

# **IMPORT INTENSITY AND EXPORT PERFORMANCE: A COMPARATIVE ANALYSIS FOR INDIA, PAKISTAN AND CHINA**



BY

**Tariq Mahmood**

MPhil Student

Supervisor

**Dr. Muhammad Jamil**

Assistant Professor

School of Economics

Quaid-i-Azam University, Islamabad

Submitted in partial fulfillment of the requirements for the Master of Philosophy  
Degree in Economics at the School of Economics, Faculty of Social Sciences,  
Quaid-i-Azam University, Islamabad

2018

# **IMPORT INTENSITY AND EXPORT PERFORMANCE: A COMPARATIVE ANALYSIS FOR INDIA, PAKISTAN AND CHINA**



BY

**Tariq Mahmood**

MPhil Student

Supervisor

**Dr. Muhammad Jamil**

Assistant Professor

School of Economics

Quaid-i-Azam University, Islamabad

Submitted in partial fulfillment of the requirements for the Master of Philosophy  
Degree in Economics at the School of Economics, Faculty of Social Sciences,  
Quaid-i-Azam University, Islamabad

2018

# **IMPORT INTENSITY AND EXPORT PERFORMANCE: A COMPARATIVE ANALYSIS FOR INDIA, PAKISTAN AND CHINA**



BY

**Tariq Mahmood**

MPhil Student

Supervisor

**Dr. Muhammad Jamil**

Assistant Professor

School of Economics

Quaid-i-Azam University, Islamabad

Submitted in partial fulfillment of the requirements for the Master of Philosophy  
Degree in Economics at the School of Economics, Faculty of Social Sciences,

Quaid-i-Azam University, Islamabad

2018

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

## **Dedication**

**This thesis is dedicated to Allah and my beloved Parents who always blessed me with the best in every walk of life.**

# Certificate

This is to certify that the thesis titled “*Import Intensity and Export Performance: A Comparative Analysis for India, Pakistan and China*” submitted by Tariq Mahmood Registration no: (02091611018) is accepted in its present form by the School of Economics, Quaid-i-Azam University, Islamabad, as satisfying all the necessary requirements for the partial fulfillment of the degree of Master of Philosophy in Economics.

**Supervisor:**

---

**Dr. Muhammad Jamil**  
Assistant Professor  
School of Economics  
Quaid-i-Azam University

**External Examiner:**

---

**Dr Shahzad Hussain**  
Assistant Professor  
National Defense University  
Islamabad

**Head of the department:**

---

**Dr. Muhammad Idrees**  
Associate Professor  
Director  
School of Economics  
Quaid-i-Azam University

# Declaration Form

I Tariq Mahmood, son of Noor Ahmad, Registration no: 02091611018, candidate of MPhil Economics at School of Economics, Quaid-i-Azam university Islamabad, do hereby declare that the thesis “*Import Intensity and Export Performance: A Comparative Analysis for India, Pakistan and China*” submitted for the partial fulfillment of Master of Philosophy (MPhil) degree in Economics, is my own work. All the errors and omissions are lonely goes to me and I also somberly pronounce that it will not be submitted for attaining any other degree in the future from any institution.

**Tariq Mahmood**

# Acknowledgement

In the Name of Allah, the Most Merciful, the Most Compassionate all praise is to Allah, the Lord of the worlds; and prayers and peace be upon Mohammad His servant and messenger.

First and foremost, I must acknowledge my limitless thanks to Allah, the Ever-Magnificent; the Ever-Thankful, for His help and bless. I am totally sure that this work would have never become truth, without His guidance.

I would like to express my great appreciation to my research supervisor Dr. Muhammad Jamil who encourages me at every step of my research. His sage advice, insightful criticisms, and patient encouragement aided the writing of this thesis in innumerable way. I am very thankful to him for his useful suggestion and comments on my work, for the quality time he gave to my thesis. Without his guidance I would never been able to achieve this milestone.

I am highly indebted of School of Economics, its facility and all staff members. I cordially Thanks to Dr. Muhammad Idress Director SOE in cooperating at all format.

I also would like to express my wholehearted thanks to my family for their generous support they provided me throughout my entire life. Because of unconditional love and prayers of my parents I have the chance to complete this thesis. Moreover, I would pay my tribute to my brothers that always stood by me during my research work and assisted me in achieving my goals.

After that I would say thanks to all my friends whose timely support acted as foreign aid for me especially Mr. Imran Zia, Dr. Ahsan ul Haq Satti, Sundas Abbasi, Muzain Batool, Zainab Akbar, Salman Ali Rana, Syed Qasim Raza, Saifullah Mahar and Zubair Tanveer. Thanks to all of you for lending your unending support to me.

**Tariq Mahmood**



# List of Tables

Dedication .....	i
Certificate.....	ii
Declaration Form .....	iii
Acknowledgement .....	iv
List of Tables .....	v
List of Tables .....	viii
List of Figures .....	ix
List of Abbreviations .....	x
<i>Abstract</i> .....	1
Chapter 1.....	2
INTRODUCTION .....	2
1.1 Introduction .....	2
1.2 Objectives of the Study .....	4
1.3 Hypothesis of the Study .....	5
1.4 Significance of the Study .....	5
1.5 Plan of the Study .....	6
Chapter 2.....	7
REVIEW OF LITRATURE.....	7
2.1. Introduction .....	7
2.2 Theoretical Review .....	7
2.2.1 Trade in Pakistan, India and Pakistan .....	8
2.2.1.1 Trade in Pakistan.....	8
2.2.1.2 Trade in China.....	12

2.2.1.3 Trade in India .....	13
2.2.2 Impact of import intensity on Export performance .....	14
2.3. Empirical Literature .....	15
2.3.1 Impact of Exchange Rate on Export Performance .....	16
2.3.4 Impact of trade restrictions on export performance.....	25
2.4. Summary of Reviewed Literature .....	32
Chapter 3.....	33
METHODOLOGY .....	33
3.1 Introduction .....	33
3.2 Theoretical Framework .....	33
3.2.1 Real Effective Exchange Rate .....	34
3.2.2 Trade restrictions .....	36
3.2.3 Trade Barriers in Pakistan .....	37
3.2.4 Import Intensity .....	37
3.3 Empirical Framework.....	38
3.3.1 Model Specification.....	38
3.4 Models based on Panel Data .....	40
3.4.1 Fixed effect Model (FEM).....	41
3.4.4 Random Effect Model (REM) .....	42
3.4.5 Hausman Test .....	43
Chapter 4.....	44
DATA .....	44
4.1. Introduction .....	44
4.2 Nature and Source of the data .....	44
4.3 Trends of Export to Import ratio .....	47

4.4 Trend of Trade Restrictions.....	48
4.5 Trends of Real Effective Exchange Rate .....	49
4.6 Trends of Exports .....	51
4.7 Trends of Imports of Raw Materials .....	52
4.8 Trends in Imports of Intermediate Goods .....	53
4.9 Trends in Imports of Capital Goods .....	55
Chapter 5.....	57
RESULTS AND DISCUSSION .....	57
5.1 Introduction .....	57
5.2 Results of Unit Root Tests .....	57
5.3 Results based on Time Series Regressions .....	59
5.3.1 Estimations for India .....	59
5.3.2 Estimations of China Export Performance.....	62
5.3.3 Estimations of Pakistan .....	64
5.4 Results of Panel Regression .....	66
Chapter 6.....	68
CONCLUSION.....	68
Reference .....	72
Appendix A.....	78

## List of Tables

Table 2.1:	Summary of Reviewed Literature	....	29
Table 4.1:	Description of the variables	....	47
Table 4.2:	Export to Import Ratio of Pakistan, India and China	....	49
Table 4.3:	Trade Restrictions of Pakistan, India and China	....	50
Table 4.4:	Real Effective Exchange Rate of Pakistan, India and China	....	51
Table 4.5:	Exports of Pakistan, India and China	....	53
Table 4.6:	Imports of Raw Material of Pakistan, India and China	....	54
Table 4.7:	Imports of Intermediate Goods of Pakistan, India and China	....	55
Table 4.8:	Imports of capital Goods of Pakistan, India and China	....	57
Table 5.1:	Augmented Dickey Fuller Unit Root Test Statistics Results	....	59
Table 5.2:	Aggregated Imports of India	....	61
Table 5.3:	Disaggregated imports of India	....	62
Table 5.4:	Aggregated imports of China	....	63
Table 5.5:	Disaggregated imports of China	....	64
Table 5.6:	Aggregated imports of Pakistan	....	65
Table 5.7:	Disaggregated imports of Pakistan	....	66
Table 5.8:	Random-effects GLS regression	....	67

## List of Figures

Figure 4.1:	Export to Import Ratio of Pakistan, India and China	....	48
Figure 4.2:	Trade Restriction Index of Pakistan, India and China	....	50
Figure 4.3:	Real Effective Exchange Rate of Pakistan, India and China	....	51
Figure 4.4:	Exports of Pakistan, India and China	....	52
Figure 4.5:	Imports of Raw Material of Pakistan, India and China	....	53
Figure 4.6:	Trends of Import of Intermediate Goods of Pakistan, India and China	....	54
Figure 4.7:	Trends of Import of Capital Goods of Pakistan, India and China	....	56

## List of Abbreviations

Abbreviation	Name
ADF	Augmented Dicky Fuller
BIS	Bank of International Settlement
CPEC	China Pakistan Economic Corridor
CSRM	Cross Section Specific Regression Model
FEM	Fixed Effect Model
KOF	Konjunkturforschungsstelle
LSDV	Least Square Dummy Variable
NTC	National Tariff Commission
OECD	Organization of Economic Corporation and Development
OLS	Ordinary Least Square
PBS	Pakistan Bureau of Statistics
RBI	Reserve bank of India
REER	Real Effective Exchange Rate
REM	Random Effect Model
TSRM	Time Specific Regression Model
WITS	World integrated trade solutions

## ***Abstract***

*This study empirically analyses the impact of import intensity on export performance. A cross country annual data of Pakistan, China and India is taken from 1988 to 2016. All variables in the analysis found to be stationary at first difference. Ordinary Least Square Method is applied to check time series impact between both variables. For comparison of parameters of Import intensity, panel regression is regressed using interactive dummy. Import intensity is divided into two parts as aggregated imports and disaggregated imports. Results indicate that import intensity has positive and significant impact on exports performance in all the three countries but in case of Pakistan responsiveness is relatively higher than the other countries irrespective of aggregated level or disaggregated level. The performance of exports in Pakistan highly depends on the imported inputs. Trade restrictions have not statistically significant impact on exports' performance in observed data.*

# INTRODUCTION

## 1.1 Introduction

Progression of developing nations mainly relies on political and economic systems of these nations. In this era of globalization, no country can remain isolated from other countries so international trade plays crucial part in development of a country. With reference to economic theory and practical knowledge of developed nations, foreign trade work as engine of growth in developing nations of the world (Iftikhar and Chaudhary, 2007). It is perceived that exports of any country are sensitive to the world demand and also to world prices.

Strategies regarding export promotion, import liberalization and appealing foreign investment are the key frameworks of the opening up of external sector. After the creation of World Trade Organization in 1995 the tariff reforms, customs valuation methods, trade and investment policies were aligned with WTO multilateral trading regime. Two major functions of this multilateral trade and investment rule are: 1) all the associated states of WTO are dealt as Most Favored Nation by each member state; 2) lessening the trade restrictions for all member states so that better market openness is obtainable to each associated states. The arguments in favor of following



these policies of import liberalization and liberal foreign direct investment resulted into availability of improved quality of raw materials / inputs, advanced technology at lowermost rate and in sufficient quantity. Due to these liberal policies domestic producers faced enhanced competition from imported products and as a result the quality of domestically produced goods improved.

WTO Annual Reports have observed that during past three to four decades growth in trade by the developing countries was higher than growth in GDP. The commodity exports of emerging nations rose at middling 12 percent annual rate, in compare to the world 10 % as a whole. However, for all developing republics, imports extended quicker than exports, consequential to worsening of trade balance. The details UNCTAD has delivered are multiple. First, with the exclusion of the first-tier freshly industrializing economies already closely combined with the global trading system with a substantial industrial base, the exporting corporations of developing countries still focus on the misuse of natural resources or unskilled labor; these commodities generally absence of dynamism in the world market.

The significance of trade predominantly emerges in 17<sup>th</sup> century when mercantilists started to focus on exports. They largely concentrated on exports in order to get trade surplus and constricted their imports to preserve domestic industries. Then in 18<sup>th</sup> century Adam Smith mainly focused on productive sides of free international trade. He provided the supposition of international trade in his book *The Wealth of Nation* in which he hypothesized that unrestricted trade is largely beneficial for trading nations as compared to restricted trade advocated by mercantilists (Semancikova, 2016).

There are impressive benefits of economic integration and international trade. Numerous nations of the world are switching their economic structures from closed to open economy in order to obtain the rewards of integration (Haile, 2017). Major benefits of trade are that it leads to origination of new thoughts, expertise and information and causes effective utilization of indolent domestic resources (Iftikhar and Chaudhary, 2007). Developing nations of the world have separate trade reforms so the influence of trade liberalization on macroeconomic factors depends on social and economic reforms of these developing countries (Jin, 2006).

## **1.2 Objectives of the Study**

The aim of this research to determine empirically the rationality of export led development strategy, i.e. through the gateway of import intensity, for the Pakistani, Indian and Chinese and economies. This study set out the emerging role of import liberalization policy on import intensity of exports performance. Objectives of the research are based on the prominence of the subject matter:

- to check whether import intensity plays a vital role in enhancing export production and export performance.
- to estimate the separate impacts of raw material, capital good and intermediate goods on Pakistan, China and India's export.
- to examine the comparative analysis of Pakistan, China and India's export performance is effected by imports intensity.
- to check the link or relationship among different type of trade restrictions and input to output procedure.

- to escort the policy experts about suitable policies that are compatible with current trade and economic conditions of the country.

### **1.3 Hypothesis of the Study**

The null and alternative hypothesis of our study is as following

$H_0^1$ : Import intensity has no impact on export performance of Pakistan.

$H_0^2$ : Import intensity has significance impact on export performance of Pakistan.

$H_0^3$ : Import intensity has no impact on export performance of India.

$H_0^4$ : Import intensity has significance impact on export performance of India.

$H_0^5$ : Import intensity has no impact on export performance of China.

$H_0^6$ : Import intensity has significance impact on export performance of China.

### **1.4 Significance of the Study**

The nexus between export performance and import intensity is debatable zone of international economics in the recent epoch. Import is a variable that not only meet the domestic demand but also affect the nations export volume and production ultimately. Imported items enhance the firm's productivity which later on increases the revenue of government in form of exports and foreign reserves.

The major purpose of the present study is to evaluate the economics of import intensity and its impact on export performance in case of Pakistan, China and India. It will also examine what is atlas of trade industry concentration and empirically find out its effects on domestic export performance. Along with the variable of import intensity it is also examined the impact of trade restrictions and real effective exchange rate on all the countries exports performance.

There was research gap regarding inclusion of all inputs like raw material, intermediate goods and capital goods in import variable. Some studies are consisted of capital and intermediate while other summed up the raw material and capital goods as input. In the present study all the three inputs for export are formulated in analysis at aggregated and disaggregated level. Data of trade restrictions is generated by globalization index. Data sources of all variables are mentioned in data chapter and their technique as well.

The present study intimates the understanding of inputs by category wise and furthermore for product wise. Import intensity parameters are also computed and compared among countries by estimation techniques.

### **1.5 Plan of the Study**

To scrutinize the effect of import intensity on Pakistan china and India export performance, current study is distributed into 6 chapters. First two chapters out of all explain the introduction and historical background including literature review of the concerned issue. Chapter three and four comprises over theoretical framework and estimation methodology including data, description of data and nature of the data. Final two chapters are based on empirical and estimation results and results based conclusions. Reference and appendices are given at end of all chapters.

### REVIEW OF LITRATURE

#### 2.1. Introduction

Trade sector is one of the topmost sector in any economy. It wouldn't be erroneous if it is alleged that this external segment is backbone of any nation. Export performance plays an important role in gearing up of economic growth. Import intensity and other variables like real effective exchange rate low rate trade restrictions are major determinants of export performance. There has been lot of literature done over it for different countries. Many researchers' works determine the contributing factor that hurt or enhance export production and performance at different time period. There are number of national and international studies mentioned here for better understanding in this chapter.

#### 2.2 Theoretical Review

The present section is divided into two subsections. Subsection 2.2.1 highlight the trade in Pakistan, China, and India. Further in subsection 2.2.3 theoretical linkages between import intensity and export performance.

## **2.2.1 Trade in Pakistan, India and Pakistan**

### **2.2.1.1 Trade in Pakistan**

In Pakistan the rapidity of trade liberalization has been inconsistent comparatively other developing countries. After getting independence, Pakistan's economy was largely based on primary agriculture sector. Severe dearth of capital, less industry and huge political unrest were the serious problems faced by the country during its early span. To deal with these uncertain and desperate situations, strategies were made to have firm industrial base in the country. For this purpose, trade constraints were implemented for the protection of newly built home industries from competition created by foreign sector. For the promotion of industrial exports many policies were implemented in 1960's these policies includes exports scheme, credit facilities and increase in the value of exchange rate (Yasmin *et al.*, 2006).

The situation was changed in 1970's due to separation of East and West Pakistan after which there was a need of trade liberalization in the country. For this purpose trade liberalization policies were adopted and Pakistani rupee was also devalued up to 47% in 1973 (Hanif and Batool, 2006). In 1980's further tariff and non-tariff restrictions were decreased and custom duties were also reduced from 13% to 5% for more trade liberalization. The formation of WTO in 1995 also supported Pakistan to increase its trade openness with other nations. According to economic survey of Pakistan, average GDP per capita of Pakistan was 3.2% during 1980-1990 but after trade liberalization it reduced to 1.9% on average during 1991-2008. The growth rate of trade deficit was -1.9% on average during 1980-1990 while this deficit increased to 26.8% after liberalization during 1991-2008. So it can be said that trade reforms had badly affected the economic performance of Pakistan. The reason of this bad

economic performance followed by trade liberalization was that Pakistan has not paid much attention on export growth and largely relied on imports from other countries. From many years Pakistan is facing the problem of double deficit that are state budget deficit and trade deficit. Due to trade deficit foreign borrowing is also increasing in the country which further intensifies the economic performance of the country (Chaudhary and Amin, 2012).

Consecutive governments in Pakistan have adopted a regular and wide ranging program of fiscal reforms since it entered into the IMF Structural Adjustment Programme (SAP) in 1988. Over these 30 years Pakistan followed open and liberal trade and investment regime. The import substitution industrial and trade policies were gradually changed to export oriented. In this process all-encompassing reforms were pursued including phased reduction in customs duties (tariff reforms), opening up of financial / banking sector, telecom sector, liberal / market based exchange rate policies, liberal investment and industrial policies etc.

As Pakistan is a member of World Trade Organization so it also has many trade agreements with other member countries of WTO. It is associated with Pakistan-China Free Trade Agreement and also has a trade contract with SAFTA (Khan and Latif, 2009). These trade agreements and the development of trade liberalization had both negative and positive effects on the Pakistan economy.

As compare to other developing nations the impact of trade liberalization on inflation experienced by Pakistan was positive during 1980's and early span of 1990's. But during 2008-2009 it rose to 20.77% that was very high rate and the main reason of this high rate of inflation was very high prices of imports (Munir and Kiani, 2011).

And due to low oil import prices during 2016 Pakistan again experienced low rate of inflation which was 2.9% (World Bank report, 2016). Due to high demand of imports exchange rate of Pakistan is also depreciating with the passage of time.

After trade liberalization Pakistan had also experienced large amount of foreign remittance inflows. During 1980's foreign remittances was the main source of foreign reserves contributed 10% in GDP of Pakistan (Mughal and Anwar, 2012). After independence the country was also experiencing foreign direct investment inflows but after trade liberalization FDI inflows do not much increased in Pakistan as compared to other developing nations of the world. The main reasons of low FDI inflows were high terrorism and political unrest in the country. During the first meeting of SAFTA, a Tariff Liberalization Programme was decided in April 2006. The main impact of this TLP is that the trade of Pakistan with SAARC countries has increased. Exports of Pakistan to SAARC members have increased from US\$ 1,564 million during 2006-2007 to US\$ 2690.23 million in 2015-2016 and imports to SAARC countries also increased from US\$ 527 million during 2003-04 to US\$ 2318.49 million in 2015-16. This situation is showing that Pakistan's foreign sector is continuously facing pressure during 2016-2017.

Although the fall in exports is depressed but merchandise trade exports reduced by 3.06% during 2016-17 and Exports of Pakistan are concentrated only in small number of commodities like cotton & cotton manufactures, leather, rice, and few more goods. Among these, first three items consists of 71.8% of total exports during the fiscal year of 2017 and direction of export Pakistan is still limited to only small number of countries like USA, UK, China and Germany. Imports are continuously growing more speedily and increased by 18.7% throughout first nine months in 2017.



The reason of this high import rate is CPEC's high economic activity specifically in energy sector. The projects of CPEC demands imports of heavy machinery and lead to increase in import bills (Economic Survey of Pakistan, 2016-17).

For the improvement in growth of economy exports are considered as important engine. According to Adam Smith (1776), a country should produce and export that commodities in which it has lower opportunity cost and on the same token a country should specializes in those products where it has relatively more advantage in producing (David Ricardo, (1817). In classical textbook of international economics Hecksher Ohlin (H-O) has great importance in context of trade among nations on the basis of factor abundance and product intensity. According to H-O model a country should produce and exports those commodities where it has relatively cheaper factor of production. There is a hypothesis in economics that imports in the form of raw material, intermediate goods, and capital goods are used as vital inputs in the production process of exports. Higher the amount of imports of these goods causing higher will be the volume of exports and ultimately enhance the export performance. Hence, imports of these goods encourage exports performance. Bader (2006), investigated this hypothesis and found that higher imports of these inputs encourage exports production. Besides this, Feng *et al*, (2016) examined Chinese economy in this regard and inferred out that larger the volume of imports, greater the exports volume resultantly. The study exposed the same results that imported inputs are substantial gauge in improving the capacity of exports in the economy.

### **2.2.1.2 Trade in China**

Trade in China has played a significantly role towards the growth. If global economy had been closed China would likely have grown. China is world's leading industrialized economy and exporters of goods and it are usually known as "Worlds Factory". China become member of "World Trade Organization "in the year of 2001 and has also free trade agreement with many countries including Australia, ASEAN, New Zealand, Pakistan, South Korea and Switzerland. According to IMF, china ranked 71<sup>st</sup> by GDP (nominal) and 78<sup>th</sup> by GDP (PPP) in 2016. Due to rapid access of new products, China's exports increases significantly in last three decades.

China is labor abundant economy which has been experiencing a sharp growth because of several trade policies. In the period of 1950's china only trading partner was Soviet Union. In the mid of 1960's Japan become trading partner of china .however after some time china face trade deficit. The United State banned the exports of China in 1970's. But after making commercial linkages, USA become second largest importer to China. Many developing economies purchase 15 percent exports from China and supply 9 percent imports to China in 1986.

China's market share in US economy share for high technology product and labor intensive products are significantly higher than any other economy. Labor extensive exports products incorporates (toys, garments & simple electronics) plays a vital role towards the export basket of China. Export basket of China is more than any other economy.

China export to those countries whose income level is approximately three times higher than China's but China has by one means or another figured out how to hook on advance and high efficiency product that one would not expect it from labor abundant and a poor country like China to produce and export. Moreover the unit price of export is more sophisticated because of product discrimination that reveals efficiency differentiation.

Foreign investor has played a major role in the industrial revolution China's opens foreign trade investment and create special economic zone where foreign investor can work with good infrastructure. According to IMF China's fast growth in the previous year was due to foreign direct investment and exports. Saving rate has very high and domestic consumption is very low in china. In December 2017 exports raise by 10.9 % while imports increase by 4.5 % as a result of trade surplus of 54.7 % billion.

### **2.2.1.3 Trade in India**

Foreign trade incorporates all exports and imports to and from India. In emerging business sector economies embracing float exchange system and experiencing trade liberalization which appear to have revived the potential effects of exchanged rated moments on merchandise cost. Whereas change in exchange rate increases prices of imports and prompt inflation overall in the economy. In order to counterbalance the crisis of tariff reduction and trade liberalization India shifts to flexible exchange rate.

The economy of India is a diverse developing economy. In the year 1991 trade liberalization, India was a closed country because the regular tariffs increasing 200

percent and the widespread quantitative limitations on imports. Foreign investment was severely limited to only allow Indian ownership of businesses. Therefore, India's economy has enhanced mainly because to rise in foreign trade

In the year 2016 the country categorized as 141<sup>st</sup> in Per capita GDP (Nominal) with \$-1723 and 123<sup>rd</sup> in Per capita GDP (PPP) with \$-6616. India has historically played a vital function in global trade. In India import and exports were controlled by development and regulation Act of 1992.

In the year 2016 in world development outlook India economy grew for first with 7.6%. But in the year of 2017 India's economy declined up to 7.1%. According to IMF in the year 2018 it will again rise up to 7.2%. India has fifteen trading partner that incorporates 59.37% of total trade in the time period of 2015-16. As India is labor abundant country so its export basket is substantially higher than any other country. United States., Germany, Hong Kong, Indonesia. Iraq, Japan, Saudi Arabia, Switzerland, Singapore, China and UAE are trading partners of India. In 2014 India exported US\$-318.2 billion and imported US\$-462.9 billion worth of merchandise.

### **2.2.2 Impact of import intensity on Export performance**

Bas and Kahn (2015) study the effect of imported goods on exports side. For estimation analysis, dataset of imported products is taken from 1995 to 2005 while methods of ACF, OP and least square are used. Results define that Firm's TFP and export has largely affected by greater divergence and large varieties of imported inputs.

Paul (2014) investigates movements of import intensity to export in whole economy and specifically in manufacturing sector of India. For this purpose study use import intensity index and found that the India export to import bulk hike from 10.5% to 18.7% in 1993-94 to 2007-08, respectively.

Topalova *et al.* (2010) examines the association among reduction trade cost, Imports of intermediate inputs and local firm goods. The study use data set from 1987 to 2001 and simple OLS method is used. Results find that there is significant advantage from trade through admittance to new imported inputs in India.

Szeidl *et al.* (2015) find out the effect of imported inputs on domestic production. For estimation using Hungarian micro data from 1993-2002. Results explain that there is 22 per cent rise in firm's revenue productivity if importing all kinds of inputs.

### **2.3. Empirical Literature**

There is empirical analysis on this study after theoretical review that will design the impact of import intensity on export performance. Mixed conclusions are examined in this chapter. Further this unit is segregated into four other sections. Section 2.3.1 defines the global and local studies of real effective exchange rate and its relationship with export. Section 2.3.2 is particularizing the linkage of trade restrictions and export production in case different countries and industries, section 2.3.3 covers the analysis of literature on links between import intensity on export performances.

### **2.3.1 Impact of Exchange Rate on Export Performance**

It has been hypothetically proclaimed that exports play pivotal part in enhancing economic development. According to export-led growth hypothesis, it is presumed that export promotion is one of the important measures of economic growth. It stimulates the overall progress of a country that cannot be achieved only by utilizing manpower and investment within the country (Iqbal *et al.*, 2012). The association between exports and exchange rate inconsistency scrutinized since the late 1970's after the concurrence of Bretton Wood system to move the exchange rate from fixed to flexible rate. At that time the main reason of disapproval of flexible exchange rate was that the flexible currency volatility exhibits insecurity and lowers down the volume of global trade. This volatility of exchange rate since 1973 led the researchers and policy makers to scrutinize the nature and the level of influence of such movements on international trade. Yet the studies dealing the influence of exchange rate inconsistency on volume of international trade provided mixed results (Mustafa and Nishat, 2004). The unfavorable effects of real effective exchange rate inconsistency are probably more vigorous on international trade of developing nations.

As Pakistan is also one of the developing countries, it is important to examine the impact of exchange rate volatility on its exports. After independence Pakistan had followed fixed exchange rate method till 1982 but after that she is following the floating exchange rate system. At initial level fluctuations in exchange rate were very small and Pakistan's imports were increasing with the increase in exchange rate. On the other side exchange rate movements caused oscillations in exports. According to World Bank data, Pakistan's exports enlarged considerably throughout the period

1980-2003 and its contribution to our GDP increased during this span. It was 12.48% of GDP in 1980 and increased to 16.13% of GDP in 2003. During this period increase in exchange rate of Pakistan was not very high as compared to the period after 2003. The trends of exchange rate and exports of Pakistan for the time span 1980-2016 are presented in the figure 2.1.

It is cleared from the figure 2.1 that official exchange rate is increasing drastically after 2007 showing the depreciation of Pakistani rupee. Depreciation in local currency decreases the external currency volumes of exports. This presumably increases the volume of exports and exports earnings in domestic currency. But if the demand of foreign imports are less elastic then this exports revenue may decrease instead of increasing (Fang et al., 2005). Although exchange rate of Pakistan is highly depreciating but it has no greater influence on exports. The reason of this is that from last few years the composition and direction of Pakistan's exports remained almost same. It is concentrated only in small number of commodities like leather, rice, cotton & yarn manufactures, surgical and few other goods. Among these, first three items consists of 71.8% of total exports during the fiscal year of 2017. From last five years the major exporting partners of Pakistan are still USA, UK, China and Germany (Economic Survey of Pakistan, 2016-2017).

Many researches have been conducted in the past to scrutinize the impact of exchange rate on exports of Pakistan and the results of these studies are mixed. From the empirical study of Kumar and Dhawan (1991) it was found that for the period 1974-1985, Pakistan exports to developed nations were adversely influenced with exchange rate volatility. For the time span 1991-2004, exchange rate volatility had

adverse and significant effects on Pakistan's exports to Bangladesh, UK, Singapore, US and Australia while no empirical association was found between exchange rate inconsistency and exports in case of New Zealand and Malaysia (Mustafa and Nishat, 2004). According to the study of National tariff Commission NTC (2015), during the period 2002-2015 exchange rate volatility did not have significant influence on exports of Pakistan there are some other factors that effects export performance of Pakistan like FDI, interest rate, inflation, etc. With respect to the empirical study of Ahmed *et al.*, (2017) during the time span 1972-2015, exchange rate inconsistency had negative and insignificant effect on exports of Pakistan.

From above literature it can be concluded that there are many factors other than exchange rate that affect the performance of Pakistan's exports and these factors can be both political and economic.

Jencova (2014) study objective is to examine the development of imports and exports regarding gross domestic product for the economy of Slovakia for the time span 1993-2012 by using regression tool. The results indicate that surplus is not the outcome of a sharp rise in export performance in fact it is a submissive influx of imports. For rapid growth of Slovakia economy there must be increase in net exports which in turn rise gross domestic product as a result foreign trade surplus increase.

Yeh (1990) study objective is to examine that Lerner's Symmetry theorem holds between export and import quotas in a condition if foreign elasticity of demand for import is elastic. From graphical analysis it is concluded that Lerner's Symmetry



theorem holds between export and import quotas because the foreign elasticity of demand is elastic and if it is inelastic then this theorem doesn't hold.

Hamilton (1997) investigates the foreign trade performance of manufacturing industries of New Zealand for the time period of 1985-1995 by using OLS estimation technique. This study suggests that very high levels of industry concentration are not necessary for upgraded trade performance of an economy.

Bader (2006) empirically analyzes that in the export production of the economy imports of capital and intermediate goods are essential inputs. The data is taken from 1973-2005 of Pakistan. The research estimates a semi-reduced export equation by applying OLS estimation technique. It is concluded that import of capital and intermediate goods plays a vital role in enhancing the total exports of the country however, Pakistan's exports are more sensitive to intermediate imports either than import of capital goods.

Islam (2014) study objective is to analyze the differences or homogeneity between export of China and India and to relate empirically new and old trade theories that focus product diversification and firm heterogeneity. The study uses data on US imports of China and India for the time period of 1992-2010. The findings revealed that there is very little or no competition between India and China because India market shares in the US markets for high-technology products as well as labor-intensive products is lower than China market's shares. Moreover this paper supports new trade theories.

Pulak and Neha (2017) investigate the effect of mergers and acquisitions on the export competitiveness of firms in manufacturing sector of India. The study uses panel data of 33 industries from 2000-2001 and 2007-2008. The findings revealed that mergers and acquisitions boost the export competitiveness of firms. In the international market industries with higher number of mergers and acquisition have higher penetration.

Esteves and Prades (2016) study 12 selected euro economies for the period of 1997 to 2004. For empirical analysis dynamic panel data technique is used. Results indicate that core countries export absorption is eminently based on internal demands moreover, it focuses on more diversification in products category.

Berthou (2008) examines the effect of real exchange rate volatility on OECD Bilateral export. Gravity Model was presented for 20 OECD exporting economies, 52 developed and developing importing economies for the duration of 1990-2002. Research conclude that, In bilateral exports, the effect of real exchange rate volatility is decreased by trade cost due to poor quality of institutions, inefficiency of customs reforms and if country is more at distance.

Oriavwote and Eshenake (2015) observe real effective exchange rate and non-oil exports in Nigeria. The study use ARCH/GARCH and co-integration techniques for the period of 1980-2014 in Nigeria. The results find out a significance role of REER hikes on non-oil exports in Nigeria. Furthermore, a highly diversified production system is the major cause of depreciation in currency rate.

Zhang *et al.* (2013) study the exchange rate appreciation and export price sophistication for Japan, China and Korea. The study uses factor decomposition analysis on daily basis for the period of 2005 to 2012. Results show that significant decline in local manufacturer prices when Korean currency overvalued has boosted Korean exports sophistication in contrast to Japanese firms.

Economic Research Department (2015) examines the effect of the REER on sophistication in Zimbabwe. The study uses Macroeconomics balance approach, Pooled panel regression estimation method for the duration of 2000 to 2015. Research shows that to eradicate the gap among current account norm and the medium term current account forecast, there is a need to reduce REER by 45%.

Bose (2014) observes linkage among real exchange rates and sophistication, the route pertinent to New Zealand. The study use simple and multilateral weighting techniques for the period of 1999-2013. Conventionally currency appreciation has negative effects on domestic exports and price competitiveness but resilient primary exports items in New Zealand aren't effected by real exchange rate appreciation and even domestic output and TOR's also better off.

Sergerey (2006) postulates that the impact of nominal and real exchange rate on exports of six MENA states to different EU economies for the period of 1970 to 2002 on monthly basis while using volatility model. It is determined that these both variables have progressive relation for four countries and regressive relation for the left over countries.

Thursby and Thursby (1987) using the sample of seventeen economies for the period of 1974 to 1982 to examine the currency prices effects on trade flows. The uncertainty in exchange rate movement has negative impacts on trade flow of ten out seventeen countries case. The OLS estimation technique with lagged values is used to capture the econometrics results.

Shahkari (2013) finds out the repercussions of exchange rate ambiguity on the value of export of saffron for the period of 1979 to 2011 while using AR (1) generalized method and vector error correction model. It is inferred out that there is a negatively correlation between value of saffron exports and exchange rate uncertainty as volatility is increased, saffron exports value would be decreased.

Mahmood *et al.* (1996) review the effecting factors of real exchange rate in Pakistan. While using simultaneous equation model (SEM), it is submitted that financial, real sector variables along with trade of goods either by imports or by exports result the shifting in real exchange rate equilibrium over the time.

Kumar and Dhawan (1991) examine the impact of relative prices, effective exchange rate and importers income on export performance of Pakistan. It is concluded that the volatility in exchange is considerably negative while importer income has significant impact on domestic export performance.

Khan *et al.* (2012) examine the repercussion of exchange rate framework for the developing economies. For empirical analysis the monthly data from 1971:01 – 2009:12 is taken while methods of least square dummy variable and GARCH are

used. The results explain that when US dollar is used as vehicle currency in Pakistan then the imports and exports of Pakistan have decreasing trend whereas usage of local currency has no effects on domestic trade patterns.

Bas and Kahn (2011) investigate the performance of export of the firms who have imported the intermediate goods. The researchers employ semi-parametric estimation to analyze the total factor productivity of the companies of France. The study collects data of manufacturing companies of France from 1995 to 2005. The data includes firm level features such as input cost, sales, wages, employment, capital, and trade information of imports and exports of firms. The results of the research are in favor of technology and complementarity arguments for imports. It has high significant relation that use of imported middle goods is the source of increase the firms' total productivity. Moreover, inputs imported from developed countries have more impact on hike in exports than the inputs imported from developing countries. Hence, the more productive firms can export more due to fixed cost and survival in more competitive market.

Rahardja and Varela (2015) examine the impact of imported input on the performance of Indonesian manufacturing sector. The study uses Probit model to empirically analyze the data from 1998-2009. The results depict that manufacturing sector soundly dependent on the imported inputs as the progress of GDP and foreign input are matched. The users of these inputs have more productive factor of productions and provide higher rewards. The quality of final commodity increases due to use of imported inputs.

Anderson *et al.* (2016) analyze the relationship between export pricing and capacity of companies to adopt the imported inputs in India. The researchers use data of four full fiscal years from 2000 to 2003 that cover the businesses of eleven major seaports and airports of India. The findings have revealed that imported input prices and expired commodities prices have positive associations. Moreover, the study concludes that the capacity of firms also has significant positive role in exporter profits however, export prices decreases with distance.

Fan and Li (2012) empirically investigate the impact of imported input quality and imported varieties on export quality and its price under the notion of trade liberalizations. The study designs for quality effect, variety effect and quality ladder which uses the trade data and tariff data of merged Chinese firm. Under the assumption of quality is endogenous across firms, the analysts find that declining in import tariff and increase in productivity persuade the companies to import more varieties of intermediate products and produce higher quality commodities. Hence, both effect lead to quality ladder. However, under the assumption of quality is exogenous across companies, the results are contradictory to assumption of endogeneity.

Parra and Martínez-Zarzoso (2015) analyze the behavior of only-importers, only-exporters (non-traders) and international traders of Egypt. The sample of the study is 519 manufacturing corporations in Egypt with the time span from 2003 to 2007. The simple panel regression analysis concludes that the firms which were involved in global trade are higher, more capitalized, invest more and highly productivity than the non-trading companies in given sample. The authors also use dynamic panel-

Probit models and panel-Tobit models are used for the extensive margin of exports (imports) and for the intensive margin of exports (imports) respectively. The outcomes of these models are interlinked which show that both the importers and exporters are facing sunk cost but it is higher for importer of manufacturing companies of Egypt than the exporters. Furthermore, intensive and extensive imports' margins are affected by previous years' productivity of importers. However, this effect does not prevail in export side.

#### **2.3.4 Impact of trade restrictions on export performance**

Sun *et al.* (2010) examine the effect and economic impact of non-tariff and tariff restrictions on the global forest product. The global forest import export model is used to incorporate the non-tariff trade restrictions and non-tariff are observed to be less common than tariff but have a large impact on trade, revenues, production, consumer expenditure and value added as tariffs. An uncertainty is found in the calculation of ad-valorem tariff and non-ad-valorem tariffs and impact of altering these barriers is different across the region and products. The results pointed out the importance of analyzing and trade liberalization trade of both forms of trade strategy.

Daly and Stamnas (2001) examine that after the Uruguay Round (UR) negotiations, Korea has taken some steps to minimize non-tariff and tariff barriers and pushed inward FDI and it has continued to pursue major reforms. It's a hypothetically main obstacle to the resourceful allocation of resources and sustained growth because of highly miscellaneous levels of protection at the border to domestic industry and addition to it Korea uses many types of NTBs. In agricultural product it consists of many tariffs spikes a result of tariff exercises.

Ur (2015) examined the Tariff-rate quotas (TRQs) in the specific case of Norwegian seafood export to the EU in the existence of costs related to the utilization. By utilizing data from business surveys the study identify the existence of costs related to the utilization of the TRQs the result cannot be generalized but it provide value able information about the impact of TRQs. TRQs are different across the sea food groups of the regions. The survey reveals significant costs related to 61% uncertainty and risk related to problem of utilization of TQRs. The survey confirms the problematic presence of seafood groups although these are reported as too small but can be connected to filled and non-filled TRQs.

Asci *et al.* (2014) study the association of NTMs over Agro-food Trade between the EU and Selected MENA Countries the results reveal that the Institutional and infrastructure quality on total trade-volume exhibits positive relationship between selected MENA countries and EU-28 and Negative effect of non-tariff barriers on trade-volume for industrial products and also shows that Free trade agreements negatively affect the trade flow. In the disaggregated models the institutional quality generally has positive impact on trade flow except for Egypt. There exists low impact of infrastructure on trade with the EU. The non-tariff barriers confirm negative impact on trade and in the last except Egypt, fruits/vegetable exports from MENA countries to the EU will decline as GDP increasing in all MENA countries.

Wang (2001) investigated the import reducing effect of trade reducing barriers. Cross country data is used to inspect this association. The results explain that both tariff and NTBs are notable in regulating the imports. The bilateral trade protection



shows that the current level of trade barriers is still high in 1994 despite of multilateral trade negotiations and unilateral cuts.

Khuu (2012) study investigates the role of other than tariff barriers (NTBs) on Vietnamese catfish export price in the global arena. The monthly data is taken from 1999 to 2011 and the function of Vietnamese catfish export price is constructed on the base of demand and supply theory. To estimate the effects of NTBs on the Vietnamese catfish export price is first-differenced model. The concept of Global Gap in catfish manufacturing method did not illustrated negative effects in the expected results.

Alavi (2007) examined the imposition of Non-tariff and Tariffs Measures on Asian exports of selected environmental goods separately and explore that the major emerging Asian exporters of EGs are from mainly China, Chinese Taipei, Korea, South East Asia and India. The Intra-Asian trade position appears to be remarkable and the tariff rates are also appears to be lower in developed countries as compare to the developing ones. EGs exporters faced many types of NTBs. Developing counties that have competitive advantage in producing EPPs get huge gain in Reduction or elimination of trade barriers. So the improvement in EPPs yields positive externalities in relation to environmental effects and inclusive economic development. Unindustrialized economies do not have a phenomenal advantage in the classical defined environmental industry.

The most important negative impact of trade liberalization and globalization in Pakistan is the burden of high external debt that the country is experiencing since last

few decades. According to Sheikh *et al.*, (2015) because of discontinuous increase in the deficit of developing nations, the external debt is becoming an important part of public debt in these developing nations. Developing countries take the foreign loans for the purpose of financing their developmental projects but they also must have the ability to repay these loans and should use these amounts for only productive purposes (Economic Survey of Pakistan, 2006-2007).

**Table 2.1 Summary of Reviewed Literature**

<b>Study</b>	<b>Country / Time Period</b>	<b>Estimation Technique</b>	<b>Results</b>
Thursby and Thursby (1987)	1974-1982	Dummy variables, standard deviation and OLS with lagged variables.	Volatility has negative effect on trade flows
Her Yeh (1990)	Theoretical Study	Graphically	From graphical analysis it is concluded that Lerner's Symmetry theorem holds between export and import quotas because the foreign elasticity of demand is elastic.
Mahmood et al. (1996)	Cross sectional data	Simultaneous equation model	It is concluded that monetary, real sector variables and trade of goods affect the real exchange rate equilibrium.
Mahmood et al. (1996)	Cross sectional data	Simultaneous equation model	It is concluded that monetary, real sector variables and trade of goods affect the real exchange rate equilibrium.
Hamilton (1997)	New Zealand 1985-1995	OLS	This study suggests that very high levels of industry concentration are not necessary for upgraded trade performance of an economy.
<u>Bahmani-Oskooee (2002)</u>	Daily bases data from 1996 to 2001	Johansen method	Finds that black-market exchange-rate volatility has discouraged Iranian trade flows.
Afridi et al. (2006)	Daily basis data from 1991 to 2004	Co integration and error correction model	Exchange rate volatility has negative effects on export growth.
Bader (2006)	Pakistan 1973-2005	OLS	It is concluded that import of capital and intermediate goods plays a vital role in enhancing the total exports of the country
Berthou	20 OECD exporting	Gravity Model	In bilateral exports, the effect of real exchange rate volatility is

(2008)	Economies, 52 developed and developing importing economies.1990-2002		decreased by trade cost due to poor quality of institutions, inefficiency of customs reforms and if country is more at distance.
Topalova et al. (2010)	India 1987-2001	OLS	Significant advantage from trade through admittance to new imported inputs
Zhang et al. (2013)	Daily basis data From 2005 to 2012	Factor decomposition analysis	Results show that significant decline in local manufacturer prices when Korean currency overvalued has boosted Korean exports sophistication in contrast to Japanese firms.
Jencova (2014)	Slovakia 1993-2012	OLS	For rapid growth of Slovakia economy there must be increase in net exports which in turn raise gross domestic product as a result. Foreign, trade surplus increase.
Islam (2014)	China and India 1992-2010	Empirical Analysis	The findings reveal that there is very little or no competition between India and China because India market shares in the US markets for high-technology products as well as labor-intensive products is lower than China market`s shares.
Mahua Paul (2014)	India 1993-2008	Import intensity index	Import intensity of India`s exports rise progressively from 10.5% to 18.7% in 1993-94 to 2007-08
Bas and kahn (2015)	1995-2005	OLS, OP and ACF model	Firm`s TFP and export has largely effected by greater divergence and large varieties of imported inputs.
Oriavwote and Eshenake (2015)	Nigeria 1980 to 2014	ARCH/GARCH, Cointegration technique	The results find out a significance impact of real effective exchange rate movements on non-oil exports in Nigeria. Furthermore, a

			highly diversified production system is the major cause of depreciation in currency rate.
Szeidl et al. (2015)	Hungary 1993-2002		There is 22% rise in firm's revenue productivity if importing all kinds of inputs.
Esteves and Prades (2016)	12 selected Euro Economies 1997 to 2014	Dynamic Panel data technique	The study results indicate that core countries export absorption is eminently based on internal demands moreover, it focuses on more diversification in products category.
Pulak and Neha 2017	India 2000-2001 and 2007-2008	FEM and REM	The findings reveal that mergers and acquisitions boost the export competitiveness of firms.

*Source: Author's own work.*

## **2.4. Summary of Reviewed Literature**

The previous literature indicates clear picture of correlation among all key variables of the given scenario. The summary of the literature clearly gives an idea to researcher how these variables are consolidated with each other's. One issue is arisen that these variables aren't incorporated in single model in any study. There was research gap regarding inclusion of all inputs like raw material, intermediate goods and capital goods in import variable. Some studies are consisted of capital and intermediate while other summed up the raw material and capital goods as input. In the present study all the three inputs for export are formulated in analysis at aggregated and disaggregated level. It can also be examined the above-mentioned studies and literature there is courtiers comparative analysis is also missing moreover time period of the data is different. All in all, it is apparently said that how all variables effect export performance according to cross country and time series data.

# METHODOLOGY

### 3.1 Introduction

The study observes vicious circle of import intensity and export performance. It also investigates the aftermaths of some other variables on export production like real effective exchange rate and trade restrictions. This chapter is consisted of theoretical framework of the variable and model. Stationary tests, time series regression based on Ordinary Least Square (OLS), and panel regression of the data.

### 3.2 Theoretical Framework

In this chapter, theoretical relationship among variables is described. The economic and trade liberalization policies followed by China, India and Pakistan resulted into export growth at a faster rate and it will become the engine of growth for the whole economy. How exchange rate, trade restrictions, and imports intensity effect export performance, is discussed in this section. Different economics theories and research papers are used in this regard. First of all, the relationship between real effective exchange rate and exports is as follow:

### **3.2.1 Real Effective Exchange Rate**

The real effective exchange rate (REER) is the weighted average of a country's currency relative to an index or basket of other major currencies, adjusted for the effects of inflation. By comparing the relative trade balance of a country's currency against each country we can obtain the weights. US, Japanese and Euro are the example of this type of exchange rate which is used to determine country currency value as compare to other currencies in the index. to measure the value of currency in relation to average bundles of other currencies we used REER. REER is the trade weighted because it's take in to account changes in relative prices and can be used to what can really purchase with a currency .

We get REER by getting a country's nominal effective exchange rate (NEER) and adjusting it to price indices and to the other factors. By removing price inflation and labor cost inflation REER represents NEER of a country. The REER is value of an individual consumer which he pay for an imported good at the consumer level and it's also consist of tariff and transaction cost related to that imported good . REER of a country is also derived by taking the average of bilateral real exchange rate (RER) between a particular country and with the trade partner by assigning weights from using the trade allocation of that country. So REER is an average and it's in equilibrium in relation to one trading partner its overvalued and undervalued in relation to second partner. When assessing current import and export situation and trade capabilities REER is an important measure.



The benefit of using REER is that it can be used to measure the equilibrium value of a country's currency, to find out the underlying factors of a country's trade flows, changes in cost competition and international prices. REER is positively affected by a country's rapid productivity, by which the country realizes low costs and lower prices. The World Bank, Eurostat and Bank of International Settlements (BIS) and others publish various REER indicators, so REER is very important in economic analysis and policy making. The REER analysis published on 113 countries around the globe are provided by these institutions. Real exchange rate is the product of Nominal exchange rate and ratio of domestic price level to world price level. If domestic inflation rises relative to world price level given the nominal exchange rate the real exchange rate rises as a result of this exports become expensive to foreigners and leads to a fall in export earnings.

Two sets of export-based exchange rates are published by RBI: nominal and real exchange rate indices. The REER goes one step ahead by taking into account the moment in domestic price level. REER is the product of NEER and country and world price index. Moments in REER index show whether REER is stable, appreciating or depreciating. The REER determines the competitiveness of export of a country.

According to Malik *et al.*, (2015), the exchange rate of Pakistani rupee is typically articulated in terms of US dollar. The purpose behind this is that US is the main trade partner of Pakistan and US dollar is broadly standard currency in the foreign exchange market.

When domestic currency depreciates it become cheaper relative to other countries' currency. This phenomenon makes the exports of domestic country cheaper as compare to other countries' exports. Due to this reason, exports of domestic currency increases. On the other hand, the appreciation of domestic currency makes it stronger and expensive relative to other currencies. Appreciation of currency reduces exports because exports become expensive as compare to other countries' exports. This type of relationship is extensively published in literature. Genc and Artar (2014), investigates the impact of exchange rate on exports performance. The results of this particular study show that depreciation of exchange rate boost the export performance in emerging countries. D.J *et al.*, (2016), describe the fact that appreciation of exchange rate reduces the exports and depreciation or undervaluation of exchange rate increases the export performance.

### **3.2.2 Trade restrictions**

Higher trade barriers make the imports expensive. It is known that imports are used in exports in the form of raw material, intermediate, and capital goods. The use of expensive imports in exports makes the exports expensive also. Due to high relative prices of exports, the exports volume declines. Tokarick (2007), examined the effect of trade restrictions on exports. The author found the results that an increase in the rate of trade barriers discourage exports. There are some reasons due to which trade barriers do not affect exports. There are few schemes like Duty and Tax Remission Scheme (DTRE) and agreements like Most Favored Nation (MFN) which prevent exports from the negative effect of trade restrictions. Tello (2008) investigates the relationship between trade

restrictions and exports. The author finds that there is statistically insignificant impact of trade barriers on exports due to few schemes and trade agreements.

### **3.2.3 Trade Barriers in Pakistan**

There are seven measures that are used in Pakistan to create non-tariff barriers. Mostly used measure is statutory regulatory orders issued by Import and export policy order 2009.

### **3.2.4 Import Intensity**

The availability of raw materials / inputs at lower costs together with improved quality will make the domestically produced products competitive at the international level. There is a hypothesis in economics that imports in the form of raw material, intermediate goods, and capital goods are used as vital inputs in the production process of exports. Higher the amount of imports of these goods is directly proportional to higher volume of exports. Hence, imports of these goods encourage exports performance. Bader (2006), investigated this hypothesis and found that higher imports of these inputs encourage exports. Feng *et al.*, (2016) examined Chinese economy in this regard. The study exposed the same results that imported inputs are increasing the volume of exports in the economy.

### 3.3 Empirical Framework

#### 3.3.1 Model Specification

The econometric analysis of the import intensity, trade restriction, real effective exchange rate and export performance is examined in this chapter. Import intensity is major supply factor for export performance. This chapter discusses the ample description of econometric methodology is presumed in the present analysis.

To dichotomize the nexus between import intensity and export performance of Pakistan, China and India, the following model is specified.

$$EXP_i = f(AIMP_i, X_i) \dots\dots\dots (3.1)$$

Where  $EXP_i$  is the exports of country  $i$ ,  $AIMP_i$  are the imports of country  $i$ , and  $X_i$  is the vector of control variables for country  $i$ . This vector of control variables include size of the exporting country, size of the importing country, exchange rates of the currencies, and trade barriers among the countries.

Aggregated imports are entailed of imported raw material, intermediate good and capital good except the consumer goods which is almost 9% of total imports. For this purpose semi-reduced export function is taken.

$$EXP_{pt} = \alpha_p + \beta_{1p}REER_{pt} + \beta_{2p}TR_{pt} + \beta_{3p}AIMP_{pt} + \varepsilon_{pt} \dots\dots\dots (3.2)$$

$$EXP_{ct} = \alpha_c + \beta_{1c}REER_{ct} + \beta_{2c}TR_{ct} + \beta_{3c}AIMP_{ct} + \varepsilon_{ct} \dots\dots\dots (3.3)$$

$$EXP_{nt} = \alpha_n + \beta_{1n}REER_{nt} + \beta_{2c}TR_{nt} + \beta_{3c}AIMP_{nt} + \varepsilon_{nt} \dots\dots\dots (3.4)$$

Where, *EXP* represents the export performance of the country, *REER* represents the real effect exchange rate of the country, *AIMP* represent the aggregate imports of the country which include imports of raw material, intermediate goods and capital goods, subscripts *p*, *c*, and *n* are used for Pakistan, China and India,  $\alpha$  is the intercept and  $\beta$  are the slope parameters required to estimate in the model, and  $\varepsilon$  is the stochastic random error term in each of the equation. All the variables are taken in the logarithmic form.

Where, to see the impact of various categories of imports on the exports of the country, the present study used disaggregated data for the imports as well.

$$EXP_{pt} = \alpha + \beta_1 REER_{pt} + \beta_2 TR_{pt} + \beta_3 DIMP_{pt} + \varepsilon_{pt} \dots\dots\dots (3.5)$$

Where *DIMP* represents the disaggregated imports, whereas disaggregated imports are classified as imported raw material, intermediate good and capital good separately. For this purpose following equations are estimated:

$$EXP_{pt} = \alpha_p + \beta_{1p} REER_{pt} + \beta_{2p} TR_{pt} + \beta_{3p} RAWIMP_{pt} + \varepsilon_{pt} \dots\dots\dots (3.6)$$

$$EXP_{pt} = \alpha_p + \beta_{1p} REER_{pt} + \beta_{2p} TR_{pt} + \beta_{3p} INTIMP_{pt} + \varepsilon_{pt} \dots\dots\dots (3.7)$$

$$EXP_{pt} = \alpha_p + \beta_{1p} REER_{pt} + \beta_{2p} TR_{pt} + \beta_{3p} CAPIMP_{pt} + \varepsilon_{pt} \dots\dots\dots (3.8)$$

Where *RAWIMP* represents the imports of raw materials, *INTIMP* represents the imports of intermediate goods, and *CAPIMP* represents the imports of capital goods. On the same token for China and India disaggregated imports equations are mentioned.

$$EXP_{ct} = \alpha_c + \beta_{1c}REER_{ct} + \beta_{2c}TR_{ct} + \beta_{3c}DIMP_{ct} + \varepsilon_{ct} \quad \dots\dots\dots (3.9)$$

$$EXP_{nt} = \alpha_n + \beta_{1n}REER_{nt} + \beta_{2c}TR_{nt} + \beta_{3c}DIMP_{nt} + \varepsilon_{nt} \quad \dots\dots\dots (3.10)$$

Where, *DIMP* represents the disaggregated imports, whereas disaggregated imports are classified as imported raw material, intermediate good and capital good separately.

### 3.4 Models based on Panel Data

To take the advantage of panel data, we estimated the model mentioned in equation 3.2 by using the longitudinal panel data of these three countries. The model in panel regression form can be written as follow:

$$EXP_{it} = \alpha + \beta_1REER_{it} + \beta_2TR_{it} + \beta_3AIMP_{it} + \varepsilon_{it} \quad \dots\dots\dots (3.11)$$

The model can be estimated using the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Description about these models is presented in the following subsections.

### 3.4.1 Fixed effect Model (FEM)

As fixed effect considers the observations in the data as heterogeneous so it is opposite to pooled regression. It permits the cross sectional units to have their own intercept alike their unobserved heterogeneity is considered to be fixed.

$$EXP_{it} = \alpha_i + \beta_1 REER_{it} + \beta_2 TR_{it} + \beta_3 AIMP_{it} + \varepsilon_{it} \quad \dots\dots\dots (3.12)$$

Where  $\alpha_i$  represent the fixed effects across different countries. Several alternative approaches can be used to modify the case of unobserved heterogeneity such as “first difference method”. This approach is time bound and can be used only when the study has the data only for two years and cannot be applied if  $t > 2$ . Another approach to serve the matter of unobserved heterogeneity is “Least Square Dummy Variable” (LSDV). This approach permits “between country disparities” to be integrated and described by countries explicit dummies. So the effects of independent variables can only be described by within country effects.

If there are “ $n$ ” cross sections in the data,  $n - 1$  dummies will be introduced in LSDV for the avoidance of dummy variable trap. LSDV has following assumptions: Firstly, there should be cross sectional independence; secondly,  $n > t$  i.e the number of observations should be greater than number of time span and thirdly, there should be no problem of unit root.

#### 3.4.4 Random Effect Model (REM)

The random effect method is other approach to estimate the model. This approach is based on “partial pooling”. There are several advantages of using REM; firstly, through it fewer variables had to be estimated. Secondly, it permits to estimate dummy variables. Besides it there is supposition regarding error term that is independent variables are uncorrelated with error term. This assumption is considered to be unrealistic by many economists explaining that the correlation of “unobserved heterogeneity” with independent variable was observable most of the time. Because of this reasoning FEM is considered to be better over REM.

$$EXP_{it} = \alpha + \beta_1 REER_{it} + \beta_2 TR_{it} + \beta_3 AIMP_{it} + v_i + \varepsilon_{it} \quad \dots\dots\dots (3.13)$$

Where  $v_i$  are the cross sectional differences that are considered as random. So generally it is said that, fixed effect model has assumption that every country deviates in its intercept term and for random effect model it is presumed that each country differs in its error terms. When there were finite observations of existing cross sectional units then more appropriate model is REM. Hausman test is used to find out the superiority of both these models.

For the comparison of responsiveness of export performance, panel regression with interaction dummy is estimated. Dummy term is merged with each country imports. Random effect model is used on the basis of Hausman test. Following are the estimated equation for this purpose:



$$EXP_{it} = \alpha_i + \beta_1 REER_{it} + \beta_2 TR_{it} + \beta_3 (DP_{it} \times AIMP_{it}) + \beta_4 (DC_{it} \times AIMP_{it}) + \beta_5 (DI_{it} \times AIMP_{it}) + \varepsilon_{it} \dots\dots\dots (3.14)$$

Where DP is introduced as a dummy for Pakistan and interactive with *AIMP* is used to see the effect of imports on exports of Pakistan, DC is introduced as a dummy for China and interactive with *AIMP* is used to see the effect of imports on exports for China and DI is introduced as a dummy for India and interactive term with *AIMP* is used to see the effect of imports for India.

### 3.4.5 Hausman Test

Due to undetermined assumptions of FEM and REM, the hausman test (1978) was formulated for the purpose of making a choice between REM and FEM. Hausman test compare the FEM and REM by testing the null hypothesis that random effect model was suitable comparatively fixed effect model. If observed value of test statistic is large enough it shows that the difference between estimates is significant, so null hypothesis is rejected and it concludes that fixed effect model is more appropriate than random effect model.

# DATA

### 4.1. Introduction

The description of the data is mentioned in this chapter. It was the time when data collection procedures, rules were highly complicated for researchers but over the time this issue has been solved to a minor struggle. Data source, data technique, and numbers codes are clearly cited in following lines.

### 4.2 Nature and Source of the data

A time series data is used from 1988 to 2016 for the estimation purposes and collected from different secondary sources. For the comparative analysis of Pakistan, China and India, export's data of goods is taken from World Development indicators (WDI) and World Bank Economic (WB).

The data of Real Effective Exchange Rate (REER) is also seized from 1988 to 2016 different sources. The REER data of Pakistan and china is observed from World Bank Economic (WB) and World Development Indicators (WDI) while India's real exchange rate data is grabbed from The Bank of International Settlement (BIS) and Reserve Bank of India (RBI). Due to problematical accessibility of India's Real Effective Exchange

Rate (REER) data, Pakistan and China' REER data is taken for the same time period. Restriction based data which is subpart of KOF index of Globalization taken from KOF Swiss Economic Institute. Data for all three emerging economies is comprised from 1980 to 2016.

The main and key variable of analysis is import intensity. Import intensity data is derived from different source. India and china import intensity data is attained from World Integrated Trade Solutions (WITS) for the time period of 1988 to 2016. Whereas Pakistan's Import intensity data isn't completely given at WITS as it has been consisted of 2003 to 2016 and remaining 15 years data is obtained from Pakistan Bureau of Statistics (PBS) on the definition and criteria.

**Table 4.1 Description of the variables**

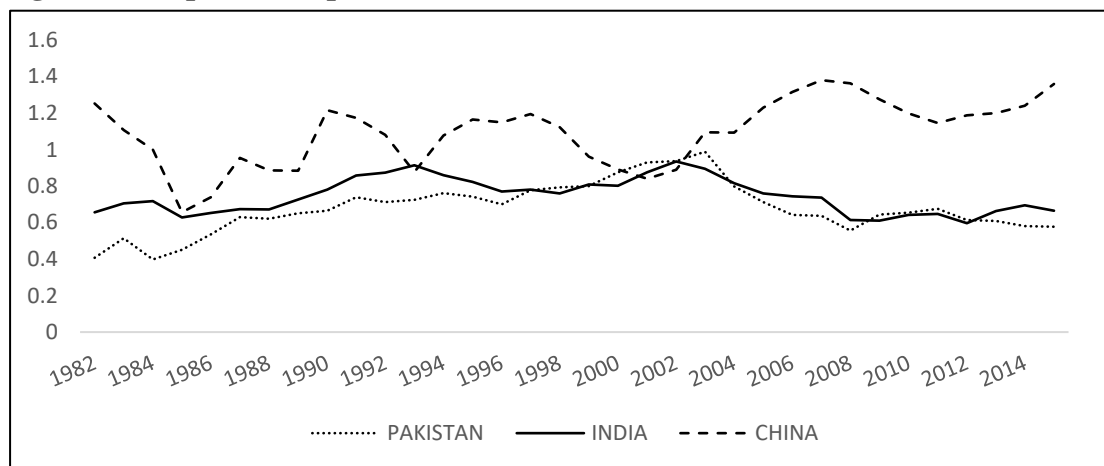
Names	Code	Description				
Export Performance	EXP	Normally, those products, goods or commodities and services which are sent abroad or another country for sale are considered as exports of any country. These exported products may or may not be produced and manufactured in domestic market and country. It is also considered as exchange of merchandises and services to international markets. But in the existing analysis only exported goods of all three countries data have been attained.				
Real Effective Exchange Rate	REER	The <b>real effective exchange rate</b> (REER) is the weighted mean of a country's currency comparative to an index or basket of other major currencies, adjusted for the effects of inflation. By comparing the relative trade balance of a country's currency against each country weights can be obtained. US, Japanese and Euro are the example of this type of exchange rate which is used to determine country currency price as compare to other currencies in the index. to measure the value of currency in relation to average bundles of other currencies we used REER. REER is the trade weighted because it's take in to account changes in relative prices and can be used to what can really purchase with a currency.				
Trade Restrictions	TR	<p>Trade restriction is based on three different restrictions according to KOF index of globalization. It is major indicator of economic globalization which is further an important and extremely valued fragment of globalization index. There are some (i) hidden imports barriers likewise tariff or non-tariff barriers, that restrict the trade as well as considerably lowers down the capability of foreign goods to compete the domestic products and also to the local markets Gwartney <i>et al.</i> (2016). Other than hidden imports barriers, mean tariffs are also key component of trade restrictions. As average tariff rate moves up of any country, the low rating of the country in globalization index is assigned. Moreover, as average tariff rate moves towards 50%, the country's ranking fell down towards zero Gwartney <i>et al.</i> (2016). Other than these two, there are taxes on international trade which also restrict export and imports. Number of taxes related items pertain the trade like import tariffs, customs duties, regulatory duties, export quotas, there are also some legal restriction which are under the WTO law like Anti-dumping, counter veiling duties and safeguard measures. Current account restriction also included in trade restrictions which enhance domestic revenues Gwartney <i>et al.</i> (2016). Different weights are assigned to different restrictions according to their importance under globalization index.</p> <table border="1" data-bbox="527 959 1814 1027"> <tbody> <tr> <td data-bbox="527 959 989 992">Hidden Import Barriers (22%)</td> <td data-bbox="989 959 1814 992">Taxes on International Trade (percent of current revenue) (26%)</td> </tr> <tr> <td data-bbox="527 992 989 1024">Mean Tariff Rate (28%)</td> <td data-bbox="989 992 1814 1024">Capital Account Restrictions (24%)</td> </tr> </tbody> </table>	Hidden Import Barriers (22%)	Taxes on International Trade (percent of current revenue) (26%)	Mean Tariff Rate (28%)	Capital Account Restrictions (24%)
Hidden Import Barriers (22%)	Taxes on International Trade (percent of current revenue) (26%)					
Mean Tariff Rate (28%)	Capital Account Restrictions (24%)					
Import Intensity	IMI	Imports are the overseas commodities, products and services which are consumed and earned by domestic consumer, buyers, producers or local markets. There are different type of items and classification which are imported from abroad as primary raw material, secondary raw material, capital goods, intermediate goods and consumer commodities. Mainly raw material, capital goods, intermediate goods are major imports which play a vital role in export production of any country.				

Source: Author's Own Conclusions

### 4.3 Trends of Export to Import ratio

The trends of export to import ratio in Pakistan, India and China are presented in the following figure 4.1 for the time span 1982-2015. Export to import ratio in China is higher than Pakistan and India but in all three nations there are fluctuations in this ratio throughout the study period. In Pakistan there is increasing trend in export to import ratio from 1982 to 2004 showing that increase in exports as compare to its imports but after 2004 this ratio is decreasing presenting that imports of Pakistan are high as compare to its exports. The same trend of this ratio also existed in case India throughout the study period.

**Figure 4.1 Export to Import Ratio of Pakistan, India and China**



Source: Author's own conclusions

**Table 4.2 Export to Import Ratio of Pakistan, India and China**

Statistics	Pakistan	India	China
Mean	0.678	0.746	1.094
Median	0.659	0.740	1.134
Standard Deviation	0.140	0.096	0.182
Kurtosis	0.147	1.012	0.318
Skewness	0.150	0.286	-0.541
Range	0.590	0.338	0.723
Minimum	0.398	0.597	0.657
Maximum	0.988	0.935	1.380
Count	34.000	34.000	34.000

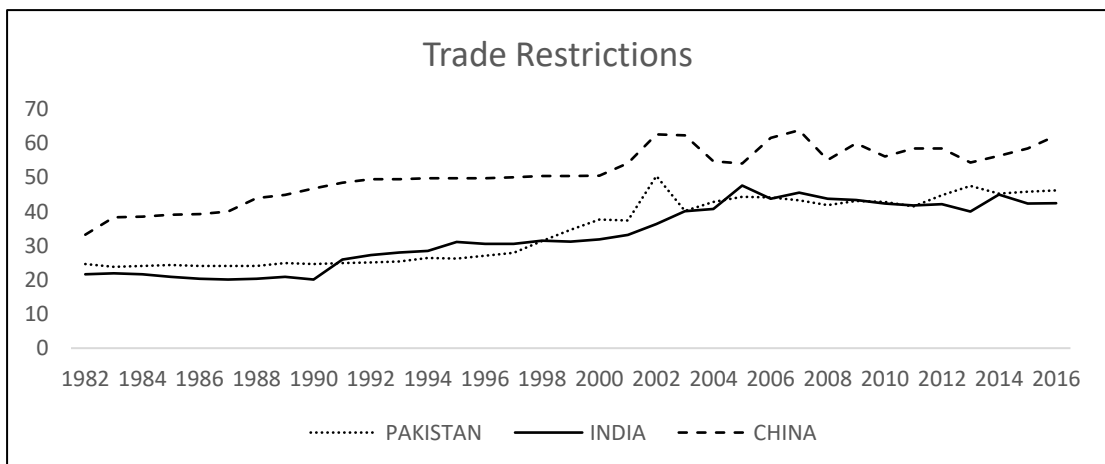
Source: Author's own work

Table 4.2 represents the descriptive statistics of Export to Import Ratio of Pakistan, India and China from 1991 to 2016. The average values of export to import ratio are 0.678, 0.746 and 1.094 for Pakistan, India and China respectively. The dispersion of export to import ratio from its mean are 0.140 for Pakistan, 0.096 for India and 0.182 for China in given time span. Similarly, maximum values of export to import ratio are 0.988, 0.935 and 1.380 for Pakistan, India and China correspondingly.

#### 4.4 Trend of Trade Restrictions

The trends of trade restrictions in Pakistan, India and China are presented in the following figure 4.2 for the time span 1982-2016. Trade restrictions in China are high as compare to Pakistan and India for the entire span 1982-2016 and have increasing trend throughout the period. While in Pakistan and India the level of trade restrictions is almost same but have increasing trend in both countries for the entire study period.

**Figure 4.2 Trade Restriction Index of Pakistan, India and China**



Source: Author's own conclusions

**Table 4.3 Trade Restrictions of Pakistan, India and China**

<b>Statistics</b>	<b>Pakistan</b>	<b>India</b>	<b>China</b>
<b>Mean</b>	33.767	32.414	50.713
<b>Median</b>	31.412	31.192	50.397
<b>Standard Deviation</b>	9.187	9.243	7.907
<b>Kurtosis</b>	-1.684	-1.453	-0.501
<b>Skewness</b>	0.249	0.070	-0.331
<b>Range</b>	26.586	27.514	30.572
<b>Minimum</b>	23.810	20.092	33.218
<b>Maximum</b>	50.396	47.606	63.790
<b>Count</b>	33.000	33.000	33.000

*Source: Author's own work*

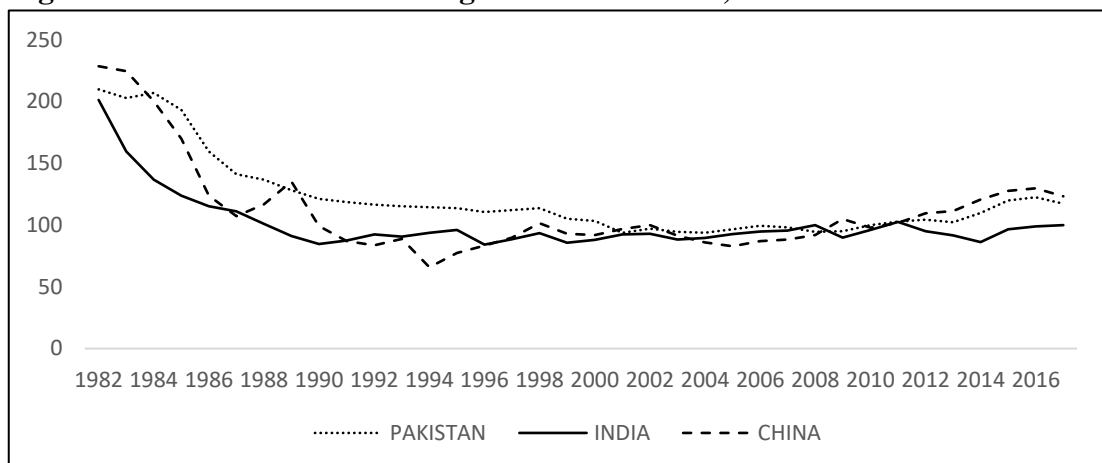
*Mean, Median, Standard deviation, Range, Minimum and Maximum values are in US Million Dollars*

Table 4.3 represents the descriptive statistics of trade restrictions of Pakistan, India and China from 1991 to 2016. The arithmetic mean values of Trade Restrictions are 33.767, 32.414 and 50.713 for Pakistan, India and China respectively. The dispersion of Trade Restrictions from its mean are 0.140 for Pakistan, 0.096 for India and 0.182 for China in given time span. Similarly, maximum values of trade restrictions are 0.988, 0.935 and 1.380 for Pakistan, India and China correspondingly.

#### **4.5 Trends of Real Effective Exchange Rate**

In figure 4.3, the tendency of real effective exchange rate in Pakistan, India and China are presented for the time span 1982-2016. From 1985-2001 real effective exchange rate in Pakistan is high as compared to India and China but have decreasing trend throughout this period. Throughout this period exchange rate in China and India also has decreasing trend. After 2001 the tendency of exchange rate is almost same in these three countries. In 2016 exchange rate of China is high as compare to other two countries.

**Figure 4.3 Real Effective Exchange Rate of Pakistan, India and China**



Source: Author's own conclusions

Table 4.4 represents the descriptive statistics of real effective exchange rate of Pakistan, India and China from 1991 to 2016. The average values of real effective exchange rate are 121.376, 100.782 and 111.294 for Pakistan, India and China respectively. The dispersion of real effective exchange rate from its mean are 33.253 for Pakistan, 23.256 for India and 38.636 for China in given time span. Similarly, maximum values of real effective exchange rate are 209.893, 201.306 and 228.617 for Pakistan, India and China correspondingly.

**Table 4.4 Real Effective Exchange Rate of Pakistan, India and China**

Statistics	Pakistan	India	China
<b>Mean</b>	121.376	100.782	111.294
<b>Median</b>	112.162	93.440	99.081
<b>Standard Deviation</b>	33.253	23.256	38.636
<b>Kurtosis</b>	2.253	10.695	3.649
<b>Skewness</b>	1.787	3.098	1.997
<b>Range</b>	116.110	117.146	162.757
<b>Minimum</b>	93.783	84.160	65.860
<b>Maximum</b>	209.893	201.306	228.617
<b>Count</b>	35.000	35.000	35.000

Source: Author's own work

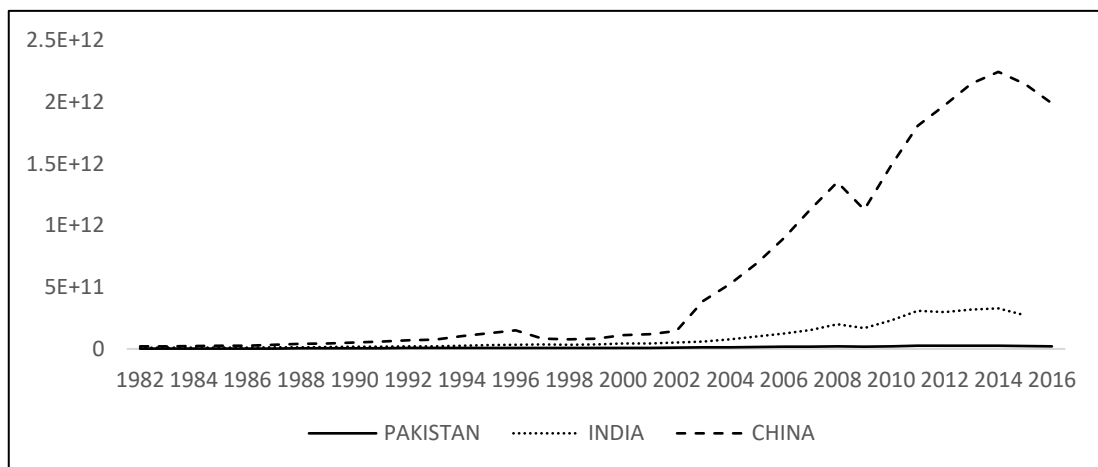
Mean, Median, Standard deviation, Range, Minimum and Maximum values are in US Million Dollars



## 4.6 Trends of Exports

The tendency of exports in Pakistan, India and China are presented in the following figure 4.4 for the time span 1982-2016. For the entire study period exports of Pakistan remained stagnant at the same level. For the period 1982-2002, exports in both India and China have increased slightly but after 2003 exports in China increased more rapidly as compare to India.

**Figure 4.4 Exports of Pakistan, India and China**



Source: Author's own work

**Table 4.5 Exports of Pakistan, India and China**

Statistics	Pakistan	India	China
<b>Mean</b>	11711	92583	611474
<b>Median</b>	8507	36290	118463
<b>Standard Deviation</b>	7784	106202	780594
<b>Kurtosis</b>	-1	0	0
<b>Skewness</b>	1	1	1
<b>Range</b>	23976	319161	2223054
<b>Minimum</b>	2352	9226	20707
<b>Maximum</b>	26328	328387	2243761
<b>Count</b>	35	34	35

Source: Author's own conclusions

Mean, Median, Standard deviation, Range, Minimum and Maximum values are in US Million Dollars

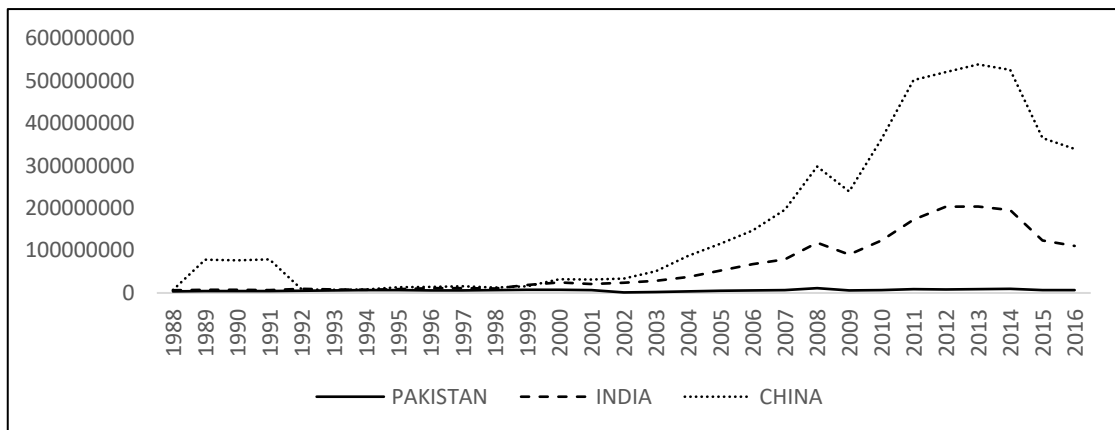
Table 4.5 represents the descriptive statistics of Trends of Exports of Pakistan, India and China from 1991 to 2016. The average values of Trends of Exports are 11,711,

92,583 and 611,473 for Pakistan, India and China respectively. The dispersion of Trends of Exports from its mean are 77,840 for Pakistan, 106,202 for India and 780,594 for China in given time span. Similarly, maximum values of Trends of Exports are 26,328, 328,387 and 2243761 for Pakistan, India and China correspondingly.

#### 4.7 Trends of Imports of Raw Materials

The trends of imports of raw materials in Pakistan, India and China are presented in the following figure 4.5 for the time span 1982-2016.

**Figure 4.5 Imports of Raw Material of Pakistan, India and China**



*Source: Author's own conclusions*

Like exports, the imports of raw material in Pakistan have remained same from 1982-2016 while in India and China it increased after 1999. Comparatively Pakistan and India, the raw material imports in China are high and showing continuous increasing trend from 1999 to 2014 but in 2015-2016 it has decreased.

**Table 4.6 Imports of Raw Material of Pakistan, India and China**

Statistics	Pakistan	India	China
Mean	6.273	61.771	162.916
Median	6.447	24.504	78.123
Standard Deviation	2.088	66.463	184.358
Kurtosis	0.826	-0.137	-0.389
Skewness	-0.032	1.079	1.030
Range	10.027	197.000	531.659
Minimum	1.288	6.331	7.019
Maximum	11.314	203.000	538.678
Count	29.000	29.000	29.000

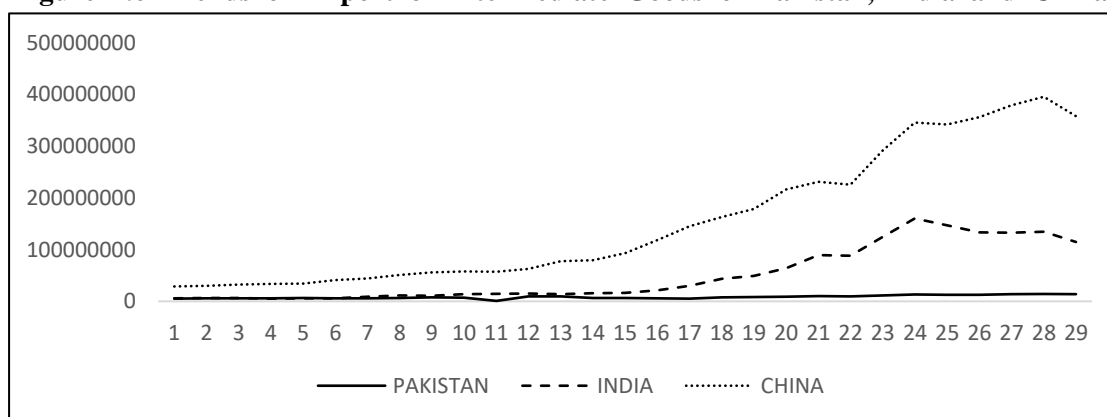
Source: Author's own work

Mean, Median, Standard deviation, Range, Minimum and Maximum values are in US Million Dollars

Table 4.6 represents the descriptive statistics of Imports of Raw Material of Pakistan, India and China from 1991 to 2016. The average values of Imports of Raw Material are 6,273,415, 61,770,963 and 162,915,529.9 for Pakistan, India and China respectively. The dispersion of Imports of Raw Material from its mean are 2088150 for Pakistan, 66,462,884 for India and 184,357,703.41 for China in given time span. Similarly, maximum values of Imports of Raw Material are 11,314,425, 203,000,000 and 538,678,078.2 for Pakistan, India and China correspondingly.

#### 4.8 Trends in Imports of Intermediate Goods

The trends of imports of intermediate goods in Pakistan, India and China are presented in the following figure 4.6 for the time span 1982-2016.

**Figure 4.6 Trends of Import of Intermediate Goods of Pakistan, India and China**

Source: Author's own conclusions

The above figure is presenting that China is major importer of intermediate goods also as compare to India and Pakistan. The imports of intermediate goods in Pakistan also remained stagnant at the same level throughout the study period while in India it has increased from 1988-2011 and decreasing after this period.

**Table 4.7 Imports of Intermediate Goods of Pakistan, India and China**

<b>Statistics</b>	<b>Pakistan</b>	<b>India</b>	<b>China</b>
<b>Mean</b>	8.343	51.381	156.074
<b>Median</b>	7.523	16.578	92.880
<b>Standard Deviation</b>	3.287	53.598	128.341
<b>Kurtosis</b>	-0.240	-0.910	-1.060
<b>Skewness</b>	0.270	0.870	0.710
<b>Range</b>	13.416	155.094	366.773
<b>Minimum</b>	0.788	5.163	28.765
<b>Maximum</b>	14.204	160.256	395.537
<b>Count</b>	29.000	29.000	29.000
<b>Count</b>	29.00	29.00	29.00

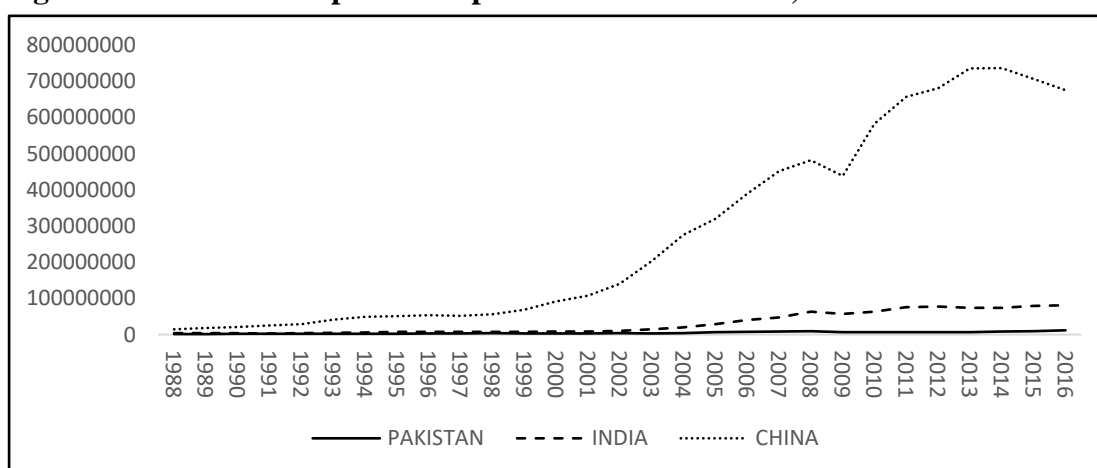
*Source: Author's own work*

Table 4.7 represents the descriptive statistics of Imports of Intermediate Goods of Pakistan, India and China from 1991 to 2016. The average values of Imports of Intermediate Goods are 8.343, 51.381 and 156.074 for Pakistan, India and China respectively. The dispersion of Imports of Intermediate Goods from its mean are 3.287 for Pakistan, 53.598 for India and 128.341 for China in given time span. Similarly, maximum values of Imports of Intermediate Goods are 14.204, 160.256 and 395.537 for Pakistan, India and China correspondingly.

## 4.9 Trends in Imports of Capital Goods

The tendency of imports of capital goods in Pakistan, India and China are presented in the following Figure 4.7 for the time span 1982-2016. In case of capital goods imports China is importing more capital goods as compare to other two countries. The level of imports of capital goods is also remained stagnant at the same level throughout the study period while in the case of India it has increased after the period 2003.

**Figure 4.7 Trends of Import of Capital Goods of Pakistan, India and China**



Source: Author's own conclusions

**Table 4.8 Imports of capital Goods of Pakistan, India and China**

Statistics	Pakistan	India	China
Mean	4.786	30.632	281.230
Median	3.562	10.480	139.889
Standard Deviation	2.855	30.162	270.135
Kurtosis	-0.545	-1.397	-1.320
Skewness	0.696	0.648	0.590
Range	10.344	78.208	722.114
Minimum	1.503	2.817	14.562
Maximum	11.847	81.026	736.676
Count	29.000	29.000	29.000

Source: Author's own work

Mean, Median, Standard deviation, Range, Minimum and Maximum values are in US Million Dollars

Table 4.8 represents the descriptive statistics of Imports of capital Goods of Pakistan, India and China from 1991 to 2016. The average values of Imports of capital Goods are 4.786, 30.632 and 281.230 for Pakistan, India and China respectively. The dispersion of Imports of capital Goods from its mean are 2.855 for Pakistan, 30.162 for India and 270.135 for China in given time span. Similarly, maximum values of Imports of capital Goods are 11.847, 81.026 and 736.676 for Pakistan, India and China correspondingly.

# RESULTS AND DISCUSSION

## 5.1 Introduction

This chapter explains the empirical results of all the procedures functional in this analysis. In this chapter, the results of unit root tests and estimations are mentioned. In first section, results of unit root based on Augmented Dickey Fuller are given while in the second section estimations' results are explained.

## 5.2 Results of Unit Root Tests

Zero mean and constant variance is basic assumption in econometric for both time series and cross sections. To fulfil this assumption it is required to check whether data is stationary or not. It is necessary that data should be stationary at any order if data isn't stationary at level. ADF test is used for this purpose. Summary of the unit results is given below:

**Table 5.1 Augmented Dickey Fuller based Unit Root Test Statistics Results**

$$EXP_{ct} = \alpha_c + \beta_{1c}REER_{ct} + \beta_{2c}TR_{ct} + \beta_{3c}DIMP_{ct} + \varepsilon_{ct}$$

Variables	ADF test Statistic	Order of Integration
	H <sub>0</sub> : Variable has unit root	
$EXP_p$	-0.444	
$\Delta EXP_p$	-5.392*	I(1)
$EXP_c$	-1.361	
$\Delta EXP_c$	-3.882*	I(1)
$EXP_n$	-2.194	
$\Delta EXP_n$	-3.991*	I(1)
$REER_p$	-1.654	
$\Delta REER_p$	-4.818*	I(1)
$\Delta REER_c$	-4.780*	I(1)
$\Delta REER_n$	-6.665*	I(1)
$TR_p$	-2.772	
$\Delta TR_p$	-8.886*	I(1)
$TR_n$	-2.333	
$\Delta TR_n$	-6.409*	I(1)
$TR_c$	-3.020	
$\Delta TR_c$	-6.034*	I(1)
$RAWIMP_c$	-0.733	
$\Delta RAWIMP_c$	-4.085*	I(1)
$RAWIMP_n$	-0.880	
$\Delta RAWIMP_n$	-3.765*	I(1)
$RAWIMP_p$	-2.758	
$\Delta RAWIMP_p$	-6.074*	I(1)
$INTIMP_c$	-1.267	
$\Delta INTIMP_c$	-6.328*	I(1)
$INTIMP_n$	-0.304	
$\Delta INTIMP_n$	-3.340*	I(1)
$INTIMP_p$	0.122	
$\Delta INTIMP_p$	-6.698*	I(1)
$CAPIMP_c$	0.428	
$\Delta CAPIMP_c$	-3.621*	I(1)
$CAPIMP_n$	0.807	
$\Delta CAPIMP_n$	-4.247*	I(1)
$CAPIMP_p$	0.671	
$\Delta CAPIMP_p$	-2.870**	I(1)

Note: \* represents that the relevant time series is significant at 5% level of significance and \*\* represents the 1% level of significance while  $\Delta$  represents the difference operator.



The results of unit root tests are given in the above table. The results of ADF test characterizes that all the variables are non-stationary at level and turn out to be stationary at first difference so the order of integration of variables is 1.

### 5.3 Results based on Time Series Regressions

In this chapter different time series results are describes which are based on OLS estimations. Both aggregate import and segregated import results are explained one by one for each country.

#### 5.3.1 Estimations for India

In this subsection India's aggregated imports and disaggregated imports results are estimated. In this regard all following results are based the equations which are presented in chapter 3 under model specification section.

##### 5.3.1.1 Aggregated Imports of India

In aggregated imports of India sum of the imported raw material, Intermediate goods and capital goods is taken in the following table results.

**Table 5.2 Results for impact of Aggregated Imports on Exports for India**

Variables	Coefficients	Probability
$REER_n$	-0.2004**	0.0310
$TR$	0.2423	0.2571
<i>Import intensity</i>	0.2292***	0.0000
$N$	27	
$R^2$	0.757	
$\bar{R}^2$	0.699	
F-Statistics	13.077	
P-Value	0.0001	

Source: Author's self-calculations. \*\*\*, \*\*, \* indicates significance at 1%, 5% & 10%, level of significance, respectively.

The results indicate that overall the model is fit and significant that is examined by F-Statistics. Adjusted R-square explains that 69% of the export performance is captured by these three variables which are included in the model.

The coefficient/ elasticity of real effective exchange rate is negative and statistically significant. In table, -0.20 means that 1 percent appreciation in real effective exchange rate discourage exports by 20 percent. The benefit of using REER is that it can used to measure the equilibrium value of a country currency, to find out the underlying factors of country's trade flows, changes in cost competition and international price. REER is positively affected by country rapid productivity, by this country realizes low cost and its lower the prices. These results are according to economic theory because of local currency valuation, domestic prices are also higher than world prices and ultimately exports are dampened.

Coefficient of trade restriction (in other words elasticity of export performance to trade restrictions) is statistically insignificant which means that trade barriers are not responsible for any decline in exports. Numerous studies and literature has been done in favor of this results which is already mentioned in the literature review chapter.

Coefficient of import intensity is highly significant with the magnitude of 0.22. It means that an increase in one percent aggregated imports increases the exports by 22 percent.

### 5.3.1.2 Disaggregated imports of India

In this section disaggregated imports results of India are discussed. Whereas disaggregated imports are classified as imported raw material, intermediate good and capital good separately.

**Table 5.3 Results for impact of Disaggregated Imports on Exports for India**

Variables	Coef.	P-Value	Coef.	P-Value	Coef.	P-Value
<i>REER</i>	-0.09 **	0.0310	-0.2004**	0.0310	-0.2004**	0.0310
<i>TR</i>	0.242	0.2571	0.1276	0.1567	0.0423	0.2098
<i>RAWIMP</i>	0.348***	0.0000				
<i>INTIMP</i>			0.2792***	0.0000		
<i>CAPIMP</i>					0.0562***	0.0000
<i>N</i>	27		27		27	
<i>R</i> <sup>2</sup>	0.617		0.698		0.505	
<i>R</i> <sup>2</sup>	0.567		0.669		0.463	
F-Statistics	13.077		12.077		20.699	
P-Value	0.0003		0.0001		0.010	

Source: Authors self-calculations. \*\*\*, \*\*, \* indicates level of significance at 1%, 5% & 10%, respectively.

Overall regressed model is significant. The coefficient of exchange rate is significant with magnitude of -0.09 which means that an appreciation of exchange rate by 1 percent decreases exports by 9 percent. Coefficient of trade restriction (in other words elasticity of export performance to trade restrictions) is statistically insignificant which means that trade barriers are not responsible for any decline in exports. Empirically mixed results have been examined, some are in the favor of trade restrictions and the reason behind is protectionist policy while others are against of it due to suffering of low competitiveness and under quality production.

An increase in raw material by 1 percent point increases the exports by 34 percent point. Exports increase by 27 percent point due to 1 percent point increase in imported intermediate goods whereas 5 percent point growth in exports is due to an increase in imported capital goods by 1 percent point.

### 5.3.2 Estimations of China Export Performance

In this subsection China's aggregated imports and disaggregated imports results are estimated. In this regard all following results are based the equations which are presented in chapter 3 under model specification section.

#### 5.3.2.1 Aggregated imports of China

In aggregated imports of China sum of the imported raw material, Intermediate goods and capital goods is taken in the following table results

**Table 5.4 Aggregated imports of China**

<b>Variables</b>	<b>Coefficients</b>	<b>Probability</b>
<i>REER<sub>c</sub></i>	-0.301**	0.019
<i>TR</i>	-0.386	0.627
<i>Import intensity</i>	0.191**	0.044
<i>N</i>		27
<i>R<sup>2</sup></i>		0.505
<i>R̄<sup>2</sup></i>		0.487
F-Statistics		07.077
P-Value		0.003

Source: Authors self-calculations. \*\*\*, \*\*, \* indicates level of significance at 1%, 5% & 10%, respectively.

The results indicate that overall the model is fit and significant that is examined by F-Statistics. Adjusted R-square explains that 48% of the export performance is captured by these three variables which are included in the model.

In the case of china, the coefficient of exchange rate is significant. It describes that 1 percent appreciation of exchange rate discourages exports by 30 percent. Coefficient of trade restriction (in other words elasticity of export performance to trade restrictions) is statistically insignificant which means that trade barriers are not responsible for any decline in exports.

### 5.3.2.2 Disaggregated imports of China

In this section disaggregated imports results of China are discussed. Whereas disaggregated imports are classified as imported raw material, intermediate good and capital good separately.

**Table 5.5 Disaggregated imports of China**

Variables	Coef.	P-Value	Coef.	P-Value	Coef.	P-Value
<i>REER</i>	-0.101**	0.039	-0.286**	0.021	-0.180**	0.049
<i>TR</i>	-0.135	0.833	0.148	0.157	0.032	0.400
<i>RAWIMP</i>	0.037**	0.036				
<i>INTIMP</i>			0.016**	0.013		
<i>CAPIMP</i>					0.083***	0.003
<i>N</i>	27		27		27	
<i>R</i> <sup>2</sup>	0.524		0.569		0.476	
<i>R</i> <sup>2</sup>	0.483		0.509		0.430	
F-Statistics	21.647		14.077		09.587	
P-Value	0.009		0.0001		0.005	

Source: Authors self-calculations. \*\*\*, \*\*, \* indicates level of significance at 1%, 5% & 10%, respectively.

Overall estimated model is significant. The coefficient of exchange rate is -0.10 which means that an appreciation by 1 percent decreases exports by 10 percent. Coefficient of trade restriction (in other words elasticity of export performance to trade restrictions) is statistically insignificant which means that trade barriers are not responsible for any decline in exports. 1 percent point increase in raw material is responsible for 3 percent point increase in exports. Exports increases by 1 percent point due to 1 percent point increase in intermediate goods. An increase in 1 percent point imports of capital goods is responsible for 8 percent point increase in exports.

### 5.3.3 Estimations of Pakistan

In this subsection Pakistan's aggregated imports and disaggregated imports results are estimated. In this regard all following results are based the equations which are presented in chapter 3 under model specification section.

#### 5.3.3.1 Aggregated imports of Pakistan

In aggregated imports of Pakistan sum of the imported raw material, Intermediate goods and capital goods is taken in the following table results

**Table 5.6 Aggregated imports of Pakistan**

<b>Variables</b>	<b>Coefficients</b>	<b>Probability</b>
<i>REER<sub>p</sub></i>	0.019	0.931
<i>TR</i>	-0.240***	0.009
<i>Import intensity</i>	0.347***	0.013
<i>N</i>	27	
<i>R<sup>2</sup></i>	0.684	
<i>R<sup>2</sup></i>	0.641	
F-Statistics	9.071	
P-Value	0.007	

Source: Authors self-calculations. \*\*\*, \*\*, \* indicates level of significance at 1%, 5% & 10%, respectively.

The results indicate that overall the model is fit and significant that is examined by F-Statistics. Adjusted R-square explains that 64% of the export performance is captured by these three variables which are included in the model.

Coefficient of trade restriction (in other words elasticity of export performance to trade restrictions) is statistically insignificant which means that trade barriers are not responsible for any decline in exports. Real effective exchange rate coefficient describes that 1 percent appreciation decreases the exports by 23 percent. Results are according to economic theory. An increase in aggregated imports by 1 percent point will cause increment of the exports by 34 percent point. Elasticity of export performance to aggregated intensity is very high in case of Pakistan. Pakistan's export basket is contained more imported inputs than other two countries. It means that there are lesser items that are locally manufactured in Pakistan's domestic market.

### ***5.3.3.1 Disaggregated imports of Pakistan***

In this section disaggregated imports results of Pakistan are conferred. Whereas disaggregated imports are classified as imported raw material, intermediate good and capital good separately.

<b>Variables</b>	<b>Coefficients</b>	<b>Probability</b>
TR	0.007	0.9753
<i>REER<sub>p</sub></i>	-0.263**	0.0393
<i>RAWIMP</i>	0.169*	0.0622
<i>CAPIMP</i>	0.180**	0.0383
<i>INTIMP</i>	0.119**	0.0318

*Source: Authors self-calculations. \*\*\*, \*\*, \* indicates level of significance at 1%, 5% & 10%, respectively.*

**Table 5.7 Disaggregated imports of Pakistan**

Variables	Coef.	P-Value	Coef.	P-Value	Coef.	P-Value
<i>REER</i>	-0.263**	0.034	-0.246**	0.048	-0.110*	0.086
<i>TR</i>	0.007	0.975	0.148	0.157	0.032	0.400
<i>INTIMP</i>	0.119**	0.032				
<i>RAWIMP</i>			0.169*	0.062		
<i>CAPIMP</i>					0.180**	0.038
<i>N</i>	27		27		27	
<i>R</i> <sup>2</sup>	0.444		0.287		0.488	
<i>R</i> <sup>2</sup>	0.407		0.269		0.448	
F-Statistics	11.708		04.914		08.557	
P-Value	0.001		0.009		0.001	

Source: Authors self-calculations. \*\*\*, \*\*, \* indicates level of significance at 1%, 5% & 10%, correspondingly

Overall econometric model is significant. Coefficient of trade restriction (in other words elasticity of export performance to trade restrictions) is statistically insignificant which means that trade barriers are not responsible for any decline in exports. An appreciation of exchange rate by 1 percent point reduces exports by 26 percent. Raw material, capital goods, and intermediate goods increase the exports by 16, 17, and 11 percent point respectively.

#### 5.4 Results of Panel Regression

For the purpose of comparative analysis, dummy variables for each country are used in panel regression analysis. The results are as same as the separate time series analysis is given. The following table is showing the results of panel data.



**Table 5.8 Random-effects GLS regression**

<b>Variables</b>	<b>Coefficients</b>	<b>Probability</b>
IntrPak	0.220*	0.059
<i>IntrIndia</i>	0.146***	0.005
<i>IntrChina</i>	0.100***	0.004
<b>REER</b>	0.106**	0.030
<b>TR</b>	-0.149	0.987
<i>N</i>	84	
<b>R<sup>2</sup>Overall</b>	0.275	
<b>R<sup>2</sup>Between</b>	0.501	
Wald chi <sup>2</sup>	14.113	
P-Value	0.007	

*Source: Authors self-calculations. \*\*\*, \*\*, \* indicates level of significance at 1%, 5% & 10%, respectively.*

Hausman test suggests of applying random effect model in the particular case. In above table R-square is indicating that overall 27% and in between 50% export of countries is affected by modeled variables which is significant according to panel regression. Dummies are used in a random effect model and the results are clearly showing that Pakistan has relatively high responsiveness of export performance to import intensity. India is at second position while china is at last which means that responsiveness of export performance to import intensity is least in the case of china. The results are same as time series analysis. Pakistan's export basket is contained more imported inputs than other two countries. It means that there are lesser items that are locally manufactured and further then used in exported commodities. As in the time series results, trade restrictions variable is not showing a significant impact on export performance in all economies and it has lesser impacts.

# CONCLUSION

The inferences of present study are summarized in this chapter. Main conclusions are discussed in first section of the chapter and second segment provides policy recommendations.

The objective of present study is to check whether import intensity plays a vital role in enhancing export production and export performance in Pakistan, China and India. Another important objective of the study is to observe empirically the validity of a portion of export led development policy, i.e. through import intensity, trade restrictions and real effective exchange rate for the Chinese, Indian and Pakistani economies. This covers the import liberalization policy's effect of on import intensity of exports.

Import intensity variable of is divided into two parts as aggregated imports and disaggregated imports. Aggregated imports are summed up of imported raw material, intermediate good and capital good.

A time series data is used from 1988 to 2016 for the estimation purposes and collected from different secondary sources. For the comparative analysis of Pakistan, China and India, export's data of goods is captured from World Development Indicators (WDI). The data of Real Effective Exchange Rate (REER) is also taken

from 1988 to 2016 different sources. The REER data of Pakistan and China is taken from WDI while India's real exchange rate data is grabbed from The Bank of International Settlement (BIS) and Reserve Bank of India (RBI). Restriction based trade data which is subpart of KOF index of Globalization taken from KOF Swiss Economic Institute. Import intensity data is derived from different source. India and china import intensity data is attained from World Integrated Trade Solutions (WITS), whereas Pakistan's Import intensity data is taken from WITS and Pakistan Bureau of Statistics (PBS).

To dichotomize the nexus between import intensity and export performance Pakistan, China and India semi-reduced export function is developed. The empirical results suggest that elasticity of export performance 34%, 22% and 19% for Pakistan, China and India respectively, when imports are taken at aggregated level. Pakistan's export production is relatively more dependent upon imported input because locally manufactured items have very low quantity than India and especially China.

Export performance responsiveness is also examined in form of imported raw material; intermediate goods and capital goods at disaggregate level. 16%, 14% and 3% imported raw materials are used in export production of Pakistan, India and China respectively, while intermediate goods share is 17%, 27% and 3% successively. On the same token imported capital goods share is 11%, 5% and 18% for Pakistan, India and China respectively in export performance.

For the comparison of sensitivity of export performance, panel regression with interaction dummy is estimated. Dummy term is amalgamated with each country

imports. Random effect model is used on the basis of Hausman test. Results indicate that Pakistan's exports are relatively more reliant on other world exports and then India and china respectively.

Overall results explain that imported capital products are downward biased and one of the main reasons behind this biasness is unsuitable recording of numerous goods in capital products category. . Imports are continuously growing more speedily and increased by 18.7% throughout first nine months in 2017. The reason of this high import rate is CPEC's high economic activity specifically in energy sector. The projects of CPEC demands imports of heavy machinery and lead to increase in import bills (Economic Survey of Pakistan, 2016-17).

WTO Annual Reports have observed that during past three to four decades growth in trade by the developing countries was higher than growth in GDP. The commodity exports of emerging nations rose at middling 12 percent annual rate, in compare to the world 10 % as a whole. However, for all developing republics, imports extended quicker than exports, consequential to worsening of trade balance. The details UNCTAD has delivered are multiple. First, with the exclusion of the first-tier freshly industrializing economies already closely combined with the global trading system with a substantial industrial base, the exporting corporations of developing countries still focus on the misuse of natural resources or unskilled labor; these commodities generally absence of dynamism in the world market.

There is policy for exporters to export predominantly those products that directly enhance their export production capacity. Through DTRE scheme rebate should be

given to exporters so the cost of production decreases in country. Ease of doing business is equally important indicator in measuring export performance of a country. Despite as a whole capital, intermediate goods and raw material, Pakistan Customs Tariff PCT wise and industry wise this research can be done which has a closer eye on the import intensity and export performance.

## Reference

- Aggarwal, A. (2002). Liberalisation, multinational enterprises and export performance: evidence from Indian manufacturing. *Journal of Development Studies*, 38(3), 119-137.
- Ahmed, N., Qasim, M., and Chani, M.I., (2017). Impact of Exchange rate on Exports in Case of
- Ahmed, S., Appendino, M. A., & Ruta, M. (2015). Depreciations without exports? Global value chains and the exchange rate elasticity of exports.
- Akhtar, M., and R. S. Hilton. (1984) "Effects of Exchange Rate Uncertainty on German and U.S. Trade." *Federal Reserve Bank of New York Quarterly Review*, 9, 7-16.
- Alavi, R. (2007). *An overview of key markets, tariffs and non-tariff measures on Asian exports of select environmental goods*. ICTSD.
- Anderson, M. A., Davies, M. H., Signoret, J. E., & Smith, S. L. (2016). Firm heterogeneity and export pricing in India. *US International Trade Commission Office of Economics Working Paper*.
- Asci, S. A. Koç, A. and Erdem, M. Ş. (2014). The Impact of NTMs on Agro-food Trade between the EU and Selected MENA Countries. *Workshop on Agricultural Trade and Food Security in the Euro-Med Area Antalya, Turkey*.
- Bader, S., & Riazuddin, R. (2006). *Determining import intensity of exports for Pakistan*. State Bank of Pakistan.
- Bahmani-Oskooee M. (2002) "Does black market exchange rate volatility deter the trade flows?" *Applied Economics*, 210-217
- Bas, M., & Kahn, S. V. (2014). Does importing more inputs raise exports? Firm-level evidence from France. *Review of World Economics*, 150(2), 241-275.
- Bas, M., & Strauss-Kahn, V. (2015). Input-trade liberalization, export prices and quality upgrading. *Journal of International Economics*, 95(2), 250-262.

- Berthou, A. (2008). An investigation on the effect of real exchange rate movements on OECD bilateral exports.
- Bose, D. (2014, July). Real Exchange Rates and International Competitiveness—Concepts, Measures and Trends in New Zealand. In *paper for the NZAE Conference*.
- Chaudhary, M. A., & Amin, B. (2012). Impact of Trade Openness on Exports Growth, Imports Growth and Trade Balance of Pakistan. *Forman Journal of Economic Studies*, 8.
- Córcoles, D., Díaz-Mora, C., & Gandoy, R. (2013). Product sophistication: A tie that binds partners in international production sharing. University of Castilla-La Mancha DEFI, (13-03).
- Daly, M., & Stannas, S. (2001). Tariff and Non-tariff Barriers to Trade in Korea. *Journal of Economic Integration*, 500-525.
- Edwards, L., Sanfilippo, M., & Sundaram, A. (2018). Importing and Firm Export Performance: New Evidence from South Africa. *South African Journal of Economics*, 86(S1), 79-95.
- Ethiopia. *Global Journal of Management and Business Research: B Economics and Commerce*, 17 (1), 1-10.
- Exchange Rate Depreciation or Stabilization?. *University of Connecticut Department of Economics Working Paper Series 2005-2007*, 1-24.
- Fan, H., and Li, Y. A., S. (2012). Imported Intermediate Inputs, Export Prices, and Trade Liberalization.
- Fang, W., Lai, Y., and Miller, S.M., (2005). Export Promotion through Exchange Rate Policy:
- Feng, L., Li, Z., & Swenson, D. L. (2016). The connection between imported intermediate inputs and exports: Evidence from Chinese firms. *Journal of International Economics*, 101, 86-101.

- Foster-McGregor, N., Isaksson, A., & Kaulich, F. (2014). Importing, exporting and performance in sub-Saharan African manufacturing firms. *Review of World Economics*, 150(2), 309-336.
- Genc, E. G., & Artar, O. K. (2014). The effect of exchange rates on exports and imports of emerging countries. *European Scientific Journal, ESJ*, 10(13).
- Goldberg, P. K., Khandelwal, A. K., Pavcnik, N., & Topalova, P. (2010). Imported intermediate inputs and domestic product growth: Evidence from India. *The Quarterly journal of economics*, 125(4), 1727-1767.
- Haile, M.A., (2017). Does Trade Openness Reduce Inflation? Empirical Evidence from
- Halpern, L., Koren, M., & Szeidl, A. (2015). Imported inputs and productivity. *American Economic Review*, 105(12), 3660-3703.
- Hamilton, R. T. (1997). A Note on Industry Concentration and Trade Performance: New Zealand Manufacturing 1985–1995. *Australian Journal of Management*, 22(1), 99-105.
- Hanif, M.N., and Batool, I., (2006). Openness and Inflation: A case study of Pakistan. *MPRA Working Paper No. 10214*, 1-8.
- Hanif, M.N., and Batool, I., (2006). Openness and Inflation: A case study of Pakistan. *MPRA*
- Hirsch, S., & Bijaoui, I. (1985). R&D intensity and export performance: a micro view. *Weltwirtschaftliches archiv*, 121(2), 238-251.
- Humphrey, J., & Schmitz, H. (2002). How does insertion in global value chains affect upgrading in industrial clusters?. *Regional studies*, 36(9), 1017-1027.
- Iqbal, A., Hameed, I., and Devi, K., (2013). Relationship between Exports and Economic
- Jabara, C. L. (2009). How Do Exchange Rates Affect Import Prices? Recent Economic Literature and Data Analysis. In *United States International Trade Commission, Office of Industries, Publication ID-21, Revised*.



- Javed, S. A., Ali, W., & Ahmed, V. Exchange Rate and External Competitiveness: A Case of Pakistan.
- Jenčová, S.(2014) Export performance and import intensity of Slovakia. *eXclusive e-JOURNAL* ISSN 1339-4509 *ECONOMY & SOCIETY & ENVIRONMENT*
- Jin, J. C., (2006). Openness, growth, and inflation: Evidence from South Korea before the economic crisis. *Journal of Asian Economics*, 17, 738-757.
- Kenen, P. B., & Rodrik, D. (1986). Measuring and analyzing the effects of short-term volatility in real exchange rates. *The Review of Economics and Statistics*, 311-315.
- Khan, R. E. A., & Latif, M. I. (2009). Analysis of trade before and after the WTO: A case study of South Asia. *Pakistan Journal of Commerce and Social Sciences*, 2(1), 53-67.
- Khuu, T. P. D. (2012). *The impacts of non-tariff barriers on the export price of Vietnamese catfish* (Master's thesis, Universitetet i Tromsø).
- Kumar, R. and R. Dhawan. (1991), "Exchange Rate Volatility and Pakistan's Export to the Developed World, 1974-1985." *World Development*, 19, 1225-1240.
- Lewis, M. M., Martin, A., & Di Bella, M. G. (2007). *Assessing competitiveness and real exchange rate misalignment in low-income countries* (No. 7-201). International Monetary Fund.
- Mahmood, A., & Nishat, M. (2004). Export Competitiveness and Comparative Advantage of Pakistan's Non-agricultural Production Sectors: Trends and Analysis [with Comments]. *The Pakistan Development Review*, 541-561.
- Mishra, P., & Jaiswal, N. (2017). Impact of Mergers and Acquisitions on Firms' Export Competitiveness: Experience of Indian Pharmaceutical Industry. *South Asia Economic Journal*, 18(1), 1-20.
- Mughal, M., & Anwar, A. (2012). Remittances, inequality and poverty in Pakistan: Macro and microeconomic evidence. CATT-UPPA-Université de Pau et des Pays de l'Adour.

- Munir, S., & Kiani, A. K. (2011). Relationship between Trade Openness and Inflation: Empirical Evidences from Pakistan (1976—2010). *The Pakistan Development Review*, 853-876.
- Mustafa, K., and Nishat, M. N., (2004). Volatility of exchange rate and export growth in
- Oriavwote, V. E., & Eshenake, S. J. (2015). Real effective exchange rate and non-oil exports performance in Nigeria: An empirical reflection. *International Journal of Business, Humanities and Technology*, 5(6), 55-61.
- Pakistan Economic Survey 2016-17*
- Parra, M. D., & Martínez-Zarzoso, I. (2015). Imported inputs and Egyptian exports: Exploring the links. *Economics: The Open-Access, Open-Assessment E-Journal*, 9(2015-38), 1-31.
- Paul, M. (2014). *Import intensity and its impact on exports, output and employment*. Institute for Studies in Industrial Development.
- Rahardja, S., & Varela, G. J. (2015). The Role of Imported Intermediate Inputs in the Indonesian Economy. *The World Bank*.
- Rey, S. (2006). Effective exchange rate Volatility and MENA countries' exports to the EU. *Journal of Economic Development*, 31(2), 23.
- Javed. S, Ali. W, & Ahmed. V (2016) Exchange Rate and External Competitiveness: A Case of Pakistan
- Sato, K., Shimizu, J., Shrestha, N., & Zhang, S. (2013). Exchange rate appreciation and export price competitiveness: industry-specific real effective exchange rates of Japan, Korea, and China. *RIETI Discussion Paper Series*.
- Şeker, M. (2012). Importing, exporting, and innovation in developing countries. *Review of International Economics*, 20(2), 299-314.
- Semancikova, J., (2016). Trade, trade openness and macroeconomic performance. *Procedia – Social and Behavioral Sciences*, 220, 407 – 416.

- Shahkari A.C (2013), "The effect of exchange rate uncertainty on the value of export of saffron" A case study of western countries. *International Journal of Economics and Finance*. pp. 220-231
- Sun, C., Kim, M., Koo, W., Cho, G., & Jin, H. (2002, July). The Effect of exchange rate volatility on wheat trade worldwide. In Selected paper for 2002 Annual Meeting of AAEA, Long Beach, C. A.
- Sun, L., Bogdanski, B. E. C., Stennes, B., & Van Kooten, G. C. (2010). Impacts of tariff and non-tariff trade barriers on the global forest products trade: an application of the Global Forest Product Model. *International Forestry Review*, 12(1), 49-65.
- Sweidan, O. D. (2013). The effect of exchange rate on exports and imports: The case of Jordan. *The International Trade Journal*, 27(2), 156-172.
- Thursby, J. G. and Thursby, M. C. (1987), "Bilateral Trade Flows, the Linder Hypothesis, and Exchange Risk." *The Review of Economics and Statistics*, 69, 488-95.s
- Ur, L. N. (2015). Tariff Rate Quotas–Free Trade or Non-Tariff Barriers? The Case of Norwegian Seafood Exports to the EU.
- Wang, Q. (2001). *Import-reducing effect of trade barriers: a cross-country investigation* (Vol. 1). International Monetary Fund.
- Wondemu, K. A., & Potts, D. J. (2016). The Impact of the Real Exchange Rate Changes on Export Performance in Tanzania and Ethiopia.
- Yasmin, B., Jehan, Z., and Chaudhary, M.A., (2006). Trade Liberalization and Economic Development: Evidence from Pakistan. *The Lahore Journal of Economics*, 11(1), 19-34.
- Yeh, Y. H. (1990). On the Symmetry between Import and Export Quotas. *Journal of International Economic Integration*, 26-30

## Appendix A

### Export to Import Ratio

Year	Pakistan	India	China
1982	0.408	0.657	1.252
1983	0.514	0.705	1.106
1984	0.398	0.717	1.001
1985	0.450	0.628	0.657
1986	0.534	0.653	0.738
1987	0.630	0.673	0.954
1988	0.621	0.672	0.885
1989	0.651	0.725	0.885
1990	0.665	0.780	1.216
1991	0.738	0.858	1.174
1992	0.711	0.873	1.081
1993	0.724	0.913	0.877
1994	0.761	0.860	1.077
1995	0.743	0.823	1.164
1996	0.699	0.770	1.149
1997	0.777	0.781	1.195
1998	0.793	0.760	1.123
1999	0.800	0.809	0.962
2000	0.875	0.803	0.891
2001	0.929	0.875	0.840
2002	0.937	0.935	0.890
2003	0.988	0.894	1.095
2004	0.798	0.816	1.093
2005	0.712	0.760	1.230
2006	0.642	0.744	1.316
2007	0.636	0.736	1.380
2008	0.557	0.615	1.363
2009	0.643	0.610	1.276
2010	0.654	0.641	1.199
2011	0.675	0.648	1.145
2012	0.614	0.597	1.187
2013	0.609	0.662	1.201
2014	0.581	0.695	1.241
2015	0.578	0.666	1.360