Managing effects of Forex Rate's fluctuation on Pakistan's Trade Balance

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Abstract

Pakistan is a most important country of South Asia with highly significant geo strategic location and aim behind conducting study pertains to explore effects of Forex rate, GDP & Discount rate on our country's trade balance through analysis of its economy. Trade balance of a country reflects surplus in instance exports are more in value than purchase of goods and services from abroad & in instance imports exceeds the price of merchandise & services sold abroad by a state. Therefore, to explore whether fluctuations of exchange rates, GDP & discount rate bear any important effect on our country's trade balance we have acquired yearly statistics of Forex rate, GDP & discount rate from the website of SBP and Bureau of Statistics.   These statistics encompassed forty six year figures pertaining to period w.e.f 1977 to June, 2022. Hence to accomplish our aim several test like Unit root, Auto Regressed Distribution Lag , Bound test ,Autocorrelation, Ramsey Test, Correlation, Multicollinaerity and Heteroscedasticity test have been conducted which helped out to wind up that an important and + ve link exist among trade balance, foreign exchange rate GDP & discount rate , hence it is concluded that stability of foreign exchange rates, increase in GDP and rational discount rate   may create a positive atmosphere as well as bring improvement in trade balance..

Keywords: Trade Balance of Pakistan, Foreign Exchange Rate, GDP, Discount rate, Exporting, Importing , ARDL

Introduction

No nation is capable of satisfying domestic demand for commodities, services, food, etc.; hence, it is necessary to engage in foreign trade, which includes importing & exporting of said things. Due to number of factors, including: high cost of labour; lack of raw materials; lack of skills; unavailability of techology; high cost of production; low scale of production, imports are preferred over local production and manufacturing of goods.

Additionally, trade agreements among importing and exporting countries governed import & export of goods.In order to protect native products from international competition, countries will occasionally place trade restrictions in the shape of applicable regulations, other steps & policies which limit, hinder or in other words obstruct exchange of merchandise & services during the conduct of International or Global Trade. Our nation is confronted with difficult issues, such as population growth, violence, poverty, inflation, devaluation of Pakistani currency, corruption Illiteracy, & load shedding of electricity.

Imports higher than exports, resultantly creates a –ve balance of payments, reliance on loans & acquiring International aid, a weak revenue system, governance concerns, depreciation in currency rate, resultantly population growth is faster than migration from rural to urban areas, Tourism, exporter use to defaults on realizing export earnings, & tense border disputes are occurred   with neighbors.

Trade occurring between two sovereign states is called Global Trade. It is conducted through exchange of goods and services by exporters and importers on decided provisions, setting, cost all the way through appropriate banking mode in compliance with set of laws, rules of states of exporter and importers in coordination with customs establishment by aero planes, highways, & rail, delivery by ship or cargo and post dealing companies. (Seoum, 2009)

Trade balance of a state plays a vital role in economic stability of that country. Role of Balance of Trade is vital and important in an economy, it reflects how a state competes in international marketplace, ascertain the wellness of an economy and its link with other countries of the world. Balance of Trade is reflected in Balance of Payment Accounts, which provides country's outlook of economic performance with other global states. The learning of economics of balance of payments allows appropriate assessment of the diverse opinions and strategies of state suggested to eradicate trade disparities. There are several variables which determine Trade's balance or

broadly speaking BOP position of a country such as international oil & commodity prices, domestic prices of goods & services, demand & supply of foreign money, conversion rate of foreign money & National Income at home & abroad.

Behind these basic above stated variables of Balance of Trade, other variable such as supply aspects, Manufacture task, technological condition, flavors, dispersal of revenue, economic conditions of country, state of expectations, etc. are also involved in maintaining trade balance. But it is fact that changes occurred in basic variables, but no appropriate changes have been observed in other above stated variables. Generally adverse position in BOP and issues in balance of trade of state occurred owing to the following reasons. Imbalance among exporting & importing of merchandise; and services from overseas that is shortfall or excess in trade's balance. Value of merchandise as well as services sold abroad by a country are smaller than the value of its importing. Small value of exports owing to non-existence of exportable surplus due to low production of goods to be exported or volume of exports may be small due to soaring cost, costs of exportable merchandise and severe competition in the global marketplaces.

Data of variables namely Trade balance, GDP and Foreign Exchange conversion rate pertaining to period from 1960 to 2016 was examined in cited research paper. (Nawaz, Analysis of Exchange Rate effect on trade balance of Pakistan , June 2018) Statistics pertaining to variables namely Trade balance & forex rate pertaining to era from 1982 to 2016 were analyzed in cited research paper (Aamir Khan, 2019). Data of variables namely Trade balance, price hike, supply of currency and exchange conversion rate pertaining to period from 1970 to 2016 was analyzed in cited research paper (Arshadullah Jadoon Y. G., 2019)

Performance of exporting is the utmost substantial feature for considering the commercial expansion of every state, even in case of Pakistan. In conduct of foreign trade, predominantly exporting, is the core aspect in enhancing economic development of Pakistan. Hence, this study has discovered a short-run and long-run link amongst performance of export as well as well as exporting elements of our country. This study utilized ARDL-Autoregressive Distributed lag & figures in time series commencing from FY1972 to FY 2021. The study has observed that a short-run as well as long-run link among elements of exporting, comprising price hike, Foreign Direct Investment, Forex rate, Gross Domestic Product, Interest rate, & performance of our country in exporting. Therefore, based on the outcomes, it is familiarized that there should be

ample nearer synchronization through trading associations to get maintainable exporting expansion between states. (Saghir Pervaiz Ghouri)

Problem Statement:

"To assess the impact of forex rates fluctuations on the factors influencing Pakistan's Trade Balance"

Research significance or justification

Foreign trade is greatly impacted by fluctuations in exchange rates.

Research Gap:

There is a large gap in the field of period.

Research Questions

We have to get answers of the following Research Questions through this study

Whether fluctuations of Foreign Exchange Rate bear any important impact on our country's Trade Balance?

Whether fluctuations in Gross Domestic Product bear   any important impact effect on our country's trade balance?

Whether fluctuations in Discount rate bear any important impact effect on Trade Balance of our country's trade balance.

Literature Review

Exporting may be defined as a method of selling, sending merchandise as well as services produced in a country by a producer to an importer in another state, whereas importing is a method of purchasing & receiving merchandises, services produced in another Imports may be goods and services which are purchased by a nation from another nation through making payments in foreign currency.

International or Foreign Trade is interchange of merchandises & services among two countries.

"Forex rate is the amount of domestic money fixed & agreed upon through mechanism of marketplace pertaining to demand & provision for single money of any another state." It is the predetermined ratio of a sum that is agreed upon to be paid over a predetermined time

to obtain funds for investing, meeting some individual needs,obtaining necessary financing to operate an enterprise through the banking system, brokers, etc.

Rate of Foreign Exchange is currency's worth of state set, decided by marketplace instrument of requirements and delivery of a unit of legal tender of other country (Jeff Madura). We can calculate Rate of Foreign Exchange in research in complete stipulations and comparative stipulations; nevertheless we desire to calculate foreign exchange in comparative requirements. Interest Rate is pre decided amount intended for payment in respect of a specific time in order to obtain funds for investment, some individual want, for fulfilling the necessities of finance necessary to operate a venture by commercial banks, agents.

Trade Balance is the disparity of payments paid in US $ to buy merchandise and services from abroad, as well as US $ earned by exporting of goods and services abroad. Exporting may be defined as process to sell merchandise to overseas buyer living in an overseas country. Occasionally hindrances of commerce are imposed by country for sake of safeguarding domestically manufactured goods from worldwide contest, such hindrances of commerce can be in type of implementation of rules of country, measures as well as strategy of levying, curbing, avoiding, hindering swap of merchandise as well as services by conducting overseas commerce, occasionally it is hard to manufacture exportable objects, due to expensive shipping on elevated point , by and large pro huge products. (Smith, 2015)

Exporting is the procedure of selling as well as dispatching goods, services created in country via manufacturer to purchaser of foreign country. (Seoum, 2009). Exporting is essential for fiscal expansions as well as extreme noteworthy ways of receiving foreign cash for emergent needs of economically backward countries. This facilitates to handle deficit of BOP as well as it is also used toward preparing domestic speculation that is afterward utilized for modus operandi of manufacturing goods to sell overseas. (Gul, 2014).

Balance of Trade is equal to importing plus re sell overseas minus Importing minus Re-imports. Pakistan's Trade Balance is the disparity among sell overseas & purchased from abroad in terms of foreign exchange earned and paid respectively.

Rate of Interest may be defined as discount rate declared by SBP through monetary policy on quarterly basis, which has immense effects on rate of providing loans & acquiring loans made available by banking channel. It has been calculated on annual base or in accordance with time period of said policy of Pakistan. It is a free variable and the rate of borrowing is declared by

Central Bank of Pakistan through said policy also called Discount Rate. It may be increased or decreased by SBP in bases point. Mostly banking industry in Pakistan is running their business on interest basis through provision of loans; besides all accounts held in financial institutions are making payment of interest to clients as earning or profit.

Total goods & services created by a state in a time period of year is called GDP. It indicates the supremacy of economy of a country and the worth of all merchandises as well as services created throughout specific time stage in country. It explains as to whether an economy is increasing or undergoing a decrease. Verdict of stakeholders for investing depends on potency of Gross Domestic Product and a powerless economy reflects little income as well as lesser value of shares.

Figures of variables namely export, imports, price index and foreign exchange conversion rate pertaining to period from 1980 to 2010 was analyzed in cited research paper. (Rasool, 2014) Data of variables namely foreign exchange conversion rate & GDP pertaining to period from 1975 to 2013 was analyzed in quoted research paper. (Khalid, 2017) Data of variables such as trade balance, foreign exchange conversion rate & GDP pertaining to period from 1976 to 2017 had been analyzed in cited research paper. (Khan, 2018) Data of variables such as trade balance, foreign exchange conversion rate, supply of currency & GDP pertaining to period from 1970 to 2005 had been analyzed in cited research paper (Kakar, 2010-)

There are number of theoretical methods to forecast results of strategy variations in foreign exchange on BOP. Elasticity method defines impact of fluctuations in exchange rate and explains how well-adjusted trade condition devaluation may increase BOP in case total of the value elasticities of local and foreign requirement of buying overseas is more than 1.supposing with the aim of Marshal & Lerner situation is fulfilled while exchange exceeds the balance, extra call for overseas exchange exists. (Kakar, 2010-)

Exporting is the most vital feature of Global trading as corresponding to importing, because as it is directly connected to bringing expansion of economy of a country. Several Asian economies, such as Taiwan, China, Malaysia, & South Korea, have expanded growth in their economy through enhancing their exports. , (Hassan M. M., 2021) , (Li, 2016) & (Kandil, 2017) Nevertheless, numerous developing states face the issue of   trade shortfall problem in Global Trading as of augmented imports as related to their exporting. Utmost Specialists in Economics suggest strategies supporting exporting with a flexible forex rate. (Fugassa, 2016)

In Global strategies like taking away obstacles of trade & enhancing of quotas for trade among emerging & developing economies (Hassan M. M., 2022), (Raza, 2020)

Countries like Vietnam, Bangladesh, India, and Cambodia implemented those strategies & increased growth of their economy, whereas few states which did not succeed to follow these strategies like Pakistan, could not withstand their financial growth. (Dalango.D, 2020)

The recent research results has additionally confirmed presence of a short-run relation among exporting performance & Gross Domestic Product, Foreign Direct Investment & real practical forex rates. The results of this research established the reliability of preceding works. (Jawaid S. S., 2016)

Our findings suggest that a depreciation of the real exchange rate increases exports and decreases imports. Finally, in the wake of balance of payment crises, economies adopt various policy measures besides depreciating their exchange rate. These include, but are not limited to, monetary tightening, the imposition of additional tariffs, and raising non-tariff barriers. Future research could be considered including such policy measures. (Muhammad Omar, 2022)

To fill the gap left by a declining currency reserve, countries must raise their exports, which will likely rise because of the currency's depreciation. In addition, media reports claim that the currency was allowed to depreciate because of "payment pressure." (Sohail Akhter, 2022)

The objective of this publication is to forecast the financial standing of Pakistan by predicting the Forex rate of our country with US $. (P.Azim, 2013)

Forex rates have a great effect on financial progression, the trade marketplace, public debt, price hike & remittances. Hence, establishments & individuals linked to the above features could get benefit of the forecast of the consistency of money. The Pakistan government, prior to commencing any progress plan, conduct monitoring of the strategies which may impact Forex rates. (P.Azim, 2013)

Hence, this study is likely to support the nationwide level keep an eye on the tendency & firmness of the Forex rate in the near future and its study is also valuable for Specialists in Economics as well as for strategist because the sudden shocks in the exchange rate cause fluctuations in economic growth. (P.Azim, 2013)

 Forex rate instability is a useful term to comprehend & forecast because forex rate instability does not impact the marketplace of advanced states to a great degree, nevertheless. & forex rate unpredictability extremely upsets the emerging states & our country is also one of them. Hence,

this study is supportive in all features which impact the economic expansion of our country. (P.Azim, 2013) Pakistan is an emerging economy confronting a nonstop decline in US $ rates. Pakistan's money is dropping its worth regularly about US $ value as in 1990, it was 21.71 PKR on a dollar, while in 2000, it became equivalent to 53.65 PKR. In 2010, there was a more decrease in the worth of the Pakistani money to 86.05 PKR. Recently, in 2021, the US $ got a top high conversation rate of 176 PKR in interbank rates. Henceforth, in the previous four decades, the Pakistan money depreciated against US $, dropping its value more than eighteen occasions. (P.Azim, 2013)

The Absorption method of BOP was surfaced by Meade (1951), Alexander (1952,1959) .According to this method a state trade's balance will enhance in case its creation of merchandise and services enhanced by excess than its absorption expenses by native inhabitants of merchandise as well as services. (Kakar, 2010-)

We will also discuss various theories of international trade and their applicability in Pakistan with reference to enhancing exports to make our Balance of trade favorable.

Theory of Absolute Cost Advantage stated that country should produce those objects and trade these to those states where it enjoys entire lead in manufacture cost. State may buy those objects from overseas where it has experienced entire disadvantage (Madura, 2015). We may adopt this theory in Pakistan.

David Ricardo presented Theory of Proportional Cost Advantage based on comparative cost advantage. A state should buy those objects from overseas whose production costs are on upper level (Madura, 2015). We may adopt the said theory in Pakistan which may bring superior consequences. Michael Porter presented Theory of Comparative Advantage & declared that in order to compete in international markets a state needs a policy of growing reasonable advantage more on else one . Comparative edging is acquired by make use of newest as well as efficient technological processes and managerial change, but state only depending on obsolete , traditional from and ordinary legacy of nation (Madura, 2015).

Our country need to swap older processes of manufacture as well as know-how through applicability of this theory. Heckscher & Ohlin presented Theory of Factor Endowment Theory which state that state having comparative large quantity in territory, investment, manpower and private enterprise must trade such objects which use above elements of production method in large scale, as well as buy such objects as of overseas. Pakistan is having plentiful labor therefor

we should trade abroad our manpower -intensive objects to earn more foreign exchange remittances

Vernon presented Product Life Cycle Theory which stated that the mechanized country furnish more funds for conduct of analysis and growth which helped in formation of new goods.
It means merchandise is unique in several manners owing to adding of further and new traits within the similar core objects (Madura, 2015).

Various international corporations in Pakistan are carrying out investigations on products manufactured by them and bringing improvements as per preference as well as liking of their consumers. Number of states facing shortfall borne two types of deficits. Budgetary compilation of such states is therefore a substantial matter. A country which brings betterment in its general economic policy situations and hence enhance export is not pillion, except the relevant gears are utilized intentionally at the cost of further states.

Evenly Current Account shortfall as well as foreign loans cannot create a trouble; but might indeed make logic if and to the extent that they are used for encouraging progression. The exterior commercial disparity must not be demonetized by itself, nevertheless it is essential of being extra vigilant to adverse expansions & rectify these at an early phase, with the purpose of that utmost probable advantage could be obtained from foreign trade & monetary flows.
A country may make conclusive assistances to consolidating the export segments & worldwide attractiveness. It is not out of mention to state that revolving away from overestimated forex, decreasing constraint on trade, enlightening the commercial set-up, spending in educating & making overall growth in domain of authority. A consolidation of monetary sector & elevation of private savings (e.g. through extra economic steadiness might also lessen dependency on importing of capital to financing investment. (Raschen, The Problem of Balance of Payment Imbalances, 2014)

Exchange rate instability, business and financial expansion are vital components of Commerce Policy. Devaluation in conversion rate has constructive impact on merchandise's sale as well as services abroad or this results in increasing the exports of Pakistan as a consequence assists in sustaining a Trade balance. Although Imports symbol is encouraging, it is contrary to the hypothetical model. It is an indication that Pakistan is a state whose imports depend mainly on the Capital goods (such as Machinery, Plants, & Raw material etc.) which can be utilized to

manufacture more merchandise and in due course increases the Gross Domestic Product of Pakistan (Muhammad Zubair D. I., 2014)

An additional likely way out lies in utilization of Commerce strategy to offset the enhanced requirements meant for importing through enforcement of restrictions on purchase of goods and services from abroad to force decrease in the trade deficit. (Thomas, 2000)

The structure of Pakistan's exports have fewer diversification, generally trading low expertise mechanized products, mainly yarn goods, clothing. At some time in future, the pains must be taken to persuade upright sell overseas diverseness that is manufacturing of fresh goods bearing comparatively & technically advanced goods in identical areas. Exporting demands such goods having moderately smaller cost flexibility that benefit the state. (Jawaid S. T., 2019)

A research was conducted to assess impact of conversion price of currency on Pakistan' BOP during period from 90's to 2016 & statistics gathered from sources of diverse nature. Trade Balance was taken in capacity of reliant variable, rate of foreign exchange as well as GDP (revenue) are free variables. According to results –ve mark displays the relation among the determinants is negative or inverse with Trade balance; whereas the positive sign with conversion rate of currency showing direct link with trade balance. (Nawaz, Analysis of Exchange Rate effect on Trade Balance in Pakistan , 2018)

To decide instability of forex rate & its inclination on BOP month wise statistics w.e.f January 2007 to October 2013 was analyzed which concluded that there exists a substantial and + ve link among rate of foreign exchange & balance of payments, hence it may be determined that strength of rate of foreign exchange might generate a constructive atmosphere through boosting assets as well as thus may bring improvements in BOP. (Nawaz Ahmed, 2014)

Research has been carried out to search the link among fluctuations in real rate of foreign exchange and the Trade's Balance indicators of our country by analyzing figures. Key results are recapped here. Firstly it was proved that there exist a long run link among real rate of foreign exchange fluctuations and trade's balance of every time used. Secondly in terms of figures substantial –ve flexibilities recommend that cash devaluation hints for worsening in trade's balance of every sample period. Thirdly the instinct reaction function reflects that single standard deviation jolt to real forex rate cause worsening response to balance of trade as of four and carries on until twenty time spheres. It may be understood that as absence of help for phenomena of J –curve for our country over the illustration phase (Shahbaz, 2010)

Major endeavor of study was to verify impact of rate of foreign exchange's changes taking place on Trade's balance in existence of price hike as well as cash delivery in Pakistan's situation by using trade's balance as reliant variable as well as rate of foreign exchange , cash delivery along with inflation as free variables .Outcome exposed that rate of foreign exchange has constructive as well as substantial link with trade's balance in some time at future and for short period of time, which means the depreciation of money will bring improvements in exporting and eventually boost trade's balance in Pakistan (Arshadullah Jadoon Y. G., 2019)

The outcome point out that the level of local earning is calculated by GDP which is a significant element of Trade's Balance. Every 1 %rise in actual income produces a usual betterment of 1.56% in Trade's Balance (SBC assortment criteria outcomes) and 1.3 % furtherance beneath AIC assortment criteria outcomes. Likewise, the symbol of cash providing variable is constant by way of monetary approach to trade's balance.

Supposition reveals that increase in local revenue enhances requirement of cash; moreover it may enhance exporting abroad and bring improvement in trade's balance. Furthermore a decline within local cash provision bring betterment in trade balance as foreign person remit their currency locally to purchase further merchandise as well as services. The influence of the rate of foreign exchange on trade's balance is constructive and data wise substantial, suggesting that condition of Marshal Lerner embrace some time in future in instance of our country. The devaluation of local money with 1 % on usual bring improvement in trade's balance with 0.56 % and 0.44% in some tie in future as proposed by the SBC assortment criteria and AIC assortment criteria correspondingly. It has pointed out that total of flexibilities of exporting and trade in surpassing unison in some future time and that devaluation brings improvement in trade's balance. The result presents powerful proof that cash provided that revenue plays substantial part to define future time and short period of time performance of trade's balance in our homeland in comparison with rate of foreign exchange, because provision of cash as well as revenue level bear a lot powerful impact on trade's balance. (Kakar, 2010-)

By analyzing time series figures on annual basis this research was conducted for examining short time period underlying forces of research as well as Error Correction Model (ECM) had been established. As Co integration investigation requires that all variables incorporated in study are at a standstill. Unit Root provide a mixture of 1 (0)) & 1(1) order of integration. Different diagnostic tests were used to validate predictable prototype. Results of above analysis were

insignificant implying that there is nix econometric difficulty in predictable prototype. Firstly it was observed as a proof of Co integration among trade balance, rate of foreign exchange , local overseas revenue, open cash, along with excise rate. It means that every variable is affecting mutually in future period of time , secondly future time period results illustrate that real effective rate of foreign money bear substantial impact on trade's balance, which means that said impact is favorable in future time period .

Both local & overseas revenue also bear substantial impact on trade's balance in future time period which depends on theory. The indication of cash providing is –ve and data wise substantial as well as dependable on Monetary Approach to trade balance. However tariff rate negative outcome indicates that rise in fare will be adversely impacting balance of trade.

Nix sign of standard J Curve was observed in instance of our country. Seeing that policy consequence of research suggests that trade's balance might bring improvements by making alterations in rate of foreign exchange in instance of Pakistan. (Kakar, 2010-) (Aamir Khan, 2019).

Auto Regressive Distribution Lag method approach for co-integration was used for assessing data from 1976 to 2017 to examine the future time period link amongst balance of trade, actual effective forex rate, actual forex rate instability, price hike level, commercial development and industrialized growth, The results of research are desirable that management must commence reforms of foreign exchange rate, running this in a way to evade main variations in future time period. Furthermore exchange rate depreciation must not be strategy choice for bringing betterment in trade's balance. (Munir Ahmed, 2018).

Phenomenon of J Curve was confirmed for buy and sell of our country with chosen South Asian trade associates by using annual time series statistics from 1975-2013. After experiential investigation it has been witnessed that the J Curve happening was discarded in favor of Pakistan among their trade associates. The research concluded that depreciation of domestic money of Pakistan has a constructive impact on Pakistan's buy as well as sell with trade associates. (Khalid, 2017).Analysis revealed that though economy of Pakistan is robust to outward tremors and facing exchange rate market pressures even then justifiable improvements in trade balance could be attained if policy makers adopt depreciation. (Syeda Shehr Bano, 2014)

Research methodology

To conduct an analysis of data to decide whether changes in forex rates have an apparent impact on size of Pakistan's exporting & importing, & how to enhance exporting and importing of Pakistan. The designing of research is an approach or road map for addressing the queries of research study and achieving its goals. Research design highlights end results.

What kind of research is anticipated, and what kinds of outcomes are desired?

What sort of proof is necessary to respond to the research question?

The research methodology focuses on the study process &types of tools and processes to be used

According to Denicolo and Becker (2012:65), a research design should have the following components: Data collection is the process of congregating and shaping statistics of intended variables in a familiar method, so as to enable anyone to retort associated questions as well as evaluate outcomes. This process is a part of inquiry in the entire areas of research encircling all branches of sciences, arts as well as commerce. Although actions vary in fields of study, the reputation and dependence on assuring actual and accurate collection is identical. The purpose of every figures gathering is to obtain significant evidence which consent to inquiry to direct towards developing significant and reliable replies to the questions which are formed.

Time Series data for a suitable amount of time, information has been gathered pertaining to disparities in Pakistan's discount rate, GDP & forex rate.

In order to confirm fluctuation in Forex rate of Pakistan, we have collected data & examined the same. Data has been analyzed, & checked. Independent Variables in this study are GDP, Interest Rate, and Foreign Exchange Rate, whereas dependent variable is Trade balance of Pakistan

Our econometric model is, Multivariate Regression Model with collinear predictors, it may display the soundness of entire gathering of foretellers, foretell resulting variable, and however it might not give appropriate results regarding any explicit predictor, or regarding such forecasters which are non-working among others.

$$\text{PTRB}_t = \alpha_o + \alpha_1 \Delta \text{ PIR} + \alpha_2 \text{ PGDP} + \alpha_3 \text{ PEXR} + e \text{ .... (1)}$$

Whereas

$\alpha o =$ variable's coefficient

PTRB = fluctuations of Trade Balance

t

PIR   = alteration of Interest Rate (Discount rate)

t

PGDP =variation of GDP

t

PEXR = fluctuation of Foreign Exchange Rate

t

et = error term.

PTRB = ß o +∑   ß1 ΔPIR   +   ∑ ß2 PGDP +   ∑ ß3 PEXR + ɣ 1 EXP + ɣ2 PIR   +

 t – i = 1   t – i   i=1   t‑i   i=1   t‑I   t ‑ 1   t‑1   t‑ 1

γ3PGDP + γ4PEXR + U **…….…………………………………………………….. (2)**

    t‑ 1   t

β o = stable term

β i = coefficients

γ   = coefficient of long run link

i= 1

Null Hypothesis No.1

Ho = in case of fluctuation in foreign exchange rate subsequently no fluctuation occurs in Trade Balance of Pakistan.

Alternate Hypothesis No1

HA = In case of fluctuation in foreign exchange rate subsequently fluctuation occurs in Trade Balance of Pakistan.

Null Hypothesis No 2

Ho = In case of fluctuation in GDP subsequently no fluctuation occurs in Trade Balance of Pakistan.

Alternate Hypothesis No 2

HA = In case of fluctuation in GDP subsequently fluctuation occurs in Trade Balance of Pakistan

Null Hypothesis No 3

Ho = In case of fluctuation in Interest rate subsequently no fluctuation occurs in Pakistan's Trade Balance.

Alternate Hypothesis No 3

HA = In case of fluctuation in Interest rate subsequently fluctuation occurs in Trade Balance of Pakistan.

Analysis & Discussion

Table 1

Descriptive Statistics

	PTRB	PEXR	PGDP	PIR
Mean	-0.236461	0.064754	0.052137	0.103814
Median	0.094895	0.049506	0.048982	0.100000
Maximum	1.310100	0.196714	0.151239	0.170000
Minimum	-10.79400	-0.035580	0.003607	0.057500
Std. Dev.	1.701950	0.064432	0.024285	0.023182
Skewness	-5.352759	0.367676	1.337761	0.680364
Kurtosis	33.71936	1.901097	7.332712	3.534182
Jarque-Bera	2028.383	3.350971	49.70072	4.095786
Probability	0.000000	0.187217	0.000000	0.129006
Sum	-10.87723	2.978705	2.398293	4.775450
Sum Sq. Dev.	130.3485	0.186818	0.026540	0.024183
Observations	46	46	46	46

Above results show that there are 46 annotations.

Moreover it is observed that,

Average of forty six annotations pertaining to PTRB   is -0.236461 or -23.64 %

Average of forty six annotations pertaining to PEXR is 0.064754 or 6.4 %

Average of forty six annotations pertaining to PGDP is 0.052137 or 5 %

Average of forty six annotations pertaining to PIR is 0.103814 or 10 %

We have observed in above results that Standard Deviation of PTRB is 1.701950 and pro PEXR it is 0.064432, pro PGDP it is 0.024285 and pro PIR it is 0.023182 which is dispersal of figures as of its average.

Skewed Dispersal is probability spreading in which insufficient number of clarifications lies beneath (-ve Skew) or over (+ve skew). Mean is called skewness of the asset or skewed spreading. Unfavorable skewness imitates that there is probability of large unfavorable outcomes and positive skewness shows that there it is higher to ordinary probability of large probability results. (Haroon, 2005)

Outcomes of above Table also reflected that PTRB bears –ve skewness of -5.352769, while PEXR bears +ve skewness of 0.367676, PGDP bears +ve skewness of 1.337761 and PIR bears +ve skewness of 0.680364, therefore there is bigger than normal probability of big likelihood outcomes. Kurtosis is size of ends of probability dispersion.

A weighty followed dispersion bears higher than normal likelihoods of massive confirmatory or unfavorable understanding. Kurtosis must not be muddled by skewness that routes the heaviness of solitary end. (Haroon, 2005)As of outcome of descriptive Statistic at Table 1 reflects that Kurtosis of PTRB is 33.71936, Kurtosis for PEXR is 1.901097.Kutosis for PGDP is 7.332712 & Kurtosis for PIR is 3.534182

Table 2

Unit Root of PTB (percentage of Trade balance)

Null Hypothesis: PTRB has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, max lag=9)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-6.568972	0.0000
Test critical values:	1% level		-3.588509	
	5% level		-2.929734	
	10% level		-2.603064	
*MacKinnon (1996) one-sided p-values.				

We discard void supposition of Unit Root because sequence is standstill as p value of PTRB looks below five %.

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Table 3

Unit Root of PEXR (percentage of exchange rate)

Null Hypothesis: PEXR has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, max lag=9)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-4.680642	0.0004
Test critical values:	1% level		-3.581152	
	5% level		-2.926622	
	10% level		-2.601424	
*MacKinnon (1996) one-sided p-values.				

We discard void supposition of Unit Root because sequence is standstill as p value of PEXR looks lesser than five %.

Table 4

Unit Root of PGDP (percentage of GDP)

Null Hypothesis: PGDP has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, max lag=9)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-5.624371	0.0000
Test critical values:	1% level		-3.581152	
	5% level		-2.926622	
	10% level		-2.601424	
*MacKinnon (1996) one-sided p-values.				

We discard void supposition of Unit Root because sequence is standstill as p value of PGDP looks lesser than five %.

Table 5

Unit Root test of PIR (percentage of Interest rate)

Null Hypothesis: PIR has a unit root				
Exogenous: Constant				
Lag Length: 5 (Automatic - based on SIC, max lag=9)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-3.957802	0.0039
Test critical values:	1% level		-3.600987	
	5% level		-2.935001	
	10% level		-2.605836	
*MacKinnon (1996) one-sided p-values.				

We discard void supposition of Unit Root because sequence is standstill as probability value of PIR is lesser than 5 percent.

Table 6

ARDL method (AIC) Aikakie Info criterion

Dependent Variable: PTRB			
Method: ARDL			
Date: 06/11/23 Time: 02:52			
Sample (adjusted): 1977 2022			
Included observations: 43 after adjustments			
Maximum dependent lags: 4 (Automatic selection)			
Model selection method: Akaike info criterion (AIC)			
Dynamic regressors (4 lags, automatic): PEXR PIR PGDP			
Fixed regressors: C			
Number of models evaluated: 500			
Selected Model: ARDL(1, 2, 0, 0)			
Note: final equation sample is larger than selection sample			
Variable	Coefficient	Std. Error	t-Statistic	Prob.*

PTRB(-1)	0.053373	0.161467	0.330550	0.7429
PEXR	0.666511	4.426633	0.150568	0.8812
PEXR(-1)	-15.82046	4.582913	-3.452054	0.0014
PEXR(-2)	7.587838	5.007219	1.515380	0.1384
PIR	5.275110	13.03429	0.404710	0.6881
PGDP	-11.60332	10.82767	-1.071636	0.2910
C	0.294335	1.458917	0.201749	0.8412

R-squared	0.286085	Mean dependent variance	-0.205666
Adjusted R-squared	0.167100	S.D. dependent variance	1.719343
S.E. of regression	1.569130	Akaike info criterion	3.886820
Sum squared resid	88.63808	Schwarz criterion	4.173527
Log likelihood	-76.56663	Hannan-Quinn criter.	3.992549
F-statistic	2.404367	Durbin-Watson stat	2.087141
Prob (F-statistic)	0.046752		

*Note: p-values and any subsequent tests do not account for model
   Selection.

Above position of ARDL reflects that this model which identified link among PTRB (dependent variable), PGDP, PEXR & PIR free regressors' variables, and presence of long run Co integration relationship in respect of the variables is analyzed through totaling F test statistic in ARDL. R square value is 0.286085 or 28 % showing how much the independent variables are explaining the dependent variable. Tinted figures of probability values in overhead table stay important whereas non-tinted probability values are unimportant. Outcomes of coefficients showed if one percent change in forex rate there is 15.82 % -ve alteration in trade balance , therefore a straight link at lag 1 ;while at lag 2 there is +7.58 % +ve alteration in trade balance. Besides outcomes of coefficient also showed in case there is 1 % fluctuation in GDP there is –ve fluctuation of 11.60 % in trade balance. Outcomes of coefficients further showed if there is 1 % fluctuation in Interest Rate there is +positive fluctuation of 5.27 % in trade balance.

Table 7

BOUND TEST

ARDL Bounds Test				
Date: 06/11/23 Time: 03:41				
Sample: 1977 2022				
Included observations: 43				
Null Hypothesis: No long-run relationships exist				
Test Statistic	Value	k		
F-statistic	9.386531	3		
Critical Value Bounds				
Significance	I0 Bound	I1 Bound		
10%	2.72	3.77		
5%	3.23	4.35		
2.5%	3.69	4.89		
1%	4.29	5.61		

F Statistics in above table is 9.386531 which indicated presence of Co integration. It showed that Null hypothesis of "no long-run relationship is to be present between variables in equivalence" is declined." (Belloumi, p. 2014). In case F statistic exceeds greater bound of critical value band immaterial hypothesis pertaining to no long run relationship between variable is discarded.

As per outcome of investigation there exists long-run link among PTRB (% of Trade Balance), PEXR (% of Exchange Rate. PGDP, (% of GDP & PIR (% of Interest Rate).

Table 8

ARDL Co integrating as well as Long Run Form

ARDL Co integrating And Long Run Form	
Dependent Variable: PTRB	
Selected Model: ARDL(1, 2, 0, 0)	
Date: 06/11/23 Time: 03:44	
Sample: 1977 2022	

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Included observations: 43				
Co integrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(PEXR)	0.666511	4.426633	0.150568	0.8812
D(PEXR(-1))	-7.587838	5.007219	-1.515380	0.1384
D(PGDP)	-11.603323	10.827670	-1.071636	0.2910
D(PIR)	5.275110	13.034293	0.404710	0.6881
Coint Eq(-1)	-0.946627	0.161467	-5.862657	0.0000
Co-integration = PTRB - (-7.9927*PEXR -12.2575*PGDP + 5.5725*PIR + 0.3109)				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
PEXR	-7.992704	8.018853	-0.996739	0.3255
PGDP	-12.257544	11.613169	-1.055487	0.2982
PIR	5.572532	13.643387	0.408442	0.6854
C	0.310930	1.543719	0.201416	0.8415

It has been observed in above table that Probability records the p-values associated with individually different series. P–values in respect of PEXR is 0.3255, probability value for PGDP is 0.2982 and probability value for PIR is 0.6854, since all p-values are more than 5%. So, we have rejected all alternative supposition & accepted all Null hypothesis. We conclude that no Unit Roots is present as every series is I (0).

Table 9

Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.529766	Prob. F(2,34)	0.2311
Obs*R-squared	3.549960	Prob. Chi-Square(2)	0.1695

Outcomes of BG serial correlation LM Test in afore stated Table replicated that no problem of Autocorrelation exists as p-value is >5%. So, we have accepted Null hypothesis.

Table 10

Heteroscedasticity

Heteroscedasticity Test: ARCH			
F-statistic	0.062790	Prob. F(1,39)	0.8035
Obs*R-squared	0.065904	Prob. Chi-Square(1)	0.7974

Above table reflected that Heteroscedasticity has been conducted through ARCH test. Result showed that series are homoscedastic as p-value is >5%.

Table 11

Correlation

	PTRB	PEXR	PGDP	PIR
PTRB	1.000000	-0.150928	-0.042899	0.015674
PEXR	-0.150928	1.000000	-0.155683	0.380854
PGDP	-0.042899	-0.155683	1.000000	-0.339745
PIR	0.015674	0.380854	0.339745	1.000000

Outcome of above Table reflected that PTRB is weakly correlated with PEXR, GDP and PIR but negatively associated with PEXR and PGDP as well. Since all the correlation values are below 0.8, therefore no any problem of Multicollinaerity existed in the data.

Table 12

Ramsey RESET Test

Ramsey RESET Test				
Equation: UNTITLED				
Specification: PTRB PTRB(-1) PIR PGDP PEXR PEXR(-1) PEXR(-2) C				
Omitted Variables: Squares of fitted values				
	Value	df	Probability	
t-statistic	5.241099	35	0.0000	
F-statistic	27.46912	(1, 35)	0.0000	
F-test summary:				
	Sum of Sq.	df	Mean Squares	
Test SSR	38.97621	1	38.97621	
Restricted SSR	88.63808	36	2.462169	
Unrestricted SSR	49.66186	35	1.418910	

Outcome of above table showed the stability of model, because probability value F-statistics is

lesser than 5 %, so it has confirmed the stability of model.

Table 13 MULTICOLLINARITY

Variance Inflation Factors			
Date: 06/11/23 Time: 04:15			
Sample: 1977 2022			
Included observations: 43			
	Coefficient	Un-centered	Centered
Variable	Variance	VIF	VIF
PTRB(-1)	0.026072	1.359744	1.341237
PEXR	19.59508	2.835432	1.368460
PEXR(-1)	21.00309	2.733747	1.316666
PEXR(-2)	25.07224	3.238813	1.495727
PGDP	117.2384	6.350744	1.154732
PIR	169.8928	34.52055	1.530693
C	2.128440	37.17167	NA

Outcomes of Variance Inflating Factor at above table showed that there does not exist any problem of Multicollinaerity as all the values pertaining to Centered Variance Inflation Factor are lesser than 10 (O'Brien, 2007)and (Gujrati).

Several viable viewpoints exercise vital financial questions to clarify why countries perform trade and how their arrangements were made and how these flourished. David Ricardo's has explained that methodological differences among states which has determined proportionate advantage.

Heckscher-Ohlin has explained that labour , speculation, funds, water, petroleum, gasoline and natural resources devise types of buy and sell, or a state having abundant capital will carry out buy and sell the investment demanding products, as well as labour affluent nation may conduct business of labour concentrated products.

It is a fact that overseas currency swap rate remained overrated frequently in time of 1972 to 2009 (Rahim, 2010) Negative relation among rate of interest and exchange in future time period has been observed. However there is nil relation in short run, subsequent to managing effects. Rise in interest rate of Pakistan decrease overseas currency swap rate in comparison to US $ owing to elevated worth price rises worth of Pak rupee which will diminish in terms of U.S $ and decline in exchange rate in terms of US $ owing to increase in value of domestic currency of Pakistan. Due to progress in grants and income, states with larger marketplaces will formulate a commercial edge in such goods used in better way at domestic marketplace as forecasted by new trade theory. The said theory has pinpointed expenditure of trade as chief impediment for traders to make entry into trade.

Some argued that superiority of civil and financial institutions may be an important base of proportionate advantage. Majority of nations carry out international trade due to excess production. Extra goods or some unutilized resources can be sold abroad. For instance a country produced wheat excess from his consumption but has no storage facility then it will sell abroad the excess wheat at lower price in international market. (Madura, 2015) Our country may also adopt this theory to earn foreign exchange in shape of remittances on export of manpower to other countries in demand thereof which is excessive in Pakistan.

The causes of the dilapidated exports are tiny GDP, frequent electricity crisis, extraordinary expenses of carrying out trade , lack of goods as well as market variance, substandard machinery and nonexistence of research &development, non-observance of quality principles,

law and order , combating terrorism, lack of skills among manpower , and small direct investment from abroad. (Sajad, 2017).

Pakistan should implement suitable, catch the attention of Chine speculation to exporting orientated manufacturing. Alteration within viewpoint of strategy formulators, and necessity to implement an "economy first" manner. To speed up exporting strategies should concentrate on state wise in a small number of parts, expectedly toward giving maximum instant returns. (Hayat, 2012)

Reasons of declining exporting include small Gross Domestic Product , frequent electricity load shedding , elevated expenses of conducting trade , non-availability of goods and marketplace variance, low-grade know-how and be short of study & expansion, non-conformity of excellence levels, maintaining law as well as order , combating terrorism, untrained manpower , and small FDI (Sajad, 2017). We have achieved our overall research objectives of this study and perceived that rise or decline in Foreign Exchange rate, Discount rate and Gross Domestic Product bears substantial impact on Pakistan's Trade. Balance.

5. Conclusion & Recommendations

We have reviewed and analyzed theories of adjustments pertaining to Balance of payments namely Elasticity procedure and Absorption procedure linked with Keynesian theories. We have adopted method of Bounds Analysis for co integration formulated inside ARDL structure for analyzing presence of long run balance link among trade balance, GDP, discount rate as well as foreign exchange rate.

Outcomes reflect concrete proof that exchange rate, GDP, and discount rate plays meaningful role in concluding the long run & short run response of balance of trade of our country.

We have evidenced from analysis of our statistics that there are no issues of Multicollinaerity, Heteroscedasticit**y,** Unit Root and Autocorrelation. Further figures has co integration and bear long run link , as well as all void suppositions regarding above stated test are discarded, fluctuations or rise in free variables viz GDP, Interest rate or discount rate & foreign exchange rate bear important effects on Pakistan Trade's Balance .

After observing ending of econometric tests, and assessment of text that there exists major effect of fluctuations in Gross Domestic Product, Interest rate (Discount rate), Forex rate on the Trade Balance of Pakistan.

Our objectives of analyzing data relating to our country Trade Balance, Forex Rate, and Gross Domestic Product at persistent price & interest rate (Discount rate) as well as perceived that disparity in Foreign Exchange Rate, GDP and Interest (Discount rate) bear significant impact on Trade Balance of our country.

To enhance exporting Government may bestow security to employment, commerce; as well as encourage exporting it should make certain non-violent situation inside the country, suitable continuation of peaceful circumstances as well as uphold national safety.

Steps should be taken by Government to build up and give safety to newly established factories and industrial units through giving way exemptions in tax for specific period, as well as further amenities. Those policies might be put into practice through Government which persuade buy and sell of elevated worth supplemented sophisticated commodities;

Further take pains for increasing marketplace access for our buy and sell; complimentary/extraordinary commerce treaty might be considered again, besides as our country has been confronting commerce underperformance through associate countries ;as well as prudence among asset, mechanized and Trade policies may be framed which assist Pakistan in accomplishment of expected purpose of rising exporting.

The following features of manufacturing that effect economic growth within a country   namely accessibility of water, oil, gas & minerals. (Essential Question)

   I.   (a)making expenses on development of in employees,
  II.   (b)savings in Investment commodities,
 III.   (c) personal project.
 IV.   (d) incurring expenses on improvement of human capital

State may ensure job and industry protection in order to improve trade balance with increase in exports. State should ensure proper maintenance of peaceful environment and national safety.

Proper care is needed for newly established industrial unit and these may be facilitated with tax free holidays etc. Incentives may be provided for sell abroad of value added merchandises

Features of production such as access to water, petroleum, natural gas & minerals affects financial growth in a country (Essential Question) . State is required to ensure continual provision of these facilities to industrial units.

State may make investment in human resources, goods, because the availability of trainings to manpower and production of refined merchandise determine GDP of a country. Our country requires investment in tools, machinery, manufacturing plants, and information technology. Industrial units having latest technology. Entrepreneurs are required to be encouraged by the state because they run business by taking financial risks and create employment opportunities.

Pakistan direly requires long term trade policy & appropriate execution thereon (Companies, 2000). A Businessman is an individual who has a vision for production of goods or supply of services and they take the pains for their manufacturing. The said person has importance because they possess novel ideas and could utilize labour, speculation, as well as above stated assets to turn up their concepts as well as to the market. (Essential Question)

Availability of such characteristics determine GDP of a country during phase of time. Hence Government is required to emphasize to ensure suitable accessibility of natural resources such as gasoline, water, mineral deposits, flora etc. Investing in investment merchandise or investing in utensils, machinery, tools, industrial units, expertise, system, timber, machines, etc. Incurring amount on development of Human Capital means increasing all skill, competence, knowledge, and capabilities that manpower have, and the worth that they bring to the marketplace; and persuade private enterprise because they are the community who take hazards, carry out business, manufacture exporting merchandise as well as generate employment and take part in a significant part in sinking joblessness. (Presentation on Economic Factors of Economic Growth)Private project motivate persons to sustain hazards, and accordingly produce superior things, merchandise, machinery and tools, etc. If a country has a large number of business persons then it has superior GDP (Essential Question)

Pakistan to a great extent wants a Long term Trade Strategy along with suitable execution. (Companies, 2000) Our country is rich in labour, hence we should send our labour in shape of man power to other countries lacking in it. By following the footsteps of China we should take on Factors Endowment Theory regarding labour force and receive remittances from abroad as payments of foreign exchange. Based on this study we propose that there must be appropriate managing of making alterations in Discount rate, foreign exchange rate as well as measures must be adopted for enhancing Gross domestic Product of Pakistan.

There is need to initiate further measures to bring understanding amongst persons involved in exporting regarding knowledge of buyers of their goods residing in abroad   or customer in overseas state. This is too essential so that exporter must possess sufficient information of credit bank, state of importer and trade cycle. Persons involved in exporting must be capable to comprehend vocabulary of commerce and also possess knowledge of threats of transactions made in entire procedure of exporting goods and services abroad. Further they must comprehend steps involved in of exporting goods and services abroad chain, must uphold friendly affiliation as well as working together with financial institutions..

There is a broad perspective available to researchers for conduct of research on this topic through analysis of more variables like supply of currency, inflation, Foreign Direct Index and price index under time series data: besides research may be conducted by comparative analysis of trade balance of two or more countries in any region such as group of SAARC member countries. Further based on the below stated reasons there are plenty of opportunities of future research on this topic.

i. Provision of infrastructure facilities,
ii. Proportionate benefit in production of goods
iii. availability of skilled manpower,
iv. investment,
v. minerals,
vi. water supply, petroleum and gas supply,
vii. technological developments and exploration,
viii. learning of skills as well as knowledge,
ix. dynamic production of extra ordinary nature,
x. peaceful conditions safety and secure environment,
xi. Intra-industry trade
xii. Merger with the global world economy by manufacturing chains;
xiii. Percentage of GDP to foreign trade
xiv. Charges of conducting trade
xv. Marketplace Entry
xvi. Direct Investment from abroad
xvii. Price hike
xviii. Ratio of Savings
xix. Ratio of Investment
xx. Ordinary functional ratio of tariff, (National Commission on Tariff, 2015)

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