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COMPARATIVE ANALYSIS OF TRADE BALANCE WITH RESPECT TO MARSHALL-LERNER CONDITION OF INDIA, PAKISTAN AND CHINA (1983-2013)

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Abstract: *This research paper has attempted to scrutinize the international trade sector of the three countries namely India, Pakistan and China by using the J-curve phenomena and the Marshall-Lerner condition. The period from 1983-2013 is particularly interesting to study as it involves the various reforms, policy measures and economic situations which led to structural changes in the domestic markets of these countries and as a result affected their international share. The sole stimulus to explore this region came as no study was undertaken to verify the J-curve pattern using the Marshall-Lerner condition in any of these countries. In order derive the conclusion, an export-import model is created by the annual data of five variables namely; Exports, Imports, GNI, Exchange Rate and the World Income taken from World Bank database (for total exports and imports). This model is analyzed using the best possible econometric technique where all these variables are tested for Stationarity and then for Cointegration via SAS and finally OLS technique has been implied in order to find the import and export elasticity. In order to analyze the J-curve, the trade balance (export – imports) is plotted on a line graph for the 31 year period. Overall, the results of this study suggest a fulfillment of the Marshall-Lerner condition criteria in all the three countries but the degree of satisfaction differs due to the export and import elasticity and also indicates the existence of the J-curve in all except in Pakistan even though it has very high export elasticity.*

The findings are also supported with the theoretical aspects. Thus, establishing the relationship between a country's trade balance and the domestic currency carries practical significance for the nation's conduct monetary policy. Therefore, this paper serves as a stepping stone towards future research on which the policies can be adopted in India, Pakistan and China & this will be helpful for the growth and development of the global market as a whole.

Keywords: *Balance of Payment, Depreciation, Export elasticity, Import Elasticity, J-curve, Marshall- Lerner Condition*

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1. INTRODUCTION

In today's world the problem of depression and recession is faced by not only the developing countries but also by the developed countries. As a result of which there occurs deficit in the Balance of Payment. If a country's currency depreciates (under a floating regime) or is devalued (under a fixed system) this should lead to an improvement in the economy's current account position if Marshall-Lerner Condition is satisfied. A depreciation/devaluation will lead to a fall in the price of exports and a rise in the price of imports. Theory would suggest that demand for exports will rise and the demand for imports would fall, hence the improvement in the current account. Whether this improvement in the current account happens depends upon the price elasticity of demand for exports and imports. Also, there is a time lag involved between when the depreciation takes place and when the improvement starts in BOP. This pattern of the BOT is depicted in the form of J-curve. Marshall-Learner has given the most useful insight on how can the Balance of Payment be improved in such situation.

$$E^xd + E^md > 1$$

This condition says that if the sum of price elasticity of demand (Exd) for export and price elasticity of demand for import (Emd) is greater than 1, only then the Balance of Trade will improve. This condition tells us whether the foreign exchange market is stable or unstable. If this equation is satisfied then the foreign exchange is stable and if this sum is less than 1 then the market is unstable and is it is equal to 1, then the change in exchange rate will leave the Balance of Payments unchanged.

However, the overall effect of the devaluation or the depreciation has an effect on the BOP of a country in three ways:

i. The imports become costlier and so their volume reduces

ii. The exports are encouraged as they become cheaper for the rest of the world

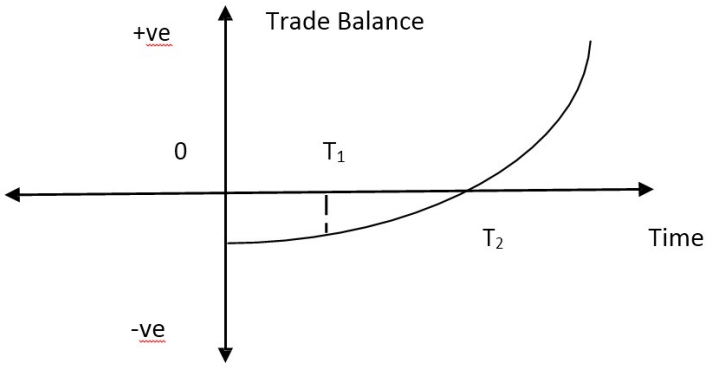
iii. Lesser foreign currency is earned by a given quantity of exports

Therefore, the ultimate effect depends upon how the imports and exports of a country respond to the depreciation which in turn depends upon the import and export demand elasticity. So, any combination of export and import elasticities that satisfies the Marshall-Lerner condition will cause the first two effects described above to outweigh the third, leading to an improved trade balance. However, one thing to take into consideration is that if the supply elasticities are low, then the Marshall-Lerner Condition will only be the sufficient condition and not the necessary condition.

J-curve is an important theory related with the Marshall – Lerner Condition. This says that immediately after the devaluation of the currency, the BOP may worsen because domestic currency prices of imports rise faster than the fall in export prices. Therefore, the quantity does not change immediately. So, initially the BOP deficit

may rise and then after some time it starts increasing. Thus, this takes shape of the J-curve.

The liaison of exchange rate and trade balance is an imperative basis for the foreign policy of any country. According to Classical economic theory, the affiliation of exchange rate and trade balance can to a great extent be explained by Marshall-Lerner condition and J-curve. Majority of the studies assessing the impact of currency depreciation on the external account of a country have focused on the well known Marshall- Lerner condition, which is a long run effect and the J-curve shows the balance of trade pattern following the devaluation.



Upto T_1, the BOP worsens

After T_1, BOP starts improving

At T_2, BOP deficits becomes zero

After T_2, Bop starts improving

So, as visible in the diagram above, when the real depreciation of the currency takes place, the BOT will worsen for short- period but eventually the BOT will improve and supposedly should never reach back to the pre-depreciation level. However, due to the paucity of the accurate data, in order to analyze the trade balance, Marshall –Lerner Condition and the import and export elasticities are used.The major objectives of this research study

a. To compare the exports and import pattern of India, Pakistan and China with respect to the policies and the economic scenarios
b. To derive the J-curve pattern using the trade balance of the 3 countries.
c. To scrutinize India, Pakistan and China's international trade using the Marshal-Lerner Condition model.
d. To focus on the strengths and bottlenecks faced by India, Pakistan and China.

2. LITERATURE REVIEW

An in depth literature review has been done and it was observed that no study have been undertaken to analyze the J-curve phenomena in India, Pakistan and China and very few studies have been done to estimate the Marshall –Lerner Condition in these countries. However, many economists all over the world have tried to scrutinize these two concepts. The countries where the J-curve pattern was clearly depicted were Italy (1992-1993), Mexico (1994-1995), Korea(1997-1998) and Poland (2009). European ERM crisis in 1992 actually helped the Italy's economy to improve the BOP after 1992 second quarter as its currency devalued. Moreover, in the case of Mexico in 1995, through a combination of devaluation and expenditure reducing policies, the large trade deficits were quickly converted into the large trade surpluses. The same was the case with Korea in 1998(*Council of Economic Advisers,1998).*

The empirical assessment of these conditions encompasses a wealthy heritage and numerous studies have attempted to find the nature of the relationship between exchange rate volatility and trade. The studies conducted in the 18th and 19th century mainly used the least square methods to guesstimate price elasticities in import and export equations and many of them bent mixed results (Khan 1974, Goldstein and Khan 1985, Wilson and Takacs 1979, Warner and Kreinin 1983, Bahmani-Oskooee 1986, Krugman and Baldwin 1987). But, these theories are mainly criticized because they did not check the stationarities of the data and hence the result seemed to be biased. As a result, recently modern econometric techniques implying non-stationarities and reduced-form equation in the data has been used and many studies resulted to support the ML condition (Bahmani-Oskooee 1998, Bahmani-Oskooee and Niroomand 1998, Caporale and Chui 1999, Boyd, Caporale and Smith, 2001).

The research so far done on the developing countires are included in this paper and discussed here. By reviewing these studies no definite conclusion can be drawn for developing countries. Eita, Joel Hinaunye (2013) finds evidence in favour of Marshall-Lerner condition for Namibia using a cointegration model and also estimates income elasticities of trade for the country. When the SAARC countries are taken into consideration namely India and China, 2 studies were conducted which concluded that Marshall-Lerner is fulfilled they are Ritesh Pandey(2012) for India and Yun Zheng(2012) for China. Judith Olivia Canipe (2012) conducted a study in Ghana to test the ML condtion prior to 1983 using OLS and panel regressions and the theory was not agreed upon.

3. RESEARCH METHODOLOGY

In order to analyze the J-curve pattern, the exports and imports trends are studied in detail using the graphical representations and then the trade balance is used to derive the J-curve. In order to analyze the Marshall-Lerner condition, five variables are taken in this study namely; E xports, Imports, Gross National Income (GNI), Exchange Rate and the World Income (GNI of 107 countries). The annual data for these variables

are collected from the World Bank database in order to maintain the consistency of source. A model consisting of the two equations have been formed namely export equation and the import equations in order to estimate the export and the import elasticity. However, prior to that ,all these data have been converted to Log in order to test the Stationarity and the Cointegration and to get the most accurate results. Therefore, a three step analysis is done to reach at the final conclusion.

The first step is to test for the **Stationarity** of the series using Unit Root Test by applying SAS software. Afterwards, the series are tested for **Cointegration** using Augmented dickey-fuller test by applying SAS software and finally the model is run for the **Ordinary Least Square Technique** to find out the slope coefficients which are further used to find out the export and import demand elasticity.

log X = B1 + B2log WI +B3log ER +a1————————————to calculate Export Elasticity———(1)

log Y = B1 +B2log DI + B3log ER +a2————————————to calculate Import Elasticity———(2) Where,

- **X= Exports (as percentage of GDP)**
- **Y= Imports (as percentage of GDP)**
- **WI= World Income**
- **DI= Domestic Income (GNI)**
- **ER= Real Exchange rate (In terms of dollar)**

4. DATA ANALYSIS

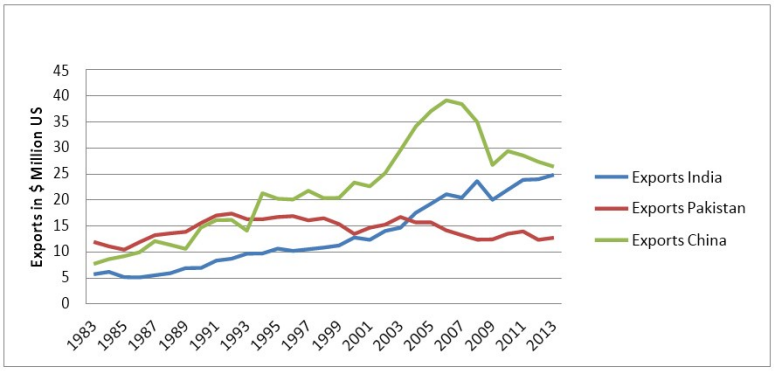
This section is divided into two parts where in the 1st section, the export and import trend of India, Pakistan and China is studied for 1983-2013 and then in order to analyze the J-curve; the trade balance is discussed in detail with respect to the economic scenarios and the policies undertaken during this period. The 2nd section focuses on the Marshall-Lerner condition in the 31 year span.

4.1 J-curve analysis

The J-curve is basically the graphical reflection of the trade balance and the trade balance depends upon the exports and imports of the country. Therefore, in order to analyze the trade balance, it is important to first study the patterns of exports and imports in detail.

4.1a India, Pakistan and China's export pattern

Figure 1: Exports of India, Pakistan and China (1983-2013)

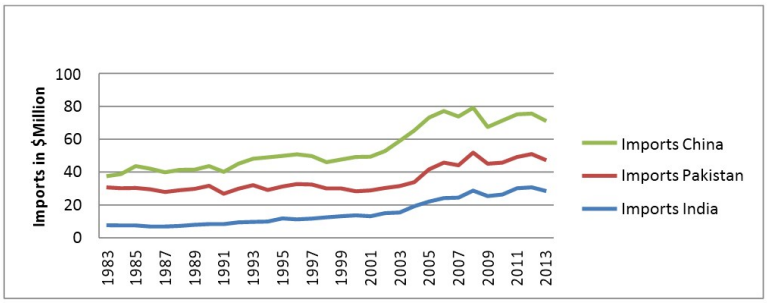


Source: Compiled by the author from Appendix 1, Appendix 2 and Appendix 3

The figure 1 represents that there have been a substantial increase in the India's and the China's export pattern since 1991. However, Pakistan's exports followed a constant trend line. To be precise, India 's export share started to show an upward swing from 1991 as a result of the opening up of the economy under the LPG model adopted during the reform period. Prior to the reforms, the exports sector was completely ignored as a medium of development of the country. Also, the Indian currency was heavily depreciated in the market during the crisis of 1990 and the 20017 recession which led to increased demand of the Indian products. Indian exports was at the peak during 2003-2009. Somewhat similar situation can be noticed for the China's surge in the exports. The China's growth was a two form phases. The first phase was in 1970s wherein the modern technologies were adopted, foreign investment was promoted and a boost was noticed in the entrepreneurship. The second phase started in the 1990s which focused on the privatization model and disinvestment of the state owned units in order to increase efficient utilization of resources. All these factors led to the fast development of the China's economy. When comparing India and Pakistan, as we can see that from 1980s to late 1990s, the share of Pakistan in terms of exports in GDP was higher than India. But since last one and a half decade Pakistan is running into a financial crisis. The seeds for the crisis in Pakistan were sown in the early 1990s when the political parties of their country started to depend heavily on the foreign remittances. Also, the government stressed upon the public sector importance in the economy. These with many other factors completely changed the structure of the Pakistan Economy.

4.1b India, Pakistan and China's import pattern

Figure 2: Imports of India, Pakistan and China

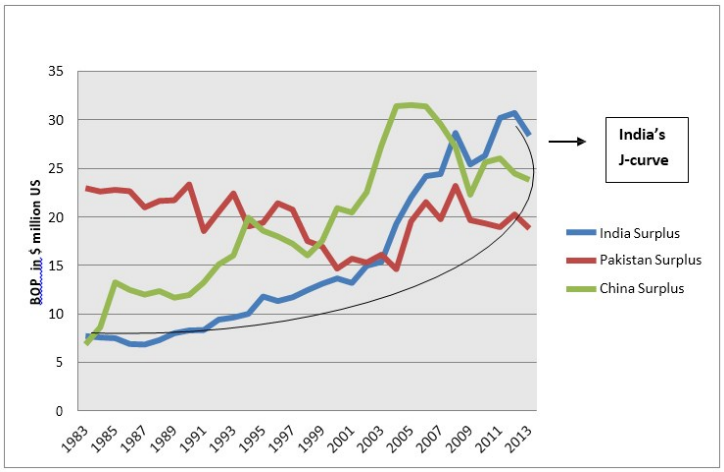


Source: Compiled by the author from Appendix 1, Appendix 2 and Appendix 3

Figure 2 shows the trend line of the imports of the three countries. The imports of China were maintaining a steady rate until 1990'S. Thereafter, a small surge was noticed which further increased in 2001. Among the 3 countries, the lowest imports were noticed in the case of India till 2000. But subsequently, the upward trend was noticed in the imports. The major reason for this attributes to the depreciation of the Indian currency in the exchange rate market majorly in 2007. As we can see in Figure 2, that Pakistan has maintained although more a constant imports tendency in the long period of 20 years (1983-2003) but after that there is an increment in its imports but that too was not so substantial increase. One of the major reasons for this is that Pakistan faces a huge cost of transaction trade of growth.

4.1c India, Pakistan and China's BOP pattern: J-Curve

Figure 3: BOP to verify J-curve



Source: Compiled by the author from Appendix 1, Appendix 2 and Appendix 3

As we can see in Figure 3 that there is a J-curve resembling curve for India and China. In the case of India, the trade balance was on the lower side with very small surge till 1995. However, when the reforms were adopted in 1991 and when the quantities got adjusted after a time lag of about 5 years, the BOP surplus started rising at a high rate. This leads to the **J-curve verification in India**.

Throwing light on the China's trade balance shows that there have been various phases of the J-curve. The credit to this goes for the two-phase reforms that took place During 1980s and then in 1990s which has led to J-curve resembling curve from 1983-1995 and then the economy experienced a setback and again it started improving from 1996-2005. In the 31 period, the **J-curve is verified for China**.

The strange fact to note is that the **J-curve is not satisfied in the Pakistan**. One of the major reasons may be that this country has a stagnant exports and imports moving in a fixed bracket of GDP share. As a result of which the trade surplus is also seen to be in the bracket of $15-25 million US. As we will see in the section 4.2 that Marshall-Lerner Condition with high export elasticity is also satisfied in this country.

4.2 India's Marshall-Lerner Condition

This section analyses the India, Pakistan and China's international trade front economy from 1983-2013 with respect to the Marshall- Lerner Condition. For each country, there are two tables: one table signifying the export trend and the export elasticity and the other indicating the import pattern and the import elasticity. Then, finally the Marshall-Lerner condition is found which is followed by the comparison between these 3 countries on the basis of various variables. All the results are supported with extensive theoretical framework and viewpoints.

Table 1: Export Equation of India (1983-2013)

Regression .Statistics				
Multiple R		0.613805		
R Square		0.376756		
Adjusted R Square		0.332239		
Standard Error		0.375033		
Observations		31		
	Coefficients	***Standard Error***	***t Stat***	***P-value***
Intercept	-2.14075	3.763474	-0.56882	0.57401
Exchange Rate	0.926494	0.697401	1.328495	0.194741
World Income	0.305988	0.756877	0.404277	0.689081

Source : Compiled by the author from Appendix 4

Hence, we can write the following equations using the result in Table 1:

- **Log X = -**2.14075 + 0.926494 ER +0.305988 WI
  (3.76) (0.69) (0.75)
- **Export elasticity =** 1/ 0.9264 = 1.079
- **World Income Elasticity =** 1/ 0.3059 = 3.26904

DISCUSSION OF TABLE 1:

1. As multiple regressions is 0.61. So, it indicates that there is a very high level of correlation between the dependent (Export) and independent variables (World Income and Exchange rate).
2. R2 is 0.37 therefore 37 % of the variation in Exports is explained by the World Income and the Exchange rate.
3. A 1% appreciation in the Real Exchange rate causes the exports (as a percentage of GDP) to increase by 1.09%.
4. A 1% increase in the World Income causes 3.269 increases in the exports.

Here, the affect of the changes in real exchange rate and the World Income on the exports is represented in the value terms (Price *Quantity). Moreover, supply and demand quantities take time to adjust. There are various lap years involved. Apart from that there are various factors which influenced the exports of India discuss later in this paper.

Table 2: Import Equation of India (1983-2013)

Regression Statistics				
Multiple R		0.978472		
R Square		0.957406		
Adjusted R Square		0.954364		
Standard Error		0.047304		
Observations	31			
	Coefficients	***Standard Error***	***t Stat***	***P-value***
Intercept	-1.16195	0.103437	-11.2334	6.96E-12
GNI	0.660969	0.051519	12.82957	3.03E-13
Exchange Rate	0.329696	0.050914	6.475534	5.14E-07

Source : Compiled by the author from Appendix 4

Hence, we can write the following equations using the result in Table 2:

- **Log Y = -**1.16195 + 0.32969 ER + 0.660969 GNI
  (0.10) (0.05) (0.05)
- **Import elasticity =** 1/0.32969 = 3.03315
- **Domestic income elasticity =** 1/ 0.660969 = 1.51293

DISCUSSION OF TABLE 2:

1. As multiple regressions is 0.97. So, it indicates that there is a very high level of correlation between the dependent (Import) and independent variables (Domestic Income and Exchange rate).
2. R2 is 0.95 which is very good fit as it means that 95% of the variation in Imports is explained by the Domestic Income and the Exchange rate.

3. A 1% appreciation in the Real Exchange rate causes the imports to increase by 3.03%.
4. A 1% increase in the domestic income causes 1.51% increase in the imports.

Here, the affect of the changes in Real Exchange rate and the Domestic Income on the imports is represented in the value terms (Price *Quantity). Moreover, supply and demand quantities take time to adjust. There are various lap years involved. Apart from that there are various factors which influenced the imports of India discuss later in this paper.

Marshall –Lerner Condition in India (1983-2013)

So, using export and import elasticity from the above we can write Marshall-Lerner condition is 1.079+3.033=4.112. Therefore, since it is greater than 1, Marshall-Lerner equation is justified for India for the period 1983-2013.However, there are various points worth noting which have influenced the international trade such as these 31 years witnessed following dramatic changes:

1. The reforms began in 1991 which have contributed significantly in the international trade.
2. In 2004, Indian ocean earthquake and Tsunami took place
3. The year 2008 experienced the depression
4. North India floods in 2013.

3.3 Pakistan's Marshall-Lerner Condition

Table 3: Export Equation of Pakistan (1983-2013)

Regression Statistics				
Multiple R		0.34945		
R Square		0.122115		
Adjusted R Square		0.059409		
Standard Error		0.058444		
Observations	31			
	Coefficients	***Standard Error***	***t Stat***	***P-value***
Intercept	-0.18954	0.713496	-0.26566	0.79245
Log exchange rate	-0.1674	0.114944	-1.45638	0.15641
Log World Income	0.26039	0.142728	1.824379	0.078784

Source : Compiled by the author from Appendix 5

Hence, we can write the following equations using the result in Table 3:

- **Log X =** -0.189 - 0.1674 ER + 0.26039 WI
  (0.71) (0.11) (0.14)
- **Export Elasticity =** 1/0.1674 = 5.97
- **World Income Elasticity =** 1/ 0.26039 =3.840

DISCUSSION OF TABLE 3:

1. As multiple regressions is 0.34. So, it indicates that there is a very high level of correlation between the dependent (Export) and independent variables (World Income and Exchange rate).
2. R2 is 0.12 therefore only 12 % of the variation in Exports is explained by the World Income and the Exchange rate.
3. A 1% appreciation in the Real Exchange rate causes the exports (as a percentage of GDP) to decrease by 5.97%.
4. A 1% increase in the World Income causes 3.84 increases in the exports.

Table 4: Import Equation of Pakistan (1983-2013)

Regression Statistics				
Multiple R		0.829279		
R Square		0.687703		
Adjusted R Square		0.665396		
Standard Error		0.034745		
Observations		31		
	Coefficients	***Standard Error***	***t Stat***	***P-value***
Intercept	0.714394	0.130956	5.455209	8E-06
Log GNI	0.412048	0.067733	6.083378	1.46E-06
Log exchange rate	-0.34845	0.044781	-7.78112	1.78E-08

Source : Compiled by the author from Appendix 5

Hence, we can write the following equations using the result in Table 4:

- **Log Y =** 0.7143 -0.3485 ER + 0.4120 GNI
  (0.13) (0.04) (0.06)
- **Import Elasticity =** 1/ 0.3485 = -2.869
- **Domestic Income Elasticity =** 1/ 0.41240 = 2.4248

DISCUSSION OF TABLE 4:

1. As multiple regressions is 0.82. So, it indicates that there is a very high level of correlation between the dependent (Import) and independent variables (Domestic Income and Exchange rate).
2. R2 is 0.68 which means that 68% of the variation in Imports is explained by the Domestic Income and the Exchange rate.
3. A 1% appreciation in the Real Exchange rate causes the imports to decrease by 0.286%.
4. A 1% increase in the domestic income causes 2.42% increase in the imports.

Marshall-Lerner condition in Pakistan (1983-2013)

So, using export and import elasticity from the above we can write Marshall-Lerner condition is 5.97 + 2.869 =8.839. Therefore, since it is greater than 1, Marshall-Lerner equation is justified for Pakistan for the period 1983-2013.However, there are various issues worth noting which might have affected the outcome. The point to note here is that although Pakistan is having high export elasticity and even the Marshall-Lerner Condition is verified but it still not justifies the J-curve pattern. At the same time, the exports can be explained only 12% by the World Income and the Exchange rate. These are some contradicting results in the case of Pakistan that need focus if the country is to achieve a high share in the International Market and develop to the heights of its potential.

1.4 China's Marshall-Lerner Condition

Table 5: Export Equation of China (1983-2013)

Regression Statistics					
Multiple R		0.978162			
R Square		0.956801			
Adjusted R Square		0.953716			
Standard Error		0.043964			
Observations		31			
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*
Intercept	-3.32283	0.32301	-10.2871	5.13E-11	-3.98448
Log Exchange Rate	0.298859	0.071333	4.189611	0.000252	0.152739
Log world Income	0.709623	0.05891	12.0459	1.36E-12	0.588951

Source : Compiled by the author from Appendix 6

Hence, we can write the following equations using the result in Table 5:

- **Log X = -3.32283 +** 0.2988 ER +0.709623 WI
  (0.32) (0.07) (0.05)
- **Export Elasticity =** 1/ 0.2988 = 3.3467
- **World Income elasticity =** 1/ 0.709623 = 1.4091

DISCUSSION OF TABLE 5:

1. As multiple regressions is 0.97. So, it indicates that there is a very high level of correlation between the dependent (Export) and independent variables (World Income and Exchange rate).
2. R2 is 0.95, so 95 % of the variation in Exports is explained by the World Income and the Exchange rate.
3. A 1% appreciation in the Real Exchange rate causes the exports (as a percentage of GDP) to increase by 3.34%.
4. A 1% increase in the World Income causes 1.4% increases in the exports.

Table 6: Import Equation of China (1983-2013)

Regression Statistics				
Multiple R		0.931767		
R Square		0.86819		
Adjusted R Square		0.858775		
Standard Error		0.064017		
Observations		31		
	Coefficients	***Standard Error***	***t Stat***	***P-value***
Intercept	0.28377	0.078108	3.633027	0.001113
Log GNI	0.203363	0.031783	6.398382	6.31E-07
Log Exchange Rate	0.486253	0.079114	6.146207	1.24E-06

Source : Compiled by the author from Appendix 6

Hence, we can write the following equations using the result in Table 6:

- **Log Y =** 0.28377 + 0.486253 ER + 0.203363 GNI
  (0.07) (0.03) (0.07)
- **Import elasticity =** 1/ 0.486253 = 2.0565
- **Domestic Income elasticity =** 1/ 0.203363 = 4.91731

DISCUSSION OF TABLE 6:

1. As multiple regressions is 0.93. So, it indicates that there is a very high level of correlation between the dependent (Import) and independent variables (Domestic Income and Exchange rate).
2. R2 is 0.86 which means that 86% of the variation in Imports is explained by the Domestic Income and the Exchange rate.
3. A 1% appreciation in the Real Exchange rate causes the imports to increase by 2.05%.
4. A 1% increase in the domestic income causes 4.91% increase in the imports.

Marshall-Lerner condition in China (1983-2013)

So, using export and import elasticity from the above we can write Marshall-Lerner condition is 3.3467 + 2.0565 =5.4032. Therefore, since it is greater than 1, Marshall-Lerner equation is justified for China for the period 1983-2013. However, there are various points worth noting which might have affected the results. The most important to discuss is the twin reform policies adopted in 1980s and 1990s which led to the overall efficient utilization of the resources as a result of privatization. Also, a major role has been played by the manufacturing sector of the country. But now, since the manufacturing sector has reached the saturation point, so the China's economy is facing turmoil. Therefore, the country is on the track of adopting policies in order to boost up and gain back its economic position.

5. Discussion and Conclusion

The results show that the Marshall-Lerner condition is satisfied in India, Pakistan and China, though there is difference in the degree of satisfaction and also the presence of J-curve pattern is proved in India and China but it is not verified in Pakistan in spite of the high export elasticity. Broadly we can conclude and compare the outcomes of the three countries in the Table 7 in order to have a clear look at these country's economies.

Table 7: India, Pakistan and China: At a glance (1983-2013)

Variable/Country	India	Pakistan	China
Export Elasticity	1.079	5.97 **(Highest)**	3.346
Import Elasticity	3.033 **(Highest)**	2.869	2.056
World Income Elasticity	3.269	3.840**(Highest)**	1.409
Domestic Income Elasticit	1.512	2.424	4.917**(Highest)**
Marshall-Lerner Conditio	4.112 (Verified)	8.839 (Verified) **(Highe**	**s** 5.4032 (Verified)
J-curve Presence	Yes	No	Yes

Source : Compiled by the author from Table1, Table2, Table3, Table4, Table5 and Table 6

As we can see from the Table 7 above that Pakistan have the highest export elasticity and the world income elasticity and even then the presence of J-curve cannot be tracked. In addition to the prevailing confusion, the Marshall-Lerner Condition is also highest in Pakistan. One theory which might support is that Pakistan is suffering from the domestic bottlenecks. Therefore, it is essential to recognize them and form policies to curb the hurdles. Some of them are the poor infrastructural facilities as a result of which Pakistan is unable to take advantages of the international agreements, regulatory issues and the biggest issue the country facing is terrorism and a poor state-controlled market. Hence, it needs immediate policies to recover the damaged economy, stabilize it and then follow the track of development. China is also facing the economic slowdown accruing to factors such as a prolonged depreciation of its domestic currency as a result of which it is losing the trust from its foreign investors. Moreover, its population has declined over the previous years and therefore, there is shortage of workforce. Adding to this is the saturation of the manufacturing sector which has been the steady source of development in China since decades. Hence, the respite lies in increasing the labor force and a rapid innovation in the economy. Therefore, it will not be wrong to say that China needs structural changes.

The J-curve and Marshall-Lerner Condition is satisfied in the Indian economy as real devaluation causes a decrease in the trade balance in the short-run and an increase in the long-run. Therefore, the real depreciation of the currency can actually act as the key driver for the trade balance growth. Thus, establishing the relationship between the India's trade balance and the Indian currency would carry practical significance for the nation's conduct monetary policy. The major point to notice is that in spite of export elasticity being so high, so the depreciation should actually

increase the exports by a large amount but there are various constraints which a country like India faces while increasing the exports. Moreover, various events took place in during this period which has led to the justification. An attempt is made in order to analyze this area and the domestic bottlenecks faced by the Indian economy.

Generally in the short-run, the export elasticity is low mainly because there are long term supply contracts, Consumers need time for substitution, Pricing to market – keeping foreign prices constant in order to keep market share.

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Appendix 1 : India

Year	Log Exports	Log Imports	Log GNI	Log exchange rate	Log world Income
1985	0.7129858	0.87585464	2.477121	1.092325812	5.79
1986	0.7081375	0.83897559	2.50515	1.100743786	5.84
1987	0.740993	0.83631975	2.556303	1.112655264	5.91
1988	0.7731429	0.86491089	2.60206	1.143548228	5.99
1989	0.8385475	0.90371409	2.60206	1.210198089	6.03
1990	0.8408453	0.91945613	2.591065	1.243124899	6.03
1991	0.9215744	0.92153578	2.544068	1.35683693	6.06
1992	0.9390459	0.97427622	2.544068	1.413602882	6.1
1993	0.9851896	0.98444287	2.518514	1.484204308	6.11
1994	0.987562	1.00062654	2.544068	1.496566328	6.12
1995	1.027638	1.07248003	2.579784	1.510907798	6.16
1996	1.0088634	1.05481812	2.612784	1.549410049	6.18
1997	1.0214567	1.06904183	2.623249	1.560065548	6.19
1998	1.0345711	1.09560335	2.623249	1.61552254	6.18
1999	1.0513336	1.11837112	2.653213	1.634027914	6.18
2000	1.1063008	1.13557979	2.662758	1.652648578	6.2
2001	1.0913834	1.12068345	2.672098	1.673816975	6.2
2002	1.1467028	1.17555671	2.672098	1.686728473	6.24
2003	1.1670304	1.18681212	2.724276	1.668230103	6.32
2004	1.24431	1.28569498	2.799341	1.65625604	6.38
2005	1.2851104	1.34291673	2.869232	1.644438343	6.42
2006	1.3236537	1.38432326	2.913814	1.656165386	6.47
2007	1.3102874	1.38819534	2.982271	1.616460109	6.49
2008	1.3729349	1.45740103	3.021189	1.638541003	6.44
2009	1.3021062	1.40530087	3.068186	1.684892617	6.42
2010	1.3418359	1.4205832	3.11059	1.660161428	6.44
2011	1.3851512	1.48779882	3.161368	1.669042143	6.43
2012	1.3878357	1.49303881	3.190332	1.727843965	6.45
2013	1.4007558	1.44903197	3.1959	1.767881648	6.35

Source : WorldBank Databank
http://databank.worldbank.org/data/home.aspx

Appendix 2 :Pakistan

Year	Log Exports	Log Imports	Log GNI	Log exchange rate	Log World Income
1985	1.018007271	1.358204828	2.568201724	1.202171926	5.79
1986	1.07557427	1.355386447	2.556302501	1.221349241	5.84
1987	1.121718369	1.322294293	2.591064607	1.240519296	5.91
1988	1.133105138	1.335862622	2.62324929	1.255351917	5.99
1989	1.142486769	1.337398524	2.612783857	1.312631978	6.03
1990	1.191403695	1.368680789	2.612783857	1.336607309	6.03
1991	1.230370821	1.268525094	2.612783857	1.376590947	6.06
1992	1.239532254	1.31235844	2.633468456	1.399375871	6.1
1993	1.212360094	1.351039693	2.643452676	1.448817326	6.11
1994	1.211721499	1.279770377	2.643452676	1.485247015	6.12
1995	1.222975661	1.288311481	2.672097858	1.500273305	6.16
1996	1.227966406	1.330961878	2.681241237	1.55725068	6.18
1997	1.206338795	1.317443039	2.681241237	1.613963587	6.19
1998	1.21708345	1.243705951	2.653212514	1.65366266	6.18
1999	1.186207374	1.229591327	2.653212514	1.694611267	6.18

2000	1.12844207	1.166971023	2.672097858	1.729555046	6.2
2001	1.166120331	1.196231309	2.681241237	1.791881175	6.2
2002	1.182517855	1.185089004	2.698970004	1.776147299	6.24
2003	1.223209451	1.207513953	2.73239376	1.761567004	6.32
2004	1.194983058	1.165340175	2.792391689	1.765354552	6.38
2005	1.195608977	1.291453095	2.851258349	1.774622607	6.42
2006	1.150263945	1.333402268	2.903089987	1.780110811	6.47
2007	1.121054463	1.296134394	2.949390007	1.783464176	6.49
2008	1.092801704	1.365710515	2.995635195	1.847622214	6.44
2009	1.093272894	1.293938929	3.017033339	1.91229058	6.42
2010	1.130856789	1.286740638	3.025305865	1.930408073	6.44
2011	1.144892613	1.277941149	3.056904851	1.936229062	6.43
2012	1.091020702	1.306667753	3.096910013	1.970324544	6.45
2013	1.10530561	1.274646647	3.139879086	2.007017222	6.35
2014	1.089095275	1.27241257	3.706717782	2.004751535	6.53

Source : WorldBank Databank
http://databank.worldbank.org/data/home.aspx

Appendix 3 :China

Year	Log Exports	Log Imports	Log GNI	Log Exchange Rate	Log world Income
1983	0.8855074	0.836482637	2.34242268	0.295715504	5.78
1984	0.935749924	0.936269804	2.38021124	0.365495785	5.78
1985	0.962522833	1.123024816	2.44715803	0.467853421	5.79
1986	0.997424231	1.096597946	2.50514998	0.538170375	5.84
1987	1.082455262	1.079216859	2.50514998	0.570788037	5.91
1988	1.055384903	1.092185423	2.51851394	0.570788037	5.99
1989	1.025252945	1.067838592	2.51851394	0.575777477	6.03
1990	1.167394484	1.07805203	2.51851394	0.679719297	6.03
1991	1.20691645	1.122820051	2.53147892	0.72618842	6.06
1992	1.208026406	1.179574663	2.56820172	0.74151336	6.1
1993	1.149676033	1.205143786	2.61278386	0.760570113	6.11
1994	1.327694504	1.299961473	2.67209786	0.935443914	6.12
1995	1.305889906	1.269104112	2.73239376	0.921760152	6.16
1996	1.302195395	1.255362005	2.81954394	0.919819161	6.18
1997	1.337537425	1.237009619	2.87506126	0.918544926	6.19
1998	1.308491051	1.205382488	2.90308999	0.917975697	6.18
1999	1.309581242	1.244751079	2.92941893	0.917938538	6.18
2000	1.3678478	1.320503943	2.96378783	0.917951872	6.2
2001	1.354110393	1.311331976	3	0.917876541	6.2
2002	1.400268063	1.353395675	3.04139269	0.917870725	6.24
2003	1.470668386	1.437348058	3.10037055	0.917874879	6.32
2004	1.532500269	1.497355274	3.17318627	0.917862505	6.38
2005	1.569016617	1.49898855	3.24054925	0.913512743	6.42
2006	1.592467951	1.497302518	3.30963017	0.90164564	6.47
2007	1.58430914	1.471087747	3.39269695	0.881243816	6.49
2008	1.543839895	1.43564059	3.48429984	0.84190075	6.44
2009	1.426772976	1.348404732	3.5575072	0.834510736	6.42
2010	1.468299718	1.408860388	3.62736586	0.830605926	6.44
2011	1.455306046	1.415756665	3.69019608	0.810330749	6.43
2012	1.436498377	1.389233055	3.75739603	0.80018989	6.45
2013	1.421631763	1.377288753	3.81690384	0.792094471	6.35
2014	1.3544599	1.276923224	4.11958577	0.788411204	6.53

Source: Worldbank Databank
http://databank.worldbank.org/data/home.aspx