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TRADE INSTABILITY, INVESTMENT AND ECONOMIC GROWTH IN PAKISTAN

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Abstract. The role of international trade in promoting economic growth has gained much importance over time. However, the role of exports and imports instability has not been much highlighted in the literature. This study is focused to investigate the role of trade instability in economic growth. Besides, export instability and its deterrent role in investment is also tested. Moreover, it has been investigated whether fluctuations in export proceeds lead to inflation. The role of foreign exchange reserves has also been analyzed, whether instability in foreign exchange reserves has any effect on economic growth. An econometric model has been developed to test these issues empirically. The results indicate that export instability does not affect economic growth and investment in Pakistan. It has also been observed that excessive reserves of foreign exchange enhance capital formation. The excessive foreign exchange reserves have positive impact on increasing output. The instability in exports also does not seem to affect imports of capital goods and domestic investment. The findings provide guidelines for policy makers to maintain higher level of foreign resources and also stabilize them for sustained growth. Besides, export instability could affect foreign exchange earnings and as a result it could have negative impact on imports and economic growth. However, imports are important to maintain stable economic growth in Pakistan because these are complementary to industrial growth.

I. INTRODUCTION

There exists a good body of literature on the correlation between exports, investment growth and economic growth (Blassa, 1978; Feder, 1982; Fosu, 1990; Tyler, 1981 and Ram, 1985). The fluctuation in export proceeds may

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also influence investment and, therefore, it may also affect economic growth. There are relatively fewer evidences on linkages among export instability, investment and economic growth. The economic performance may be bounded by changes in export proceeds. Excessive fluctuations in foreign exchange earnings could become a bottleneck for development of a developing country since it generates unexpected signals and may create shortage of funds for importing essentials and machinery for development. Such signals affect investment decisions and entrepreneur's expectations for future planning. It may also generate higher risks for new investments, and as a result limits growth prospects. Moreover, the economic structure of less developed counties is characterized towards primary goods production and few exports (Chaudhary, 1994). The exports of these goods may also not be stable and, therefore, it may affect economic growth. Besides, instability of foreign exchange may also affect economic growth.

The following linkages explain the path of export instability through which it is transmitted in the domestic economy. First, imports are necessary for development programmes, since the country is in developing stage and it needs capital and machinery to accelerate economic growth. The supply of these goods depends upon agricultural produce. One of the major sources to finance these programmes is export earnings. Pakistan's economy is dependent upon imports like industrial inputs, machinery, fuel and essential food items.[1] The supply of the most of these goods depends upon the earnings from exports. This need continued to grow over time. The capital goods and industrial raw material bill was over Rs. 17 billion in 1971-72, which increased to more than 16 times to over Rs. 277 billion in 1994-95. Besides, current account balance is almost persistently negative. Such factors may contribute to destabilize economic growth.[2] Besides, the growth pattern is also highly volatile (Chaudhary and Abe, 1999), mainly due to unstable exports.

Domestic investment and savings may also depend upon the performance of foreign sector. Export instability transmits in domestic savings as follows: (*i*) change in export proceeds will reflect into the change in profits of exporting industries and, therefore, further affects their future investment and (*ii*) major portion of export earnings goes to government in the from of various taxes and profits from controlled exports like rice and

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[1]A major food import pertains to edible oil.

[2]The economic growth was not stable. It was as low as 1.9% in 1996-97. Besides, the same, on average, was 6.5% in the 1980s and 4.6% in the 1990s (*Economic Survey 2000-01*).

cotton. Thus, fluctuations in exports further lead to destabilize revenue proceeds. To fill this gap, government has to have deficit budget or raise additional funds from borrowing; both significantly affect investment and economic growth (Chaudhary and Waseem, 1996). The budget deficit in Pakistan reached to maximum of over 8.7% of GDP during 1991-92; mainly due to trade deficit and saving-investment gap (Chaudhary and Ali, 1991).

The above-cited discussion provides insights in to the problem that fluctuations in exports may lead to multidimensional effects, which ultimately affects investment and economic growth. Trade instability is, therefore, transmitted into instability of economic growth. The impacts of exports instability may differ from country to country; given their volume of trade and dependency on foreign sector (MacBean, 1966 and Kenen and Voivodas, 1972). Evidences also exist that instability of exports, in general, is not detrimental to stable and long-run growth of LDCs (MacBean, 1966, 1976). Thus, the issue needs to be further analyzed to draw any conclusion.

As discussed earlier, Pakistan is a developing county. Exports and imports are crucial for the developing phase. Its imports increased over time.[3] To finance these imports foreign exchange reserves management policies were not much potent and consistent (Chaudhary and Abe, 1999). As a result, trade instability emerged (Chaudhary and Qaisrani, 1996). The sources of foreign exchange earnings are limited. A major source of foreign exchange earnings is workers remittance, which has also been drained over time (*Economic Survey 2000-01*). Besides, unfortunately, Pakistan is experiencing sharp fluctuations in its trade, particularly, in exports growth. Such fluctuations may have affected domestic savings, investment and, hence, overall economic growth. Such linkages or impacts have not been highlighted in the literature. As per our knowledge, hardly any scientific and comprehensive study exists which may have analyzed these issues. To explore these linkages, this study is organized as follows. Section II presents a brief review of literature and theoretical foundations. Impacts of export instability on major macro economic variables are analyzed in Section III. Section IV provides conclusion and policy implications of the study.

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[3]The exports of Pakistan fluctuated from negative growth to over 18% growth in specific years. Although the growth of imports was less than exports but proceeds of imports are increasing over time. As a result, trade account is heavily negative (deficit). See *Economic Survey 2000-01*.

II. REVIEW OF LITERATURE AND THEORETICAL BACKGROUND

Empirical observations across countries tend to demonstrate that exports enhance economic growth. It encourages investment, raises factor's productivity and, hence, the country would tend to register high growth of national income. However, export earnings may become hindrance to growth, if they are unstable. But a great deal of inconsistency has been found in empirical evidences regarding the impact of export instability on economic growth and capital formation. Such controversy emerged during the 1950s. For example, Nurkse (1958) and Caine (1958) provided evidences on the subject matter whether export instability is pernicious to economic growth or not? It is still very important since newly growing countries also significantly benefited from it. Instability in the foreign sector may become a bottleneck for sustained economic growth. Therefore, the growth of exports needs careful monitoring.

Fluctuations in export earnings may also lead to generate inflation. While increasing demand for exports make it feasible to export more at higher prices. However, the fall in exports may not decrease prices due to its downward rigidity. Besides, exports proceeds are used to import capital goods and inputs, when export earnings fall, the process of growth is affected and therefore shortage of foreign exchange may occur which generates inflationary pressure. Besides, slow growth of exports proceeds mean less resources for imports and, thus, as a result shortage of goods may occur which will be inflationary. In addition to above, a country like Pakistan, which is price taker, being a small country imports inflation with good's imports (Chaudhary and Naveed, 1996 and Bilquees, 1988). However, Ratchet effect may lead to favourable impact on inflation. Besides, the policies of government may accelerate inflation. For example, in Pakistan investment increased during export boom. Substantial revenue was also raised from exports and imports duties. In order to increase the capital goods imports, the government will adopt discriminatory control upon imports to save the foreign exchange needed for financing capital goods imports. These eventualities may lead to inflation in domestic economy. Besides, deficit spending of the government ends up with generating inflation (Chaudhary and Ahmed, 1995, 1996), which may also emerge from fluctuations in exports proceeds.

Kenen and Voivodas (1972) observed a negative impact of export instability on investment; though only for the 1960s. They found the relationship between export instability and economic growth is unstable.

Glezakos (1973) showed that *a priori* argument that export instability is generally larger in the LDCs than in the DCs and this instability is detrimental to economic growth in the former but not in the latter. However, much of the criticism has come from Savidos (1984). He explained that export instability has a significant and positive effect on the real GDP per capita growth of the LDCs. Besides, export instability has a significant and positive effect on the rate of growth of exports for the LDCs. Particularly, growth rate of exports is a more significant factor in determining the growth of income of the LDCs than that of the DCs.

Lancieri (1978) used a sample of 101 countries over the period 1961-1972 and tested the relationship between export instability and GDP growth rates. Lancieri (1979) also tested the relationship between the real GDP growth rate and the instability of real total agricultural exports using a sample of seventy countries for the period 1961-1972. In both studies, rank correlation was estimated. His results support the earlier findings of Glazakos (1973); negative impact of export instability on growth. Lam (1980) obtained significant positive rank correlation between export instability and economic growth.

Using Harrod-Domar framework, Love (1989) developed a time-series model and then applied it to a sample of developing countries to investigate the pessimistic orthodoxy that instability adversely affects the capacity to import and, in turn, investment. The results with respect to the relationship between export instability and instability in capital good's imports suggest - considerable consistency with the first stage and relatively less extensive for the second stage of the transmission mechanism contained in the conventional wisdom.

The above cited literature and empirical evidences pose several concerns regarding export instability and economic growth, capital instability and investment as well as time series versus cross-sectional analysis. It is convincing that instability of exports is relatively more appropriate to analyze over time series data since it is a dynamic problem, which emerges over time. Besides, export instability and its effects are more prominent in LDCs than that in DCs. Besides, it is also evident that literature on the subject matter pertaining to Pakistan is very limited and further research is needed on the subject matter.[4] The very reason that this study is undertaken

[4]Most of international studies are cross-sectional. Relatively, there is less literature, which contains time series analysis. To investigate above cited issues, time series analysis may be more desirable than that of cross-sectional since such instability emerges and affects over time.

to draw support or register the issue of trade instability, and its linkages with capital growth, inflation and economic growth pertaining to Pakistan.

III. THE MODEL AND EMPIRICAL FINDINGS

Given the issues raised in the literature and limited research work pertaining to the foreign sector of Pakistan, following hypotheses are tested to draw support for existing evidences pertaining to the subject matter in the literature.

HYPOTHESES

1. Export instability is deterrent to investment.
2. Instability in exports is pernicious to economic growth.
3. Fluctuations in export proceeds are inflationary.
4. Fluctuations in foreign exchange reserves negatively affect economic growth.

THE MODEL

The model given below is utilized to explain the linkages among the rate of growth of investment and importing capacity, export instability and foreign exchange reserves. The equation is as follows:[5]

$$GFC = \alpha_0 + \alpha_1 GMC + \alpha_2 IX + \alpha_3 GFE + ut \quad (1)$$

Where:

GFC = growth rate of fixed capital formation.

GMC = growth rate of imports capacity.

IX = the instability of importing power of exports.

GFE = the rate of increase or decrease in foreign exchange earnings.

The second model represents the relationship between investment in stocks and export instability along with inflation. The equation is:

$$RSI = \beta_0 + \beta_1 IX + \beta_2 GFI + vt \quad (2)$$

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[5]The rationale for selection of variables has already been discussed in the previous section. Traditional and well-accepted explanatory variables are included to formulate the single equation model. Here IX stands for instability of foreign exchange reserves, which serves as cushion for importing power.

Where:

RSI = Ratio of fixed capital to total investment.

IX = Instability of the importing power of exports.

GFI = Rate of inflation.

The inclusion of the inflation variable is based upon a rationale that increase in prices of output encourages entrepreneur to investment more to meet the increasing demand. As price increases, producer will like to produce and sell more and, therefore, they invest more to meet additional demand. The efficiency measurement of investment, by capital/output ratio, is also tested by using the following model:

$$CGD = \tau_0 + \tau_1 IX + \tau_2 GFI + vt \quad (3)$$

Where:

CGD = Capital/output ratio.

In the last two equations the relationship between foreign trade instability and economic growth is established which may be tested as given below:

$$GP = \alpha_0 + \alpha_1 GMC + \alpha_2 IX + ut \quad (4)$$

$$GP = \beta_0 + \beta_1 GMC + \beta_2 IX + \beta_3 RFT + \beta_4 GFEG + vt \quad (5)$$

Where:

GP = Rate of growth of output.

GMC = Growth rate of import capacity.

IX = Instability of importing power of exports.

RFT = Ratio of foreign trade to income.

GFEG = Growth rate of foreign exchange reserves.

All these equations are estimated by using OLS technique. Empirical evidences are discussed below.

EMPIRICAL FINDINGS

The first regression of Table 1 shows the determinants of the rate of growth of investment in Pakistan. The independent variables are: rate of growth of import capacity (GMC), the instability of importing power of exports (IX) and the rate of increase (or decrease) in reserves/foreign exchange. The

growth rate of import capacity is highly significant and positively related with the growth of fixed capital formation (GFC) at 1% level of significance. The coefficient of foreign exchange is also positively related with the dependent variable. The developing countries like Pakistan make use of commercial policies by utilizing their reserves of foreign exchange, as a cushion against the shocks of export fluctuations. Michaely (1962) calculated the average ratio of reserves to imports for 1950-1957 for developing and developed countries. He found that on average, developing country held proportionately larger reserves than the same did in the developed country. The very reason is that larger reserves help to stabilize growth.

It appears that in a country, which has excess reserves, the capital formation will increase which will not be offset by the instability of importing power of exports (Table 1 regression 1). The results of regression 1 (Table 1) yield no support to our hypothesis that export instability affects investment. Moreover, instability in export is not deterrent to the rate of growth of fixed capital formation in Pakistan. Such an outcome could be due to the followings. Investment increases when there is boom in exports, which is not matched with disinvestments in export slumps, since the shortfall may be met from foreign loans. Moreover, investors in the export industry regard upswings as beginning of trends rather than as temporary phenomenon, and they plan accordingly. The downswings, on the other hand, are apparently considered short run phenomena, since no major disinvestment occur for any of the companies even during the depression (Reynolds, 1963). In Pakistan, a considerable portion of fixed investment was made in nationalized industries by the public sector, which may not purely be based upon market or economic principles. Thus, such a result is not strange for Pakistan. Moreover, the manufacturing sector of Pakistan is not very large. Besides, foreign trade deficit was met from foreign loans (Chaudhary and Abe, 1999). The public sector continues to support them even to meet this heavy deficit and ultimately decided to denationalize them. Besides, Caine (1958) stated that there is in fact plenty of evidences during the high level of investment, which has prevailed in such countries as Malaysia and Indonesia; during the periods of very sharp fluctuations in the prices of their major products. The results of the study confirm the above statement. Thus, determinants of investment have to be different for Pakistan than those of export instability.

It seems likely that savings fluctuate, following fluctuations in exports proceeds, more strongly than the national income or the amount of consumption. As a result, existence of large fluctuations in income induce, at least, to hold a large amount of wealth, in liquid form or otherwise, than

TABLE 1

Export Fluctuations and Macro Economic Impact

Dependent Variables	Independent Variables							
	GMC	IX	GFE	GFI	RFT	GFEG	F^2	F stat.
GFC	1.08 (19.2)*	–191408 (0.19)	1.02 (2.7)*				0.97	235
RSI		1.91 (0.3)		–0.007 (0.2)			0.2 (0.08)	
CGD		–72.99 (0.54)			0.019 (3.76)*		4.43	378
GP	6.256 (20.44)*	–4239956 (0.63)					0.95	214
GP	4.95 (10.76)*	–1220338 (0.22)			–11234 (0.02)	6.88 (3.44)*	0.97	166

Note: Figures in parentheses are t stat.

Sample: 1972-1994, *i.e.* 22.

GMC = Rate of growth of import capacity.
GP = Gross domestic product.
CGD = Capital output ratio.
IX = Instability of importing power of exports
GFE = Growth rate of foreign exchange.
RSI = Ratio of stocks to total investment.
GRMC = Percentage change in the ratio of capital goods import to domestic fixed capital formation.
RSI = Ratio of stocks to total investment.
GRKM = Percentage change in the ratio of capital goods imports to total imports.
GFI = Rate of inflation.
GFC = Growth rate of fixed capital formation.
RFI = Ratio of foreign trade to GNP.
GFEG = Growth rate of foreign exchange and gold.

*Significant at 1%, **Significant at 5%.

would have been held in the absence of such fluctuations. This wealth, in turn, will be used as a resource for investment. MacBean (1966) has found

some such effects on investment. He stated that instability in exports may lead to devaluation, which ultimately enhances rate of growth of investment through the increase in domestic prices of capital goods; imported by the same country. Moreover, shortage of foreign exchange, created by exports fluctuations, may divert the demand towards domestically produced goods. And if these goods are more costly than the imported ones, then, it raises domestic prices and it would inflate the value of capital goods, which will tend to increase the rate of growth of investment.

The above-cited arguments seem to prevail in Pakistan. Our findings indicated that investment in Pakistan also increases when there is boom in exports, which is not matched with disinvestment during export slumps. Increased profits, of these investors, raised the savings and hence investment. Pakistan often experiences shortage of foreign exchange, which may divert the demand towards home produced capital goods. Such a phenomenon was prevalent during fixed exchange rate regime, *i.e.* up to 1982. If domestic goods are more costly than the imported ones then it will inflate the value of capital goods and hence the investment will increase.

THE PRODUCTIVITY OF CAPITAL

In regression 3 of Table 1, efficiency of investment is tested. Shaalan (1962) identified that if changes in output/capital ratios are examined, it provides an approximation to an index of the efficiency of investment. Other things being equal, a high marginal output/capital ratio would suggest higher investment efficiency, *i.e.* economy would be highly productive. Using the annual export data for Pakistan, a multiple regression analysis was carried out to find evidences regarding above cited hypothesis. The dependent variable is capital/output ratio (CGD), equation (3). The independent variables are export instability (IX) and rate of inflation (RFT). The coefficient of IX is insignificant which indicated that the evidence (Table 1) does not confirm our hypothesis. However, RFT was found significant at 1% level. So far the analysis of the effects of export instability upon the proportion of investment in stocks and capital/output ratios yield little or no support to the view that these effects are detrimental to economic growth of Pakistan.

GROSS DOMESTIC PRODUCT

The relationship between export instability and the gross domestic product is analyzed by estimating correlation for different variables. Simple correlation coefficient is –0.17. In a multiple regression analysis the coefficient of export instability is although negative but insignificant. In the last regression (Table 1) two more variables are included. These are ratio of foreign trade proceeds

to GNP (RFT) and growth rate of foreign exchange and gold (GFEG). But the coefficient of export instability (IX) is again insignificant. So we can infer that for Pakistan, no relationship is confirmed between short-term instability in her export proceeds and the rate of growth of national income. As a final and more general check, we re-estimated two more models:

Moran (1983) developed a model to test the direct and indirect effect of export instability on the level of output. For this purpose, the following equations can be tested. Rate of growth of GNP is explained by the growth rate of exports and its instability.

$$Y = f(X, IX, W) \qquad (6)$$

Where:

Y = The rate of growth of GNP at constant prices,

X = The rate of growth of exports,

IX = The index of export instability, and

W = The vector of other explanatory factors such as the rates of growth of labour and capital etc.

Moran (1983) explained the inclusion of export variable in an aggregate production function on the grounds that exports tend to influence factor productivity and efficiency, and therefore, affect the level of output. The equation for estimation may be written as:

$$YNX = \alpha_0 + \alpha_1 FS/Y + \alpha_2 RSG + \alpha_3 EMLF + \alpha_4 XT + \alpha_5 IX + ut \qquad (7)$$

Where:

YNX = National income, net of exports.

FS/Y = Ratio of foreign saving to income.

RSG = Ratio of domestic saving to income.

EMLF = Employed labour force.

XT = Total exports at constant prices.

Love (1989) investigated the hypothesis that export instability adversely affects the capacity to import and, in turn, also affects investment. Since it is relevant to the discussion, therefore, this hypothesis is also being tested in two stages. The equation for estimation is given below:

$$MK = f(IX, IRN) \quad (8)$$

Where:

MK = Import of capital goods.

IRN = International reserves.

Assume that capital goods imports are an important part of investment (INT). Given this, the second stage is tested by using the same explanatory variables as above, in the following equation:

$$INT = f(IX, IRN) \quad (9)$$

The results obtained from Moran's model are presented in Table 2, which are quite analogous to our previous findings. However, the coefficient of export instability is again insignificant which also confirms our earlier findings. The other variables are significant at 5% level of significance. The conclusion holds whether one uses the rate of growth of income or the rate of growth of income net of exports, as dependent variables.

TABLE 2

Export Instability and Economic Growth

Variables	Coefficient	T stat.	
C	–4969.00	–9.52*	$R^2 = 0.98$
EMLF	3976.09	14.55*	F stat = 7.1
XT	4.31	4.11*	
IX	–86111.70	–0.43	

*Significant at 1% level.

Tables 3 and 4 contain the results of equation (8) and (9). These results are not different from that of our basic model (Table 1). Export instability is negatively related with import of capital goods, but it is insignificant. The same relationship is between the former and investment in both the equations. The coefficient of international reserves is positive and highly significant, suggesting that both imports of capital goods and investment will increase with its growth.

TABLE 3

Export Instability and Capital Goods Imports

Regression	Coefficient	T stat.
C	5106.00	0.5
IRN	3.12	6.5*
IX	–54.00	–0.3
R^2	0.67	
Adjusted R^2	0.64	
F Stat	21.8	

Sample size = 22 (1972-1994)
IRN = International reserves
IX = Export instability
*Significant at 1% level.

TABLE 4

Export Instability and Investment in Pakistan

Regression	Coefficient	T stat.
C	19167.0	0.9
IRN	7.5	6.38*
IX	–25.0	–0.3
R^2	0.7	
Adjusted R^2	0.63	
F Stat	21	

Sample size = 22 (1972-1994)
IRN = Total international reserves
IX = Export instability
*Significant at 1% level.

IV. CONCLUSION

It has long been considered that variability in exports earnings offset the investment horizon and also limits the overall growth process of a less developed economy. We have tested the hypotheses that the uncertainty associated with export earnings are detrimental to investment, leads the economy into inflation and it is pernicious to economic growth of developing country. These hypotheses are tested and the effects of uncertainty on export earnings are also analyzed. Its indirect effects through capital goods imports and investment are also investigated.

Our findings show that excessive reserves of foreign exchange and import capacity enhanced capital formation in Pakistan. Instability associated with export proceeds is found insignificant, which did not affect growth. Moreover, it is not pernicious to capital formation. Besides, the reserves of foreign exchange, gold and import capacity contributed to the level of output in Pakistan. We have also examined the two stages of transmission mechanism. The results show that export instability did not affect imports of capital goods and domestic investment in Pakistan. The above-cited findings provide insights into the relationship between exports instability and economic growth. It was found that the international reserves are important which affect different economic activities, therefore, efforts must be directed to maintain significant level of reserves. The trade deficit is continuously met through foreign borrowings. However, imports are important. Major imports of Pakistan are capital goods, which have direct link with production activities. Thus, import stability and foreign exchange reserves are very important for sustained economic growth. Therefore, commercial policies must be focused on the stability and availability of essential imports and to maintain adequate foreign exchange reserves.

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