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Impact of Trade Openness on Exports Growth, Imports Growth and Trade Balance of Pakistan

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Abstract

This study mainly aims at analyzing the impact of trade openness on exports growth, imports growth and trade balance of Pakistan. Pakistan has undergone substantial trade openness measures during the last three decades. The main objective behind the openness and liberalization has been to reap the fruits of higher exports which contribute to higher economic growth. The study analyzes the data from 1980-2008. The OLS and Auto Regressive Distributive Lagged modeling approaches have been employed to find empirical support. The results of the study reveal that trade openness affected both exports growth and imports growth positively although the imports growth increased more than exports one, which worsened the trade balance. Nevertheless, trade openness played a limited role and remained constrained in promoting economic growth through exports expansion. Thus, there is a need to create a balance between exports and imports growth to reap the fruits of openness.

Keywords: Export growth; Import Growth; Trade Balance; Trade Openness; Pakistan

JEL classification: F41, F43, F15, F42

1. Introduction

Trade liberalization as well as openness of economy is seen as driving force to accelerate economic growth. Of course, openness of borders for trade leads to reap the benefits of expanded demand for exports. For this reason, most of the countries, particularly the developing ones, introduced reforms to open up the foreign sector and also reformed the domestic economy too; since the last three decades.[2] The international financial institutions such as

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[2] The reforms process of opening up of the foreign sector started in late1980's in Pakistan.

WTO, World Bank and IMF also encouraged trade liberalization and openness. In addition to above, one of the main objectives behind the openness and liberalization has been to promote efficiency, competition and discourage distortions.[3] The more barriers on trade we have, the lesser will be exports expansions. For a country like Pakistan, which introduced rapid economic reforms and ended up with expanding imports and meager impact on its exports expansion, the result is trade balance worsened.[4] Thus, trade openness might have beneficial, as well as harmful, effects for a country. If trade openness leads towards higher exports and more efficient allocation of resources, it is beneficial and could potentially accelerate growth by ensuring needed foreign exchange and attracting foreign investment. Pakistan has not generated efficiency and competition at domestic level and relied heavily on imports which could turn out as worsening economic conditions. Pakistan is suffering from twin deficits i.e. trade deficit and domestic budget deficit.[5] So, there is a need to analyze whether trade openness has really contributed to accelerate economic growth of Pakistan or not. Most of the researchers focused their research on the expansion of exports, due to openness; however little attention has been paid towards increasing growth rate of imports which ultimately could worsen and balance of trade. Furthermore, deficit in trade balance again reflects as foreign borrowing which further aggravates the problem of deficit. The important point to be noted here is that if trade liberalization increases the import growth more than export growth, as it happens in case of most of the developing countries, it might lead towards creating worse conditions for the country. It is a well known fact that most of the under developed countries are already suffering from foreign reserves shortages, deficit in trade and low foreign direct investment. In this environment, liberalization of foreign sector helps to improve economic conditions. There is a limited research on these issues, particularly in the case of Pakistan.

Given the above background, this study empirically analyzes the impact of trade liberalization on both export and import growth. Moreover, trade balance which was ignored is being analyzed to dig the roots of the problem.

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[3] The Market Friendly Approach also conveyed the process of market competition, international linkages which take place due to investment in human development.

[4] See: Pakistan Economic Survey, 2011-12.

[5] Pakistan's budget deficit was as high as over 7% of GDP. It is even expected higher for the current year i.e. 2012-13. For further details see: Pakistan Economic Survey, 2011-12.

The rest of the study follows a certain pattern. Section II describes the performance of various variables in the post and pre-reform era regarding trade openness and liberalization[6]. Section III, presents literature review and the results of other important studies regarding the impact of trade openness and liberalization on export growth, import growth and trade balance. Theoretical background and model specification have been discussed in Section IV. Section V presents the results of empirical estimation. Conclusions and policy implications are provided in section VI.

2. Economic Performance of Major Variables in Pre and Post-Reform Era.

Pakistan brought significant trade liberalization during the 1980s[7]. Table 1 shows the average growth rates of various important variables before liberalization i.e. pre-reform era 1980-1990 and post-reform era 1991-2008. The table clearly indicates poor performance of all the indicators in the post-reform era. The average GDP per capita growth rate was 3.2% in the pre-reform era while it reduced to 1.9% in the post-reform period. The average real GDP growth was 6.3% in the pre-reform period, while it reduced to 4.36% in the post-reform era. In line with the pattern of the above-described indicators, real exports slowed down in the post-reform period from 9.4% to 6.8% in the pre-reform period. In contrast to the above-discussed indicators, average import growth increased from 4.37% to 5.28%; after liberalization. The trade reforms thereof increased the average import growth while decreased the export growth of Pakistan's economy. Besides, the average growth rate of trade deficit was minus 1.9% in the pre-reform period while it increased to 26.8% in the post-reform period which indeed is a significant increase in the trade deficit. The economic performance improved earlier during the first decade of 2000's and again deteriorated thereafter. It may be noted that economic growth is still around 2.5%[8]. On the basis of above discussion therefore, it may be inferred that trade reforms affected the economic growth of Pakistan adversely.

[6] In Pakistan, not only liberalization of the foreign sector took place but there were substantial reforms to improve domestic economy such as privatization of the financial market etc.

[7] See: Chaudhary M. A. (2004); Globalization: WTO, Trade and Economic Liberalization in Pakistan.

[8] See: for details, Pakistan Economic Survey, 2011-12.

Table 1: Performance of Various Variables in Pre and Post-Reform Era

Variable	Pre-liberalization	Post-liberalization
GDP per capita	3.19	1.89
Real GDP	6.26	4.40
Real Exports	9.38	6.85
Real Imports	4.37	5.28
Trade Deficit	-1.85	26.8

Source: Pakistan Economic Survey, GOP (various Issues)

3. Review of Literature

After the Washington consensus and emergence of WTO, the world has been witnessing a continuous debate on the nexus between trade liberalization and economic growth. It still remains to be seen if trade liberalization and openness is growth promoting. If yes, we need to see the channels through which it affects economic progress? There is an ample literature available on the nexus between openness and export growth and export led growth but very little attention has been paid on impact of trade openness on import growth and trade balance. A brief literature review on the issue is presented below:

Sherazi and Abdul Manap (2004) tested the ongoing issue that exports growth enhanced economic growth. They also found that there is a feedback impact on imports. However they have not tested this feedback impact. Our study is focused to contribute to the literature in this context, which is neglected so far.

Faini *et al.* (1992) analyzed the effects of trade policy on demand of imports in developing countries. The study divided the imports into two categories: under the quantitative restrictions and those which are freely movable among countries. The results show that income elasticity was greater than one among developing countries while the relative prices were proved to be significant having elasticity less than one. The other important finding of the study has been that the shortage of foreign exchange or when we have restrictions on import flows then the estimated effects of income and price elasticity becomes less prominent as compared with liberalized or more open trade regime where this impact is prominent. The study suggests that while interpreting the income and price elasticities in import demand studies, the

type of trade regime should be given special attention. It is the nature of trade and goods which contribute to gains from the trade.

Santos-Paulino (2002) analyzed import demand function for twenty two developing countries with special reference to their trade policy reforms, particularly liberalization of trade. He utilized panel data, Fixed Effect (FE) and Generalized Method of Moments (GMM), to draw empirical evidences. The study presented estimates at both regional and panel level. The main objective of this study was to observe the impact of trade liberalization reforms on imports in developing countries. This study also used the "Heritage Foundation Index of Economic Freedom" to categorize the countries from very low to very high level of protection of traded goods. Heritage Foundation Index of Economic Freedom classified countries into five classes. In the estimation of fixed effect model, country specific dummy was also used which takes into account the country specific factors and environment. The dynamic panel data estimation is done through FE and GMM method while the time series cross section analysis is based upon Two Stages Least Square (2SLS) and Maximum Likelihood Method (MLM). The results of the fixed effect model showed that all the variables had the sign according to the prediction of economic theory and all the variables were significant except the relative price indicator. The results also revealed that short and long run price and income elasticities are same. However, the variables of trade policy regime and import duty are statistically significant. The study also showed that trade liberalization enhanced 100% in the imports volume. The fixed effect estimates support the Melo and Vogt (1984) hypothesis.[9] Thus, based upon the study of Santos-Paulino (2002), it can be stated that the affects of import duties vary from one region to the other region while we do not have stable and consistent results for all the regions of the world. Similarly, Income and price elasticities also differ among regions. Due to 100% increase in imports after liberalization, the study suggested important policy measures regarding the export promotion and current account deficit problem of developing countries. However, there was not significant increase in exports. The study suggested that liberalization should be carried out along with export promotion strategy so that countries should not face the severe problem of balance of payment which may reduce the fruits of liberalization in terms of higher growth.

[9] For more details on this hypothesis see: Melo, O., & Vogt, M. G. (1984) and Yanikhra, (2003).

In spite of using appropriate techniques of panel data estimation, they missed important determinants of import growth in its function; like industrial growth, exchange rate regime, law and order situation, incentives for investors, institutional development and domestic environment etc., which may have affected his results. Moreover, the study has found different results for aggregate sample and regions. So, it is difficult for any country to fully adopt the same policies based on these results because individual country results might get different outcomes from the regional results. Thus a time series comprehensive study for individual countries is also needed to provide additional evidences for sound policy suggestions regarding liberalization and export growth.

Santos-Paulino and Thrilwall (2004) studied and utilized different measures for liberalization and openness. Their focus was on the impact of trade liberalization on exports, imports and balance of payments problems of developing countries. The study used the data set from twenty two developing countries which brought significant changes and introduced liberalization in the 1970s.They used two types of measures of liberalization which are: (a) import and export duties (b) the dummy variable used for the year of liberalization selected on the basis of world trade organization (WTO) and World Bank's criteria. The study used the Fixed Effect (FE) and Generalized Method of Moments (GMM) for analyzing panel data for developing countries using time series /cross sectional study for different regions of the world.

The study analyzed and compared the impact of trade liberalization on exports and imports growth for major developing countries. Besides, the impact of liberalization on prices, income elasticity of demand for exports and imports had also been estimated. Further, the impact of liberalization on balance of payment and trade balance was highlighted.

The study supported the notion that trade liberalization enhanced both exports and imports but the increase in former was greater than that of the later, which worsened the problem of trade deficit. It is well known that most of the developing countries have already been facing the problem of shortage of foreign exchange reserves. Liberalization has therefore very important policy implications for these because it may lead to growth below the potential level. The results of the study also pointed out that import and export duties have negative impact on import and export growth. The study concluded that ten percentage point decrease in duties leads to 2% growth of

exports, while import growth increased between 2 to 4 %. Moreover, liberalization increased the elasticity of demand for imports more than exports. Thus the developing countries have to be careful in terms of liberalization while remaining ready to handle balance of payment problem. They need not become a victim of foreign exchange shortage. If it happens so, a country may end up pilling up collusive amount of foreign debt[10]. This trend has already been set for the Pakistan economy. Pakistan has not borrowed as much as, in the first fifty five years since its birth, which it has borrowed in the last five years.

Keeping in mind the outcomes of the above cited literature, our study aims at exploring the important features and impact of liberalization, particularly the impact of trade liberalization on exports, imports and balance of payment. For this purpose, a model has been developed to draw empirical evidences. The model is discussed below.

4. Theoretical Background and Model Specification

4.1. Trade Liberalization and Exports Growth

The demand for exports depends mainly upon relative prices and world demand for exports (s). By keeping the price and income elasticity constant and following Santos-Paulino and Thrilwall (2004), the export demand function can be written as:

$$X = A\,(\frac{Pd}{Pf})^{\beta_1}\,.\,W^{\beta_2}$$

Where 'X' is the exports at time period t, p_d/p_f is the ratio of domestic to foreign price in the same currency units, 'W' denotes the world income The value of β_2 indicates income elasticity of demand for exports, while β_1 is the price elasticity of demand for exports. After taking the logs and differentiating with respect to time, the above equation may be written as:

$$X_t = \beta_0 + \beta_1 px_t + \beta_2 w_t + \varepsilon_t$$

Now by adding trade openness variable (top), the equation becomes:

$$X_t = \beta_0 + \beta_1 px_t + \beta_2 w_t + \beta_3 top_t + \varepsilon_t$$

[10] For other bottlenecks and trade contributions see Kroger (1978).

Finally, by introducing dummy (lib) variable to capture the effect of the year of liberalization as taken by Lopez (2003), Santos-Paulino and Thrilwall (2004), the above equation will be:

$$X_t = \beta_0 + \beta_1 px_t + \beta_2 w_t + \beta_3 top_t + \beta_4 lib_t + \varepsilon_t$$

Here X_t is the export growth, px_t is the growth rate of relative price change, top_t $[\frac{(exports+imports)/2}{GDP}]$ is the growth rate of trade openness and lib_t is the liberalization dummy which considers the year 1991 as liberalizing year, as commonly utilized in the literature.[11]

4.2. Trade Liberalization and Imports

Most of the literature has focused on trade liberalization and export-led growth[12]. However, there is limited body of literature which explored the nexus of liberalization - import -growth phenomenon. Trade liberalization may increase the growth of imports much more than growth of exports which could create a problem of balance of payment deficit as well as that of shortage of foreign exchange which may squeeze economic growth. Therefore, it is also equally important to analyze the impact of trade liberalization and openness on import growth.[13] In order to analyze the impact of trade liberalization on imports and economic growth by following Santos-Paulino and Thrilwall (2004), the given equation is derived in the same way as for exports growth model stated above. So the above described equation becomes as following which is utilized to analyze the impact of trade liberalization on import growth;

$$M = A\,(\frac{Pd}{Pf})^{\beta_1}\,.\,Y^{\beta_2}$$

After taking the log, differentiating it with respect to time, and augmenting the variable of trade openness, the above equation becomes as follow:

$$M_t = \beta_0 + \beta_1 pm_t + \beta_2 y_t + \beta_3 top_t + \varepsilon_t$$

[11] See: Santos-Paulino and Thrilwall (2004)

[12] For details see: Balassa (1985), Ram (1987).

[13] Santos-Paulino and Thrilwall (2004) studied the impact of trade liberalization on export, import and trade balance growth in developing countries and proved that trade liberalization increased the import growth more than export growth which created the balance of payment problem too.

Now, after adding the dummy variable, the above equation may be written as:

$$M_t = \beta_0 + \beta_1 pm_t + \beta_2 y_t + \beta_3 top_t + \beta_4 lib_t + \varepsilon_t$$

Where we have M_t as the growth rate of imports, pm_t the growth of import price relative to domestic substitutes; y_t the growth of domestic income, top_t the growth of trade openness, lib_t the dummy for the liberalization year i.e. 1991 in case of Pakistan.

4.3 Trade Liberalization and Current Account

The current account provides a good picture of a country's position regarding foreign exchange and foreign reserves. Thus, taking the difference between exports and imports, as trade balance provides performance of trade liberalization. To capture such impact this study will estimate the following equation which is taken from Santos-Paulino and Thrilwall (2004):

$$^{TB}/_{GDP} = C_1 + C_2 W + C_3 Y + C_4 RER + C_5 TOP + C_6 TOT + \varepsilon_t$$

Where 'W' is the world income, Y is the domestic income, P is real exchange rate, TOP is the trade openness and TOT is the terms of trade.

5. Empirical Estimation and Interpretation of Results

5.1. Empirical Evidences: Trade Liberalization and Exports Growth

Two models discussed in the previous section were estimated by using the OLS method. All the variables have been taken in growth rates and were found stationary at level form. The results are presented in the following table 2. The shows that growth rates of all the variables are I(0) , so OLS can be applied for empirical results. Table 3 shows the results of OLS regarding the impact of trade liberalization on export growth.

The results of the regression analysis (table 3) show that trade openness have significant and positive relationship with exports growth. The results also reveal that 1% increase in trade openness leads to 1.06% increase in exports growth while the world income growth and relative price change variables remain insignificant.

By adding dummy variable to the model for capturing the affects of liberalization, the following equation is estimated:

$$X_t = \beta_0 + \beta_1 px_t + \beta_2 w_t + \beta_3 top_t + \beta_4 lib_t + \varepsilon_t$$

Table 2: Results of the Unit Root Tests

Variable	Augmented Dickey Fuller Level		Philips Perron Level		Result
	Intercept	Trend & Intercept	Intercept	Trend & Intercept	
GX	-5.40708*	-5.3058*	-5.432890*	-5.306255*	I(0)
GRER	-4.710111*	-4.572675*	3.286711*	-3.134843***	I(0)
GTOP	-4.903515*	-4.820744*	-4.888834*	-4.798468*	I(0)
GW	-3.173418*	-3.444151	-3.076926*	-3.385888	I(0)
GY	-3.278274*	-3.467158**	-3.254017*	-3.467158**	I(0)

Note: *, ** and *** show level of significance at 1%, 5% and 10 %, respectively.

The results of the above equation are provided in appendix I**.** The results indicate that trade liberalization (openness) has significant and positive impact on export growth. The variable is significant at 1% level of significance. The above results reveal that one percent increase in trade openness led to 1.17% increase in export growth. The world income growth and liberalization dummy are also found significant. Interestingly, the sign of liberalization dummy is negative but it is logical since after introducing the trade reform policies and becoming liberalized, the openness squeezed exports growth. The results are consistent with Santos-Paulino and Thrill wall (2004).

5.2 Empirical Evidences: Trade Liberalization and Imports Growth

In order to analyze the impact of trade liberalization (trade openness) on import growth, the given equation is estimated[14].

$$M_t = \beta_0 + \beta_1 pm_t + \beta_2 y_t + \beta_3 top_t + \varepsilon_t$$

The results of the unit root test reveal that all the variables are integrated at I(0). So, OLS can be applied and the results are given Table 2.

The results of the OLS have been given in Table 4 which shows that the variable of trade openness is significant at 1% level of significance with positive sign. It suggests that one percent increase in trade openness could

[14] See Chapter 4, Amin B. (2011).

Table 3: Impact of Trade Liberalization on Exports Growth
(Dependent Variable: Growth of Real Exports)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.740863	7.358236	0.916098	0.3700
GTOP	1.058946*	0.267205	3.963043	0.0007
GW	0.344935	1.956751	0.176280	0.8618
GPX	-0.134371	0.160071	-0.839446	0.4107
AR(1)	0.700776*	0.164761	4.253287	0.0004
MA(1)	-0.997480*	0.107147	-9.309462	0.0000
R-squared				0.557946
Adjusted R-squared				0.452695
F-statistic				5.301109
Prob.(F-statistic)				0.002646
Durbin-Watson stat				2.313301

Note: * indicates significant at 1% level of significance

lead to almost 1.2% increase in import growth. The import growth is positively related to trade liberalization.

Now by adding the dummy variable for capturing the affects of the year of liberalization, the following equation is estimated.

$$M_t = \beta_0 + \beta_1 pm_t + \beta_2 y_t + \beta_3 top_t + \beta_4 lib_t + \varepsilon_t$$

Where $libt_t$ represents liberalization dummy. The results of the above regression are given in appendix II. The results of the regression analysis show that the variable of trade openness is still highly significant with positive sign along with the co-efficient almost equal to one. The value of adjusted R^2 is 0.81, while the value of DW is 1.8. The liberalization dummy is also found significant with positive sign. Both the variables of trade openness and liberalization dummy are significant at 1% level of significance, respectively.

Thus trade liberalization is positively and significantly contributing to imports growth. The liberalization dummy has 3.84 co-efficient which shows that 1% increase in trade openness leads to 3.84% increase of imports. However, it may be noted that positive association of trade liberalization and import growth may not be very healthy for the economy. The increasing imports and squeezing exports potentially create a serious problem of trade deficit which Pakistan is being faced by Pakistan.

Table 4: Impact of Trade Liberalization on Imports Growth

(Dependent Variable: Growth of Real Imports)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.538340	3.285175	-0.772665	0.4476
Y	1.028560**	0.503367	2.043360	0.0526
PM	0.103221	0.114265	0.903345	0.3757
TOP	1.199407*	0.161098	7.445208	0.0000
MA(1)	-0.574645*	0.187534	-3.064215	0.0055
F-statistic	15.15	Prob. (F-statistic)		0.01
D.W. stat.	1.78	R-squared Adjusted		0.73

Note: *, ** indicate significant at 1% and 5%, respectively.

5.3. Impact of Trade Liberalization on Trade Balance

The following equation has been estimated in order to analyze the impact of trade liberalization on trade balance following Santos-Paulino and Thrilwall (2004).

$$^{TB}/_{GDP} = C_1 + C_2W + C_3Y + C_4RER + C_5TOP + C_6TOT + \varepsilon_t$$

First unit root tests have been conducted in order to determine the order of integration of the variables. It helps to decide about the technique of estimation.

The results of Table 5 indicate that some variables are I (0) while the others are I(1) . In these circumstances econometric theory suggests that Bounds Procedure and ARDL approach seem appropriate for determining long and short run dynamics as described by Pesaran and Shin (1996, 1999

and 2001). The empirical estimations of long run and short run dynamics are analyzed in the following section.

5.3.1. Estimation of ARDL Model

After analyzing the order of integration of the variables, the following error correction version of the ARDL model has been used in order to determine the short run and long run dynamics of the relationship among the variables.

$$\Delta\left(\frac{TB}{GDP}\right)=\alpha_0+\sum_{i=1}^{n}\alpha_1\Delta\left(\frac{TB}{GDP}\right)_{t\_i}+\sum_{i=0}^{n}\alpha_2\,\Delta LTOP_{t\_i}+\sum_{i=0}^{n}\alpha_3\ \Delta LTOT_{t\_i}+\sum_{i=0}^{n}\alpha_4\,\Delta RER_{t\_i}$$
$$+\sum_{i=0}^{n}\alpha_5\ \Delta LW_{t\_i}+\sum_{i=0}^{n}\alpha_6\,\Delta LY_{t\_i}+\beta_1 LY_{t-1}+\beta_2 LTOP_{t-1}+\beta_3 LTOT_{t-1}+\beta_4 LRER_{t-1}$$
$$+\beta_5 LW_{t-1}+\beta_6\left(\frac{TB}{GDP}\right)_{t-1}+\xi_t$$

Where the parameters of ‘’α” show short run while of ‘’β “show long run co efficient in the above equation**.**

Table 5: Results of the Unit Root Tests

	Augmented Dickey Fuller Test				**Philips Perron Test**				
	Level		1st Difference		Level		1st Difference		
Variable	Trend	Trend & intercept	Trend	Trend & Intercept	Trend	Trend & intercept	Trend	Trend & intercept	Result
X	0.7843	2.1526	6.0841*	5.9954*	0.7843	2.1988	6.0846*	5.9954*	I(1)
M	1.0017	2.8549	5.4257*	5.3353*	0.8943	2.9114	5.6673*	5.6542**	I(1)
TOP	3.75**	4.000**	5.1769*	5.0452*	3.09**	2.8427	5.2750*	5.1265*	I(0)
TOT	1.4210	0.3873	4.7451*	4.9103*	1.4033	0.3502	4.7350*	5.0892*	I(1)
TB/GDP	4.586*	4.4383	.1511	.8247	9.863*	10.2900*	4.5865*	4.4383*	I(0)
RER	1.7119	0.6268	4.9808*	6.1885*	1.6933	0.6709	4.9863*	7.5889*	I(1)
W	1.4574	2.98879	3.306**	3.25***	0.9576	1.9568	5.4444*	4.2314**	I(1)
Y	2.3383	2.0533	3.227**	3.46***	1.9726	2.2736	3.2479*	3.4635**	I(1)

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

5.3.2. Estimation of the F-Statistics

The joint significance test is applied to determine the existence of the long run relationship among variables and then compared with the critical bound values.[15] The results show that calculated F- Stat is 5.18, which is greater than the critical Bound values which are (3.23- 4.35) for 5% level of

[15] For details see Pesaran & Shin (1996, 1999 and 2001).

significance. So, we reject the null hypothesis of no co-integration at 5% level of significance for the above model. The results of the estimated long run elasticities are reported in table 6, given below:

Table 6: Estimated Long Run Elasticities Using the ARDL Approach

[ARDL (1, 0, 0, 1, 0, 0) Selected Based On Schwarz Bayesian Criterion]

Dependent variable is TB/GDP				
Regressors	**Coefficient**	**Standard Error**	**T-Ratio**	**Probability**
C	32.6324**	14.8950	2.1908	.038
LTOT	.094994	.14383	.66045	.515
LTOP	-.59178*	.17621	-3.3584	.003
LRER	-.31419***	.17772	-1.7679	.090
LW	3.0325*	1.1545	2.6267	.015
LY	.66488*	.21938	3.0306	.006

Note: *, **, *** indicate significant at 1%, 5% and 10%, respectively

5.3.3. Error Correction Representation for Selected ARDL

Table 7 shows the results of error correction representation (ARDL) model of the impact of trade liberalization on trade balance.

The results of both the short run and long run elasticities of ARDL (table 6 and table 7) show that trade openness is significantly and negatively related to trade balance. The variable is significant at 1% level of significance. The results reveal that trade openness leads to the worsening of the trade balance which means an increase in trade deficit. It may be noted that the finding is in line with the previous findings that trade liberalization increased the import growth more than export growth implying that it has negative impact on trade balance. However, the variable of real exchange rate remains insignificant while the world income growth has significantly positive impacts on trade balance because it positively and significantly affects the exports of Pakistan. The country's income growth is negatively related to trade balance. The variable is significant at 1% level of significance. It is quite logical to have negative sign with it because we found in our previous analysis that the domestic income growth leads to increased imports growth.

The results of the long run analysis show that 1% increase in trade openness leads to 0.59% reduction in trade balance. The results of the error correction representation show that the adjustment parameter is highly

significant at 1% level of significance with negative sign which is according to theory. The co-efficient of the error correction term suggests that 67% of the error will be adjusted in the first time period. It shows relatively fast speed of adjustment. It also means that 67 % of the disequilibrium caused by the previous period shocks will converge back to the equilibrium.

Table 7: Error Correction Representation for the Selected ARDL Model
[ARDL (1,0,0,1,0,0) Selected Based On Schwarz Bayesian Criterion]

Dependent variable is ΔTBGDP				
Regressors	**Coefficient**	**Standard Error**	**T-Ratio**	**Prob.**
ΔC	22.1739**	9.7532	2.2735	0.032
ΔLTOT	0.064549	0.096428	.66940	0.509
ΔLTOP	-0.40212*	0.098787	-4.0705	0.000
ΔLRER	-0.0093804	0.090250	-0.10394	0.918
ΔLW	2.0606*	0.76359	-2.6986	0.012
ΔLY	-0.45179*	0.16608	-2.7203	0.012
Ecm (-1)	-0.67951*	0.13226	-5.1378	0.000

Note: *, ** indicate significant at 1% and 5%, respectively.

6. Conclusions and Policy Implications

The main objective of the study was to analyze the impact of trade openness on export and imports growth. Moreover, trade balance has also been analyzed by highlighting its determinants. As per our knowledge, such analysis has been ignored in the previous literature. In other words, the issue of deterioration in trade balance was the ultimate prime focus of this study. For this purpose, the study analyzed the data form 1980 to 2008. The OLS and ARDL approaches were applied to draw empirical investigations.

Most of the previous studies analyzed the impact of trade liberalization on the performance of economic growth, exports, inequality and income distribution etc. Hardly any study has analyzed the above-cited issue. The impact of trade liberalization on trade balance and imports growth is very important for a developing country like Pakistan. The general notion of liberalization of trade, accelerating exports and bringing improvement to trade balance may not be true for all. The liberalization may increase greater growth of imports than exports and ultimately it might have serious effects on country's balance of payments. It may increase deficit of trade balance, which

will affect foreign exchange reserves, foreign exchange rate and ultimately economic growth unless the balance between imports and exports is maintained. As a result, ultimately the economic growth is hampered.

The results of the study suggest that increase in trade openness and liberalization has significant positive impact on the growth of imports and exports where this influence on imports is greater. The results of the analysis also show that exports growth is greater in the pre- reform era than the post-reform era while the situation was vice versa for the imports growth. The results of the study also revealed that trade openness and liberalization worsened the trade balance.

The above cited findings have important bearings for policy formulation. There is a need to review trade liberalization policy since it has worsened the balance of payments. The increasing imports, more than exports, could create further serious bottleneck for the economy. The trade deficit is already on the verge of increase and it can pose a serious problem, if appropriate measures are not taken. Pakistan must improve its exports and also cut on imports to improve trade balance. There is also a need to review trade openness policy and take additional necessary steps to reap the benefits of trade liberalization.

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Appendix I

Impact of trade liberalization on export growth

Dependent Variable: Growth of Real Exports (GRX)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	4.433517	8.317090	0.533061	0.5993
TOP	1.167103*	0.268145	4.352509	0.0003
W	3.378534***	1.863828	1.812685	0.0836
PX	0.705932	0.427948	1.649573	0.1132
LIBD	-8.306201**	3.264085	-2.544726	0.0185
MA(2)	-0.942631*	0.034193	-27.56768	0.0000
R-squared			0.582761	
Adjusted R-squared			0.487934	
F-statistic			6.145515	
Prob(F-statistic)			0.001045	
Durbin-Watson stat			1.872891	

Note: *, ** and *** show level of significance at 1%, 5% and 10 %, respectively.

Appendix II

Impact of trade liberalization on import growth

Dependent Variable: Growth of Real Imports				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-9.023977**	4.249876	-2.123351	0.0452
GTOP	0.984337*	0.179387	5.487229	0.0000
GY	1.863871***	0.617836*	3.016772	0.0063
GPM	0.091508	0.074030	1.236087	0.2295
LIBD	3.843301**	1.383668**	2.777617	0.0110
MA(1)	-0.997458*	0.111083*	-8.979418	0.0000
R-squared			0.817887	
Adjusted R-squared			0.776498	
F-statistic			19.76088	
Prob(F-statistic)			0.000000	
Durbin-Watson stat			1.758968	

Note: *, ** and *** show level of significance at 1%, 5% and 10 %, respectively.