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An Investigation of the Various Factors Influence on Exports

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An Investigation of the Various Factors Influence on Exports

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Abstract - This study aims to examine empirically the impact of various determinants on exports in Pakistan using secondary data over the period from1981-2011.This area was selected for research because trade is equivalent to an engine of economic growth. For empirical analysis after checking the data for stationarity the least square method has been used. The empirical results show positive and statistically significant impacts of explanatory variables such as world income, industry value added, indirect taxes, exchange rate and saving on exports of Pakistan during the study period. The finding suggests that the volume of exports needs to be expanded maximally by appropriate policy and it certainly contribute well in achieving higher level of economic growth.

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I. Introduction

Trade is equivalent to an engine of economic growth; this is the view of classical as well as modern liberal economists. Studies provide evidences of the positive correlation and strong causality between foreign trade and economic growth and development of many countries (Balassa, 1987). With the help of trade countries win friends, and become able to break the traditional mould of isolation. It increases the growth of total factor productivity and encourages foreign direct investment (FDI). The strategy of export promotion particularly, when a country specializes and produces those products which it can produce competitively is exactly in accordance with the principle of comparative advantage, as a result of this the whole community of the world gets various commodities at cheaper prices. Economies are attained, markets are extended, the levels of income and employment are expended which ultimately facilitate the process of economic development. Thus, optimal allocation of world resources can be achieved by putting more emphasis on the promotion of exports because returns from trade sector largely depends upon accelerating growth of exports.

In the recent past decades much importance has been given to FDI-Led Export growth[1] because some Asian countries like Japan, Singapore, and China etc adopted this policy and got desirable outcomes. Indeed, the role of domestic investment is not less important for export expansion strategies. Thus, even FDI has the importance but still it cannot diminish the importance and role of productive investment of the domestic economy. Although domestic private investment is regarded as a reliable and permanent channel to enhance production capacity, yet investment in public sector has been considered more important, for example in power, communications like roads and other public goods and services that are necessary in stimulating private investment. Moreover, government has a dominant role because it can support research activities and has a close contact with foreign buyers as well as in providing easy access to credit for both directly and indirectly exporting firms.

Pakistan's history reveals that during last almost 65 years exports have fluctuated widely. In 50's exports received either limited or no attention and as such registered a decline of 5.7 percent. In 60's export recovered and grew at an average rate of 22.3 percent (Hassan and Khan 1994). The main reason behind the recovery of exports was the introduction of Export Bonus Scheme by the government. In 70's Pakistan's trade pattern experienced a structural shift in the form of lower exports and rising import bills of capital and raw material since the 1970s. As a result, the surge in imports did not match the equal rise in exports and the economy faced a large trade deficit. It is important to note, that there were some exogenous factors also that adversely affected the export growth during the same period besides the incentives provided by the government. Specifically, the increase in international oil price led to the recession in the international market and erratic agricultural performance of the country. Resultantly, exports decreased to an average of 7.0 percent of GDP in 1976-80 from an average of 8.1 percent of GDP during 1972-75. However, the growth of exports in the decades of 80's and 90's was markedly slow as compared to 70's. In fact the average growth rate of exports was 8.5 percent per annum in 1980's and 7.6 percent in 1990's. Hence the export performance of Pakistan was less than satisfactory when viewed against the experiences of many successful developing countries in the region like Korea, Taiwan, Singapore, and China etc. However, in the current last decade Pakistan has achieved a tremendous growth in the

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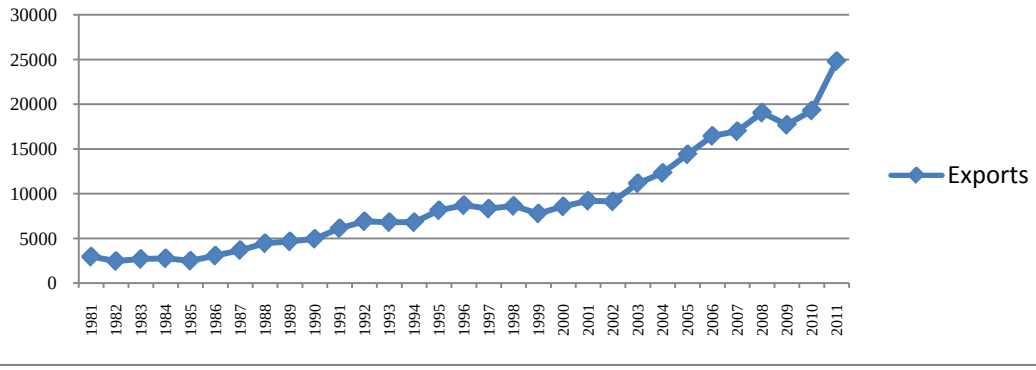
[1] See also (Abou-Stait, 2005)

export sector. Pakistan exports were estimated at current US$ 24810 Million in 2011 and it was US$ 19290 million last year[2]. The current Pakistan's exports are mainly comprises on rice, furniture, cotton fibre, cement, tiles, marble, textiles, clothing, leather goods, sports goods, surgical instruments, carpets and rugs and food products. The main exports partners are European Union, USA, UAE, and Afghanistan.

Figure 1: Trend in Exports of Pakistan from 1981-2011



Source : Data are in US$ million and taken from Economic Survey of Pakistan (2011-12).

A number of studies have examined the determinants of exports in terms of a mixture of factors that includes FDI, foreign aid, changes in terms of trade, openness of the economy, exchange rate, GDP growth rate, indirect taxes, total labour force etc., such as Riedel et al. (1984) found that export behaviour is strongly influenced by the domestic market conditions. The variable measuring relatively domestic demand or domestic profitability is found to be significant in explaining export behaviour in 23 out of 30 sectors. Similarly the exchange rate and relative price turn out to be statistically significant in only 10 out of the 30 sectors. Anwer (1985) used the simultaneous equation approach (2SLS) to examine export performance of Pakistan. The findings of the study suggest that world income and domestic production significantly explain the demand and supply side of export respectively. Similarly the price elasticities are not significant. Funke and Holly (1992) while taking the supply and demand side factors and found that supply side factors are comparatively much more important for explaining export performance than demand side factors in West German manufacturing sector. Hasan and Khan (1994) carried out study and specified demand-side factors and supply-side factors for export performance of Pakistan. They also examined the impact of exchange rate policy on Pakistan's trade balance by applying 3SLS technique. Their results showed that export demand is positively related with world demand and negatively related with relative export price in case of both primary and manufactured exports. The nominal exchange rate, on other hand, shoed a positive and significant relationship between export demands in both cases. Sharma (2001) investigates export determinants in India using annual data for 1970-98. Results suggest that demand for Indian exports increases when its exports prices fall in relation to world prices. Also the real appreciation of the rupee adversely affects India's export demand. On the other hand export supply is positively related to the domestic relative price of exports and a higher domestic demand reduces export supply. Similarly foreign investment appears to have statistically no significant impact on India's export performance although the coefficient of FDI variable has a positive sign. The study also finds no evidence to claim that the level of infrastructure has an impact on export supply. Jongwanich (2007) examines patterns and determinants of exports in nine East and Southeast Asian economies, and founds that supply-side factors tend to become more crucial in determining export performance. Agasha (2009) found that foreign price level and terms of trade have a positive and significant relationship with export growth rate in Uganda during 1987-2006, whereas, FDI, GDP and exchange rate have no significant effect in explaining the export growth rate. Moniruzzaman et al. (2011) used annual time series data for the period from 1972-73 to 2008-2009 and techniques of cointegration, Engle-Granger causality and vector error correction to empirically estimate the export supply model of Bangladesh. The result shows that export supply is positively related with GDP, the gross capital formation appears as the most important determinant of the export supply, however, the relative price of real export is positively related to the supply of real export but insignificant.

The main objectives of the study are to find out empirically the magnitude of effect of various factors on exports of Pakistan, to analyze the exports performance of Pakistan economy during the study period, and to

[2] See Economic Survey of Pakistan (2011-12), see also Figure 1

suggest suitable measures in the light of finding of this study that could potentially improve the export performance of Pakistan.

II. Materials and Methods

a) Model Specification

This study has tried to incorporate all those factors in the export function that can potentially play a meaningful role in the determination of exports in Pakistan. It is a common fact that export promotion strategies have a great deal in the trade liberalisation regime. Pakistan, like many other developing countries, is trapped in many financial problems like fiscal deficit, trade deficit and external debt crisis. In such a sorry and terrible state of financial crises the inflow of FDI only is not sufficient, rather the promotion and expansion of export sector is also necessary for addressing the financial disturbances. In this respect the study intends to identify some of the determinants of exports. Basically external factors play a vital role in the determination of exports. Keeping in view this fact the present study has includes three variables to capture external effects like FDI, exchange rate and world income. However, domestic factors are also equally important, thus in this respect, the study has included the variables namely GDP, indirect taxes and industrialisation.

The mathematical model which is used in this study is simple linear and can be written as:

$$y = f(x) \quad (1)$$

Where in equation (1) y represents the dependent variable and x the explanatory variable. Since the number of explanatory variables in the model is greater than one, so the model for estimation can be written as:

$$y = f(x_1, x_2, x_3 \ldots\ldots\ldots\ldots\ldots x_n) \quad (2)$$

Symbolically the equation (3) can be expressed as follows;

$$X=\beta_0+\beta_1 FDI+\beta_2 WY+\beta_3 ER+\beta_4 GDP+\beta_5 INDT+\beta_6 INVD+\beta 7GNS+\mu \quad (3)$$

Where, X =Dependent variable and measures Export of Pakistan

WY= World income (proxy by the US GDP),
GDP= Gross domestic product
FDI = Foreign Direct Investment is the inflow recorded in the balance of payments financial account.
NER=Nominal Exchange rate is measured as the period average of local currency units per US$. It refers to the actual principal exchange rate
INDT= Indirect Taxes are those taxes that are payable by all those producers who are engaged in production, purchase, sale or use of goods and services
INVAD=Industry value added (the value added in manufacturing, mining, construction, water, gas and electricity etc) is basically calculated by adding up all outputs and subtracting intermediate inputs.
GNS = Gross National Savings are domestic savings plus net income and net current transfers from abroad
μ = error term

The dependent and all explanatory variables are taken in log form. Therefore, the estimated coefficients of all explanatory variables represent their respective elasticities.

b) Brief justification of the explanatory variables

Foreign Direct Investment : The role of FDI in exports promotion is controversial in empirical literature, many studies (e.g. Pfaffermayr, 1996: Mom, 2008) found positive effect of FDI on exports. The reason behind this is the export oriented multinational corporations. As governments in developing countries provide facilities for export promotion, such facilities also attract foreign investors.

World Income : Theoretically, it is explicable that with the increase in income demand for various goods increase. Many researchers have used this variable for determining exports and have got positive relation between exports and world income (Hasan and Khan 1994; Sharma 2001).

Exchange Rate : When the exchange rate depreciates it leads to fall in the relative domestic prices of exports, making exports cheaper in international markets, which in turn leads to greater demand for exports. The positive impact of exchange rate depreciation on export is confirmed by the findings of Hasan and Khan (1994), Sharma (2001), and Agasha (2009).

Gross domestic product / Production Level : By studying the trade theories it is concluded that main cause of export expansion is the higher level of production, because it leads to surplus of output which can be exhausted in international markets. It is basically supply side determinant of exports (Bertil, 1968). If the economy is closed one, then surplus production leads to fall in prices, which in turn creates pessimism among producers. On the other hand if the economy is an open one, then such surplus output can be exported abroad, which earns foreign reserves. Thus, expect positive impact of GDP on exports growth. In empirical literature Kumar (1998) confirms the positive impact of GDP on exports.

Indirect Taxes : Indirect taxes are also an important determinant of exports. Although it may affect production decision adversely but we can expect its positive effect on exports due to fiscal incentives by the

government because sometimes governments in developing countries provides tax exemptions for the expansion of export sector. Hence, due to higher rate of indirect taxes the prices of various commodities increase in the domestic markets. It leads to decrease in demand for various goods in domestic markets and provide exportable surplus.

Savings : It has been observed in developing countries, that major proportion of saving is utilized in non-productive assets for example, purchasing of property, gold and jewellery etc. Therefore, higher savings results in large volume of goods made available for exports. Similarly with the increase in savings interest rate decreases that promote investment opportunities which is the key channel for export growth.

Industry Value Added : Pakistan is an agricultural economy and agricultural output is subject to uncertainty because of nature's vagaries but industrial output is more or less stable. No country today has greater income and outputs just on the bases of agricultural output. It is in fact industrialisation that results in maximum utilisation of human and natural resources of the economy. Thus it will provide greater stimulus to output and national income of the country.

c) Data Sources

In order to estimate the export function of Pakistan, secondary time series data covering the period from 1981 to 2011 has been used. For analysis the data has been taken from World Development Indicators (various issues), Economic Survey of Pakistan (various issues) and State Bank of Pakistan's hand Book of Statistics. The data on US GDP, Industry Value Added and FDI were originally in US$ which have been converted later on into Pak Rupee (PKR) by using exchange rate of the corresponding period. Similarly data on all variables is taken in natural log form to eliminate major ups and downs also it is measured in million Pak rupees at current prices.

d) Estimation Techniques

While reviewing the literature it has observed that different researchers have used different techniques like OLS, GMM, VAR and 2SLS for the estimation of export determinants. However, using the method of least square (OLS) for estimating export function after checking the data for stationarity where the data found stationary.

III. Results and Discussion

Results of the study are given in Table 1. Since using time series data, there may be the problem of stationarity. Thus, in order to check the stationarity of the variables Augmented Dickey Fuller (ADF) test has applied and the data found stationary, therefore, the export model is run by least square techniques. The OLS results are presented in Table 1.

Estimated export equation;

$$X = \underset{(2.48)}{0.37}WY + \underset{(4.07)}{0.71}INDT + \underset{(2.92)}{1.35}INVAD + \underset{(3.16)}{0.39}NER + \underset{(0.62)}{0.03}FDI + \underset{(3.30)}{1.69}GDP + \underset{(1.24)}{0.16}GNS \quad (4)$$

Table 1: Least square estimates of the determinants of exports.

Dependent Variable: X (Export)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
WY	0.366462	0.147582	2.483109	0.0204
INDT	0.710525	0.174448	4.072993	0.0004
INVAD	1.354059	0.462693	2.926475	0.0074
NER	0.387489	0.122725	3.157384	0.0043
GDP	1.689198	0.512678	3.294853	0.0030
FDI	0.025688	0.041287	0.622177	0.5397
GNS	0.163665	0.132541	1.234824	0.2288
R-squared	0.996606	Mean dependent var		12.44472
Adjusted R-squared	0.995757	S.D. dependent var		1.298970
S.E. of regression	0.084609	Akaike info criterion		1.905872
Sum squared resid	0.171809	Schwarz criterion		1.582068
Log likelihood	36.54101	Durbin-Watson stat		2.194156

Eview used for computation analysis

Hence the expected signs, high value of t-statistics, significant coefficients of explanatory variables suggest that the estimated export equation is satisfactory. It means that the study can reject the null hypothesis of no impact of regressors on the export.

Null hypothesis H_0: B's $=0$ (Regressors have no impact)
Alternate hypothesis: B's $\neq 0$

Usually, t-statistics uses to test the significance of the regression parameters and the values of these t-statistics are given in parentheses. The t-statistics values show that the parameter for FDI and GNS is statistically insignificant while for all other variables like INVAD, INDT, WY, GDP and NER the parameters found are statistically significant.

The foremost determinant of export found in the previous studies is the exchange rate. The significance of the exchange rate is worth noting because it is seen as a crucial determinant of exports. The empirical results of study also show that exchange rate is significant and the variable has a corresponding t-value of 3.16. The size of the coefficient is 0.39 which means that 1% depreciation in exchange rate in Pakistan brings about a 0.39% increase in the volume of exports. Table 1 shows that exchange rate carries the correct sign which is consistent with trade theory. The result corroborates the theoretical predictions that exchange rate movements are positively correlated with the growth in exports. An increase in the exchange rate means depreciation for the domestic currency and appreciation for foreign currency which makes exportable items cheaper. As a result of this the demand for exports is likely to increase. Several previous studies like (Hasan and Khan 1994; Sharma 2001) also found the same results.

Another highly significant and positive coefficient in explaining export growth is of the industrialization variable in the present study. The coefficient size of this variable found is 1.35 which means that one percent change in industry value added will bring 1.35 percent change in export of Pakistan. Thus for Pakistan like developing countries the importance of industrialization is obvious because the developing countries mostly are agrarian where production is often unstable because of uncertain weather conditions and attacks of pests. Certainly no country can expand its export potential just on the bases of agricultural production.

The coefficient for indirect taxes is also highly significant and positive which shows that indirect taxes are positively correlated with export growth in Pakistan. The coefficient size of this variable found is 0.71 which means that 1 percent change in indirect taxes will bring 0.71 percent change in export of Pakistan. Indirect taxes are levied in different proportion on different goods so it may not be necessarily concluded that this type of tax is high for exportable commodities. Furthermore, in order to promote exports, governments sometimes provide tax exemptions to exporters. Thus on demand side indirect taxes lead to increase the prices of various goods at home that result in decrease of demand for such commodities and generating exportable surplus. On supply side because of increase in indirect taxes the cost of production increases as a result the supplier will try to sell their products in the foreign markets instead of selling them at low prices at home. Hence due to these reasons this variable does not adversely affects exports. The world income variable (USGDP) is also correctly signed and significantly. The estimated income elasticity implies a fairly large response of exports to changes in world income. The variable has a corresponding t-value of 2.48 and coefficient size 0.37. Thus 1% increase in foreign income leads to increase exports by 0.37% in Pakistan. Foreign income has a positive impact on export demand suggesting that exports can be regarded as an engine of growth in Pakistan. This result is consistent with Joshi and Little (1994), who observed positive and statistically significant relationship between world income and India's export performance, Hasan and Khan (1994). Thus, in order to increase and expand exports of Pakistan the policy makers should observe the trade cycles in trading partners economies and should try to get maximum benefit in the periods of cyclical booms. Government should make it a priority in its policy agenda to expand exports to major trade partners by diversification of exports with better quality products and high value added components.

In empirical literature GDP is also one of the valid determinants, as many studies found positive and significant impact of this variable on exports e.g. Ekanayake (1999), but there are studies which found insignificant impact of GDP growth rate on exports as Agasha (2007) in Uganda found insignificant impact of GDP on export. The result of the present study for this variable (GDP) is also significant with positive sign. High level of production can be utilized at domestic and international level at the same time. Majority of developing countries including Pakistan have relative advantages for agriculture goods. They can exhaust benefits of lower cost production by export growth policies. Moreover, large size of GDP creates environments for investment decisions. However, two important variables have been found statistically insignificant but shows expected positive relationship.

IV. Conclusions

Generally, it is believed that for a developing country like Pakistan better exports performance plays a significant role in accelerating the pace of economic growth. Similarly it increases the growth of total factor productivity and encourages FDI. The strategy of export promotion particularly, when a country specializes and produces those products which it can produce competitively is exactly in accordance with the principle of comparative advantage. As a result of this the whole community of the world gets various commodities at cheaper prices. Both of the economies that is internal and external are attained, markets are extended and the levels of income and employment are also expended. Ultimately economic development process is facilitated and promoted. Thus, optimal allocation of world resources can be achieved by putting more emphasis on the promotion of exports because returns from trade sector largely depends upon accelerating growth of exports. The present study has been carried out to find out the main factors that are important in the determination of exports in Pakistan. In order to obtain this objective the study used secondary data covering the time period 1981-2011. For this purpose the study

has included eight variables namely world income, FDI, exchange rate, indirect taxes, industry value added, savings and GDP growth rate. The results show positive and statistically significant impacts of explanatory variables such as world income, industry value added, indirect taxes, exchange rate and savings on exports of Pakistan during the study period. The findings of the study certainly help the policy makers chalking out macroeconomic policy for attaining enhanced level of economic development and growth.

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