.34930	5.61e+12	42.84961	47.37452	44.45954

* indicates lag order selected by the criterion LR: sequential modified LR test statistic (each test at 5% Level) FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Following information above considering the stationary results where all variables are not stationary at same level here that lead us to apply Autoregressive Distributive Lag (ARDL) Model. ARDL is applied in three stages in first step the test for inclusion of lagged variables in the model through error correction regression. Then F-test is followed to check the significance of lagged variables added to the model. In second stage the equation of model is formed as per standard criteria for lag length such as Akaike Information. For long-run equilibrium relationship the most widely used technique is Autoregressive Distributive Lag (ARDL) approach to co-integration. The reason of choosing this technique is to have more reliable result with small sample in comparison of other technique with low power and small sample complications. In addition this technique does not bother the stationarity issue of the variables. This methodology is used and proposed by Pesaran and Shin (1999). It also facilitates in investigating the long-run estimate which is not easy and friendly in other techniques and procedures such as Engle and Granger test, Maximum likelihood based Johansen or Johansen and Juselius test etc. another advantage of this model is its generosity, it can accommodate large number of variable as compared to other VAR techniques.

Bound Test

Before getting ARDL results the Bound test is applied to know that if any co-integration exist in the system and results of bound test are presented under in table – 4. If the F-statistics breaches the upper bound it mean that co-integration exist which mean long run relationship following table confirms the

Table 4: Bound test Results

	Critical value bound of the F-Statistics				
	1% Level		5% Level		F-Statistics
	I(0)	I(1)	I(0)	I(1)	
Model	3.74	5.06	2.86	4.01	2.909676

Long-run relationship because F-Statistics 2.909676and it lies within the identified bound limits at 1% and 5% and hens in result we cannot reject hypothesis of no co-integration and reject the long run relationship among the variables therefore we have no need to follow the co-integration analysis.
The long run relationship or co-integration can be tested through maximum Eigenvalue or trace tests.

The results of these tests are shown in table 5.

Table 5: Co-Integration Tests

Unrestricted Cointegration Rank Test (Trace)

Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
0.430136	55.55832	69.81889	0.3959
0.350491	33.06404	47.85613	0.5533
0.207433	15.80252	29.79707	0.7261
0.148399	6.503389	15.49471	0.6360
0.001946	0.077905	3.841466	0.7801

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.430136	22.49428	33.87687	0.5694
At most 1	0.350491	17.26153	27.58434	0.5576
At most 2	0.207433	9.299127	21.13162	0.8076
At most 3	0.148399	6.425484	14.26460	0.5592
At most 4	0.001946	0.077905	3.841466	0.7801

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Bothe tests reject of having any existence of co-integration or long relationship of GDP with predictors therefore there is no need to run error correction model.

REGRESSION RESULTS

Table – 5 represents the coefficients estimates obtained following ARDL technique. The selected model is 2, 0, 2, 2, 2order. One can observe that except first proxy of financial liberalization OF1 all the predictors are found statistically significant even with their respective lag terms, that means FDI as percentage of GDP has no significant effect on GDP. Point to be noted that all variables are in log forms therefore the coefficients represent the relevant elasticity effect. Both proxies of trade liberalization found significant at 5 percent with p-value less than 0.05 and they are concluded more elastic as the estimate are more than one i.e. 1.20 for OT1 and -1.36 for OT2 positive sign of OT1 conforms the positive impact of OT1 on GDP. The estimate tells that by increase of one percent of OT1 that is ratio of export plus import to GDP resulted by 1.20 percent change in GPD. OT2 which is export to GDP ratio also significant but negative which means by increase in one percent export to GDP ratio will cause GDP to fall by 1.35 percent. The lag effects of trade liberalization in both proxies found also significant.

Table 6: Regression Results

Dependent Variable: LNGDP1
Selected Model: ARDL(2, 0, 2, 2, 2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNGDP1(-1)	1.200513	0.163030	7.363752	0.0000
LNGDP1(-2)	-0.255079	0.142197	-1.793840	0.0840
LNOT1	1.201509	0.554621	2.166361	0.0393
LNOT2	-1.358312	0.551550	-2.462717	0.0205
LNOT2(-1)	0.396003	0.135922	2.913455	0.0071
LNOT2(-2)	-0.344963	0.112171	-3.075326	0.0048
LNOF1	-0.006425	0.020425	-0.314568	0.7555
LNOF1(-1)	0.069277	0.024299	2.851052	0.0083
LNOF1(-2)	-0.049570	0.018892	-2.623842	0.0141
LNOF2	-0.055703	0.031186	-1.786158	0.0853
LNOF2(-1)	0.136542	0.038690	3.529158	0.0015
LNOF2(-2)	-0.046808	0.035173	-1.330789	0.1944
C	0.679587	0.561117	1.211133	0.2363

R-squared	0.997216	Mean dependent var	24.84475
Adjusted R-squared	0.995979	S.D. dependent var	0.827293
S.E. of regression	0.052461	Akaike info criterion	-2.800540
Sum squared resid	0.074308	Schwarz criterion	-2.251655
Log likelihood	69.01081	Hannan-Quinn criter.	-2.602081
F-statistic	805.9729	Durbin-Watson stat	1.963689
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

While financial liberalization is concerns the OF1 that is net FDI percentage of GDP found insignificant because p-value is far above than 0.05 while OF2 the net foreign assets of central bank in million rupees found significant at 5 percent level of significance. Negative sign of OF2 states the negative relationship of financial assets with GDP and the magnitude is -0.0557 which means by one percent increase in foreign assets GDP is found decreasing by 0.056 percent.

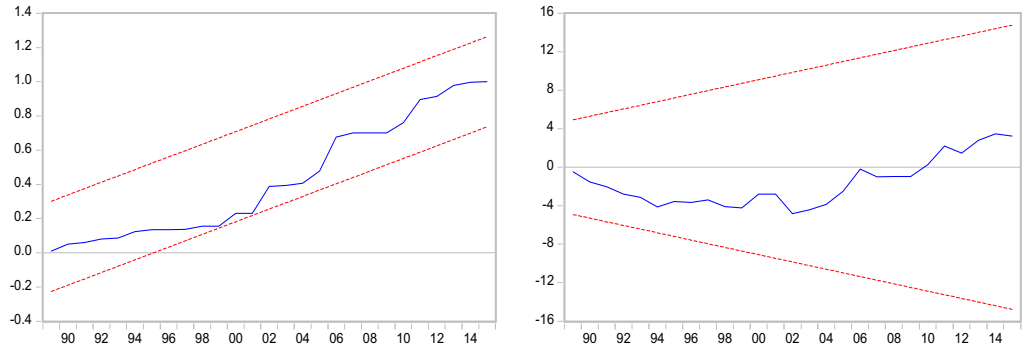
Table – 6 shows the Wald test for joint effect of variables both proxies of financial liberalization, both or trade liberalization and collectively financial and trade liberalization have significant joint effect in the model.

Table 7: Wald test for joint effects

	Variables	P-value F-statistic	P-value Chi-square	Comments
1	OF1 and OF2	0.0162	0.0057	Found significant joint effect
2	OT1 and OT2	0.0238	0.0102	Found significant joint effect
3	OF1, OF2, OT1, OT2	0.0006	0.0000	Found significant joint effect

MODEL STABILITY

According to Pesaran et al., (2001) and later BahmaniOskooee and Nasir (2004) indicated that the stability of the estimated coefficient of the error correction model can also be tested through application of cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMsq). This test validates the stability of long-run coefficient. Following figure – 2 shows the result of CUSUM and CUSUMsq in form of graphs.



CUSUM of squares ---- 5% Signific ance CUSUM ---- 5% Signific ance

Figure 3: CUSUM and CUSUMsq tests for model stability

The null hypothesis for CUSUM test states that the regression equation is correctly specified and the results of the test is judged as a rule of thumb, if the CUSUM lies inside the critical boundaries at 5% confidence interval as shown in the figure. The graphs of both diagrams are lying with in the critical red-lines. These statistics seem to validate the stability of the long run coefficients of variables determining dependent variable.

Other Diagnostic Tests

In the following table other diagnostic tests run to assess the model stability and any chance to have any econometric problem in the model.

First to check the presence of Heteroscedasticity we follow Breusch-Pagan-Godfrey test in following table – 7 which conclude no sign of heteroscedasticity because F-Statistic is 0.7953 which is greater than 0.05 and null hypothesis of homoscedasticity is accepted

Table 8: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.633690	Prob. F(12,27)	0.7953
Obs*R-squared	8.789993	Prob. Chi-Square(12)	0.7208
Scaled explained SS	4.285085	Prob. Chi-Square(12)	0.9777

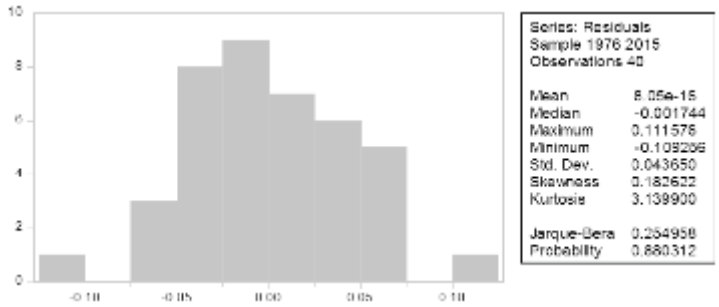
Secondly the test of serial correlation of residuals in other words the problem of autocorrelation is testes in following table-8 the Breusch-Godfrey test for correlation LM test is run with null hypothesis of no autocorrelation.

Table 9: Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.092587	Prob. F(2,25)	0.9119
Obs*R-squared	0.294100	Prob. Chi-Square(2)	0.8633

The result of LM test concluded with rejection of autocorrelation where F-Statistics is found more than 0.05.

The test of normality of residual is tested by Jarque-Bera test with the null hypothesis of normal distribution of residuals. In figure - 2 the Jarque-Bera value is 0.254958 with p-value of 0.88 which affirms the normality of residuals over time.



Since all stability tests affirm the robustness of results, according to Bahamani-Oskooee (2001) these stability tests are important to get validity of results and reliability of estimate to behave in consistent behavior in future.

FINDING AND DISCUSSION

The objectives of the paper was to investigate the impact of liberalization on per-capital growth. Liberalization was measured for both dimensions trade liberalization and financial liberalization. ARDL model used with bound testing approach but the maximum eigenvalue and trace test along with bound test rejected the existence of co-integration or long-run relationship. Results and data analysis concluded that the both proxies for trade liberalization found statistically significant and more elastic. Trade liberalization measures was found positive sign showing positive impact on GDP. While financial liberalization is found statistically significant when the net foreign assets with central bank with negative sign and net FDI percentage to GDP is found insignificant. The results are aligned with Awojobi (2013) who concluded the importance of expansion of foreign trade as main leading force of growth in the economy he was of the opinion that rather than emphasizing only exports expansion a country must expand its trade ties along with god importing relations. On the other side the financial liberalization is still in debate of researchers as explained by Clark, Hallerberg, Keil and Willett (2012) they are of the view that the capital mobility is not at all depending on the interdependence of financial openness in fact the mobility of capital is far beyond the ceiling and limitation of degree of restrictions on flows. This argument is relevant with our OF1 result which is found insignificant which is net FDI inflow that remains not accordance with the growth measures. In Pakistan is the net flow is always be found very sluggish till 2003 and after words the sudden rise in net inflow of FDI does not justify the consistent growth of Pakistan and export plus imports as percentage to GDP is sign of expansion of overall trade and trade agreements that seem necessary for economic performance (Goldstein & Martin, 2000). This result lead to conclusion that the policy frame work must focus on trade driven structure of economy and it does not support to the argument of export orientation alone for betterment of economic performance. Similarly, the financial liberalization is measured as net foreign direct investment percentage of GDP which is found not significant and the net foreign assets assets of central bank found significant but less elastic in putting any impact on GDP therefore more emphasis is needed to rationalize the net flow of foreign direct investment into the country and

enlarging the size of foreign assets in central bank.

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