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Impact of Foreign Trade, Fdi, Exchange Rate And Inflation on Economic Growth

Zhang Yuna

aLimkokwing University of Creative Technology

ABSTRACT

This study analysed the long run relationship between economic growth, foreign direct investment, foreign trade, inflation, exchange rate, imports and exports for the period of 1980-2011 using annual time series analysis. It examined the dependency of economic growth on foreign trade, exchange rate, inflation and foreign direct investment. Trade openness, foreign direct investment and inflation are found stationary at level while imports, exports, exchange rate and economic growth are stationary at first difference. All the variables have long run relationship according to cointegration results. DOLS results showed that imports and exports have significant positive relationship, inflation and foreign trade have significant negative impact, and exchange rate and foreign direct investment have insignificant positive influence on economic growth. The negative impact of foreign trade can be overcome by producing import substitutes and creating conditions for trade surplus. Other policy reforms are also required to enhance the economic growth.

Keywords: Foreign Direct Investment, Exchange Rate, Foreign Trade, Inflation, DOLS, Cointegration

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1. Introduction

1.1. Background

Pakistan's general output growth has increased each year since 1951. It achieved its highest real economic growth rate throughout the 1960's decade. In 1970's its growth had slowed down. During the time period of 1980's, its growth rose and in 1990's it diminished to 4.6 per cent. According to many theories, growth of GDP is positively related with foreign trade. Foreign trade allows countries to trade their internally manufactured commodities to other nations (Adeweyi 2002). Foreign trade describes interchanging of commodities and services through worldwide boundaries. It is a big source of enhancing GDP. WTO emphasized greatly on trade liberalization that suggested reducing the duties and tariffs. Such steps quickened the economic growth. Pakistan has various types of trade agreements with different countries to enhance its trade. It has steadily slackened its trade administration after receiving the first programme of IMF regarding structural adjustment, in 1988. In 1995; WTO suggested that Pakistan should reduce its import duties and numerous subsidies (Siddique and Iqbal 2005). Trade without trade barriers has been mentioned as the "instrument of economic growth" that is used to speed up the development procedure by many economically progressive nations throughout the initial twentieth centuries. Fast escalating trade actions act as an impetus to rising local demands that directed to creation of large-scale industries and amplified exports. In several Asian countries, growth of exports augmented up to 10% every year. Exports have inclined to increase fastest in countries which have liberal trade policies, and these countries have practiced the faster growth rate of GDP. Pakistan is facing catastrophe of balance of payment. But its liberalization in textile generated profits by exporting. It believes that open trade in agriculture sector will provide enormous profits. Exchange rate volatility, another factor, promotes level of exports; recovers balance of payments and also promotes domestic growth of economy. McLean and Shrestha (2002) justify that that the FDI is a significant actor in economic growth of developing nations as compare to the developed countries. Since the start of 2008, security conditions have proved to be insecure and unpredictable. It directed towards a reduction in FDI from an altitude of 8 billion dollar to 3.5 billion dollars for the years 2008 and 2011 respectively. The main topic of debate is to investigate the role of Trade openness, FDI, Inflation and exchange rate in Pakistan as an engine of growth. This thesis is related with the empirical study of macroeconomic variables which affect trade and ultimately economic growth.

1.2. Objectives of the Study:

The objectives of the study are:

1. To evaluate, is foreign trade not growth promoter in Pakistan?

2. To inspect, is exchange rate influences the economic growth?

3. To check, how balance of payment can be achieved?

4. To examine, has inflation negative impact on economic growth?

5. To examine, is foreign direct investment growth promoter?

6. To determine what kind of policies should be adopted to achieve the goals?

2. Literature Review

2.1. Theoretical Review:

Lopez (2005) examined the relationship between growth, and trade strategies theoretically. He found that improvement towards learning-by-exporting lead toward real development. Through this study it appeared that real cost can be declined through exporting activities. He suggested that developed countries should reduce the restrictions implemented on developing countries to enhance research and development, technology and exports.

Iyoha (2005) evaluated that trade had been proving as the determinant of growth for countries like Asian Tigers in 19th and 20th century. He mentioned that during 1980s the financial state in African countries worsened due to the internal fiscal policy inadequacies. African share of world trade declined during 1970 and 1997. He observed that investment was the key determinant which brought innovative improvements and technology which boost up output level and competitiveness. Mostly the exportable goods of African countries were primary products which created instability in Balance of Payment.

Alesandrini et al. (2007) evaluated that India has made progress in the field of specialization. They used foreign trade, degree of specialization and economic growth, as variables. Data was taken from 1985-2002.They estimated that India has great potential, as it developed the cheapest car in the world, their first priority would be innovation in the field of pharmaceutical and therapeutic fields.

Urata (2002) established through his theoretical work that free trade agreements are worthwhile for every economy. Privatization and limited government intervention played a significant role in attracting foreign direct investment. He observed that with globalization, there came a boost in competition and market expansion.

Smith and Kulkarni (2010) studied a case of Egypt where they critically assessed the relationship among growth and trade liberalization and found no causation. They observed an inverse relationship between tariff and growth. Other variables were trade openness, actual gross domestic product growth, gross domestic product /capita growth, foreign direct investment and trade liberalization. They analysed that capital stock may be enhanced with the help of foreign direct investment and portfolio asset. Trade liberalization was import promoter instead of exports.

Sveikaukas (2007) took research and development stock, research and development spill over and research and development productivity growth as variables. He assessed by his theoretical observations that research and development should be taken as an important factor in the establishment and progress of economy on new patterns. It also indicated that spill over effects, due to research and development, enhanced the productivity of other countries.

2.2. Empirical Review:

Mubarik (2005) re-examined the study of Khan and Senhadji (2001). Its time span was from 1973-2000. Its results showed that inflation is negatively related with economic growth. He used the variables of growth of real gross domestic product, inflation, investment, consumer price index and population growth rate. He used ordinary least square, granger causality and 2SLS techniques that described that 9% threshold inflation is suitable for economic boost in Pakistan. This value showed the alarming stage for the economy. The value of inflation should be lower than this level because double digit provides sluggish growth. General causality test was applied to quantify the linear causation which showed that inflation effects economic growth at lag two. This research stimulated further working on this topic.

Iqbal et al. (2010) have pragmatic research about Causality Connection between Foreign Direct Investment, Trade and Economic Growth in Pakistan. The variables, they used for this purpose were foreign direct investment, Exports, Imports, trade openness and Economic Growth and used quarterly time series data from 1988:1 to 2005:4.They applied ADF, co integration Analysis, vector error correction model (VECM) and causality test and concluded that foreign direct investment is proved growth promoter in case of Pakistan during the first half of 21st century. They assessed that foreign direct investment; foreign trade and growth have causality effect.

Marelli and Signorelli (2011) reviewed the increasing growth rate due to trade liberalization, in case of China and India. They selected variables of economic growth, trade, gross domestic product per capita, trade openness, foreign direct investment and gross capital formation lagged, taking their data from 1980 to 2007 which is in panel form and applied ordinary least square and two stage least square (2SLS) technique. They found no autocorrelation. The results showed positive relation among the variables. The economic shock of 2008-2009 affected a lot these two countries due to trade openness. The overall results were favourable for China and India with flourishing trade and foreign direct investment.

Ray (2012) inquired; either globalization is beneficial for economic growth in India? Was there any causality between these factors? Dependent Variable was nominal gross domestic product and independent variables were public sector investment, trade openness, private sector investment, financial integration and human resource development. Time span was taken from 1990-1991 to 2010-2011 .He applied the techniques of ordinary least square (OLS) method, unit root test, and co integration test. He found that private investment, human resource development and trade openness were in favour of growth while capital financial integration was inversely related with growth. He found that India faced augmented growth in 1991.

Kahmanoui (2013) investigated the influence of trade liberalization and trade obstacles on growth of economy in the existence of export credits in case of OECD's. He adopted per capita growth of gross domestic product as dependent variable and Gross domestic product at initial level, human capital, physical capital, trade restriction, and export credit per person as independent variables and elected the time span from 1970-1999 and applied ordinary least square (OLS) technique. He used panel data of 90 republics. He evaluated the results that trade restriction had no effect on economic growth but 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 as well as for the granting countries. So, trade openness is more favourable for economic growth.

Paduel and Perera (2009) inspected the contribution of external debt, labour force, trade liberalization in economic progress of Sri Lanka during the time span of 1950-2006.They used time series data and applied Kwiatkowski-Phillips-Schmidt-Shin (KPSS), Phillips-Parron (PP), Augmented Dickey-Fuller (ADF), Dickey-Fuller (DF) and cointegration techniques. They concluded 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.

Kakar and Khilji (2011) inspected the contribution of trade openness in economic growth with foreign direct investment in case of Pakistan and Malaysia. The variables they used for this purpose were exchange rate, foreign direct investment, trade openness and gross domestic product. They selected the period from 1980-2010 and applied ADF and Johansen co-integration test to find out the type of relationship further Granger Causality test to discover the causality in short run as well as in long run. They concluded that trade openness had positive influence on growth rate while other two variables had less importance in this respect, in case of Pakistan. In case of Malaysia, they found reverse causality among foreign direct investment inflows and gross domestic investment. So, the main finding of the study showed that trade openness was beneficial and growth promoter for both of the countries.

4. Data and Methodology

The data for this investigation is collected from Economic Watch Data and Statistics of Pakistan. Its time span is from 1980-2011.

Numerous related variables are used to analyse this study to collect the results from every aspect of economy. I used Real GDP as dependent variable as a proxy of economic growth and Trade Openness, FDI, Exports, Imports, Inflation and Real Exchange Rate as dependent variables. Exports and imports are also in real terms. Trade openness is used as a proxy of foreign trade.

4.1. Model Specification:

$$Y=f(X_i) + \varepsilon$$

Where Y=GDPR

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

$$GDPR_t = \alpha_0 + \alpha_1 TON_t + \alpha_2 FDIN_t + \alpha_3 INN_t + \alpha_4 ERR_t + \alpha_5 IMR_t + \alpha_6 EXR_t + \varepsilon_t$$

4.1.1. Abbreviations:

Where Y= GDPR=Real Gross Domestic Product

ε =Error term

α=Constant

TON=Trade openness

FDIN=Foreign Direct Investment

INN=Inflation

ERR=Exchange Rate Real

IMR=Imports Real

EXR=Exports Real

$\alpha_1 =$ Coefficient of TON

$\alpha_2 =$ Coefficient of FDIN

$\alpha_3 =$ Coefficient of INN

$\alpha_4 =$ Coefficient of ERR

$\alpha_5 =$ Coefficient of IMR

$\alpha_6 =$ Coefficient of EXR

ε =Error Term

t=Time

4.2 Description of Variable

4.2.1 Dependent Variable

4.2.1.1 Real GDP:

Real GDP is referred to as a macroeconomic variable which is used as a measure of the worth of the economic output fixed for price fluctuation.

While nominal GDP shows market prices of all finished commodities and services which are produced inside the border of the state.

$$GDPR = \frac{GDPN}{INN}$$

It is expressed in percentage.

Pakistan's economy experienced the increasing trend in RGDP from 1980 to 2011. It's economic growth was intensely rising since 1986 .As compared to a low economic growth rate of 2.8% in 1986, in1988 the annual growth rate has amplified to 6% and augmented to over 9% in 1995 as well as1996.The first reduction in the growth rate was seen in 1989 and 1990 because of the beginning failure of the Communism system of Russia and Eastern Europe. Average growth of GDP rate in1986-1990 was 4.4%, which was in 1991-1995 improved intensely up to 8.18%. Nevertheless, because of strong effects of Asian economic calamity in 1997-1998, the growth rates of GDP were dropped to 5.8% in 1998 and in 1999 lower most at 4.8%. The Pakistan economy was effectively recovered after the catastrophe and settled at 7.48% of growth rate during 2001-2005. Getting control on numerous problems and trials, with 8.4% of economic growth in 2005, Pakistan has completed the year 2005 with maximum growth rate throughout the first five years of the 21 century. This success and the constant advancement of the society exhibited the elected renewal of Pakistan leader leading towards the right goals, subjects and applied procedures at large level to certify growth and control the disaster. Our economy has been transmuted towards growing in the industry and lessening in the cultivation, forestry and also fishery since 1986.

These elements were calculated for 49% of entire GDP output throughout 1981-1985, and it constantly reduced to 22.29% in 2001-2005. Industry and services have significant share in GDP which accounted for 39.44% and 38.27% during the 21 century's first half, improved nearly 12% portion in industry and 15% portion in services. I proposed the hypothesis that GDPR is related positively with FDI, Imports, Exports and Foreign Exchange Rate and negatively with trade openness and inflation rate.

4.2.2 Independent Variables

4.2.2.1 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. I formulated the trade openness data from the summation of import and export and divided it by real gross domestic product.

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

Previous research of Levin and Renelt (1992) showed the confusing results which predicted that there is no big difference among export and import supportive strategies. They used data from 1960 to1989 of 119 countries. They on the basis of their results discussed that increment in resource accumulation instead of distribution of resources favours the trade openness. Adhikary (2011) found the negative relationship between trade openness and growth in case of 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 TON was seen in 1980 of 39% and afterwards in 2006, 37%.Its graph depicts more clear picture of fluctuations. Trade openness can be positive or negative reliant on the Values of determinants of TOP.

4.2.2.2 Foreign Direct Investment:

Foreign Direct Investment is referred to be 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 FDI. First is horizontal FDI which is stated as an investment made by a country into another country to produce the same product for its population? Second is the vertical FDI 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 is harmful for the domestic country. FDI and Trade are the vital variables in boosting the economic growth. (Iqbal et al 2010). FDI raises 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 FDI due to its contribution against terrorism and generated uncertainty. Since 1986 there was implementation of reforms, FDI has been observed as authoritative to developing the Pakistan economy. One of the most dramatic consequences of Pakistan is change in economic policy from a planned economy towards market dependent economy. 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. As compared to increased more than double. The listed capital in 2001-2005 duration are still minor as compare to 1996-2000 duration with value of US$5538.8 million. The recorded capital in 1996 was acquired the uppermost quantity throughout the time (US$10164.1 million) and valued for 1/6 part of total capital listed. During FY04-06, Pakistan has engrossed $8 billion foreign investment - 26.5% was transaction towards foreign profits of public assets and from FDI, 49.2%was attained, though lingering upcoming from external portfolio investment. These external inflows have originated into banking as well as

telecom, oil and gas zones mainly. Forecasts show that Pakistan will fascinate about US$6.0 billion in FY07 – which is great annual flow start of deregulation, denationalization, and free barrier policies originated at the expiration of the 1980s. Foreign investment augmented from a little $10.7 million during 1976-1977 to an increased amount of $1296 million during 1995-1996, therefore mounting at the 25.7% annual multiple growth rates. However, it dropped to $950 million during 1996-1997

4.2.2.3 Imports:

Commodities and services that are brought in one country from another country are stated as the imports of former country which are usually for trade purposes. Basically, imports are of two types. First is manufactured and customer goods. Second are Intermediary products and services. Enterprises import commodities and services and provide them in the local market at low prices. Pakistani imports are more than its exports which deteriorates its BOP. 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%) if compared with other time periods. The yearly average rate of growth of imports is calculated 16.1per cent during 1986-2005 every year. I formulate the hypothesis that imports are positively related with real growth of gross domestic product.

4.2.2.4 Exports:

Exports are commodities and services that are sold to some foreign country from the home country through trade. 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 - 2007, yearly average exports growth rate is observed 21.22% per annum. Export worth in 2005 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 proportion of exports surge in total trade gradually from 35.7 per cent in the 1986-1990 up to 46% during the 2001-2005 and till this trend is followed. I proposed the hypothesis that exports are positively related to GDPR.

4.2.2.5 Real Exchange Rate:

Value of one currency in terms of another currency is called exchange rate. Exchange rate that receipts the inflation differences between the countries into consideration is referred as real exchange rate. Aiaenman (1992) and Goldberg (1993) estimated that surge in exchange rate instability is related with the declines in investment patterns. Exchange rate unpredictability has definitely played a part in declining exports in case of developing countries (Esquival et al 2002). Zhang (2000) evaluated that depreciation of currency leads towards inflation. 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 in1980-1981. Afterwards it started declining till 2001 from 237PKR in 1981 to 97PKR in 2001. In 2002 it increased and become103PKR. 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, 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. Its graph shows this trend clearly.

4.2.2.6 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 is a cause of reduction in growth which results from decline in investment and output growth. Nell (2000) evaluated that single digit inflation is favourable, on the other hand double digit inflation leads 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 found that inflation has a positive relationship with growth of economy. Fluctuations in growth have greater influence on inflation rather than inflation on the economic growth. In Pakistan, inflation experienced huge fluctuations like, in one year it is showing increasing trend and in next year it shows decreasing trend. A continuous decrease is observed in 1997-2003. In 2008 it experienced highest level of inflation which is 20%. Afterwards it started declining and in 2011 it is observed 11.9% which is double digit inflation that is risky for the economy.

4.3 Econometric Techniques

4.3.1 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 contains more lagged term of endogenous variable to eradicate the autocorrelation. The three considerable forms of the ADF test are described as follows:

$$\Delta Z_t = \omega Z_{t-1} + \sum_{j-1}^{q} \lambda_i \Delta Z_{t-1} + \varepsilon_t \qquad (1)$$

$$\Delta Z_t = \beta_O + \omega Z_{t-1} + \sum_{j-1}^{q} \lambda_i \Delta Z_{t-1} + \varepsilon_t \qquad (2)$$

$$\Delta Z_t = \beta_O + \omega Z_{t-1} + \beta_{2t} + \sum_{j-1}^{q} \lambda_i \Delta Z_{t-1} + \varepsilon_t \qquad (3)$$

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

Numerous authors have shown that standard ADF test is not appropriate for the variables that are facing structural changes. Parron (1990) framed another system to check hypothesis that a specified series (Z_t) has a unit root with an exogenous structural break which generates at time breaks. However, parron's method confronted several condemnations as his breaking point is nominated, views on pre-test assessment of the recorded figures which leads his mode to magnify the probability of trend break substitute postulate. AR (1) process for the Phillipse-Parron technique is given as

$$\Delta X_{t-1} = \phi_O + \theta X_{t-1} = \varepsilon_t$$

We have applied three different tests, i.e. ADF (Dickey and Fuller, 1979) PP (Phillips and Parron, 1988) and the third generation unit root test DF-GLS by Elliot et al (1996). Fundamentally, the test is considered as an ADF test, same to the test implemented by Stata's dfuller command, excluding that the time series is modified through a generalized

least squares (GLS) regression formerly applying the test. Elliott, Rothenberg, and Stock and later readings have revealed that the test has accurately better power than the earlier forms of the augmented Dickey–Fuller test.

DF-GLS test is performed for the sequence of models that contain 1 to n lags of the first differenced, detrended variable; k may be fixed by the user or may be by the technique defined in Schwert (1989). Stock and Watson (Introduction to Econometrics, 2nd ed. 2007, 650–655) give a brilliant debate of the method. As argued in [TS] dfuller, the augmented Dickey–Fuller test includes applying a regression of the format

$$\Delta Y_t = \rho + \theta Y_{t-1} + \phi t + \omega_1 \Delta Y_{t-1} + ... + \omega_k \Delta Y_{t-k} + u_t$$

and then analysing the null hypothesis H_O : $\theta = 0$ The DF-GLS test is implemented analogously but on GLS-detrended data. The null hypothesis stated that Y_t is a random walk, feasibly with drift.

4.3.2 Johansen Cointegration Test:

If the nonstationary hypothesis is formulated for the principal variables, it is most required and important for the time series data to be examined for cointegration. Cointegration is a requirement for the presence of a long run or balance economic relationship among two or more variables having unit roots (i.e. Integrated of order one). The Johansen approach can conclude the number of co-integrated vectors for any pre-described number of non-stationary variables of the same order. This test may be observed as a long run equilibrium relationship between the variables. The objective of the Cointegration tests is to define the cointegration of a group of non – stationary series. Engle and Granger (1987) introduced the concept of cointegration. Toda and Philips (1993) have revealed that, when cointegration exists and it is ignored, then it brings the model towards serious model misspecification. We use the extreme likelihood technique of Johansen (1991, 1995) because it is created on well-established extreme Likelihood procedure.

Johansen's method applies two test statistics for the number of cointegrating vectors: the trace test (λtrace) and maximum eigenvalue (λmax) test. λtrace statistic tests the null hypothesis (H0) that the number of distinct cointegrating vectors is less than or equal to r against the alternative hypothesis of more than r cointegrating vectors. The second statistic tests Ho that the number of cointegrating vectors is r against the alternative of r +1 cointegrating vectors. Since Johansen methodology has become Authorized technique in the econometric works, the reader is mentioned to Charemza and Deadman (1997) for further detail.

4.3.3. Dynamic OLS:

A modest method to 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 ΔX_t thus the subsequent error term of cointegrating equation is orthogonal to the whole past of stochastic regressor improvements:

$$y_t = X_t' \beta + D'_{1t} \gamma_1 + \sum_{j=-q}^{r} \Delta X'_{t+j} \delta + v_{1t}$$

According to the assumption by adding q lags and r leads of differenced regressors dripping up all of the relationship between u_{1t} and u_{2t}, 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).

5. Results and Interpretation:

I applied ADF, PP and DF-GLS to find the unit root, which tells either the data is stationary or not stationary in first table and also interpreted

its results. Then I applied johansen Cointegration to find the long run relationship among the variables in tables 2 and 3 and provided its interpretation. Afterwards, I applied Dynamic OLS to find the effectiveness of independent variables on the dependent variable and provided its table, named as table 4 and interpreted it.

Table.1 Unit Root Test

Variables	ADF Test Results		PP Test Results		DF-GLS Test		Conclusion
	Level	1st Difference	Level	1st Difference	Level	1st 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	

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. 2. Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.984611	264.5598	125.6154	0.0000
At most 1*	0.818920	143.5105	95.75366	0.0000
At most 2*	0.808187	93.95474	69.81889	0.0002
At most 3	0.526445	46.06890	47.85613	0.0729
At most 4	0.375135	24.39180	29.79707	0.1844
At most 5	0.242893	10.75541	15.49471	0.2270
At most 6	0.088465	2.686140	3.841466	0.1012

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values

Table. 3. Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen statistic	0.05 Critical Value	Prob.**
None*	0.984611	121.0493	46.23142	0.0000
At most 1*	0.818920	49.55574	40.07757	0.0032
At most 2*	0.808187	47.88584	33.87687	0.0006
At most 3	0.526445	21.67710	27.58434	0.2374
At most 4	0.375135	13.63639	21.13162	0.3956
At most 5	0.242893	8.069268	14.26460	0.3717
At most 6	0.088465	2.686140	3.841466	0.1012

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values

I have applied Johansen cointigration test to observe the cointigration among the variables and also the long run relationship. It is clear from the Likelihood Ratio that there are two cointigration equations. It can also be said that there are two linear combinations among the variables. Results indicate that all the variables have long run relationship.

Table.4 Dynamic OLS

Variables	Coefficient	Standard Error	t-Statistics	Prob.
$\ln IMR$	0.418589	0.113595	3.684915	0.0142
$\ln EXR$	0.572200	0.092719	6.171358	0.0016
$\ln TON$	-1.091020	0.067418	-16.18298	0.0000
$\ln FDIN$	0.014783	0.094586	1.184431	0.2895
$\ln INN$	-0.010126	0.004848	-2.088788	0.0910
$\ln ERR$	0.179287	0.094586	1.895498	0.1165
	R^2	0.999949	DW	1.839382
	Adjusted R^2	0.999716		

I generated a series of all variables with log and then applied DOLS technique. Results show that the value of adjusted R^2 is 0.999716 which is less than R^2 value, given in the table. DW 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. IMR and EXR are positively related with GDPR. 1% increase in IMR and EXR will increase 41.8% and 57.2% respectively in GDPR. TON and INN are negatively related to GDPR. 1% increase in TON and INN will result in 109.1% and 1% respectively decrease in GDPR. These four variables show the anticipated signs and are significant as their t values are greater than 1.96. Results of ERR and FDIN are not significant. But have positive impact on GDPR.1% increase in ERR and FDIN will enhance the GDPR by 17.9% and 1.4% respectively.

6. Conclusion

The purpose of this study is to scrutinize 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, exports have positive impact on economic growth. Inflation and trade openness has negative relationship with the growth of economy and exchange rate volatility affects economic growth in a positive way. It also included that there exist 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) we found that 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). Dynamic OLS results indicate that trade openness is negatively related to the economic growth rate possibly in Pakistan because of the depreciation in exchange rate, huge volume of imports and resulting trade deficit. Inflation is negatively related to economic growth, as I formulated the hypothesis about this. 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. Foreign trade is proved to be highly negative because of the trade deficit as studied in the case of Bangladesh. 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. Cointegration results indicate that there is long run relationship among the variables, as described in null hypothesis.

Recommendation:

Established on the conclusions of this study, it is essential to offer a set of policy recommendation which would be appropriate to the Pakistan economy. Export promotion policy should be analysed and import replacement policy should also be examined, so that country can take benefit from trade. The fiscal authorities should boost export expansion and utilization of foreign commodities should be reduced. 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. Abolishing of trade blocks on domestic products should not be tracked by the starter of new ones. Only the essential capital goods should be imported keeping in view that all the imported material is not mandatory.

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