

IMPACTS OF IMPORTS, EXPORTS

Impacts of Imports, Exports and Foreign Direct Investment on the Gross Domestic Product (GDP) Growth

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ABSTRACT

Economic growth has been considered as the most powerful engine pulling the people out of the clutches of poverty and raising their standard of life. Life standard and poverty standard of a country's population (Per Capita Income, Personal Income or Disposable Income) is depends upon Gross Domestic Products (GDP) of that country. Fluctuation in the Gross Domestic Products also creates fluctuation in the employment level, price level of the country, inflation in the country and many more economic factors.

Gross Domestic Product is based on different economic factors like Exports of goods & Services, Imports of goods & services, Foreign Debts, Direct Foreign Investment, political environment in the country, conditions of part of products like material, labor level, Government spending and also on the government policies. History shows that after the Second World War most of the country raises their standard, which results the raise in standard of their people with the increase in the production and technology.

Key words: FDI (Foreign Direct Investment), GDP (Gross Domestic Product), Imports, Exports, Economy, (GDI) Gross Domestic Income

INTRODUCTION:

Under development countries like Pakistan, having all natural resources are still backward and continuing its economic level is going downward slope. These factors are direct and indirect, internal and external and they differ from country to country. Due to the different socioeconomic conditions, the factors of economic growth may be different in the cases of developing and developed countries. Hence, in the current thesis we have to identify the impacts of some economic factors like imports of goods & services, exports of goods & services and foreign direct investment on the growth of gross domestic products.

GDP as discussed here before is the way economists calculate how much an economy is producing in total goods and services. It is usually, calculated by adding together several categories of spending, including consumer spending, investment and government spending. Exports of goods and services generate income at home, and so they are a component of GDP. Imports, on the other hand, generate income abroad, so they are subtracted from the other categories of spending to get a more complete picture of how much an economy is actually producing. Higher exports and lower imports add to GDP while reduced exports and higher imports contract GDP.

Fiscal year 2008-09 has been difficult for the economy of Pakistan due to some economic and political events, which are unexpectedly occurring in internal and external level. The economy performs excellent in the era of 2004 to 2008 in which economic growth is growing at an average rate of 7% remained with 16% increase during 2003 to 2006. Therefore, the issue is that Pakistan's exports are highly concentrated on few items in which, cotton manufacturing, leather, rice, textile and sports goods, which account 72 percent share in total exports during 2008. The composition of exports has changed rapidly in the era of 90's and moved from primary and semi manufactured to manufactured exports.

It is widely known as the level of exports of a country represents an indicator of economic development. The relationships between exports and economic growth have been observed positively correlated. Therefore, management authorities usually intend to encourage expansion in exports through various incentives such as, for instance, export subsidies etc. The direction of exports need to be diversified, the focus of exports on a few primary commodities makes country highly vulnerable to changes in global market prices and developments in natural resource production. For efficient utilization of available scarce resources and for expanding global trade volume, freer trade in goods and services is highly beneficial. Economists often assert that trade liberalization improves social welfare and alleviates poverty, because it generate jobs opportunities, fosters

economic growth and improves consumer choice and living standard of the peoples of the societies.

Imports play vital role in enhancing exports, these imports could be in the Form of raw materials or machineries, both are used in the manufacturing sector. It is expected that imports of consumer goods have direct contemporaneous associations with exports, while imports of capital goods affect exports with two period lags because machinery imported by the producers first setup and then start production, therefore, it starts impacting exports. Long-term economic growth of a developing country depends on the imports of capital goods and machinery that accelerates economic productivity. In order to maintain the trade surplus, total imports should be less than total exports. However, Pakistan is victim of trade deficit since long time. The trade deficit in the fiscal year 2006-07 is \$ 9.9 billion against the deficit of \$ 8.4 billion during 2005-06. The invisibles balance is anticipated to register a surplus of \$ 2.8 billion. On this basis, the current account deficit is likely to be around \$ 7.1 billion (5.0percent of GDP) for the year 2006 -07.

The relationship between Foreign Direct investment (FDI), exports and economic growth has gained importance and attention among policy makers and researchers. Due to volatility experienced in the short-term capital flows, developing and less developed countries shifted their focus from attracting short-term capital flows to FDI, due to its long-term effects. However, the understanding of the long-term impacts and benefits of FDI is not clear, as FDI is not attracted uniformly to each country, which makes it difficult to identify the impact of FDI on economic growth. It is also more important for policy to understand the long and short-term impact of FDI on economy growth. Thus, not understanding with certainty how FDI is attracted to a country and its effects in the short term and long term, the task becomes more difficult when one is not sure about the mechanism through which FDI is going to bring about change in the economy. They highlight that FDI measured as a ratio of FDI flow to output has a positive effect on growth by having a positive coefficient in the regression equation.

However, when an extra variable such as exports is included in the regression equation, the FDI coefficient can become either negative or positive. It is also important to highlight that the interaction between these variables is complex and each variable (GDP, exports and FDI) has a plausible theoretical foundation to affect the other variables. Without knowing the direction and pattern of mechanisms among these variables can hamper effective policy to promote economic growth. Therefore, it is important to investigate the relationship between these variables correctly formulate policies in respective countries.

LITERATURE REVIEW:

The FDI-growth nexus is clearly identified by the neoclassical growth models. The neoclassical growth model considers technological progress and labor force as exogenous, and thus argues that FDI increases level of income only while it has no long run growth effect if it does not augment technology. Long run growth can only be increased through technological and population growth and if FDI positively influences technology, then it will be growth advancing (Solow 1956).

Somwaru and Makki (2004) point out that according to recent endogenous growth theory, FDI can be growth advancing if it results in increasing returns in production through spillover and technological transfers via diffusion processes. In addition, Easterly et al. (1995) argue that technology transfer depends on the diffusion process and that can take place through four modes: transfer of new technologies and ideas; high technology imports; foreign technology adoption; and level of human capital.

Further, there is the similar two-way causality discussion between exports and GDP. The first is the export led growth hypothesis, while the other equally appealing hypothesis is that output growth causes export growth. Regarding the export led growth hypothesis, Makki and Somwaru (2004) argue that export growth increases factor productivity due to gains obtained from increasing returns to scale, by catering to the larger foreign market. In addition, export growth relaxes the foreign exchange constraints that result in an increase in the import of capital/technology-intensive intermediate inputs. Due to the increased exports, efficiency enhanced because exporters are able to compete in foreign markets, which results in technological advances and grooming of local entrepreneurs.

Grossman and Hillman (1991) advocate that open trade regimes helps in importation of better technologies and also result in an improved investment climate. Likewise, Jing and Marshal (1983) present the second hypothesis that in a growing economy, a process of technological change and learning takes place, which is not related to any specific government export promotion measures. This can be the result of human capital accumulation, cumulative productive process, transfer of technology via direct investment or physical capital accumulation. This increased growth may take place despite any government specific export promotion measures. Due to the increased growth, the domestic market may not cater to the increased production of goods, and exporters have to look outward to sell their products. The implied hypothesis here is that increased growth leads to export growth. This causal relationship may not necessarily be positive; it may be negative as increased output growth may result in a decrease in export growth. This may happen when there is an increased domestic consumer demand in the

exportable and non- tradable sector that may ultimately result in low export growth due to increased consumption in the domestic economy.

Similarly Rodriguez and Rodrik (1999) argues that it is difficult to identify the impact of trade on growth and there is evidence that countries with higher income for reasons other than trade, tend to trade more. Another criticism regarding the link between trade and growth comes from that failing to take into account institutional factors results in an upwardly biased estimate of trade coefficients and the other variables. Furthermore, they claim that the relationship between average tariff rates and economic growth is only slightly negative and nowhere statistically significant. Finally, there is a same bi-directional argument in the case of FDI and the export nexus. Petri and Plummer (1998) argue that it is not clear whether FDI causes exports or exports cause FDI. Then there are other concerns such as specified by Gray (1998) regarding market seeking (substitute) FDI or efficiency seeking (complement) FDI.

DATA DEFINITION:

The Gross Domestic Income (GDI) or Gross Domestic Product (GDP) is the amount of goods and services produced in a year, in a country. It is the market value of all final goods and services made within the borders of a country in a year. It is, often positively correlated with the Living Standard, alternative measures to GDP for that purpose. GDP can be determined in three ways, all of which should in principle give the same result. They are the product (or output) approach, the income approach, and the expenditure approach.

1. Income Approach (Factor Cost)

This method measures GDP by adding incomes that firms pay households for the factors of production they hire- wages for labor, interest for capital, rent for land and profits for entrepreneurship. The US "National Income and Expenditure Accounts" divide incomes into five categories:

1. Wages, salaries, and supplementary labor income
2. Corporate profits
3. Interest and miscellaneous investment income
4. Farmers' income
5. Income from non-farm unincorporated businesses

Two adjustments must be made to get GDP:

1. Indirect taxes minus subsidies are added to get from factor cost to market prices.
2. Depreciation (or capital consumption) is added to get from net domestic product to gross domestic product.

2. Expenditure Approach

In economies, most things produced are produced for sale and sold. Therefore, measuring the total expenditure of money used to buy things is a way of measuring production. This is known as the expenditure method of calculating GDP. Note that if you knit yourself a sweater, it is production but is not counted as GDP because it is never sold.

$$Y = C + I + G + (X - M)$$

- C (consumption) is normally the largest GDP component in the economy, consisting of private (household final consumption expenditure) in the economy. These personal expenditures fall under one of the following categories like: durable goods, non-durable goods, and services.
- I (investment) includes business investment in equipments for example construction of a new mine, purchase of software, or purchase of machinery and equipment for a factory. Spending by households on new houses is also included in Investment.
- G (government spending) is the sum of government expenditure on final goods and services. It includes salaries of public servants, purchase of weapons for the military, and any investment expenditure by a government. It does not include any transfer payments, such as social security or unemployment benefits.
- X (exports) represents gross exports. GDP captures the amount a country produces, including goods and services produced for other nations' consumption, therefore exports are added.
- M (imports) represents gross imports. Imports are subtracted since imported goods will be included in the terms G, I, or C, and must be deducted to avoid counting foreign supply as domestic.

A fully equivalent definition is that GDP (Y) is the sum of FCE¹, GCF² and net exports (X - M).

$$\text{GDP (Y)} = \text{FCE} + \text{GCF} + (\text{X} - \text{M})$$

FCE can then be further broken down by three sectors (households, governments and non-profit institutions serving households) and GCF by five sectors (non-financial corporations, financial corporations, households, governments and non-profit institutions serving households). The advantage of this second definition is that expenditure is systematically broken down, firstly, by type of final use (final consumption or capital formation) and, secondly, by sectors making the expenditure.

3. Production Approach

Production approach works on all goods and services produced with in the country with in a year like floor, cement, gee, sweaters and all other things. It should be equal to

¹ Final consumption expenditure

² Gross capital formation

the services paid to the parts of production. It is equal to expenditure approach works on the principle that all of the product must be bought by somebody; therefore the value of the total product must be equal to people's total expenditures in buying things. The income approach works on the principle that the incomes of the productive factors ("producers," colloquially) must be equal to the value of their product, and determines GDP by finding the sum of all producers' income.

Following is the short comparison of the Pakistan's GDP and PCI³.

Years	G.D.P (%)	P.C.I (%)	Economic Situation in 2009-2010
1960	6.8	3.37	GDP = 167 Billion
1970	4.8	3.26	GDP growth = 2%
1980	6.5	2.83	Per Capita GDP 1067 \$
1990	4.6	1.92	Inflation Rate = 11.17
1995	3.4	2.16	
2008	4.7	2.60	
AVG	5.13	2.69	

Overall average for the said period is 5.13% and Per Capita Income as compare to USA is only 2.69%. This accumulation of resources shows a trend, that incremental capital-output ratio (COR) is low in Pakistan than a number of East Asian, South Asian and Latin American countries. Existence of this situation justifies a detailed study that could explore the factors of economic growth and per capita growth in Pakistan.

³ Per capita Income

VARIABLES:

The explanation of dependent and independent variables as under:-

There are one dependent variable called GDP and three independent variables called Imports, exports and foreign direct investment and all variables are at 5% level reliable with t-test, which affect the dependent variable as mentioned below:

1. Dependent Variable

The Growth rate of a country is based on GDP. The Aggregates of this variable are measured in the terms of U.S. dollars, sum of all products produced in the country or rewards received by the producer. Per Capita Income or Personal Income is used as economic growth rate of the population of a country and based on Gross Domestic Products. All the data is measured in the US Dollars and the statistics reliability is as under:

Difference and Trend & Intercept (ADF Test) GDP variable:

Null Hypothesis: D(GDP) has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 1 (Automatic - based on SIC, maxlag=5)

		t-Statistic	Prob.* ⁴
	Augmented Dickey-Fuller test statistic	-3.906787	0.0294
2. Independent Variables:	Test critical values: 1% level	-4.440739	
	5% level	-3.632896	
	10% level	-3.254671	

Aggregates of this variable are measured in the terms of U.S. dollars. Exports of goods and services include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services excluding the labor and property income and transfer payments.

Level and Trend & Intercept (ADF Test) Export variable:

Null Hypothesis: EXPORT has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 5 (Automatic - based on SIC, maxlag=5)

⁴ *MacKinnon (1996) one-sided p-values.

	t-Statistic	Prob.* ⁵
Augmented Dickey-Fuller test statistic	-4.795315	0.0060
Test critical values: 1% level	-4.532598	
5% level	-3.673616	
10% level	-3.277364	

Imports of goods and services are another independent variable, measured in the terms of US dollars, and are the basic variable to calculate the Gross Domestic Product and per capita income of population.

Level and Trend & Intercept (ADF Test) Import variable:

Null Hypothesis: IMPORT has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 5 (Automatic - based on SIC, maxlag=5)

	t-Statistic	Prob.* ⁶
Augmented Dickey-Fuller test statistic	-4.105530	0.0225
Test critical values: 1% level	-4.532598	
5% level	-3.673616	
10% level	-3.277364	

Foreign Direct Investment (FDI) is also an independent variable, which is also cause to affect in the Domestic products of a country as private sector and is measured in US Dollars.

Level and Trend & Intercept (ADF Test) FDI variable

Null Hypothesis: FDI has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 3 (Automatic - based on SIC, maxlag=5)

	t-Statistic	Prob.* ⁷
Augmented Dickey-Fuller test statistic	-6.001489	0.0004

⁵ *MacKinnon (1996) one-sided p-values.

⁶ *MacKinnon (1996) one-sided p-values.

⁷ *MacKinnon (1996) one-sided p-values.

Test critical values:	1% level	-4.467895
	5% level	-3.644963
	10% level	-3.261452

OBJECTIVE OF STUDY:

The main objectives of this study are to know about the significance of exports in the national economic development and to investigate empirically the impact of exports on economic growth. For analysis secondary data ranging from 1985 to 2009, obtained from World Development Indicator (various issues) and International Financial Statistics (various issues) are used. To check the model and the significant of data collected the E-View 5 is used on the data and OLS⁸ technique have been used for empirically estimation of the impacts of exports on economic growth. During the study period, the impacts of exports on economic growth have been found statistically significant. Other factors are independent variables used Export, Import, and Foreign direct investment to investigate the impact on dependence of GDP / PCI growth rate.

QUALITY OF DATA:

The Data under observation is a secondary data and Quality of the data is up to the mark. No value of any variable is missing. Data source is World Development Indicator and International Financial Statistics is reliable and already submitted above. All of the independent variables have the theoretical explanations of the effects on the Gross Domestic Products / Per Capita Income growth rate.

The data for the study is collected from World Development Indicators, the World Bank, International Financial Statistics and IMF⁹. All the variables are defined in real value. The data covers a period of 1985 to 2009. All variables are expressed in real value. We believe that the 25 observations are sufficient time series for this study to detect both the short- and long-run relationships of the FDI, Imports and export and GDP growth.

METHODOLOGY:

This paper explores the causal relationship between FDI, Exports , Imports and GDP in both the short run and long run. In this study, we choose the data from world Development Indicator of Pakistan. The time series of the data taken is consist of 25 observations, which we consider sufficient to test the data and results validity.

To present the overall picture of the variables the descriptive statistics are used. The scatter-plot matrix is used to view the relationships among the variables used in this study. Since the objective of this study is to check the dependence of the Gross Domestic Product / per capita income growth on different factors as stated above, in this study ordinary least square method of multiple-regression is used to estimate the effects of those factors on the economic growth. The objective of the regression in this study, is to

⁸ Ordinary Least Squares

⁹ International Monetary Fund

find such an equation which could be used to find the predicted value of the GDP / PCI growth for a given set of values of growth rate of GDP, growth rate of exports of goods and services, growth rate of imports of goods and services, and foreign direct investment through the E-View-5 tools.

Econometrics Modal

The following simple linear regression model uses in this study;

$$Y = \beta_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

$$Y(\text{GDP}) = \beta_1 + \beta_2 (\text{EXP}) + \beta_3 (\text{IMP}) + \beta_4 (\text{FDI}) + \varepsilon$$

Where as from the above equation we define Y as dependent variable called Gross domestic product of the country, β_1 is the value of constant mean the value of gross domestic product in the absent of any independent variable. β_2 (EXP) or $\beta_2 X_2$ is the value of independent variable named export of the country which shows us the relationship and magnitude among the independent variable and dependant variable similarly the β_3 (IMP) + β_4 (FDI) relates to the independent variable called imports and foreign direct investment of the company and their relationship with the independent variable. E or error term shows us the relationship of other variables affect the dependant variable except the independent variable defined in the modal.

Following is the a table showing the statistical results using the E-View 5 software and to estimate the econometrics equation stated above showing the impact of import, export and foreign direct investment on gross domestic products.

Equation Estimates

Dependent Variable: GDP

Method: Least Squares

Date: 01/12/12 Time: 10:12

Sample (adjusted): 1986 2009

Included observations: 25 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.40E+10	7.22E+10	-1.025022	0.3206
D(FDI)	0.671948	1.153172	0.582695	0.5682
D(IMPORT)	17.27473	9.161952	1.885486	0.0777
D(EXPORT)	22.45254	28.06234	0.800095	0.4354
GDP(-1)	1.021611	0.072441	14.10266	0.0000
FDI(-1)	3.294638	1.481152	2.224376	0.0409
IMPORT(-1)	21.58073	5.674122	3.803361	0.0016
EXPORT(-1)	-25.25469	14.28093	-1.768420	0.0960
R-squared	0.998323	Mean dependent var		1.40E+12
Adjusted R-squared	0.997590	S.D. dependent var		1.33E+12
S.E. of regression	6.52E+10	Akaike info criterion		52.90078
Sum squared resid	6.80E+22	Schwarz criterion		53.29347
Log likelihood	-626.8094	Hannan-Quinn criter.		53.00496
F-statistic	1360.931	Durbin-Watson stat		2.017458
Prob(F-statistic)	0.000000			

$$\text{GDP} = -7.40 + 0.67\text{FDI} + 17.27\text{IMPORT} + 22.45\text{EXPORT} + e$$

Data Table & Findings

Keeping the objective of the study in mind, scatter diagrams present the idea about the relationship between dependent and independent variables. Table mentioned above shows the summary statistics of the variables used in the study. These summary statistics reflect the overall picture of the variables. All of the variables are mostly positively skewed as mentioned below:

ARDL Test for Lag Estimation
Autoregressive Distributed Lag Estimates

ARDL(1,1,0,1) selected based on Schwarz Bayesian Criterion

Dependent variable is GDP

25 observations used for estimation from 1986 to 2009

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
GDP(-1)	1.0395	.056718	18.3276 [.000]
FDI	.74126	1.1128	.66611[.514]
FDI(-1)	2.4969	1.4379	1.7365 [.101]
IMPORT	20.4584	4.8622	4.2076 [.001]
EXPORT	12.7825	15.1838	.84185 [.412]
EXPORT(-1)	-38.9802	15.2823	-2.5507 [.021]
C	-6.10E+10	6.35E+10	-.96193[.350]

R-Squared	.99831	R-Bar-Squared	.99771
S.E. of Regression	6.36E+10	F-stat. F(6, 17)	1669.1[.000]
Mean of Dependent Variable	1.40E+12	S.D. of D.Variable	1.33E+12
Residual Sum of Squares	6.88E+22	Equation Log-likelihood	-626.9374
Akaike Info. Criterion	-633.9374	Schwarz Bayesian Criterion	-638.0605
DW-statistic	1.9204	Durbin's h-statistic	.20301[.839]

Diagnostic Tests

Test Statistics	LM Version	F Version
A:Serial Correlation	CHSQ(1)=0 .038138[.845]	F(1, 16)= .025466[.875]
B:Functional Form	CHSQ(1)= 4.7711[.029]	F(1, 16)= 3.9699 [.064]
C:Normality	CHSQ(2)= 5.7076[.058]	Not applicable
D:Heteroscedasticity	CHSQ(1)= 2.2523[.133]	F(1, 22)= 2.2784[.145]

- A:Lagrange multiplier test of residual serial correlation
- B:Ramsey's RESET test using the square of the fitted values
- C:Based on a test of skewness and kurtosis of residuals
- D:Based on the regression of squared residuals on squared fitted values

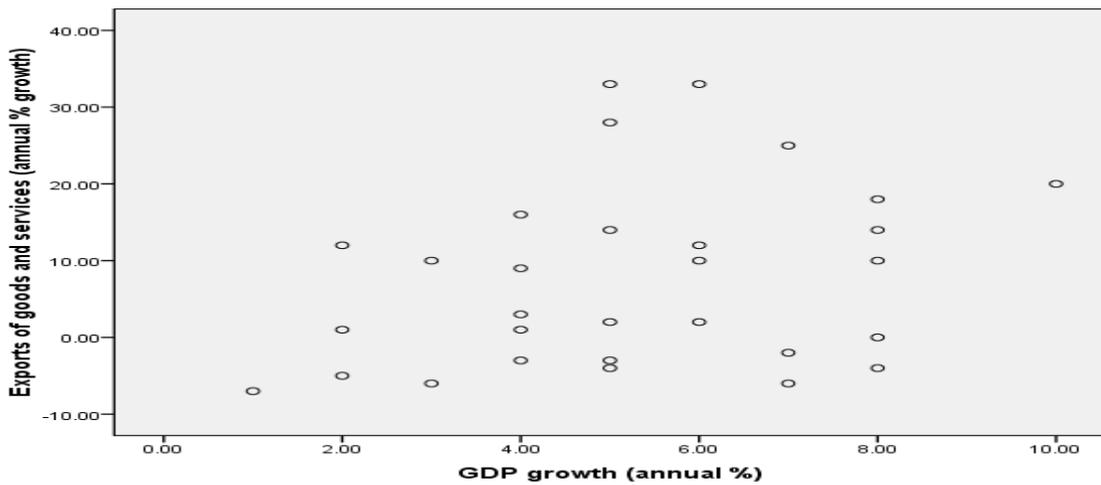
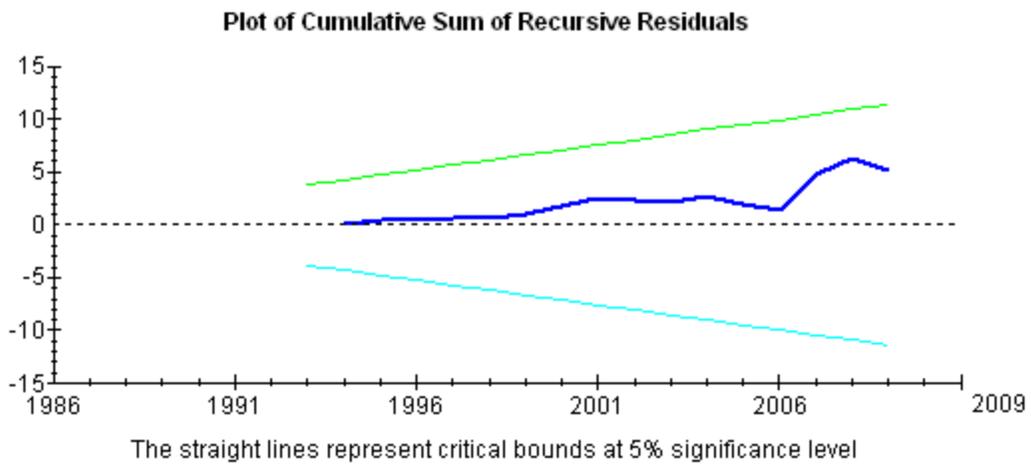
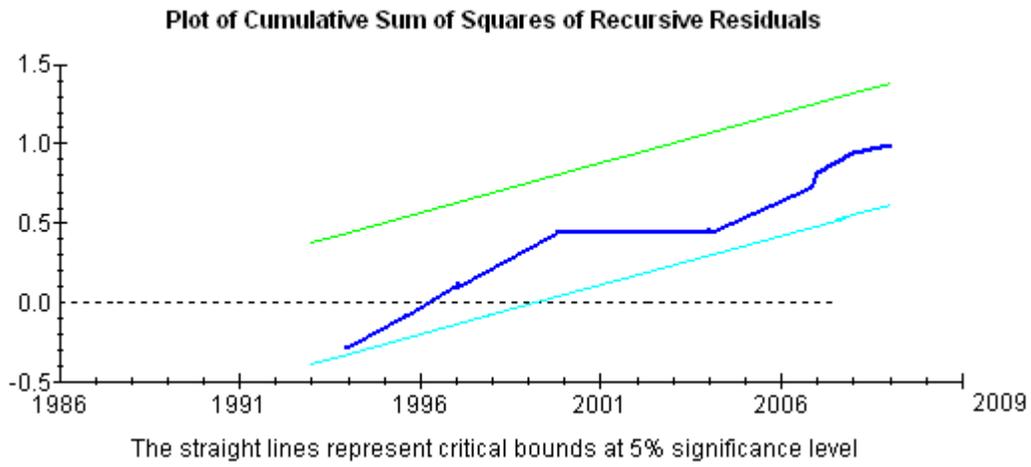
Long Run Relationship Stability

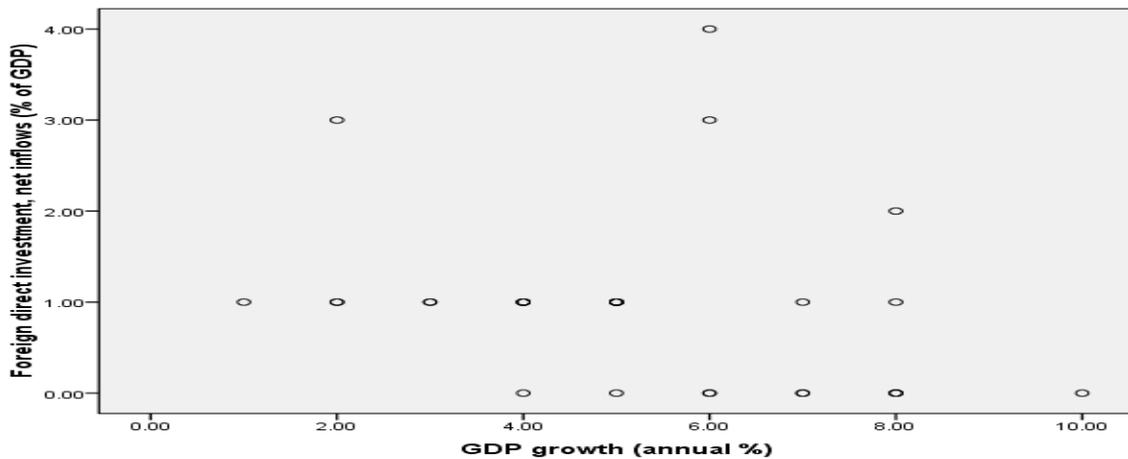
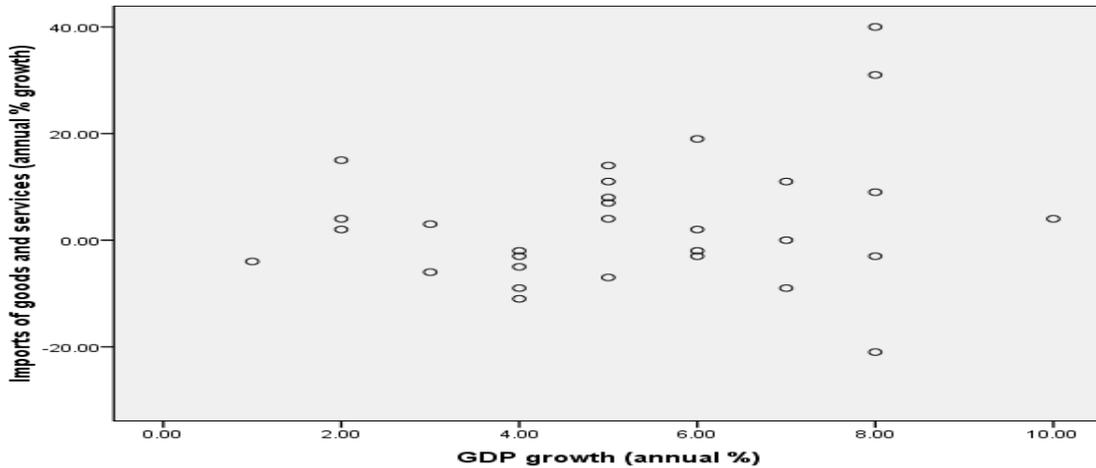
Wald Test:

Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	104.6932	(4, 16)	0.0000
Chi-square	418.7727	4	0.0000

Data Diagram





SUMMARY:

Figure 1 shows the relationship between GDP growth and the growth rate of exports of goods and services. The diagram reflects the positive effect of the growth of export of goods on the GDP growth. The effect of the growth of imports of goods and services on GDP growth is also positive as shown in figure 2. Figure 3 shows the increase effect of gross national expenditure on the GDP growth. Figure 4 shows that the effect of final consumption expenditure on the GDP growth. The effect of foreign direct investment on the GDP growth is positive. Positive effect of independent variable means any increase in independent variable would raise the value of dependent variable too, whereas it would happen reciprocally.

CONCLUSION:

This study has investigated the determinants of economic growth for the period 1980-2009 in the case of Pakistan. The growth rate of GDP has been used as dependent variable as the representative of economic growth. The coefficients of all the other four statistically significant coefficients are positive as they were expected. The impact of Foreign direct investment on economic growth of Pakistan is less or not statistically significant. This shows that on average Foreign direct investment has been not a problem in Pakistan during long run period under study.

Positive and significant impact of exports' growth on economic growth suggests that Pakistan should focus on export-led growth. Pakistan should take some measures to enhance the levels of foreign direct investment directly or to private sector to improve its economic growth rate.

Although this study has included many important determinants in the analysis on the basis of theoretical narrations, yet in future studies it would be useful to include some other variables in the analysis as well. Inclusion of other variables e.g. technical change and human capital growth etc may improve the value of the coefficient of determination.

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