

Impact of Foreign Direct Investment and Exports on the Economic Growth: A Case Study of Pakistan

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Abstract

This study investigated the impact of key factors like foreign direct investment (FDI), exports, exchange rate, terrorism and political instability on the economic growth in Pakistan on the basis of annual data from 1973 to 2010. The empirical analysis analysed the time series property of the data which was followed by checking the stationary status of all dependent and independent variables. Furthermore, the Johansen VAR-based co-integration approach was employed to examine the sensitivity of real economic growth to changes in foreign direct investment (FDI), exports, exchange rate, terrorism and political instability in the long run while the short run dynamics was confirmed using a vector error correction model. Results from Augment Dickey and Fuller (ADF) tests showed the evidence of a unit root problem in the data at the level. On the other hand, all variables are proved stationary at the first difference. The empirical findings further revealed that exports, FDI and exchange rate positively impacted the economic growth in Pakistan and, terrorism and political instability negatively affected the economic growth of Pakistan.

Key words: Co-integration, ECM, FDI, terrorism, political instability, exchange rate

1. Introduction

To attain the sustainable economic expansion is the final aim of any nation. Whereas sustainable economic expansion means rise in a nation's productive capability, not only for current but also for coming generations, as measured by contrasting gross domestic product (GDP) in a year with GDP in the last year. According to the neo-classical growth models, to attain the highest growth levels during the progress between steady state, the variables, which play a key role, are exogenous rate of saving, technology, technical development and population expansion. According to an endogenous growth model of Lucas (1988) and Romer (1986), an assumption of increasing and constant returns to capital was the cause of permanent addition in growth rate. Furthermore according to Romer, human capital also played vital role in growth procedure. These results of Romer are also appreciated and supported by Barro (1991), when he examined the relationship between economic growth and human capital. While according to new growth theory, foreign direct investment and technological progress cause a stable growth effect in host nations.

Most of the developing and developed countries in the world took on aggressive economic strategies to get better the economic growth rate of real domestic product after World War II. During the year of 1960's to 1980's Japan and four newly industrialized nations (NIE's: Taiwan, Korea, Singapore and Hong Kong) started to develop and improve their economies and got remarkable outcomes. After the half of 1980's, Indonesia, Thailand, Philippines and Malaysia (ASEAN-4) along with China experienced quick growth and the effect of this expansion also spread to Vietnam and India during that period of time. This rapid clustered expansion of Asia is matchless in the sense that its effects were not seen by other nations of

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the world (World Bank 1993; UNCTAD 1995; Fukasaku 2006). The major reasons for this growth among the others were open economy in the sense of export led policy, foreign direct investment led expansion, market friendly government, accumulation of human capital and high levels of domestic savings (World Bank, 1993). Since Pakistan is also an important Asian nation, the question arises as to why it failed to achieve rapid growth like the other Asian countries in that time period and what could possibly be the role of the above said variables in the growth example of Pakistan. It has been examined in the economic literature that Pakistan actually failed to identify the importance of those variables in that period. If we look at the history of economic growth of Pakistan, we will observe severe flaws in the construction and implementation of economic strategies made by the government and related authorities. During the 1950's and 1960's most of the developing nations of the world including Pakistan took import substitution strategies to attain economic growth. The people who support the import substitution policy argue that it will help to overcome own destiny by encouraging indigenous 'learning by doing' in producing and in this way such indigenous technologies will develop which will be appropriate to the country's own resources (Todaro and Smith, 2003). However this strategy cannot produce the required results in different countries. For example in Latin America, economic achievements were very poor under import policy (Balassa, 1980). According to Enders and Sandler (2000), terrorism is the use of deliberate, intentional, extra-normal, and planned violence to attain political, religious, and ideological objectives and aims by threatening a bulky of audience. Political Instability is described as tendency of a transformation in management, both by "constitutional" as well as "unconstitutional" ways. One strong and major theoretical comment under this association depends upon effects of the hesitation on productive and economic choices, such as production, labor supply or investment. Political stability and economic growth are highly interlinked. On one hand, the uncertainty related to an uneven political situation may decrease the investment and velocity of economic growth and development. On the other hand, pitiable economic presentation may go ahead to government fall down and political conflict.

1.1. Objectives of the study

The main objectives of the study are as follows:

1. To empirically investigate the long run impact of FDI, exports, terrorism, political instability, and the exchange rate on the economic growth over the period 1973-2010.
2. To measure the short run relationship between dependent and independent variables.
3. To suggest policy measures to obtain higher and sustainable GDP level.

2. Review of Literature

Many practical and academic studies were carried out to check the empirical relationship between FDI, exchange rate, exports terrorism, political instability and economic growth in Pakistan and rest of the world. An overview of such studies is given below:

Alam (2011) interpreted the effectiveness of the export-led growth premise using quarterly time series data during 1971-2007 of Pakistan. It was concluded that positive relationships between GDP and exports had been found in the long term. Empirical findings also indicated a positive impact of exports on GDP.

Anyamele (2010) examined the collision of education, exports and FDI upon economic expansion in SSA (Sub-Saharan African Countries). He concluded that and FDI had significant impact on exports and economic growth of Sub-Saharan African Countries.

Authokorala (2003) attempted to learn about the impact of FDI (foreign direct investment) on the economic growth of Sri Lanka. The key findings proposed that there had been the

weakest link between economic growth and FDI in the case of Sri Lanka. He concluded that FDI had negatively caused the foreign investors as a result of political instability, lack of good governance, corruption, and the bureaucratic inertia.

Çetinkaya and Erdogan (2010) demonstrated a link between imports, exports and the output growth. Empirical findings disclosed a positive long run relationship between GDP growth rate and exports in the case of Turkey by using Johansen Co-integration test.

Eichengreen and Leblang (2003) demonstrated an association between exchange rate and the economic growth by employing a VAR model. They observed a negative association between exchange rate solidity and the economic growth for twelve economies over a time period of one hundred and twenty years.

Ekaneyak (1997) analyzed the causal link between export growth and the economic expansion in the Asian countries taking annual data during 1960-1997. The empirical outcome showed the bi-directional causality between the export expansion and the economic growth in India, Thailand, Indonesia, Pakistan, Korea, Sri Lanka and Philippines. Another empirical evidence for export-led growth in Malaysia was also found in this study.

Graham (2002) explored an argument to examine an indirect result about foreign aid over terrorism by lessening poverty and achieving a very high living standard. The proposition clarified that though aid was not much helpful to contest terrorism in a short period of time, yet it could be effective in long period of time via decreasing poverty and enhancing the living standard of the potential employees for terrorist collections. High living standard coupled with decreased low poverty rates and inequality moved up the opportunity price for probable employees to fix the hands with terrorist groups. Empirical findings suggested that terrorism had negatively influenced economic growth in case of developing countries.

Nasir *et al.* (2012) studied and explored the link between terrorism, war on terror and foreign aid in Pakistan during the time period 1972–2010. He concluded that there is no link between conflict and foreign assistance in Pakistan. Though, the shock of foreign aid over terrorism was direct during the war period in the long run.

Zhang (2001) disclosed empirical association between FDI and economic growth in the case of China using annual secondary data over the period 1960-2001 by employing Granger causality test and Johansen Co-integration technique. He concluded that FDI had encouraged the economic growth in such countries where FDI and trade policies were more liberal and domestic infrastructure was well developed.

Zhou *et al.*, (2002) verified the impact of FDI on the efficiency of the domestic firms using annual data over the period 1970-2001 in China. The empirical investigation showed that FDI had exerted a positive effect on the regional level against on the industrial level. The research work also puts forward that host governments should persuade the foreign investors to expand new industries.

Suss and Lanyi (1986) and De Grauwe (1988) suggested that exchange rate, and exports had positively influenced economic growth in the case of China and Japan.

3. Data and Methodology

3.1. Data

Annual time series secondary data from 1973 to 2010 were collected for all different variables like real GDP, foreign direct investment (FDI), exchange rate (ER), exports (Xs), terrorism (T) and political instability (P). The data were taken from different sources like World Development Indicator (WDI) in term of the US dollar, the Global Terrorism Database (GTD) of the “National Consortium for the Study of Terrorism and Responses of Terrorism and IFS (International Financial Statistics).

3.2. Functional Specification

Following Ioannatos (2003), and Maneschiold (2008), used log linear specification to estimate the coefficient of various variables for two reasons; firstly, the relationship between different variables are not linear and secondly, in case of log models, the value of different coefficients can be explained in term of percentage rather than in units and it is true that we have various units to measure various things. So, to avoid this problem, log linear regression model was applied for analysis. The basic objective of the study, the Log linear regression model was adopted to measure the link between foreign direct investment and Gross domestic product, Exchange rate, Trade openness, Indirect taxes and Transport storage and communication.

The functional specification of the model can be written as below:

FDI = f (Gross domestic product, Exchange rate, Trade openness, Indirect taxes and Transport storage and communication)

3.3. Development of Simple Growth Model

In this study, empirical analysis was carried out by assuming a simple growth model that is as follows:

$$Y = (I, TER, P, X, ER)$$

$$\ln Y_t = \beta_0 + \beta_1 I_t - \beta_2 \ln T_t + \beta_3 \ln X_t + \beta_4 \ln ER_t - \beta_5 P_t + u_t$$

- $\ln Y$ = Natural logarithm of gross domestic product in dollars.
 I = Foreign direct investment in million dollars.
 $\ln T$ = Natural logarithm of terrorist incidents.
 $\ln X$ = Natural logarithm of total exports in dollars.
 $\ln ER$ = Natural logarithm of Annual average exchange rate (rupee relative to the U.S. dollar).
 P = Political instability
 U_t = stochastic error term assumed to be independently and normally distributed with zero mean and constant variance.

Where β_0 is the intercept and β_i ($i=2, 3, 4$ and 5) are elasticities of output (GDP) with respect to the independent variables.

3.4. Estimation Procedures

VAR based Johansen Co-integrated approach can be carried out through the following steps:

Step 1; Application of Unit Root Test

In time series analysis, the unit root test has its own importance to avoid from the unit root problem which results in the spurious relationship between dependent and independent variables. The general form of the unit root test is given as follows:

$$\Delta Y_t = \delta Y_{t-1} + \mu_t \quad (1)$$

Where, $\delta = \rho - 1$. It is also necessary to select an appropriate estimation technique for estimating the econometric models. For this purpose, the Augmented Dickey Fuller (ADF) unit root test was used. If all the variables of interest found stationary at level, then OLS can also be used. On the contrary, if all variables are non-stationary at level and become stationary at the first difference, then VAR based Johansen Co-integration approach can be applied.

The general form of ADF test with the trend and intercept can be written as:

$$\Delta Y_t = \beta_1 + \beta_{2t} + \delta Y_{t-1} + \sum_{i=1}^m \alpha_i \Delta Y_{t-1} + \mu_t \quad (2)$$

A time series is said to be integrated of order zero denoted by $I(0)$ if it is stationary without differencing it and if it is stationary after taking its first difference, it will be integrated of order one shown by $I(1)$ (Gujrati, 4th edition).

Step 2; Finding Optimal Lag Length

To achieve appropriate empirical results, the selection of the optimal lag length is an important work. The Akaike Information Criterion (AIC) and Schwarz Bayesian Criterion (SBC) have been utilized to choose the optimal lag length on the basis of minimum values of these both criteria.

Step 3; Johansen co-integration test

3.5. Johansson Co-integration

This study utilizes the VAR based Johansen co-integration estimation technique finally developed by Juselius and Johansen (1990), to measure the empirical long term relationship between key factors of the economy like agricultural output, industrial output, services, ER, trade openness, and economic growth in case of Pakistan.

Suppose that X_t is a $(n \times X_t)$ vector of variables along with a sample of t . It is assumed that X_t follow $I(1)$ process which highlights the number of the co-integrating vectors. This practice interprets the estimation of the VEC (vector error correction) representation that is given below:

$$\Delta X_t = A_0 + \Pi X_{t-1} + \sum_{i=1}^{p-1} A_i \Delta X_{t-i} + \varepsilon_t \quad (3)$$

In the above equation (2), it is confirmed that the vector ΔX_t and ΔX_{t-1} are the variables which are integrated at $I(1)$ order. As a result, the long run link among X_t is achieved with the rank of Π such that $\Pi = \alpha\beta'$

Where, α, β mostly measure the strength of the co-integration association and $\beta' X_t$ is $I(0)$, although X_t are $I(1)$. In such circumstances, $(A_0, A_1, \dots, A_{p-1}, \Pi)$ is measured by ML (maximum likelihood) methods, such that ' Π ' can be put as in equation (2) (Hjalmarsson and Österholm, 2007). In Johansen co-integration approach, two statistical tests are used for the co-integration among the variables, named by the Maximum Eigenvalue (λ_{\max}) test and the Trace (T_r) test which are shown as follow:

$$T_r = -T \sum_{i=r+1}^n \ln(1 - \hat{\lambda}_i) \quad (4) \quad \lambda_{\max} = -T \sum_{i=r+1}^n \ln(1 - \lambda_{r+1}) \quad (5)$$

3.6. Error Correction Model

When there is a long run relationship among the variables i.e. the variables are co-integrated, there is an error correction representation. So this study estimated mentioned below the error correction model.

$$\begin{aligned} \Delta \ln GDP_t = & \beta_1 + \sum_{i=1}^n \beta_2 \Delta \ln GDP_{t-1} + \sum_{i=1}^n \beta_3 \Delta FDI_{t-1} + \sum_{i=1}^n \beta_4 \Delta \ln X_{t-1} + \sum_{i=1}^n \beta_5 \Delta \ln T_{t-1} \\ & + \sum_{i=1}^n \beta_6 \Delta \ln ER_{t-1} + \sum_{i=1}^n \beta_7 \Delta P_{t-1} + \alpha ECM_{t-1} + \mu_t \end{aligned}$$

If the long run relationship among the variables exists, it means that the variables under discussion move together over time and if any instability occurred, it is correct from the long run trend.

4. Results and Discussions

This part of the study elaborates the empirical links between economic growth, FDI, exports, terrorism, political instability and exchange rate during 1973-2010 on the basis of an appropriate estimation technique like Johnson Co-integration Approach. Eview 6.1 was used to conduct the procedure of empirical analysis that was given below:

Table 4.1 ADF Unit Root Test Results for the first Difference

Variables	With trend	Conclusion	Without trend	Conclusion
	Test statistics		Test statistics	
D(LnY_t)	-4.72*	Stationary	-4.28*	Stationary
FDI	-7.94*	Stationary	-0.60	Non-stationary
D(LnX)	-6.73*	Stationary	-6.77*	Stationary
D(LnER)	-4.07*	Stationary	-4.09*	Stationary
P	-5.80*	Stationary	-5.73*	Stationary
T	-7.42*	Stationary	-7.16*	Stationary

*identified the significance level at 1 %, 5 and 10%

** identified the significance level at 10%

ADF unit root test results indicate that all variables are non-stationary at the level, but they are stationary at the first difference. In such situation, we can employ Johanson Co-integration technique.

Table 4.2 Co- integrating Relations

Hypothesized No. of CE(s)	Max-Eigen Statistic	Critical Value [Eigen] at 5%	Trace Statistic	Critical Value [Trace] at 1%
None *	69.40466	40.07757	171.8912	95.75366
At most 1 *	48.55049	33.87687	102.4866	69.81889
At most 2 *	31.22019	27.58434	53.93607	47.85613

* denotes rejection of the null hypothesis at the 0.05 level

Finally, the findings of the both maximum eigenvalue and trace tests highlighted three co-integrating vectors at 5% level of significance.

4.3 The Empirical Equilibrium Relationship between Economic Growth and its Key Factors

The empirical investigation to explain the relationship between economic growth and its key determinants was conducted by employing Johansen Co-integration technique. Generally, terrorism and political instability had a negative impact on the economic growth in the long run. Other variables like FDI, exchange rate and exports influenced the economy of Pakistan positively and significantly during this time period.

Table 4.5 Estimated Co-integrated Vector in Johansen Estimation

Variables	Coefficients	t-statistics
FDI	0.00056	2.72
LnX	1.86	7.84
LnER	-2.48	-8.36
LnT	-0.327	-8.84
P	-0.05	10.64

$T_{0.01}=2.72, T_{0.05}=2.02, T_{0.10}=1.68$

$$\hat{Ln}Y_t = -5.48 + 0.00056I_t - 0.327LnT_t + 1.86LnX_t + 2.48LnER_t - 0.05P_t \dots\dots\dots(6)$$

The estimated co-efficients of the exchange rate, exports and terrorism were explained in term of elasticities with respect to the dependent variable during the given time period.

Statistically, the estimated coefficient of the FDI was seen significant at 1% significance level. So H0 was rejected. It was also clear that FDI had exhibited a positive impact on the economic growth in the long run due to transferring the latest technology, filling up the saving-investment space, increasing productivity, and enhancing competition and employment creation. This outcome was also favoured by Alfaro (2003) and Zaidi (2004). The positive estimated co-efficient of FDI revealed that on the average, 0.00056 unit increase in the real GDP was resulted from a 1 unit increase in FDI.

The estimated coefficient of the terrorism was also found statistically significant. The negative impact of the terrorism on the real GDP was a result of various inside and outside elements regarding politics, economy, and social network. Nasir at al. (2011) and Lee (2010) also agreed with these findings. The negative and statistically significant coefficient of terrorism was observed to be -0.327 which displayed that on the average, a 1 % increase in terrorist incidents had caused real GDP to be decreased by 0.327% in the long time period.

The estimated coefficient of the political instability was also found statistically significant. The negative impact of the political instability on the real GDP was a result of various inside and outside elements regarding politics, economy, and social network. The negative and statistically significant coefficient of political instability was observed to be -0.05 which displayed that on the average, 1 unit increase in political instability had caused real GDP to be decreased by 0.05 units in the long term.

The positive estimated coefficient of the exports showed that on average, one percent rise in the exports had brought about 1.86 % upturn in the real GDP in the long run as a result of currency depreciation. This estimated coefficient was also found statistically significant at 10% significance level. The long run positive impact of exports on economic growth was also supported by Ekaneyak (1997).

The negative estimated coefficient of the exchange rate was found statistically significant at 1% significance level concluding that one percent increase in the exchange rate had caused a 2.48 % decrease in the real GDP during the same time. It implied that the exchange rate depreciation had made a negative contribution to the real GDP in the long term. This outcome was also supported by Javed and Farooq (2007).

5. Conclusion and Suggestions

Keeping in view the importance of the impact of key factors i.e. exports, exchange rate, FDI (foreign direct investment), terrorism and political instability on the economic growth in Pakistan, Impact was empirically tested, using time series annual data over the time period 1973-2010. For this purpose, the VAR based Johansen Co-integration test was employed to

evaluate the long period association between independent variables (exports, exchange rate, FDI, terrorism and political instability) and the dependent variable (economic growth). The empirical findings on the basis of Akaike Information Criterion (AIC) and Schwarz Bayesian Criterion (SBC) implied one Co-integration vector between GDP per capita and exports, exchange rate, foreign direct investment (FDI), terrorism and political instability.

On the one hand, the co-integration vector estimates witnessed a negative association between GDP per capita and terrorism and political instability. On the other side, exchange rate, FDI and exports positively impacted the economic growth of Pakistan.

According to the economic theory, exports put a positive impact on the economic growth of the home country. Exports depend on the economic situation and economic policies of the home country. According to this study exports effected the GDP growth positively. Ekanayake (1999) empirically proved that two-way causality prevailed between economic growth and export growth in Pakistan, Indonesia, Korea, India, Philippines, Thailand and Sri Lanka. .

Among the independent variables, the estimated coefficient of FDI was observed to be positive and small. It is badly affected by continual energy crisis, poor law and order situation unsecure condition in the business activities due to terrorism, very high prices of fuel and gas, government negligence. Mostly, foreign investor earned profits and transferred them to their countries and did not transfer the latest technologies to the host countries. As a result, FDI less impacted the economic growth

The exchange rate positively influenced the GDP per capita in the long period. It was also observed that exchange rate depreciation had caused higher economic growth during this time period because currency depreciation led to the positive contribution of the net exports in GDP. As a result, indirectly exchange rate depreciation would show the way to increase the economic growth. This outcome was also favoured by Javed and Farooq (2009).

However, terrorism and political instability posted a negative impact on the GDP per capita because deliberate, intentional, extra-normal, and planned violence to attain political, religious, and ideological objectives and aims by threatening a bulky of audience.

Generally, the empirical results of this research work verified a significant negative association between terrorism, political instability and GDP per capita. On the other hand, these results presented significant and positive association between exports, exchange rate, FDI and GDP per capita.

5.1 Suggestions

- Exports increased the economic expansion so government should focus on the value added exports by exports-oriented strategies in the country.
- There is a need of desirable and improved infrastructure facilities and satisfactory security situation to magnetize FDI in the country and It is also imperative to overcome the energy crisis like electricity and gas load-shedding, dissatisfied security situation due to war against the terrorism and the political instability to attract FDI and to eliminate its negative impact on the economic growth of Pakistan.
- The government should increase the present standard of the export items according to the worldwide standards to bring betterment in the exports earnings.
- The government should adopt such suitable exchange rate policy for adjusting real exchange rate that is more useful to accelerate output capacity and the economic growth.
- Political leadership must be with military establishment needs to re-examine their policies and think about their actions. A major strategy shift toward decreasing of dependence on foreign aid for budget deficits would be needed. The most excellent method to reduce the size of budget deficits should be by increasing revenue that would in turn have need of structural improvements in the tax system and by decreasing unproductive spending.

Though, even if present policy has to be carried on for the time being, the existing composition of foreign aid must be changed to improve civilian aid and non-military aid to properly utilize for the socioeconomic development of the nation.

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