

Impact of Trade Openness, FDI, Exchange Rate and Inflation on Economic Growth: A Case Study of Pakistan

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Abstract

This study focuses on empirical analysis to find out the role of trade openness, inflation, imports, exports, real exchange rate and foreign direct investment in enhancing economic growth in Pakistan. The analysis based on time series data for the period 1980 to 2011. This paper uses ADF; PP and DF-GLS tests to find out stationarity of the variables and Co-integration and DOLS (Dynamic Ordinary Least Square) techniques have been used for the estimation. Co integration results indicated the long run relationship among the variables. However, negative impact of trade openness can be overcome by producing import substitutes and creating conditions for trade surplus. Furthermore, foreign direct investment and trade are considered vital elements that improve the influence of economic growth.

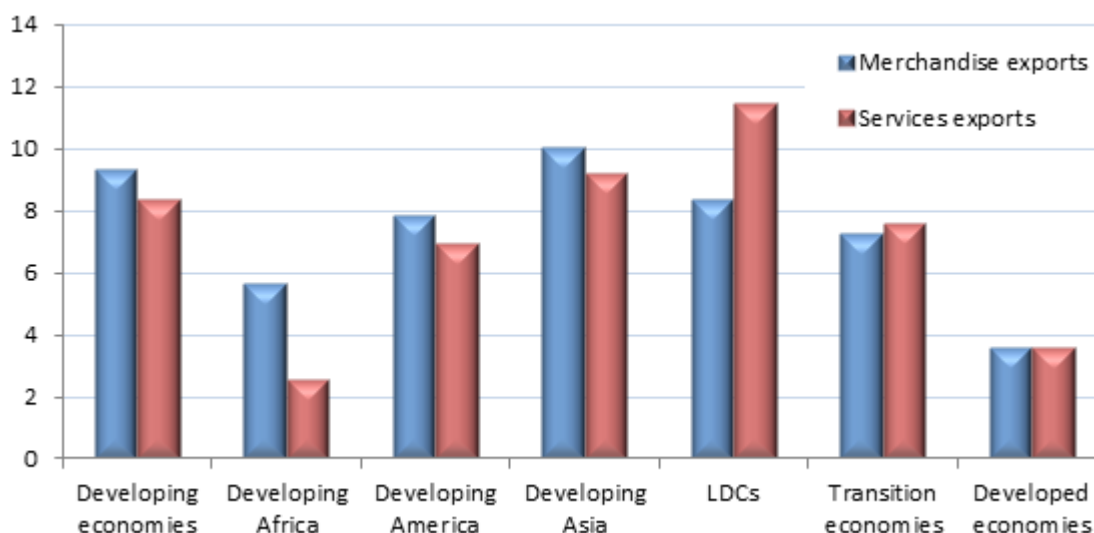
Keywords: Foreign Direct Investment, Exchange Rate, Trade Openness, Inflation, Economic Growth, DOLS, Pakistan.

1. Introduction

According to UNCTAD and WTO estimates, world merchandise exports grew by 2.1% in 2013 (current prices). The strongest exports growth was observed in developing Eastern Asia (6.5%). At the same time, exports contracted the most in Northern Africa (-10.6%). Imports grew particularly in developing countries of Western Africa (8.6%) and Eastern Asia (6.2%), while they decreased the most in developed Oceania (-5.8%), followed by developed Asia (-5.5%). Variant growth in different regions as is evidenced by Fig. 1, prompts the writers to investigate the glaring reasons for the unequal growth rates of merchandise and services export growth rates. LDCs, Developing Asia coupled with Developing Economies seem to be spearheading the trade growth. One reason which is widely debated and linked to growth in trade is trade openness.

Fig. 1

Annual average growth rates of merchandise and services exports, 2008 - 2013 (%)

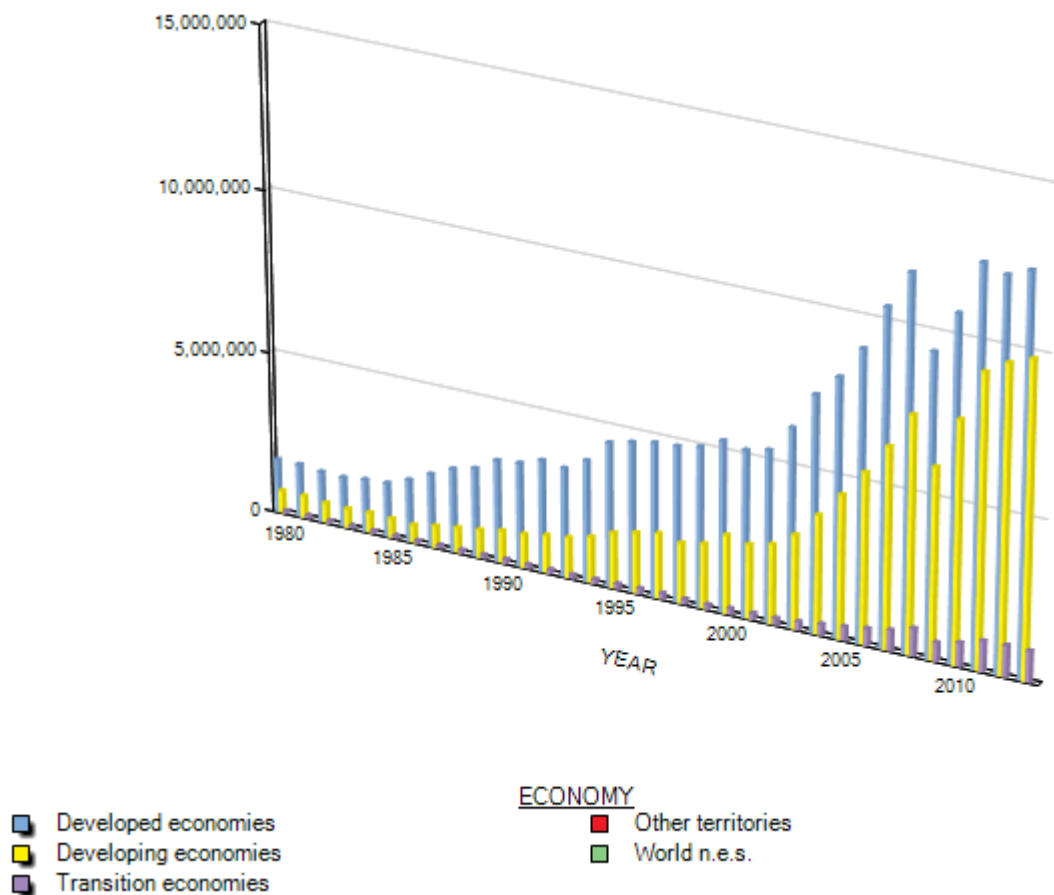


Sources: UNCTAD and WTO

Fig. 2

Total World Trade in Goods and Services

(US Dollars at current prices and current exchange rates in millions)



Source: UNCTAD, WTO

The burgeoning amount of literature in economics had nearly established a solid link between trade openness and economic growth when Halit Yankkiya[2003] re-examined the relationship and studied issue by segregating the impact of trade openness on developed and developing economies. Contrary to popular belief, the empirical work of Halit Yankkiya found negative relationship between trade openness and growth in case of developing countries and positive relationship between trade openness and growth in case of developed countries. The paper asserts that not only there is negative relationship between trade openness and growth rather the developing countries can be benefitted by trade restrictions as far growth is concerned.

The empirical findings of afore-mentioned study can be re-examined in the context of Pakistani economy. Economy of Pakistan is passing through the period of economic stabilization. It is facing very low economic growth rate as compared to the potential. The major problems of Pakistan's Economy that affect its growth rate are high inflation rate,

adverse changes in exchange rate, trade deficit, energy crises and security conditions. These problems affect macroeconomic factors like trade openness, imports, exports, inflation, foreign direct investment and exchange rate which are considered as the key elements of the economy.

Various empirical studies illustrates that trade openness is growth promoter. The relationship of trade openness with economic growth is studied by various economists. Some of which concluded that trade openness is growth enhancing factor [Marelli and Signorelli (2011), Kahnamoui (2013), Ahmed and Anoruo (2000)]. Some other studies showed that it is not growth promoter [Vernon (1996), Findlay (1984)]. The findings on trade liberalization, however, are contentious and the research and empirical findings not yet conclusive (Rodriquez and Rodrik, 2001).

We analysed this problem in the perspective of Pakistan's Economy to overcome this type of confusion. Studies of [Roy and Berg (2006), Iqbal et al (2010)] mentioned foreign direct investment as a growth propelling factor for the economy. Most of developing economies experience the issue of saving- investment gap. Foreign direct investment fulfils this gap by enhancing productivity, enhancing modern technology, creating employment opportunities and also increasing competition [Kobrin (2005)]. Foreign direct investment surged in Pakistan from 0.64 per cent of gross domestic product in 2004 to 3.9 per cent of gross domestic product in 2007 more than any year throughout the selected time span of 1980 to 2011. After that, it dropped constantly and in 2011, its value was 0.62 per cent of GDP. Since the start of 2008, security conditions have proved to be insecure and unpredictable. Such conditions gave rise to capital flight, decrease in foreign direct investment, high inflation rate and devaluation of currency. Previous studies emphasized the presence of non-linear connection of inflation with growth rate and highlighted the low level of inflation as growth promoter, within this, surged inflation level has strong opposite relation with growth (Sarel, 1996; Bruno and Easterly, 1996; Ghosh and Phillips, 1998; Khan and Senhadji, 2001; Sweidan, 2004; Mubarik, 2005; Hussain, 2005). Exchange rate is growth promoter as surge in exchange rate increase the exports and therefore demand for goods improve [Mehmood et al (2011)].

2. Objectives of the Study:

Objectives of the study are:

1. To evaluate the impact of Trade Openness on economic growth of Pakistan.
2. To inspect influences of exchange rate on economic growth.
3. To find out strategy for achieving balance of payment.
4. To examine the relationship of inflation with economic growth.
5. To observe the behaviour of foreign direct investment towards economic growth.
6. To investigate long run relationship among the variables.
7. To evaluate growth promoter policies within these variables.

3. Empirical Literature Review:

Following table shows the empirical literature review;

Table. 1 Empirical Literature Review

Year	Authors	Empirical Approach	Dependent Variables	Independent variables	Sample Period	Findings
2005	Mubarik	OLS,2SLS , Causality test	Real gross domestic product	inflation, investment, consumer price index and population growth rate	1973 to 2000	The empirical results recommended that 9 per cent threshold inflation was appropriate for economic boost in Pakistan.
2009	Zahoor Hussain Javed and Muhammad Farooq	ADF, PP and Auto regressive distributive lag	Real Gross domestic product	Exchange rate volatility, reserve money, manufacturing products, imports, exports, reserve money and consumer price index	1982 to 2010	Outcomes indicated long run relation among all the factors except exports and exchange rate randomness. This study concluded that internal economic performance changed with alteration in exchange rate volatility in long run in case of Pakistan.
2011	IqbalMahmood, Major Ehsanullah and Habib Ahmed	ADF,OLS technique and GARCH model	FDI, GDP, growth rate and trade openness	exchange rate volatility	1975 to 2005	Results indicated that exchange rate had a positive relationship with GDP, growth rate as well as with trade openness

						and inversely linked with FDI in case of Pakistan.
2012	Asma Arif and Hasnat Ahmad	ADF, Co integration, ECM and Granger Causality	Output growth	Trade openness	1972 to 2010	The outcomes indicated causality and long run relationship between trade openness and GDP growth in Pakistan.
2011	Bishnu Kumar Adhikary	ADF and PP Johansen-Juselius test, Impulse response and variance decomposition And VECM	GDP growth rate	FDI, Trade openness, Capital formation	1986 to 2008	Results showed causality and equilibrium in long run among the variables, Economic shocks to the independent variables provided a positive influence on GDP growth. VECM results depicted the negative impact of trade openness on economic growth in case of Bangladesh.
2011	Usman Akeem	OLS	RGDP	Import, export Economic Openness, Foreign Exchange	1970 to 2005	The empirical results suggested that Imports, Exports and Exchange Rate had inverse

				Rate and Per Capita Income		relationship with Gross Domestic Product in case of Nigeria. There was causality among the variables.
2006	Atrayee Ghosh Roy and Hendrik F. Van den Berg	SEM, PP, KPSS tests.	RGDP Growth Rate	Growth rates of the entire capital stock minus FDI, collected FDI, labour force, and exports	1970 to 2001	Evaluated results showed that United States had found boost in its economic growth because of foreign direct investment. Labour force was positively related with growth in case of United States.
2010	Muhammad Shahzad Iqbal, Faiz Muhammad Shaikh, Amir Hussain Shar	ADF, co integration test, VECM test, VAR and causality test	Economic Growth rate	FDI, Imports and Exports	1988:1 to 2005:4	The study showed that the bidirectional causality existed between Economic growth, export and FDI and single relationship of import to export and import to FDI. FDI and trade had proved to be growth promoter in Pakistan.
2011	Enrico Marelli and	OLS, two stage least	Economic Growth	trade, gross domestic	1980 to 2007	Empirical results showed that the

	Marcello Signorelli	square (2SLS) technique		product per capita, trade openness, foreign direct investment and gross capital formation lagged		influence of all exogenous variables on economic growth were positive and significant in all conditions in cases of China and India.
2012	Sarbapriya Ray	OLS, KPSS, co integration test Granger Causality and ECM	nominal GDP	public sector investment, trade openness, private sector investment, financial integration and human resource development	1990-1991 to 2010-2011	Results indicated that private investment, human resource development and trade openness were in favour of growth while capital financial integration was inversely related with growth. All variables were cointegrated, in case of India
2013	Farrokh Kahnamoui	OLS Technique	per capita growth of gross domestic product	Gross domestic product at initial level, human capital, physical capital, trade restriction, and export credit per person	1970-1999	Trade openness had positive impact in the existence of export credit. Through this study, it was concluded that export credit had direct and substantial impression on economic growth in a positive way for recipient. So, trade openness

						was more favourable for economic growth in OECD countries.
2009	Ramesh Chandra Paudel and Nelson Perera	KPSS, PP, ADF and DF and Johansen Cointegration	Economic growth	External debt, labour force, trade liberalization	1950-2006	Results indicated that Co integration was present among external debt and financial growth, trade liberalization and labour force. Labour force was the main variable of growth during that time period in case of Sri Lanka.
2011	Zaheer Khan Kakar and Bashir Ahmad Khilji	ADF, Johanson co-integration test, Granger Causality test	Gross domestic product	Exchange rate, foreign direct investment and trade openness	1980-2010	This useful study indicated that in comparison with other two variables trade openness showed great effect on economic growth in case of Pakistan. Foreign direct investment inflows and gross domestic investment showed causality for each other in case of Malaysia.

4. Theoretical Framework:

Mercantilist Theory was formulated in 16th to 18th century by Antonio Serra, David Hume, Von Hornick, Josiah Child and many more in Western Europe mainly in France and England. Mercantilist theory stated that national wealth should be increased through trade. Adam Smith proposed the absolute advantage theory in 1776. He favoured the opinion of free trade as more beneficial instrument for countries. The theory advocated that specialization of resources for producing a specific good could give more output, from which other nations can be benefited by free trade. A classical trade theory, presented by David Ricardo, was based on comparative advantage and relative prices. The objective of Ricardo was to describe the benefits of trade among states and the significance of trade liberalization policy. Labour was the only variable which was considered as an immovable factor according to the Ricardian Model. The major element that was discussed in Ricardo's Model was the advantage of producing a good with specialized factor rather than consuming it for any other good for which it was not specified. This theory describes the scarcity of resources that leads to the trade-off among the manufacturing of commodities. Trade-off is related to the opportunity cost. The unit of one commodity which is given up for the manufacturing of one unit of another commodity is the opportunity cost (Begg et al. 2003:254). Swedish Economists, Heckscher and Ohlin developed a theory named as Heckscher-Ohlin Model. This theory was concerned with the allocation of resources for their best use and their prices among countries are the key elements of trade. Heckscher Ohlin preserved that resource allocation regulated a country's comparative advantage. The model supposed two goods, two variables and two countries which demonstrated perfect competition. Harrod in 1939 and Domar in 1946 presented a model to enlighten the economic growth. This model predicted that growth was dependent function of capital as well as labour. As investment increases then capital surges which tends towards economic growth.

$$\frac{\Delta Y}{Y} = \frac{s}{K} \dots (3.7)$$

Solow presented neoclassical growth theory which extended the Harrod Domar Model by increasing another variable that was technology. This theory described that three variables enhances the output named as, enlarged and educated labour force, more investment in capital formation and advanced technology. This model was represented in Cobb-Douglas production function form.

$$Y_t = A_t K_t^\alpha L_t^{1-\alpha} \dots (3.8) \quad 0 < \alpha < 1$$

5. Data and Methodology:

The choice of variables depends on the choice made by other investigators (Ghosh and Phillips 1998, Khan and Senhadji 2001, Mubarik 2005).

This paper used the data of real gross domestic product, real imports, real exports, foreign direct investment inflows, inflation and real effective exchange rate from World Bank. We selected the time span from 1980 to 2011. We used Real GDP as dependent variable and Trade Openness, FDI, Real Exports, Real Imports, Inflation and Real Effective Exchange Rate as dependent variables.

$$Y=f(X_i) + \varepsilon \quad \dots \quad (4.1)$$

Where Y=GDPR

X_i=TON, FDIN, INN, EERR, IMR, EXR

$$GDPR_t = \alpha_0 + \alpha_1 TON_t + \alpha_2 FDIN_t + \alpha_3 INN_t + \alpha_4 EERR_t + \alpha_5 IMR_t + \alpha_6 EXR_t + \varepsilon_t \quad (4.2)$$

Where Y= GDPR=Real Gross Domestic Product

ε =Error term

α =Constant

TON=Trade openness

FDIN=Foreign Direct Investment

INN=Inflation

EERR= Real Effective Exchange Rate

IMR=Imports Real

EXR=Exports Real

ε =Error Term

t=Time

5.1. Description of Variables

Endogenous Variable

5.1.1 Real Gross Domestic Product:

Real gross domestic product is referred to as a macroeconomic variable which is used as a measure of the value of the economic output fixed for price fluctuation. While nominal gross domestic product shows market prices of all finished commodities and services which are produced inside the border of the state.

$$GDPR = \frac{GDPN}{INN} \dots (4.3)$$

It is expressed in percentage.

Pakistan's economy experienced the increasing trend in real gross domestic product from 1980 to 2011. Its economic growth had been intensely rising since 1986. As compared to a low economic growth rate of 2.8 per cent in 1986, annual growth rate amplified to 6 per cent during 1988 and augmented to over 9 per cent in 1995 as well as 1996. The growth rate declined initially in 1989 and 1990 due to the failure of the Communism system of Russia and Eastern Europe. Average growth of GDP rate in 1986-1990 was 4.4 per cent, which was improved intensely in 1991-1995 up to 8.18 per cent. Nevertheless, because of strong effects of Asian economic calamity in 1997-1998, gross domestic product was dipped to 5.8 per cent in 1998 while in 1999 dipped at 4.8 per cent. The Pakistan economy was effectively recovered after the catastrophe and settled at 7.48 per cent of growth rate during 2001-2005. Getting control on numerous problems and trials, economy faced 8.4 per cent growth rate that is considered highest. Our country has been focusing on industrial development since 1986. I proposed the hypothesis that economic growth is positively related with FDI, Imports, Exports and real effective Exchange Rate and negatively with trade openness and inflation rate. Within this, there is long run relationship among the variables.

5.1.2 Independent Variables

5.1.2.1 Trade Openness:

Trade openness can be defined as the level of trade which a country permits to do with the other country. It includes all kinds of open trade linkages. It is beneficial in terms of getting foreign investment and investing in other countries. We formulated the trade openness data from the summation of real import and real export and divided it by real gross domestic product.

$$TON = \frac{(IMR + EXR)}{GDPR} \dots (4.4)$$

Previous research of Levin and Renelt (1992) showed the confusing results which predicted that there was no big difference among export and import supportive strategies. They used data from 1960 to 1989 of 119 countries. They on the basis of their results discussed that increment in resource accumulation instead of distribution of resources favoured the trade openness. Adhikary (2011) found the inverse connection among trade openness and growth of economy in Bangladesh from 1986 to 2008. This was due to the devaluation of currency and adverse balance of payment. Pakistan faced fluctuations in Trade Openness during 1980-2011. The highest trade openness was seen in 1980 of 39% and afterwards in 2006, it became 37 per cent. Trade openness can be appeared as positive or negative depending on the values of determinants of trade openness.

5.1.2.2 Foreign Direct Investment:

Foreign Direct Investment can be described as an investment made by one state to another state in any business or entity. Open economies having good economic conditions attract high amounts. There are two main types of foreign direct investment. First is horizontal foreign investment which is stated as an investment made by one country into second country to produce the same product for its population? Second is the vertical foreign direct investment which states as an investment made by a country into another country to manufacture the differentiated product which may be downgraded or innovative? Mostly it preferred innovation in the product that was harmful for the domestic country's industry. Foreign direct investment and trade are the vital variables in boosting the economic growth (Iqbal et al 2010). Foreign Direct Investments raise the technological spill over, competition and reinforce the production capabilities of the host economy (Pugul 2007). In 2008, Pakistan experienced stagnation in growth terms. Pakistan faced reduction in foreign direct investment due to its contribution against terrorism and generated uncertainty. Since 1986 there was implementation of reforms, FDI has been considered as an important factor to developing the Pakistan economy. The diversification of Pakistan economy from planned to market dependent economy showed sudden effects. Pakistan Statistical Yearbook 2005 shows that 7279 FDI schemes got investment certificates while total recorded capital value was US\$66244.4 million since 1988- 2005. Foreign investment increased to 1296 dollars during 1995-1996 from 10.7 dollars during 1976-1977. However, it dropped to \$950 million during 1996-1997. The inflow of external investment during 1991-1992 propagated at the multiple rate of growth 15.2%. During 1995-1996 Inflows of foreign direct investment augmented by 93.3% normally because of the investment in electric power sector. The asset has now climbed \$ 3521 million during 2005-06. This illustrates that FDI faced a 332% surge from 2001-02 to 2006-2007. Afterwards this trend declined and Pakistan received FDI with dropping rates till now.

5.1.2.3 Imports:

Pakistani imports are more than its exports which deteriorates its balance of payment. Pakistan's imports are mostly final products, steel, machinery, petrochemicals, tea, edible oils and equipment related to transportation. Pakistan imports products from China, Saudi Arabia, Kuwait and Malaysia. It is big importer of China's products. Growth rate of imports is observed to be increasing year to year but some fluctuations are also found. In 1991-1995 Pakistan observed maximum growth rate (24.3%). The period of 2004 to 2006 shows another big increase in real imports. The yearly average rate of growth of imports is calculated 16.1 per cent during 1986-2005 every year. There are fluctuations observed on continuous basis in imports till 2011.

5.1.2.4 Exports:

Pakistan's exports are less than its imports which worsens its position of trade. Its core exports are related to agriculture like rice, sports commodities, leather products and textiles. United States, China, Germany and United Arab Emirates are its primary exporters from which United States is its big exporter. Its exports are increasing day by day. From 1980

export growth was increasing. 1990 to 2007, yearly average exports growth rate is observed 21.22 per cent per annum. In 2005, export worth was observed 40.8 times greater than 1986, from \$0.79 billion calculated in 1986 to an increased amount of \$32.23 billion in 2005. The earnings from exports surge gradually from 35.7 per cent in 1986-1990 up to 46% during 2001-2005 and still following some more upward trend.

5.1.2.5 Real Effective Exchange Rate:

Pakistani Rupee was fixed against pound sterling till 1982 during the reign of Zia-ul-Haq and it devalued by 38.5 per cent during 1982 to 83. Businesses faced massive proliferation in import costs. At that time State Bank of Pakistan removed this effect by dropping interest rates and purchasing dollars for the preservation of the country's export competition ability. During the Bhutto's regime, rupee was appreciated and after that external aid devalued the rupee. Exchange rate observed highest values in 1980-1981. Afterwards it started declining till 2001 from 237PKR in 1981 to 97PKR in 2001. From 1982 onwards, rupee devalued due to the introduction of managed floating system of exchange rate. In 2002 it increased and settled at 103PKR. From 2002-2004 Pakistan experienced a dropping trend with a dropped value 97PKR in 2004. After observing an increase in 2004-2006 from 97PKR to 102.85PKR where it showed stability, it started declining till 2008 with a value of 97.74PKR. From 2008-2011 it experienced an increasing trend. The value in 2011 is recorded as 106PKR.

5.1.2.6 Inflation:

An increase in money supply or escalation in overall price level is called inflation. When price level increases, it creates a reduction in buying power. There are different types of inflation. A reduction in overall price level is referred to as deflation. Disinflation is a reduction in the level of inflation. Hyperinflation is an uncontrolled inflationary coil. An increase in price level, sluggish financial growth and high joblessness are collectively called Stagflation. Reflation can be defined as an effort to nurture the overall price level to respond deflationary forces. There are different measures of inflation from which consumer price index and GDP deflator are commonly used. Double digit inflation in percentage, is very harmful for the economy. Pakistan faced highest double digit inflation in 2008. Fisher (1993) described that inflation was a cause of reduction in growth which resulted from decline in investment and output growth. Nell (2000) evaluated that single digit inflation was favourable, on the other hand double digit inflation led towards sluggish growth. Malik and Chowdhry (2001) used cointegration for the investigation of the relationship between inflation and economic growth for Pakistan, India, Bangladesh and Sri Lanka. They observed that inflation had a positive relationship with growth of economy. Changes in growth had greater influence on inflation rather than inflation on the economic growth. In Pakistan, inflation experienced huge fluctuations like, in one year it was showing increasing trend and in next year it showed decreasing trend. The period of 1997 to 2003 observed a continuous decrease in inflation rate. In 2008 it experienced highest level of inflation which is 20 per cent. Afterwards it started declining and in 2011 it was observed at 11.9 per cent which showed double digit inflation and was risky for the economy.

5.2 Econometric Techniques

5.2.1 Unit Root Test:

The empirical section primarily examines the stationary conditions of the data applying the augmented Dickey –Fuller (1979) test and the Phillips-Parron (1988) test. Dickey and Fuller stretched the procedure of their test proposing an augmented version that contained more lagged term of endogenous variable to eradicate the autocorrelation. The three considerable forms of the ADF test are described as follows:

$$\Delta T_t = \omega T_{t-1} + \sum_{j=1}^q \lambda_j \Delta T_{t-1} + \varepsilon_t \quad \dots \quad (4.5)$$

$$\Delta T_t = \beta_0 + \omega T_{t-1} + \sum_{j=1}^q \lambda_j \Delta T_{t-1} + \varepsilon_t \quad \dots \quad (4.6)$$

$$\Delta T_t = \beta_0 + \omega T_{t-1} + \beta_{2t} + \sum_{j=1}^q \lambda_j \Delta T_{t-1} + \varepsilon_t \quad \dots \quad (4.7)$$

The difference among these equations relates to the existence of β_0 and β_{2t} .

5.2.2 Cointegration Test

Cointegration test is applied to find out the long run relationship between the used variables. This technique is used when two variables are non-stationary but their linear combination demonstrates lower order of integration. When non stationary variables do not show cointegration then it would show spurious regression. In the other case if the two variables cancel their stochastic trends then it would show cointegration which demonstrates long run relationship between the variables.

$$M_t = \alpha_1 + \alpha_2 N_t + u_t \dots (4.8)$$

$$\hat{u}_t = \hat{M}_t - \hat{\alpha}_1 - \hat{\alpha}_2 \hat{N}_t \dots (4.9)$$

5.2.3 Dynamic OLS

A modest method for creating an asymptotically effective estimator that eradicates the reaction in the cointegrating structure has been supported by Saikkonen (1992) and Stock and Watson (1993). Named Dynamic OLS (DOLS), the technique contains enhancing the cointegrating regression which uses lags with leads of $t \Delta X$ thus the subsequent error term of cointegrating equation is orthogonal to the whole past of stochastic regressor improvements:

$$y_t = X_t' \beta + D_{1t}' \gamma_1 + \sum_{j=-q}^r \Delta X_{t+j}' \delta + v_{1t} \dots (4.10)$$

According to the assumption by adding q lags and r leads of differenced regressors dripping up all of the relationship between t u1 and t u 2 , least square approximations of $\theta = (\beta', \gamma')$ Applying the above expression shows the similar asymptotic dispersal as those acquired from FMOLS (Fully-modified least square) and CCR (Canonical Cointegrating Regression).

Table.2 Unit Root Test

Variables	ADF Test Results		PP Test Results		DF-GLS Test		Conclusion
	Level	1 st Difference	Level	1 st Difference	Level	1 st Difference	
GDPR	-2.96	-2.96	-2.96	-2.96	-1.95	-1.95	I(1)
Tabulated Values	1.25	-3.26	2.73	-3.26	-0.21	-2.53	
IMR	-2.96	-2.96	-2.96	-2.96	-1.95	-1.95	I(1)
Tabulated Value	-0.72	-5.52	-0.73	-5.54	0.59	-4.52	
EXR	-2.96	-2.96	-2.96	-2.96	-1.95	-1.95	I(1)
Tabulated Value	0.37	-5.03	0.37	-5.04	0.98	-5.12	
TON	-2.96	-2.96	-2.96	-2.96	-1.95	-1.95	I(0)
Tabulated Value	-3.40	-5.93	-3.45	-6.01	-2.41	-4.67	
FDIN	-2.96	-2.96	-2.96	-2.96	-1.95	-1.95	I(0)
Tabulated Value	-2.66	-3.95	-2.04	-3.07	-2.57	-3.44	
INN	-2.96	-2.96	-2.96	-2.96	-1.95	-1.95	I(0)
Tabulated Value	-2.58	-6.87	-2.67	-6.89	-2.44	-6.97	
ERR	-2.96	-2.96	-2.96	-2.96	-1.95	-1.95	I(1)

Tabulated Value	-1.80	-3.06	-1.80	-5.49	-1.64	-1.89	
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Author's own calculation using E Views7

Note: a) At 5% level of significance based on Mackinnon (1996) and Eliot Rottenberg-Stock (1996).

b) Null Hypothesis of all above unit root test is that series has a unit root.

c) SBC and AIC criteria are used for optimal lag selection

The outcomes of the tests are illustrated in the tabular form. According to the null hypothesis; series has a unit root as it is non-stationary. In conclusion I (0) shows that variable is stationary at level and I (1) illustrates that variable is stationary at first difference. A comparison is held in the table by comparing the calculated values with the tabulated values. Trade openness, FDI and inflation are at level I (0) and imports, exports, real exchange rate and real GDP are at first difference I (1).

Table. 3 Johansen and Juselius (1990) Max. Likelihood Test for Cointegration

Null Hypothesis	Trace Statistics based on likelihood Ratio	Critical Value at 5%	Prob. Values**	Max. Eigen Values	Critical Values at 5%	Prob. Values**
R=0	264.5598	125.6154	0.0000	121.0493	46.23142	0.0000
R≤1	143.5105	95.75366	0.0000	49.55574	40.07757	0.0032
R≤2	93.95474	69.81889	0.0002	47.88584	33.87687	0.0006
R≤3	46.06890	47.85613	0.0729	21.67710	27.58434	0.2374
R≤4	24.39180	29.79707	0.1844	13.63639	21.13162	0.3956
R≤5	10.75541	15.49471	0.2270	8.069268	14.26460	0.3717
R≤6	2.686140	3.841466	0.1012	2.686140	3.841466	0.1012

Author's own calculation using E Views7

Note: a) Trace Test indicates 3 co integrating equations at the 0.05 level

b) Max. Eigen Value indicates 3 co integrating equations at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**Mackinnon-Haug-Michelis (1999) P- values

The rule of thumb for testing co integration describes that greater value of trace statistics (based on likelihood ratio) and Max. Eigen values than their critical value leads towards rejection of null hypothesis. This also includes that Prob. Value should also be less than 0.05. Application of Johansen cointegration test tells the cointegration between the variables in the long run. It is clear from the Likelihood Ratio that there are three cointegration equations. It can also be said that there are three linear combinations among the variables. Hence, results indicate that all the variables have long run relationship.

Table.4 Dynamic OLS

Variables	Coefficient	Standard Error	t-Statistics	Prob.
lnIMP	0.418589	0.113595	3.684915	0.0142
lnEXP	0.572200	0.092719	6.171358	0.0016
lnTOP	-1.091020	0.067418	-16.18298	0.0000
lnFDI	0.014783	0.094586	1.184431	0.2895
lnINF	-0.010126	0.004848	-2.088788	0.0910
lnER	0.179287	0.094586	1.895498	0.1165
	R ²	0.999949	DW	1.839382
	Adjusted R ²	0.999716		

Author's own calculation using Eviews7

This study has generated a series of all variables with log and then applied Dynamic OLS technique. Results show that the value of adjusted R² is 0.999716 which is less than R² value, given in the table. Durbin Watson test shows a value of 1.839382 which shows that there is no positive autocorrelation among the variables, so null hypothesis is accepted in this case. Results indicate that variables show the expected signs. Real imports and real exports are positively related with real gross domestic product. 1 per cent increase in real imports and real exports will increase 41.8 per cent and 57.2 per cent respectively in real gross domestic

product. Trade openness and inflation are negatively related to real gross domestic product. 1 per cent increase in trade openness and inflation will result in 109.1 per cent and 1 per cent respectively decrease in real gross domestic product. These four variables show the anticipated signs and are significant as their t values are greater than 1.96. Results of real exchange rate and foreign direct investment are not significant. But have positive impact on real gross domestic product. 1 per cent increase in real exchange rate and foreign direct investment will enhance the real gross domestic product by 17.9 per cent and 1.4 per cent respective.

6. Conclusion

The purpose of this study is to examine the relationship of growth rate with trade openness, inflation, exchange rate, imports, exports and foreign direct investment during the time period of 1980-2011. I proposed the hypothesis that foreign direct investment, imports and exports have positive impact on economic growth. Inflation and trade openness has negative relationship with the growth of economy and exchange rate affects economic growth in a positive way. Secondly there and long run relationship among these macroeconomic variables. Stochastic and deterministic trends are present in the data. So, by applying unit root test (ADF, PP, and DF-GLS) trade openness, foreign direct investment and inflation are stationary at level I (0) and imports, exports, real gross domestic product and exchange rate are stationary at first difference I(1). Cointegration results indicate that there is long run relationship among the variables, as described in null hypothesis. Dynamic OLS results indicate that trade openness is negatively related to the economic growth rate in Pakistan because of the depreciation in exchange rate, huge volume of imports and resulting trade deficit. Inflation is negatively related to economic growth. According to the results, imports and exports are growth promoter due to the positive connection with real gross domestic product as proposed earlier. Similarly, foreign direct investment is also a strong growth indicator. According to the study results foreign direct investment have positive impact but not significant. Trade openness proved to be highly negative because of the trade deficit and changes in exchange rate. Exchange rate has positive but not significant relationship with economic growth as its local economic performance is so much sensitive to the variation in exchange rate in the long-run period. So, all the results are according to the formulated hypothesis. This might determine that foreign direct investment financed in Pakistan was fascinated by the economic growth and policy of foreign trade. Furthermore, foreign direct investment and trade are considered vital elements that improve the influence of economic growth. If suitable policies are formulated then economic growth can be enhanced by trade openness at a large scale. Single digit inflation is essential condition for a growing economy like Pakistan. Exchange rate cannot be ignored as it has a significant impact on the economy. This is not the end of research. This thesis can be used as a base for further research works.

Policy Recommendations:

- Export promotion policy should be analysed and import substitution policy should also be examined, so that country can take benefit from trade. The fiscal authorities should boost exports and encourage domestic products.

- Industrial sector should expand their production so that their products would be reasonable in the global market.
- Research should be promoted to enhance the overall productivity of final goods.
- Excise duties and tariffs should be dropped so as to boost home industries to trade their goods and services.
- Only the essential capital goods should be imported keeping in view that all the imported material is not mandatory.
- Generation of electric power should be focused at low cost and should be provided to enhance the output of manufactured goods as well as exports. Safety conditions should be made considerably perfect and reliable to enhance the foreign direct investment. This investment should be used for developmental projects instead of consumption purposes.
- Inflation rate should be kept below double digit as double digit inflation is dangerous for the economy.
- The results stated earlier recommend that policy makers should take into account both the presence and the amount of exchange rate instability and take into account the likely influence of the exchange rate changes on each macroeconomic factor in application of trade policies, therefore that greater volumes of trade as well as foreign direct investment might be fascinated.

So, main focus should be on the electric power supply, controlled money supply, manufactured goods and safety conditions to make the economy grow on real terms.

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