

The Influence of Balance of Payments and Balance of Trade on Exchange Rate in Developing Countries of Asia: A Case Study of Bangladesh, Pakistan and India

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Abstract

The exchange rate is a main dynamic of balance of payment. The balance of payment is bookkeeping of all the transactions made in home and foreign. If exchange rate of a home country represents a weaker currency it will have positively affect the on the balance of payment. A stronger home currency will result deficit balance of payment. Imports of Capital goods and export of primary goods i.e. case of developing countries, it will negative effect on balance of payment. This study was conducted to check the relationship among exports, import, capital goods, consumption, manufacturing, oil prices, balance of trade and exchange rate, balance of payment. In the perspective of developing economies of Pakistan, India and Bangladesh. It was found that this relationship was different in above mentioned countries i.e. in case of Bangladesh the predictor and response variable shows the strong positive regression relation while in case of rest of the economies there was different result. Some of predictors shows weaker regression relationship of variables.

Keywords: Exports, Imports, Trade Balance, JEL Classification: F24, F36, G14

1.0 Introduction

A country balance of payment account keeps track of both its payment to and its receipts from other country. The balance of payment is one of the bookkeeping system for the all payments which are transfer from one nation to other country on the movement of funds between nation (private sector and government) and foreign countries.

The balance-of-payments account uses a normal double-entry bookkeeping system much like to keep a record of payments and receipts. All transactions linking payments from foreigners to country are entered in the "Receipts" column with a plus sign (+) to reflect that they are credits; that is, they result in a flow of funds to county. Receipts include foreign acquisitions of country products such as computers, wheat purchases from foreign tourist's income earned from country investment abroad foreign gifts and pensions paid to country (unilateral transfers), and foreign payments for country assets (capital inflows). All payments to foreigners are entered in the "Payments" column with a minus sign

(-) to reflect that they are debits because they result in flows of funds to other countries. Payments include country purchases of foreign products such as Machinery and cars (imports), Country travel abroad (services), income earned by foreigners from investments in the country (investment income), foreign aid and gifts and pensions paid to foreigners (unilateral transfers), and country payments for foreign assets [1].

2.0. Objective of research

The purpose of this study is to clearly identify the effect of on the country's balance of trade and balance of payments (imports, exports, capital goods, government manufacturing and oil prices) on exchange rate in different emerging and developing countries like Pakistan, Bangladesh, and India. The aim of this study is to critically examine the following areas.

- * To check the relationship between exchange rate, balance of payment and balance of trade.
- * To check the influence of balance of payment and balance of trade on exchange rate.

3.0 Literature review

The government has been concerning on increasing export and improving the balance of payments for the last few years; result seem to be exactly the opposite of the declared target: the gap between exports and imports has widened [1] by Cheng, et al. Rising oil prices and the import of machinery have severely troubled the balance of trade as the trade deficit reached \$3.5 billion in just nine months [2]. Purchasing Power parity does not hold as a long run equilibrium relation, it is an empirical test on Australia's long run real exchange rate [3]. A monetary expansion causes long run depreciation because it is an increase in the supply of the currency, and an increase in expected inflation causes long run depreciation because it decreases the demand for the currency [4]. Short and long-run neutrality results also if wealth consists only of foreign original level. Foreign investment does not give rise to any problems intrinsically different from those created by domestic investment, public or private [5]. Distinct arguments link IMF programs to either higher or lower levels of FDI inflows. IMF programs may prescribe economic reform packages that are conducive to multinational investors, leading to higher levels of economic stability and strong macroeconomic performance. In his 1970 analysis of the world monetary crises, Harry Johnson spoke of the liquidity problem as re-emerging in the late 1960s because of the inadequacy of the IMF provisions 'to provide for growth of international liquidity at a rate adequate to meet the needs of the expanding world economy. Rose estimate the effect

of sovereign debt renegotiation on international trade [6]. Sovereigns may fear the trade consequences of default; because creditors deter default, or because trade finance dries up. Bilateral trade is approximately 8% a year and persists for around 15 years [7].

Pesaran, et al and Pefind indication of a J-curve effect [8, 9]. However, they did article a significant long-run relationship between the trade balance and the exchange rate, indicating that a real devaluation of the U.S. dollar has a promising effect on the U.S. trade balance. Marwah et al. find evidence of an S-curve for both United States and Canada using disaggregated data in an IV and OLS regression for the period 1977 to 1992 [10, 11]. According to their findings, the trade balance firstly declines after devaluation, followed by a trade balance development - the typical J-curve effect. However, after numerous quarters there seems to be a propensity for the trade balance to worsen. This S - curve finding is evocative of the S-shaped response of the trade balance to changes in terms of trade mentioned in Backus, Kehoe and Kydland [12], Bahmani-Oskooee and Alse [13] tested 41 developed and less developed countries for the existence of co-integration and the J-curve effect smearing the Engle-Granger two-step procedure. The results finding showed that the trade balance and real effective exchange rate are co-integrated for only fourteen countries. In the countries exhibiting co-integration, there was some indication of the J-curve effect. Gupta-Kapoor and Ramakrishnan [14] examined the impact of the yen appreciation on Japanese trade balance data with respect to seven major trading partners employing a VECM. The projected impulse response function indicated the existence of a J-curve for Japan. Doroodian et al obtained similar results for Japan [15]. They applied the Shiller lag model to first differences finding support for the J-curve effect. In conclusion, evidence seems to suggest that the J-curve is an empirical Phenomenon, i.e. it may or may not be found in a given country [16]. On the other hand, we are reviewed others online portal like Bangladesh Bank [17], The State Bank of Pakistan [18], Reserve Bank of India [19].

4.0 Research methodology

By developing the hypothesis, we will find the balance of trade's movement with four large-scale variables and balance of payment variables with exchange rate. The significance between exchange rate movements and its effect on balance of trade variables and balance of payment will be tested with the help of co multivariate regression and co-integration method. We will clearly study the concurrent effect on each variable and fluctuation each corner of balance of trade and balance of payments. To see this effect more critically we have widened scope of our study to five different

economies different corners of the world including USA, UK, China, India, Pakistan and Bangladesh. The time duration taken for this study is 30 years from 1978 to 2008.

4.1 Regression analysis of Bangladesh

Balance of trade has been removed from the equation.

The regression equation is $\text{Exchange rate} = 48.9 + 0.00852 \text{ exports (m)} - 0.00104 \text{ imports (m)}$
 $+ 0.00304 \text{ capital goods} + 0.0205 \text{ consumption} - 0.0114$
 manufacturing
 $- 0.276 \text{ oil prices}$

Table 1: Effect on the Exchange Rates.

Predictor	Coef	stDev	T	P
Constant	48.891	5.955	8.21	0.000
Imports	-0.001039	0.001285	-0.81	0.436
Manufacturing	-0.011354	0.0032220	-3.53	0.005
Export	0.008525	0.001285	5.96	0.000
Oil prices	-0.2763	0.1225	-02.25	0.045
Consumption	0.020525	0.005031	4.08	0.002
Capital goods	0.003037	0.002838	1.07	0.308
S=1.732	R-sq = 98.5%	R-sq (adj)= 97.6%	R = 0.71	P=0.000

Source: Bangladesh Bank¹⁷

The above table reflects the influence of balance of payments on exchange rate of Bangladesh, the variable balance of payment contains exports, imports, capital goods, consumption, oil prices and manufacturing.

Results of the table explains the value of R² is 98.5% means that there is 98.5% variation in exchange rate of Bangladesh due to balance of payment. The results of the table also indicated that the overall model is significant because the p-value for manufacturing, exports, oil price and consumption were significant as less than 5% while the p-values for the variable imports and capital goods were insignificant as p>5% above.

4.2 Regression analysis of Pakistan

* Balance of trade, exports, imports are highly correlated with other X variables

* Balance of trade, exports, imports have been removed from the equation

The regression equation is

$\text{Exchange rates} = 18.2 + 0.00778 \text{ manufacturing (m \$)} - 0.703 \text{ oil prices}$

- 0.0124 capital goods +0.000014 Consumption

Table 2: Effect on the Exchange Rates

Predicator	Coef	stDev	T	P
Constant	18.221	3.231	5.64	0.0000
Manufacturing	0.0077777	0.001045	7.44	0.0000
Oil prices	-0.7030	0.3427	-2.05	0.061
Capital goods	-0.12351	0.002016	-6.13	0.000
Consumption	0.00001378	0.00001057	1.30	0.215
S=5.531	R-sq = 89.5%	R-sq (adj)– 86.2%	R –0.54	

Sources: The state bank of Pakistan¹⁸

In the above table, the coefficient of regression analysis shows that the manufacturing has the more relationship with exchange rates as compared to oil prices, capital goods, consumption etc.

In the above table, the T-test shows that manufacturing is more efficient i.e. 7.44 than others like consumption level i.e. 1.3 and capital goods have the negative efficiency with exchange rate.

P is the significant level of each variable. In the above result the manufacturing has the more significance $0\% < 10\%$. Which shows highly significance of manufacturing on the exchange rate. Oil prices have the value of $P=6.1\% < 10\%$. It also shows that significance level of oil prices on the exchange rate is significant. The capital goods having value of $P=0\% < 10\%$ shows significance level. Consumption shows with the less significance level on the exchange rates than other variables. The relationship among exchange rate and manufacturing, oil prices, capital goods and consumption is R-Square=89.5%. which shows high relationship. And R-Square can be adjusted 3.3%.

4.3 Normal probability

The Fig. 1 showed the normal distribution plot for the variables to check out the skewness and kurtosis of the data for Pakistan, if the points on the graph are too close as in above graph the data must be considered normal means properly skewed and having standard peak. So normal probability plot showed that data for Pakistan is normal [13].

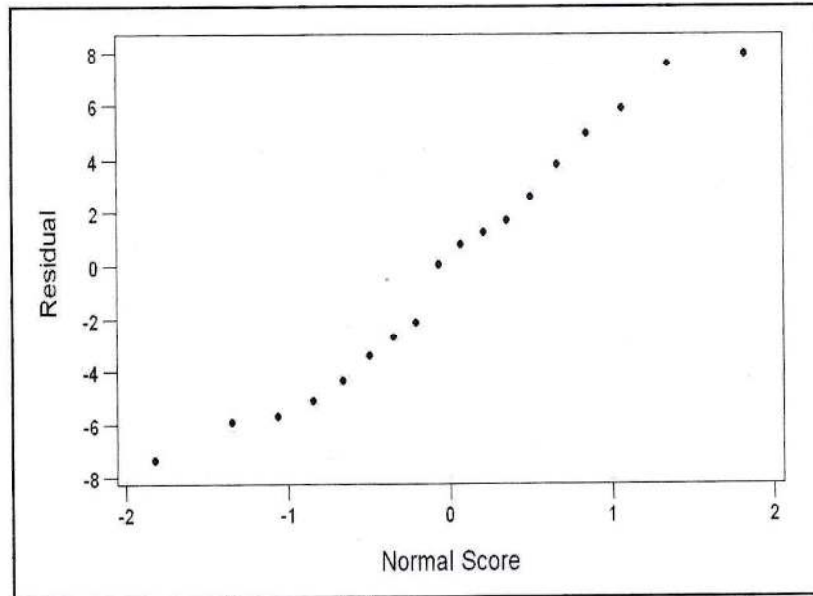


Fig. 1. Normal probability of the residuals (response is exchange).

4.4 Regression analysis of india

- Capital goods, exports are highly correlated with other X variables
- Capital goods, exports have been removed from the equation

The regression equation is Exchange rates = 33.7 + 0.000682 imports (m \$) + 0.000230 manufacturing (m \$)

+ 0.00116 balance of trade - 0.782 oil prices - 0.00201

consumption

Table 3: Relationship with Exchange Rates.

Predicator	Coef	St. Dev	T	P
Constant	33.65	13.55	2.48	0.029
Imports	0.0006816	0.0003259	2.09	0.058
Manufacturing	0.0002301	0.0004069	0.57	0.582
Balance of trade	0.0011563	0.0003455	3.35	0.006
Oil prices	-0.7821	0.2844	-02.75	0.018
Consumption	-0.002010	0.001101	-1.83	0.093
S=4.482	R-sq = 83.4%	R-sq (adj)= 76.4%	R=0.65	

Sources: Reserve Bank of India ¹⁹

The data was collected from reserve bank of India and the above table indicating that the coefficient of regression analysis shows that the B.O.T has the more relationship with exchange rates as compared to oil prices, manufacturing, consumption, Imports etc.

In the above table, the T-test shows that B.O.T is more efficient i.e. 3.35 than others like consumption level i.e. -1.83 and oil prices and consumptions have the negative efficiency with exchange rate, imports and manufacturing has the efficiency of 2.09 and 0.57 respectively.

P is the significant level of each variable. In the above result the B.O.T has the more significance $0.6\% < 10$ Which shows highly significance of B.O.T on the exchange rate. Oil prices have the value of $P=1.8\% < 10\%$. It also shows that significance level of oil prices on the exchange rate is significant. The consumption having value of $P=9.3\% < 10\%$ shows significance level. Manufacturing shows with the less significance level on the exchange rates than other variables. The relationship among exchange rate and manufacturing, oil prices, capital goods and consumption is R-Square=83.4%. which shows high relationship. And R-Square can be adjusted 7%.

4.5 Normal probability plot residuals

The Fig. 2 showed the normal distribution plot for the variables to check out the skewness and kurtosis of the data for India, if the points on the graph are too close as in above graph the data must be considered normal means properly skewed and having standard peak. So normal probability plot showed that data for India is normal.

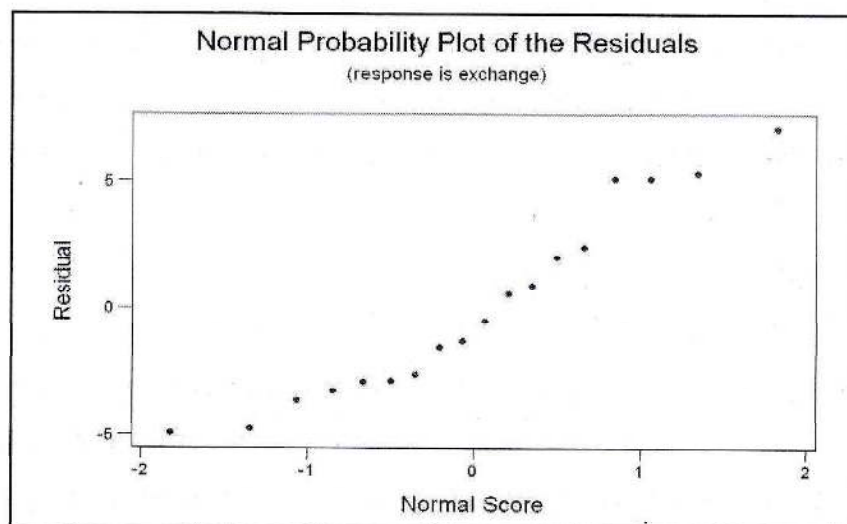
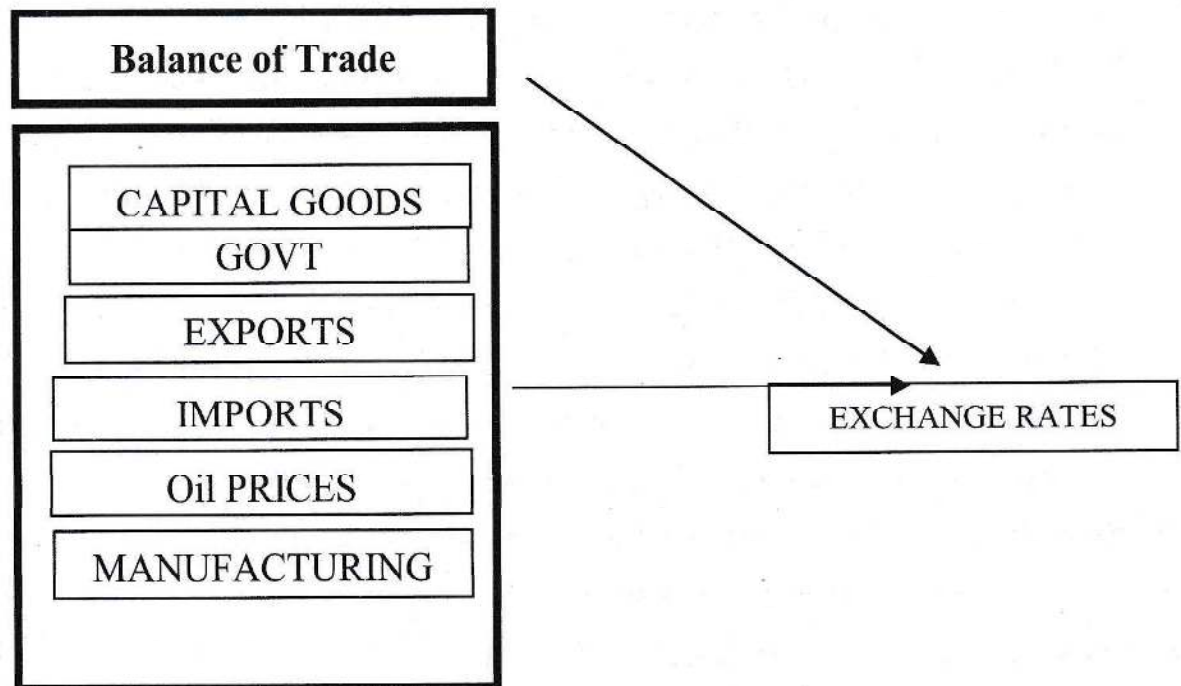


Fig. 2. Normal probability of the residuals (response is exchange).



Scheme 1. that interrelation with exchange rate.

The Scheme 1 shows that interrelation with exchange rate. Every countries exchange rate depending on those sub part.

5.0 Independent variables :

5.1 Balance of trade:

Balance of trade in developing country Bangladesh, India, Pakistan are in deficit continually its very strange because basically those are an agricultural country and majority of population relay on agriculture near about 70% of population but some other economic factors also effect the balance of trade.

5.2 Balance of payments

The balance of payments defines as measure the payments that flow between other countries with individual country. The balance of payment is used to summarize the all economic transaction of the country during a specific year or period. The balance of payment uses to measure the import and export of goods and services financial capital as well as financial transfer all the payments liabilities and obligation received from foreigner balance of payments is one of the major indicators of the country.

5.1.1 Manufacturing growth rate:

Manufacturing growth rate also the second source of export that is textile, industrial and sports industry. Many of MNCs operate and the also source of export but other way MNCs; long term impact is go beyond opposite to balance of trade.

5.1.2 Exports

The export of goods plays an imperative role in the economic development of a country and signifies one of the most important sources of foreign exchange income. Exports not only ease the pressure on the balance of payments but also create employment opportunities. They can increase intra-industry trade, help the country to integrate in the world economy and reduce the impact of external shocks on the domestic economy. Increases in the volume of exports always support the current account balance. However, this increase must be greater than the volume of imports. If the volume of exports increases at the same proportion or less than imports then this increase in the exports will not support the current account balance [14]

5.1.3 Imports

Imports of a country depend upon the domestic production capacity. If the local producers are unable to produce enough to satisfy the domestic demand, then increased imports are required to fill this gap. High volume of imports as well as concentration of imports on capital products are some of the main causes for current account deficit.

5.1.4 Capital goods

In the economic realm, "capital goods" is a specialized term which refers to real objects owned by individuals, organizations, or governments to be used in the production of other goods or commodities. In capital good include equipment, tools, factories, and furthermore several buildings which are used to produce the product for consumption. In Pakistan and Bangladesh, the capital goods growth industry has more merit and it would be a deep business sureness on the economic performance in Pakistan the correlation between GDP and capital goods was highest during 2016.

5.1.5 Government consumption level

Total consumption is the factor that has a negative sign, point out that an increase in the consumption level will decrease country Exchange rate and lower the consumption will enhance the exchange rate. There is a hypothesis that exchange rate and consumption of country has a negative relationship.

5.1.6 Oil prices

The contribution of oil price has significant for the country exchange rate. The effect of oil price would be both positively and negatively on the account balance of the country therefore this is hypothesis that there has a relationship of oil prices with exchange rate.

6.0 Dependent variables:

The exchange rate also defines as (also known as the foreign-exchange rate, forex rate or FX rate) and between two currencies specifies how much one currency is value in terms of the other. This is the value of foreign nation's currency in term home nation .in addition the exchange rate of Pakistan as It is the value of a foreign nation's currency in terms of the home nation's currency. The exchange rate of Pakistan as compared to other currencies varied with the passage of time due to the different situation such as economical political etc. [6]

7.0 Conclusions

From the above analysis, it was concluded that there is strong positive correlation exists among all the research variables of all the countries under the study as their R-value is positive and greater then 0.5, so on the basis of this result objective one was achieved. Current study also uses multiple regression model to check the cause and effect relationship of independent and dependent variables and result of regression reveals that there is strong significant impact of Balance of trade and balance of payment on exchange rates of India, Bangladesh and Pakistan with R2 values 83.4%, 89.5% and 98.5% respectively with the p-values less than 0.05, so it reflects that the regression also having significant impact. Based on regression results objective 2 is also achieved.

When the theoretical work applied on different economies then this process generates different finding include Pakistan, India and Bangladesh all are developing countries. But predictors have different impact on BOP and Exchange rate. Balance of trade, exports, imports are highly correlated with other X variables in Pakistan therefore balance of trade, exports, imports have been removed from the equation. Because they have a minimal impact on the Exchange rate. In case of Bangladesh the chosen theoretical framework has best fit. It has shown a stronger positive relationship. Indian economy shows capital goods, exports are highly correlated with other X variables capital goods, exports have been removed from the equation. Because although there was a stronger relation amongst capital goods and exports but minimal impact on BOP and Exchange Rate. Usually the results were found as being normal and some conflictions has been mentioned.

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