

Is the Uncertainty in Exchange Rate Hits the Exports in Pakistan?

Asad Afzal Humayon^{*}, Sidra Ramzan[!] and Farid Ahmad[!]

Abstract

Elementary intent of this analysis is to examine and detect the influence of exchange rate on exports value along with GDP and consumer price index, in Pakistan. Time series data for the duration 1992-2010 is used for organizing this study. Use the simple regression by applying ordinary least square (OLS) approach and different Diagnostic tests in it. This work asserts a strong but adverse effect of exchange rate in Pakistan's exports. Appreciation in exchange rate declines the export value of Pakistan, which also declines the GDP of country. There are fewer studies with reference to Pakistan. This paper shares the alliance of exchange rate with Pakistan's exports as well as empirical findings in support of relationship. This relationship is the intimation for Government to control the fluctuations in exchange rate so that exports level and GDP of Pakistan may increase.

Key words: Precariousness; Apportionment; World Development Indicators; Exchange rate

Introduction

Exports play an important role in Economic growth of any country. Increase in exports may lead towards the enhancement of efficiency and the growth of economy. Exports are contributing largely in GDP of small and developing countries as compare to large countries. However, exports may affect in different manner because of devaluation and gratitude in exchange rate. While floating exchange rate introduced in 1973, chances of precariousness in exchange rate also increased. At that time downfall in international trade occur among industrialized countries. Cushman

^{*}Comsats Institute of Information Technology, Vehari Campus, Pakistan

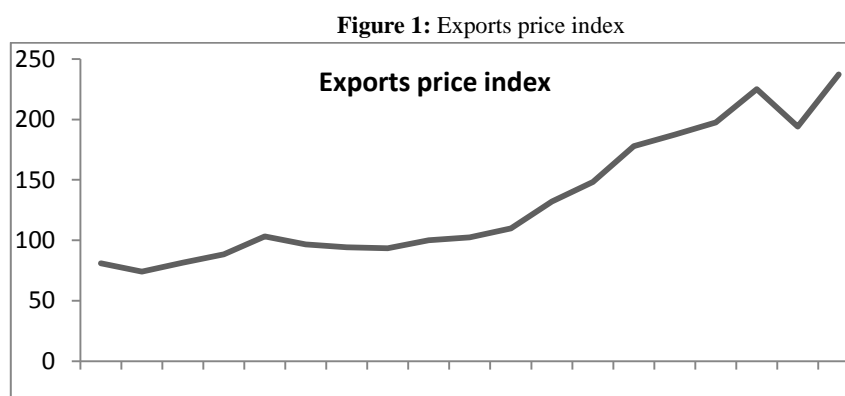
[!] Hailey College of Commerce, University of the Punjab, Lahore, Pakistan

(1983), Hooper and Kholhagen (1978), Bailey et al. (1987), found the tremendous animation and precariousness of exchange rate alterations in 1973 have induced the researchers and policy makers to inspect and investigate the essence and intensity of effect of such animations on the trade volume.

Pakistan adopted the floating exchange rate mechanism in 1982. At that time, the precariousness and animation of exchange rate was simple and formal. The apportionment of Pakistan imports in world have no huge variations from many years, shows that gratitude in exchange rate boost the imports. Whereas, functioning of exports particularly depend on the fluctuations in exchange rate. Hardly two or three observational and statistical based studies exist with reference to Pakistan's situation. Kumar and Dhawan (1991) deduced about exchange rate unpredictability on the Pakistan's exports.

Contingency in exchange rate simply consists of risk for future. Kenen and Rodrik (1986), Pritchett (1991), are found through empirical studies that there is opposite alliance between the international trade and fluctuations of exchange rate. On the other side of coin, Asseery and Peel (1991) determined the positive association between the foreign trade and exchange rate fluctuations. Whereas, Bailey et al. (1986), and Gotur (1985) found that is no drastic association in both exports and exuberance exchange rate.

The intent of this research based study is to find expressions of exports along with exchange rate, GDP and Consumer prices effects in Pakistan, as well as to provide a contribution to the observational discussion on effect and association of exchange rate variations and exports value. The graph for exports value of Pakistan for the period 1992-2010 is in figure 1.



Source: WDI (1992-2010)

Literature Review

One of the affairs that have taken ample concentration from many previous years is the precariousness in exchange rate hits the exports. The diversified consequences are noticed on this concern. It is altercate that if the exporters are risk averse then precariousness and animations in exchange rate becomes the reason to downfall in foreign trade. High animations and uncertainty in exchange rate boosts costs abruptly and dilutes the profit hence decline in exports level occurs (Arize, 1997; McKenize, 1999; Khalid and Nishat, 2004). All the previous discussion shows exports of a country are correlated with volatility and uncertainty of exchange rate.

The intention of this article is inducing whether the uncertainty in exchange rate negatively related to Pakistan's exports or either positively. Abundant of researches have designed to derive the alliance of uncertainty of exchange rate and exports level either affirmative or towards decline. Baccheta and Wincoop (2000) discovered no association in both. Hooper and Kohlhagen (1978), in their first analysis found insignificant and negative alliance in uncertainty of exchange rate and trade level. Chowdhury (1993) reported the forceful adverse relationship, in G-7 countries. Similarly, Arize et al. (2000) empirically concluded the significant but adverse relation. Baak et al., (2007) through their empirical analyses found significant and adverse long-run relation in USA and Japan. As the volatility and uncertainty of exchange rate appreciated, volume of trade move towards decline because the traders are risk-averse.

The considerable apportionment in GDP is exports especially in small developing countries. Traditional Keynesian theory says that appreciation in exports encourages the demand and that will definitely become the reason to maximize the output. Zh and Hu (1999) few economists determines the adverse relationship between exports and GDP. According to them, portion of exports is low if appreciation in GDP may occur. Lin and Li (2002) evaluate the positive alliance between trade volume and GDP, in China. Baak et al., (2007) evaluates the positive relationship between exports and GDP while examining Asian countries. As the trade volume is moving upward, GDP of importing country also becomes high.

Consumer price index is an important determinant, which is sometimes also to be known as cost of living index. Doroodian (1999) induced the positive association in CPI and trade volume in case of India, South Korea, and Malaysia. In that paper, India has the insignificant relationship. Whereas, in South Korea and Malaysia have significant and forceful relation. As trade volume become high

consumer prices also move upward.

All above argumentation ascertains that precariousness in exchange rate hits the exports in Pakistan and increment in GDP and CPI may also increase the exports. This research paper will be for 19 years, it may shows the how fluctuations in exchange rate badly effects the exports. It may also be give the intimation for government, to make the policies about controlling the fluctuations of exchange rate.

Data and Design of Model

Variables and Data

The ambition of this paper is to find the answer of this question: Is the precariousness in exchange rate hits the exports in Pakistan. These four variables - Exports growth (EX), Exchange rate(ER), Gross Domestic Product (GDP) and consumer prices are used for fulfilling of ambition. All these variables are illustrated below in theoretical and empirical expressions. The data for dependent and independent variables are taken from World Development Indicators (WDI) for 19 years. The sample period is 1992-2010 based on annual frequency.

Exchange Rate (ER)

Exchange rate has great influence on exports of some developing countries. Chowdhury (1993) finds significant but adverse influence of exchange rate animations on trade's volume by conducting research on G-7 countries. The proxy used for measuring the fluctuations in exchange rate is real effective exchange rate; it measures the currency's value against many foreign currencies weighted average and also divided by price deflator. Data Source is WDI (2010). The expected alliance of exports and real effective exchange rate is negative.

Gross Domestic Product (GDP)

The major contribution in GDP of developing countries is exports. According to World Bank report, exports of goods and services as percentage of GDP was 13.55 reported in 2010. The proxy used for it is GDP annual growth rate in percentage. There is positive association is expected between GDP and exports. Baak et al., (2007) evaluated the positive association between GDP of importing countries and exports in three East Asian countries whereas, in case Hong Kong found negative association.

Consumer Prices Index (CPI)

Here proceeding with CPI in form of annual changes as percentages in cost of acquiring goods and services basket, to average consumer. It may also be varied or fixed at designated time. Doroodian (1999) while making research found directly linkage in consumer price index and exports. The expectation about sign is positive in this study.

Following table 1 shows the variables with expected sign along with data source and proxy used.

Table1: Variables effects on exports, in Pakistan

	Variables	Expected signs	Proxies	Source of Data
Dependent Variable	Exports		Export Value Index	World Bank
	Exchange Rate	-	Real Effective Exchange Rate	WDI
Independent Variables	GDP	+	GDP Annual Growth Rate %	World Bank
	CPI	+	Consumer prices (annual %)	WDI

Export Equation

For the assessment of empirical and statistical findings of this paper, run regression through OLS technique. The theoretical model is estimated in of following form:

$$EX = \beta_0 - \beta_1 (ER) + \beta_2 (GDP) + \beta_3 (CPI) + e$$

EX stands for exports which are our dependent variable and proxy used for it is export value index. ER, GDP and CPI denote by exchange rate, gross domestic products and consumer prices respectively are the independent variables. Whereas, β_1 , β_2 , & β_3 are the parameters for exports with respect to ER, GDP and CPI respectively.

Econometric Findings

Table 2: Showing the Descriptive Statistics

Variables	Obs.	Mean/Average	St. Deviation	Min. Values	Max. Values
EX	19	132.84	53.28	74.1	237.18
ER	19	106.85	8.63	97.1	120.7
GDP	19	4.25	2.03	1.01	7.71
CPI	19	8.94	4.52	2.9	20.3

Descriptive statistics summarized the large amount of observations in reasonable and sensible way. Above table 2 demonstrating that, the mean of EX is 132.84 accompanying standard deviation of 53.28 along with minimum and maximum values 74.1 and 237.18 respectively. The mean of ER is 106.85 having standard deviation of 8.63 whereas, the minimum value is 97.1 and maximum value is 120.7. The average of GDP is 4.25 with standard deviation of 2.03, along with minimum and maximum values 1.01 and 7.71 respectively. The average of CPI is 8.94 having standard deviation of 4.52, along with minimum and maximum values of 2.9 and 20.3 respectively. All variables have 19 numbers of observations for the time period 1992-2010.

Table 3: Elaborating the Empirical Results

Variables	Co-efficient	P-value
Exports	-----	-----
Exchange Rate	-4.714***	0.000
GDP	4.967	0.11
CPI	7.106***	0.000
Intercept	551.98***	0.000
R-squared	0.8156	
Heteroskedasticity	0.0779	
VIF		
- Exchange rate	1.04	
- GDP	1.03	
- CP	1.05	
Auto-correlation	1.5	

***Significant at 1%, **Significant at 5%, *Significant at 10%

Interpretations

The expectancy of our model is almost fulfilling through the results. Literature is also provides the evidences regarding results. Various Diagnostic tests are applied to whole data set; Breusch-Pagon test gives demonstration about heteroscedasticity, Durbin-Watson test gives clarifications about auto-correlation. Whereas, variance inflation factor (VIF) tells about multicollinearity. The p-value of Breusch-Pagon test is 0.0779 which is greater than 0.05 shows that there is no heteroscedasticity or delineates no association between independent variables and errors. The value (1.5) of Durbin-Watson test describes that there is minor or no auto-correlation because it ranges from 1.5-2.5 is ignorable. Multi-co linearity problem shows that high correlation in predictor variables. The value of VIF is less than 10 exhibiting, no multicollinearity. Our model having 81.56% explanatory power, here shown through R-squared value.

The first independent variable exchange rate is adversely related to exports. The association in both of them is significant and valid 1% significance level. As the appreciation in exchange rate becomes high lead towards 4.967 declines in exports. As the theory is also indicate that if the exporters are risk averse, the volatility and animations in exchange rate reduces the exports value or can say precariousness in exchange rate reduces exports by reducing profit expectations.

Major apportionment in GDP is exports in Pakistan. In this model, GDP has direct alliance with exports but insignificantly or inconsiderably, as shown in previous section. The remaining variable CPI also has positive and direct relationship with exports. As increment in CPI occurs may lead towards increase in exports level.

The association in both variables is highly significant at 1% significance level, also evident from previous studies.

Conclusion

Numerous developing countries rely upon exports; same is the scenario of Pakistan. Exports play an important role in economic growth of any country. But exports are inadequately affected because of fluctuations in exchange rate. The underlying aspiration of this article is to highlight the alliance of precariousness in exchange rate and exports level. For the inquiry of this relationship, we used ordinary least square (OLS) approach.

Results demonstrate that as precariousness in exchange rate enhances, the trade volume of Pakistan moving towards decline. Previous studies and literature considerably support this paper's results. This research article gives the acute indication to government, to control the uncertainty of exchange rate so that exports of Pakistan move upwards which may lead towards economic growth. This paper is beneficial for further analysis. Moreover, this research is related to Pakistan, it might not be deduced the other countries.

Reference

- Arize, A. (1997). Conditional exchange rate volatility and the volume of foreign trade: evidence from seven industrialized countries. *Southern Economic Journal*, 64, 235-254.
- Asseery, A., & Peel, D. A. (1991). The effects of exchange rate volatility on exports. *Economic Letters*, 37, 173-177.
- Baak, J. S., Al-Mahmood, M. A., & Vixathep, S. (2007). Exchange rate volatility and exports from East Asian countries to Japan and the USA. *Applied Economic*, 39, 947-959.
- Bacchetta, P., & van Wincoop, E. (2000). Does exchange rate stability increase trade. *The American Economic Review*, 90, 1093-109.
- Bailey, M. J., Tavlas, G. S., & Ulan, M. (1987). The impact of exchange rate volatility on exports growth: some theoretical and empirical results. *Journal of Policy Modeling*, 09, 225-244.
- Chowdhury, A. R. (1993). Does exchange rate volatility depress trade flows? Evidence from error-correction models. *Review of Economics and Statistics*, 75, 700-706.
- Cushman, D.O. (1983). The effects of real exchange rate risk on international trade. *Journal of International Economics*, 15, 45-63.
- Doroodian, K. (1999). Does exchange rate volatility deter international trade in developing countries? *Journal of Asian Economics*, 10 (1999), 465-474.
- Gotur, P. (1985). The effects of exchange rate volatility on trade: some further evidences. *IMF Sta Papers*, 32, 475-512.

- Hitiris, T. (1988). The pure theory of international trade under conditions of uncertainty, in Zis et al. (eds), *International Economics*, Longman, London.
- Hooper, P., & Kohlhagen, S.W. (1978). The effects of floating exchange rate uncertainty on the prices and volume of international trade. *Journal of International Economics*, 8, 483-511.
- Kumar, R., & Dhawa, R. (1991). Exchange rate volatility and Pakistan's exports to the developed countries. *World Development*, 19, 1225-1240.
- Kenen, P. B., & Rodrik, D. (1986). Measuring and analyzing the effects of short-term volatility in Real exchange rates, *The Review of Economics and Statistics*, 68, 311-315.
- Lin, Y.J., & Li, Y. (2002). Exports and economic growth in China: A demand-oriented Analysis, No. E2002009.
- Pozo, S. (1992). Conditional exchange rate volatility and the volume of international trade: evidence from early 1900s. *The Review of Economics and Statistics*, 325-329.
- Pritchett, L. (1991). Measuring real exchange rate instability in developing countries. *The World Bank Working Paper*, WPS 791
- McKenzie, M. D. (1999). The impact of exchange rate volatility on international flows, *Journal of Economic Surveys*, 13, 97-106.
- Mustafa, K., & Nishat, M. (2004). Volatility of Exchange rate and exports growth in Pakistan: The structure and interdependence in regional markets, *The Pakistan Development Review*, 43(4), 813-828.
- Savvides, A. (1992). Unanticipated exchange rate variability and the growth of international trade. *Weltwirtschaftliches Archiv*, 128, 446-462.
- Thursby, M. C., & Thursby, J. G. (1985). The uncertainty effects of floating exchange rates: empirical evidence on international trade flows, in Arndt et al. (eds), *Exchange Rate, Trade and the US Economy*, Ballinger, Cambridge, M.A.
- Zhang, X., & Hu, J. (1999). Behind free trade: Import and China's economic development, *Intertrade* 208.