TRADE SCENARIO BETWEEN INDIA AND CHINA

A Dissertation Submitted to the University of Hyderabad in Partial Fulfillment of the Requirements for the Award of

MASTER OF PHILOSOPHY

IN

ECONOMICS

By

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DECEMBER 2018

CERTIFICATE

This is to certify that **Mr. Mrutyunjaya Sahoo** has carried out the research embodied in the present dissertation entitled **"Trade Scenario Between India and China"** for the full period prescribed under M.Phil. ordinances of the University of Hyderabad.

This dissertation is an independent work and does not constitute part of any material submitted for any research degree or diploma here or elsewhere.

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DECLARATION

I **Mrutyunjaya Sahoo,** hereby declare that the research embodied in the present discussion entitled, **"Trade Scenario Between India and China"** is an original research work carried out by me under the supervision of **Prof. J Manohar Rao**, School of Economics, for the award of M.Phil., from University of Hyderabad.

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To My

Parents

ACKNOWLEDGEMENTS

I take this opportunity to express my heartiest gratitude to one and all without whose contribution, the dissertation wouldn't have neared completion. First and foremost, I would thank to my guide, my supervisor Prof. Dr. J Manohar Rao for his timely advice as well as moral support has given to me. He was there whenever I needed his consultation and advice regarding my dissertation. Sir, I take this opportunity to express my gratitude, respect and thanks to you, as you gave me the opportunity to work under your supervision.

I wish to acknowledge Dr. Alok Kumar Mishra as my co supervisor, Dr. S Raja Sethu Durai, and Dr. Prajna Paramita Mishra for their valuable suggestions and timely help in my research work. I immensely acknowledge all the faculty members of the School of Economics, and also to the supporting staff of School of Economics for their kind co-operation and help.

I wish to acknowledge the services provided by the University of Hyderabad, IGM Library, CC staff, and also all members who involved directly or indirectly to complete this task. I would like to extend thanks to all my seniors, juniors, friends, classmate, and well-wishers of all departments for their extended discussions and needful help throughout the research work.

I am heartily obliged to Mr. Pradiptarathi, Mr. Kalandicharan, Mr. Raju, Mr. Cyril Philips, Mrs. Swarnamanjari, Usharni, Mr. Sujit Kumar, Ashish, and Pintu for their valuable contribution to my research work.

Last but not least, I thank to my parents, brother, and family for taking interest in my higher education and keeping faith to me that I would do well in it. I again thank all the people who are directly or indirectly involved in helping me to write this dissertation.

Mrutyunjaya Sahoo

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Abbreviations

AIC	Akaike Information Criterion
BPO	Business Process Outsourcing
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
IT	Information Technology
MNEs	Multinational Enterprises
OLS	Ordinary Least Square
PPP	Purchasing Power Parity
SIC	Schwarz Information Criterion
T&D	Transmission and Distribution
USD	United States Dollar

CHAPTER-I

1.1 Introduction

India and China are the two emerging countries of the world. The accelerated economic growth of India and China have been confederated much accelerated growth with their merchandise trade, service trade and foreign direct investment (FDI). This research work will analyze the performance of India's and China's exports, imports, foreign direct investment again with various economic factors which have contributed to their economic growth. Rapid economic growth, prospering trade and large scale foreign direct investments (FDI) along with the whole world are some of the distinctive characteristics of both countries' development. Yet, both differ from each other additionally in relation to their political background, nature of development especially economic policies decided by both the countries. Even though the economic policies of both countries are quite different, but their economic growth have been very rapid when compare with rest of the world. In this economic environment, a comparison between two along with their trade and foreign direct investment scenario with each other and rest of the world become attention grabbing.

International trade can change the entire market structure in an economy. It should depend on exports and imports which in turn influence other activities. Trade provides motivation for efficient production of goods and services by improving the production pattern. Trade and FDI are having a vital role to play in an economic growth as well as an activate institutional development in the recipient country. The Liberalization, Privatization and Globalization (LPG) include economic reforms in domestic and foreign trade, free capital flow mechanisms, elimination of price controls and privatization of state-owned enterprises. Thus, economic growth is being determined by economic factors such as international economics, micro and macroeconomics, welfare economics, development economics, labour and industrial economics, environment and, finally public finance.

Microeconomics studies the behaviour of modern individual households and firms. It examines how their behavioural decision have impacted the demand for and supply of goods and services in a market. It mainly deals with the issues of utility, production, cost, market, factors of

production, growth, inflation and unemployment. Trade and FDI build opportunities for efficient production with their low cost, availability of variety of goods and services, maximization of utility, employment and control inflation in the country.

Macroeconomics deals with the performance, structural behaviour and decision making in the entire economy. Macroeconomic policies and institutional stability can lead to economic growth. These policies are driving force for trade and FDI in the country. The economic growth models have a strong relationship among the following factors such as national income, national output, consumption, savings and investment, aggregate demand and aggregate supply, consumer price index (CPI) and wholesale price index (WPI).

Monetary and fiscal policies: These have an important role to play in controlling the whole economy. These factors are important for stabilization of entire economic structure by the money accumulation, interest rate, stable prices, real effective exchange rate, government expenditures, distribution of taxes, and control of inflation. If the economy is stable, both would create full employment and promote economic growth. In this way, both Trade and FDI are dominating the economy.

Development economics has focused not only to promoting economic growth and structural change, but also to prospering the living standard of the population i.e. human development index (HDI). Trade and FDI are among the most important players to prosper the social, cultural activities, and HDI in an economy. They build conditions for institutional development, institutional services, and also income generation.

The economic growth i.e. increase in income of families and individuals would probably increase their expenditure. With sharp increase in their income, it would lead to growth in their human development index as well. Thus, the increase in consumption, health and education in turn bring forth changes in an economy. Examples of the above mentioned HDI: life expectancy index, educational index, gross national income index, and poverty eradication to run the development programme.

Welfare economics is a branch of economics which borrows microeconomic techniques to evaluate economic well-being of the people: relatively general equilibrium would have an effect on the economic efficiency and income distribution. These indicators study society, group, community and how it leads to social welfare. Trade and FDI build a new market system which have affected the economy for social welfare. These effects would improve the living standard of the society.

Labour and industrial economics: Trade and FDI have facilitated for employment generation at various levels in domestic markets including small, medium and large sectors. Since the large numbers of non-technical labours' are high in developing countries, FDI is introducing new technological skills to provide labour training, and encourage new input and technology. Labour and industrial sectors have a major role to play for both un-skilled and skilled labour. Thus, trade and FDI construct a comparative advantage and also provide a wide range of opportunities. Both factors have a powerful role to play in an economic development of a country.

Environment economics: Establishment of new firms can produce issues of environmental pollution, urbanization, and migration. Sometimes they lead to adverse effects in an economy. The effect of trade and FDI can lead to negative outcome in an economy.

1.2 Background of the Study

Since China and India are two great ancient civilizations, alongside each other, with a long history of cultural relationships, a comparison between these two countries would help discussion of long-term economic performances. China's national economic output was on equal with that of Europe around 1400 A.D. During 'The Wealth of Nations (1776)' Adam Smith attributed the economic stagnation and finally decline of China to its policy of virtual isolation and self-sufficiency, after 1433 a policy that was not eliminated until 1978. According to Maddison, A. (2001), China was still richer than India in 1820, but India overtook China in 1950s, though China has seen more accelerated growth than India during the last years of 20th century.[1] Since the beginning of 21st

[1] Angus Maddison, the famed British economic historian is best known as for his estimates of world gross domestic product (GDP). The global contribution to world's GDP by major economies from year 1 to 2003 according to Angus Maddison's estimates. Before the 18th century, India and China were the two largest economies by GDP output.

century, both China and India had earned the label of emerging economies in Asia as well as in the world, plus the present "Asian Tigers" as per view of the economist David Dollar (2001).[2] Around 1950, India and China had founded their republics, consequently China had a relatively comfortable food surplus, which accelerated its industrial growth. Whereas, India had suffered badly, on account of food grain crises for a long period which restrained its rapid industrial growth. China had commenced reform process during 1978, by opening its closed, centrally planned, non-market economy with rest of the world. In India a more systematic reform process had commenced only after 1991 when it has experienced a civiour economic crisis.

Both countries had recognized themselves the importance of international trade and economic relations for strengthening bilateral trade. After the events of 1990s, both economies had integrated themselves into the global market. This effect had mutually benefitted for economic development and increased their economic growth rate. The economic development of China and India had experienced similar reforms pattern at recent past and attracting greater attention around the world. India and China would face many challenges in the present global economic scenario. Since both the countries have created new world class companies and infrastructure, foreign investment firms, expansion in trade, domestic markets of these countries have been attracted towards global companies. Therefore, these will be creating competitive conditions in the local domestic markets and also put a strain on macroeconomic management.

1.3 Overview of the Study

World's top population superpowers have long been absorbed by the west, but until recently they were small players in the international economic scenario. Before the 1980s, both countries growth rates were relatively disappointing. From the early 1990s, the world has witnessed rapid economic transformation and growth because of market oriented long-term economic reforms, based on improvements in living standards. In the world scenario, one has the largest Communist Party in rule and the other is the largest democracy. The success of economic growth has depended on factors such as large number of skilled human capital, difference in government policies and social as well as cultural factors. In spite of all these immediate factors, most of the countries would

[2] David Dollar had viewed present "Asian Tigers" in his article "Trade, Growth, and Poverty."

address development wave from sectors like industries, trade and services, infrastructure and information technology (IT), foreign direct investment and so on.

The economic high growth rate can be attributed in fraction according to growing contribution of service sector for India and merchandise sector for China. Both countries are among the major economies in the global population as both nations contribute 37% of the world's population. During 2018 India and China are 6th and 2nd position of the world for GDP on nominal basis, and again both economies are 3rd and 1st position for GDP on purchasing power parity (PPP) basis respectively. In 2014 both countries' together share 23.16% and 16.08% of total global wealth in PPP terms and nominal respectively. Among the Asian economies, India and China together account for 52.77% (PPP) and 48.99% (Nominal) on total Asia's GDP.

India has adopted services led growth model whereas China has preferred manufactured led growth model. In case of external trade, India is a net importer with an evident trade deficit for last several years, on the contrary China is a net exporter having continuously trade surplus to the world. China's export has larger share to its GDP compare to contribution of India's exports to its GDP. In 2016 India's export share in GDP was 19.2%, while import share was 20.6%, so that trade deficit was 1.4%. Similarly, China's export share in GDP was 19.6% while import share was 17.4%, so that trade surplus was 2.2%.

1.4 Statement of the Problem

As per previous literature studies show that there is a problem of miniscule research in the area of international trade between China and India. I had found that a problem to analyze the comparative analysis of gross domestic product (GDP) between China and India with their GDP growth rate at constant price since 1970 to 2015. Another problem I found that a problem to analyze merchandise trade scenario and service trade scenario of China and India. There was very less empirical analysis for analyzing the impact of FDI inflow, total trade openness, rate of inflation, real effective exchange rate on GDP growth for both China and India. Lastly another problem found that to analyze the causality relationship of GDP, total exports, FDI, CPI for both China and India.

1.5 Objectives of the study

1. A comparative analysis between China's and India's Gross Domestic Product with their Growth Rate

2. To study the merchandise trade scenario between India and China.

3. To study the service trade scenario between India and China.

4. To analyze the causality of gross domestic product, total export, foreign direct investment inflow, consumer price index (CPI) for both India and China.

5. To analyze the impact of FDI inflow, total (merchandise and services) trade as a percentage of GDP, rate of inflation, real effective exchange rate on GDP growth for both India and China.

1.6 Hypothesis of the study

VECM Granger Causality Test

1. H0: There has no positive causality of gross domestic product (GDP), total export, foreign direct investment (FDI) inflow and consumer price index (CPI) for both India and China.

H1: There has positive causality of gross domestic product (GDP), total exports, foreign direct investment (FDI) inflow, consumer price index (CPI) for both India and China.

Multiple Regression Model

2. H0: There has no positive impact of FDI inflow, total (merchandise and services) trade as a percentage of GDP, rate of inflation, real effective exchange rate on GDP growth for both India and China.

H1: There has positive impact of FDI inflow, total (merchandise and services) trade as a percentage of GDP, rate of inflation, real effective exchange rate on GDP growth for both India and China.

1.7 Data and Methodology

This research study is based on especially secondary data sources. Secondary data sources have been collected from Reserve Bank of India, People's Bank of China, International Monetary Fund, United Nations Conference on Trade and Development (UNCTAD), World Bank, World Trade Organization (WTO), CMIE ProwessIQ, National Bureau of Statistics of China, various journals

and magazines. Data has employed for model analysis at constant prices from 1991 to 2017 and for comparative analysis at current prices from 2008 to 2017. The objectives of the study are investigated through multiple regression model, vector error correction model (VECM).

1.8 Limitation of the Study

1. Time series data is collected at constant prices from 1991 to 2017 for building model and at current prices from 2008 to 2017 for comparative analysis. Though time series data is chosen sufficiently for current analysis but, it is required to collect more than this time period which can give more accurate result.

2. It is very difficult to find entire data of China and India over the study period. All time series data at current prices are converted into constant prices (2010) over the study period 1991 to 2017 for building model.

1.9 Chapterisation of the Study

This chapterization is as follows; the first chapter includes introduction, background of the study, overview of the study, statement of the problem, objectives of the study, hypothesis of the study, data and methodology, limitation of the study. Second chapter includes review of literature. Third chapter consists three sections (a) Gross Domestic Product, (b) merchandise trade, and (c) service trade. Fourth chapter consists of empirical analysis. Lastly fifth chapter includes summary and conclusion.

CHAPTER-II
REVIEW OF LITERATURE

In the present chapter a review of past studies relating to India's international trade with China is carried out. Most of the studies conducted on issues relating to merchandise trade, service trade and manufactures during the period 2000 till present are explained in the following discussion.

Betina Dimaranan et al. (2007), suggested that there are opportunities for India and China to strengthen their bilateral trade ties, and enlarge their imports and exports significantly without weaken each other for development prospects or to other economies. Increased growth in India and China will strengthen competition in global markets for the manufacture and the manufacturing industries. It may be affected negatively in many countries. Improvement in the range and quality of exports from both countries have potential to build substantial welfare benefits to the world. Now China is producing more sophisticated and new variety of manufactured products, it will be possibilities for other economies to enlarge their processing industries.

Shameek Mukhergee and Shahana Mukhergee (2012), summarised the export performance of three different industries which consist India's manufacturing sector and as a result of that reveals the existence of heterogeneity exist among industries within the sector. Cotton exports which are a classical export item for India have decreased its importance within a falling contribution to India's exports as well as global exports of cotton market. Indian gems and jewellery exports contain a significant share of country's aggregate exports and have also performed well in the world. At the end, electronics goods industry is an upcoming sector, which has expanded at an impressive rate domestically and has vigorous potential to contribute India's exports in the nearest future.

Joginder Singh (2014), had used trend analysis, annual growth rate (AGR), percentage etc. and found the bilateral trade between these two countries. Ores, slag & ash (HS26) dominated the India's exports whereas electrical machinery & equipment and parts thereof (HS85) dominated

the India's imports from China. Balance of trade was unfavorable to India. Therefore, India's share in total exports was in range of 4.49% to 6.65% and in imports was in range of 9.40% to 11.77% with China from 2008-09 to 2012-13.

Prabir De (2018), suggested that the significance of tariff liberalization in the Gravity model has become prominent which further leads to tariff cut by partnering countries would increase India's exports. There is strong integrated role as finding indicates tariff liberalization and trade facilitation, which are taken together to construct export strength in post crisis period. This enhances efforts to promote regional and world integration need to address policy reforms across a number of areas.

Basanta K. Pradhan et al. (2017), result show that abatement costs are significantly increase in India but almost constant over time for China. Abatement cost is determined by introduction of renewable energy in the energy mix. In the short/medium run carbon prices are higher for China compared to India, but lower in the long run, due to the assumption of much bigger growth of new energy technologies in the China model compared to the India model. Difference in carbon prices initiated the possibilities of carbon trading between India and China.

Elena Vidal (2018), found the trade patterns of India and China, that the two countries economy have unique export portfolio. India's export portfolio has changed miniscule over the past two decades. In spite of that, exports of manufactured goods have gained share in recent times through observation. Now India shifts into the obstruct that China is investing to exit. On the contrary, China has experienced in trade specialization due to since past four decades it had begun on trade liberalization. So, it had moved from a model focus on exports of agricultural goods and substandard manufactured goods, towards a model focus on the production of machinery and electronics. Now a days China is trying to increase its share in the global production chain.

Smitha Francis (2011), had suggested in the ASEAN-India free trade agreement, the trade union members will have expanded their entry to the Indian market for agricultural sector, which could negatively influence the country's agricultural sector. On the other hand, Indian small and medium

enterprises are also deteriorated in agriculture related goods, a few intermediate goods, and light manufacturing goods. So that import liberalization will stimulate multinational corporations to commence production rationalization across the region in the machineries, transport equipment, chemicals, and iron & steel products in intermediate sectors. It can lead to India's very extensive integration in production networks to these sectors.

Jayati Ghosh and C.P. Chandrasekhar (2012), suggested that there are numerous effects of India's external sector since 2000-01 to 2010-11. First, the trade balance has been negative and continuously deteriorated over the course of decade. Second, in the early years of the decade, this impact could be kept in check because remittance inflows and software exports ensured that the current account was either in surplus or ran small deficits. But in the second half of this period, even large remittance inflows could not prevent a substantial worsen of the current account. Third, external reserves have kept flourishing, other than the crisis year 2008-09. Fourth, it was absolutely because of capital inflows, which expanded over the decade except in the crisis year, and the capital account reached a highest amount 2007-08 with more than 100 billion USD net inflow. Fifth, India's external reserves were adequately borrowed rather than earned, as they were largely expanding, because of capital inflows which was dominated by portfolio inflows and external commercial borrowing.[3]

G. Jayachandran and A. Seilan (2010), examined the direction of association among economic growth rate, FDI and exports by applying Granger causality test. They had found that in India there is no complementary Granger causality association among these variables. The direction of Granger causality association is from exports to FDI and there is no Granger causality association from FDI to exports. The direction of Granger causality association is from exports to growth rate and there is no Granger causality association from growth rate to exports, and the direction of Granger causality association is from FDI to growth rate and there is no Granger causality

[3] Jayati Ghosh and C.P. Chandrasekhar (2012) had described the important characteristic of India's balance of payments in their research paper "India's External Sector."

association from growth rates to FDI. Particularly, in India FDI and exports are among the factors affecting economic growth. On the other hand, the economic growth rate does not have an impact on the appearance of FDI and exports in India.

Ali Zafar (2007), suggested that China's economic dominance generated trickle effects in the global economy over the last two decades. It has explored from natural resources to satisfy the demands of manufacturing industries led to Sub-Saharan Africa. During 2006, trade between China and Africa is more than 50 billion USD. In which Chinese companies were importing oil from Sudan and Angola, copper from Zambia, and timber from Central Africa. Demand of China has contributed to rise in prices for oil and metals from Africa. It has given a chance to expand real GDP in Sub-Saharan Africa. China's aid and investment were bringing abundantly desired capital in infrastructure to the continent. At the same time however, strong Chinese demand for oil was adding to expand in the import bill for many oil-importing sub-Saharan African countries. Now a days, its exports of low-cost textiles are threatening to damage local production while benefiting African consumers. Now China is both an opportunity for Africa to reduce its marginalization from the global economy and a challenge for it to reduce poverty by promoting economic development programme.[4]

A.B. Majumder et al. (2010), suggested that the world scenario of tea with regard to area, production, imports, exports and yield demonstrated overall expansion in the quantity of tea in the global market over past two decades and the trend is expanding. So, systematic planning must be taken to meet up the challenges in world demand for tea in the coming years. In addition to general consumption of tea, health benefit ramification of tea needs to be expanded more actively to trap the advanced areas of tea in the world for nourish in the consumption. Diversification and value addition for a wide range of tea products need to be promoted for parity in the supply demand chain.

[4] Ali Zafar had suggested China's and India's economic dominance in Sub Saharan Africa for natural resources during 2007 on his article "The Growing Relationship between China and Sub-Saharan Africa: Macroeconomic, Trade, Investment, and Aid Links."

Kym Anderson et al. (2006), suggested that developing economies would not have reform the trade rules very much of Doha Round because of huge gaps between their tariff bindings and relevant rates. They had realized more of the potential gains from trade. They had also needed to commit additional trade reforms, invest more in trade facilitation, and equivalently domestic reforms. Advanced economies had given support them to do so, not only by open up their markets to developing economies exports but also rendering more targeted aid. Greater trade reforms of advanced economies may render an interesting path for developing economies to seek trade with an expansion of trade facilitating aid through a major expansion of the integrated framework. Furthermore, it is probable more efficient way for developed economies to help people in lower-income countries apart from the current system of tariff preferences.

Runjuan Liu and Daniel Trefler (2008), suggested that the growth of service offshore outsourcing to India and China has carried with it something new. They highlighted that a single person cannot neglect the reverse flow (in shoring), which is the sale of services produced by the United States to unaffiliated customers in India and China. Educated U.S. workers are competing with educated low paid foreign workers. By applying current population survey (CPS) data of USA since 1996-2006, they estimated the impacts of inshoring and offshore outsourcing on a) occupation and industry switching, b) earnings, c) weeks wasted as unemployed a share of weeks in the labour force. They had estimated small positive effects of inshoring and lesser negative effects of offshore outsourcing. The net effect of inshoring and offshore outsourcing was positive, it is called rapid growth effect.

Sherman Robinson et al. (2002), suggested that the service sector trade liberalisation not only directly affects the global service production and trade, but also has serious involvement for other sectors in an economy. There are potential tradeoffs between benefits from liberalizing trade in manufacturing and services, that should provide an idea for negotiations between developed and developing countries. The major channel of the impact is through international transportation margins and forward-linkages through inter industry input-output relations. There are also large numbers involved and potentially remarkable increment in welfare from trade liberalization.

Salahuddin Ayyub (2012), determined empirically that bilateral trade had provided benefits and a lot of potential to both the nations to expand their bilateral trade ties. Because there were many agro and milk food products in which either China at that time imports from other nations or its demand directly and indirectly will be enlarged in the real per capita incomes and purchasing power of the Chinese people, or they appearance for more variety and better-quality consumption. Where India had a competitive boundary to expand large scale of exports on pharmaceuticals and software. There are a small number of commodities which are produced in India just to be exported to China and there are some commodities in which China are produced to be sold in India only. So that, both countries economy has specific demand and supply linkage for each other.

Enrico Marelli and Marcello Signorelli (2011), found that the present impressive economic growth has been followed in both countries by expanding their trade and openness with respect to the rest of world through both merchandise trade and FDI. India and China have exported manufactured goods not only through trade specilisation, but also both countries have adopted well-designed industrial policies beyond the initial industrialisation stage, decreasing their specialisation in conventional manufacturing sectors such as textiles and clothing. Specifically, now in China is specialised in an innovative sector like electronic data processing machine and office equipment, integrated circuits, telecommunications equipment, and electronic components. On the other hand, now India is less specialised in the above sectors, but it has contributed for specialize with regard to software production and service activities.

A.L. Coutinho and M.P. Fontoura (2012), had concluded with regard to specialization. Now both countries still record a larger share of exports in the conventional sector. Since 2000, China has displayed an expansion of its specialization in the electronic apparatus and machinery sector. While since 2000, India has dominated mainly in the agricultural sector, precious metals and stones, and ores & metal products. Another conclusion is that, both countries show a vast room to increase exports to the European market, mainly in 2009 China had recorded around 80% of total exports, while India had recorded around 30% of total exports. It is interesting, that India had registered more trade potential in goods related to agricultural sector, while China has registered to machinery sector.

F. Lemoine and D. Unal-Kesenci (2007), found that India and China have very distinctive economic sizes and levels of income, and divergence in international specialisation. During the past two decades, both countries have successfully consolidated to the world economy. They have changed the balance of international demand and supply in primary sector, manufactured sector and services sector. Both countries economy has faced trade deficits in those services linked to merchandise trade i.e. transport, insurance, and royalties. China has constructed a strong position in international trade of high-tech manufactured products. On the other hand, India has succeeded a systematic plan aimed at supplying customized goods & services and higher price/quality goods.

S.M. Khan and K. Arora (2017), found that India and China are the emerging dominion powers in Africa, however India's way of investment in Africa is quite dissimilar than that of China. Because first, Indian government is purely involved in African countries. Second, Indian companies have invested in sectors like solar energy, air energy, sugar mills etc. Third, most of Indian private companies have invested in sectors like mining. On the contrary when considered to China, it can demonstrate that China is investing only in those sectors through which it can expand its manufacturing sector by its OBOR policy.

Syed Azhar and K.N. Marimuthu (2012), found that India has all the factors such as availability of natural resources, abundant labor, fine infrastructure, potential markets, and at the end economic and trade policies which have favoured FDI. Now a days India is rated as the second most favoured nation for FDI in the world after China, but it is presumed that in future India will beet China as it has a greater proportion of young population with cheaply availability of skilled labour force and a fastest growing economies in the world. Indian government should construct the policies which can attract more foreign investment (FDI) in manufacturing sector rather than service sector.

V.N. Balasubramanyam and David Sapsford (2006), suggested in this literature on FDI identified a number of factors which can attract foreign firms to specific locales including the per capita growth rate of incomes in the foreign countries, macroeconomic stability identified with the price and exchange rate stability, the size of domestic market for goods and services, an exaggeration free economic environment and a well-balanced policy and political environment.

N.S. Siddharthan (2018), found that business environment depends on physical and administrative i.e. government infrastructure to attract foreign direct investment. In order to create a conducive investment climate in the current WTO regime, it is important to create new institutions relating to the rule of law, justice and financial and commercial infrastructure, and reform the institutions that already exist. In order to attract more investment (both domestic and foreign), India needs to introduce vital institutional reforms to drastically reduce delays, remove corruption, and make the institutions more transparent and accountable. Research studies show that corruption removal is of great significance in attracting foreign investment than increase market size, utilization of natural resources, cheaply availability of labour force and material, reduction of tax rates, interest rates and labour laws reform.

Arvind Panagariya (2006), suggested due to labour market rigidities and distinctive policy approach, foreign investment has focused into China's unskilled labour intensive manufacturing sector. But foreign investment has focused on India's capital-intensive manufacturing sector such as telecommunications, pharmaceuticals, software and business process outsourcing (BPO). Surprisingly India's first growing exports of goods and services are either capital intensive or skilled labour products. When India is compared with China, it is absent for toys and vast majority of light manufacturer to the global market. Another way India is miniscule when compare with China for infrastructure i.e. roads, railways, airports, ports, etc. Indian industries have paid high prices for electricity because subsidize power at lower prices provide to households and its result is transmission and distribution (T&D) losses for Indian industries when compared with China. Its outcome directly affects to Indian manufacturing industries, so that they have gone to highly inefficient and costly for generating their own electricity.

M. Singhania and A. Gupta (2011), had found that important measures of expected FDI are R&D (patents), adjusted GDP, inflation rate. Similarly, they had found the variables are not important in this study such as trade openness, money growth and interest rate. It clearly shows that variables should be improved by the Indian government or other decision-making agencies i.e. GDP growth, scientific research, and inflation. According to the association by employing auto regressive integrated moving average (ARIMA) model, GDP growth and inflation positively impacts the

inflow of FDI in the country. On the other hand, growth in scientific research has impacted negatively for FDI inflow in the country. Therefore, government should provide resources towards GDP growth, maintain stable inflation, and open up the economy more to world. Indian government should be stress on opening various sectors for FDI such as defense. Our government should provide investor confidence for FDI inflows as it is best for countries economic growth.

I. Stancheva-Gigov and K. Poposka (2014), had carried out the panel regression analysis to verify the fact that trade openness, human capital, foreign direct investment inflow, government consumption are the main important variables for economic growth. The country's economy is open to foreign direct investment inflow which is successful in international trade, encourage foreign workers and accomplish higher economic growth than the country's economy which fail to consolidate into the global economy. It is essential to analyze the future openness of every country's economy separately for sustainable future economic growth.

In this paper, to ensure foreign trade influences on economic growth, six basic variables have been chosen for the purposes of regression analysis:

- **Initial GDP per capita:** The theory of the conditional Beta-convergence forecasts that impoverish country's economy grows faster than rich country's economy. Beta-convergence factors have differed both in short run and long run from one country's economy to another country's economy.
- Human capital of a country is determined through the number of years spend over 25 years of age in education by the population. However due to lack of strong alternative educational indicators, it has taken benchmark for human capital of a country to build growth regression model.
- **Natural population growth:** The association between economic growth and population growth have given controversy result for building regression model among the economists i.e. some have stated positively associated and some have stated negatively associated between these two variables.

- **The level of trade openness:** Trade openness refers to the degree in which countries economy have linkaged in international trade with other countries economy. Now a days both developed and developing countries economy have more interdependent in international trade, it is regarded as important determinant for economic growth.
- **The level of public expenditure:** In regression analysis, government consumption is another important variable. Level of public expenditure is measured by government spending to GDP ratio for building regression model.
- **The foreign direct investment (FDI) inflow:** Now a days FDI is an instrument for technology transfer, which provides toward long-term economic growth of a country. Therefor it is regarded as more important variable than domestic investment.

By review of this literature, regression model is applied to analyse the relationship between two or more variables. In addition to regression model is applied to investigate the changes in dependent variable with changes in independent variables. This research study based on multiple regression analysis where log of gross domestic product (LGDP) is dependent variable and log of foreign direct investment inflow (LFDIIF), log of total trade as a percentage of GDP (LTTPGDP), rate of inflation (RINF), log of real effective exchange rate index (LREER) are independent variables.

The model for multiple linear regression is

$$(LGDP)i= \beta_0 + \beta_1(LFDIIF)_{i2} + \beta_2(LTTPGDP)_{i3} + \beta 3(RINF)_{i4} + \beta_4(LREER)_{i5} + \beta_5(LAGLFDIIF)_{i6} + \varepsilon_i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots... \quad (1)$$

Where β is the coefficient

$i = 1, 2, 3 \ldots\ldots\ldots\ldots\ldots\ldots, 26$

ε is an error or residual.

- The multiple regression model is based on linear relationship between independent and dependent variables.
- R-squared is a goodness-of-fit to estimate the percentage of variance between the independent variables and dependent variable. It estimates the strength of relationship from 0 to 100%. In which 0% depicts a model that does not describe all of the variation in the response variable around its mean, and 100% depicts a model that describes all of the

variation in the response variable around its mean. Usually, larger the R^2 better the regression model.

- Multiple regression suffers from multicollinearity, autocorrelation, and heteroskedasticity. Therefore, Breusch-Godfrey Serial Correlation LM test for multicollinearity, Breusch-Pegan-Godfrey test for heteroskedasticity test, and Jarue-Bera histogram-normality test for normal distribution. Durbin-Watson statistic for autocorrelation have carried out for regression model.

Sarbapriya Ray (2012), had found a positive relationship between foreign direct investment (FDI) and GDP and vice versa, on the basis of ordinary least square regression model by her empirical analysis. It did not necessarily indicate direction of causation. So that, the unit root test had explained that both foreign direct investment and economic growth were non-stationary at level but stationary at the first differences in case of Augmented Dickey Fuller (ADF) test, Phillips-Perron (PP) test. The cointegration test had explained that foreign direct investment and economic growth were cointegrated by employing Johansen cointegration test. The test result showed that there is long run relationship between these two variables. Lastly, the Granger causality test established the presence of unidirectional Granger causality which runs from economic growth to foreign direct investment. The error correction estimates contributed an evidence that the error correction term was statistically significant and had a negative sign, which confirmed that there was no problem in the long-run equilibrium relation between the independent and dependent variables.

By review of this literature, the unit root test will clarify the log of gross domestic product (LGDP), log of total exports (LTEX), log of foreign direct investment inflow (LFDI IN), and log of consumer price index (LCPI) are non-stationary at level but stationary at first difference both in ADF (Augmented Dickey Fuller) test statistic and PP (Phillips-Perron) test statistic for both countries i.e. China and India. The Johansen cointegration test will confirm that LGDP, LTEX, LFDI IN, and LCPI are cointegrated for both trace statistic and maximum-eigen statistic. So that cointegration analysis has been used to study the long run relationship among the variables.

Finally, the Granger causality test is a statistical hypothesis test for determining whether one time series is useful to forecast and causation for another. The Granger causality test will confirm the presence of unidirectional and bidirectional causality among these variables.

CHAPTER III

Comparative Analysis of China's and India's Gross Domestic Product and International Trade

Introduction

During twentieth century, world's high-income industrial nations have benefitted the fruits of well-being due to less than one fifth of world population. But both India and China have accomplished higher rate of economic growth and contraction of poverty through high level of gross domestic product (GDP) since 1980 to present today. Both countries now comprise one third of world population. Both India and China are the major source for their contribution to GDP in the global economy. During the past two centuries, most significant economic developments have been done on these countries.

In many ways, India and China are similar. Both countries are large in geographical area and extremely large in population, still they remain low in standard of living as compared to the world. India's and China's patterns of economic growth are quite different. Some of the literature studies confirm that India's economic growth has been affected primarily by the accelerated expansion of service producing industries. On the contrary China's economic growth has been accelerated by the expansion of manufacturing industries, so that China's willingness to act as more rapidly and aggressively lower of its trade barrier and to attract foreign direct investment inflows

Previous literature studies show that India and China are quite different for their patterns of economic development. Large informal sector's employment and output are concentrated by small enterprises in India. But in China's employment and output has concerned with large industrial enterprises. During last 30 years China's economic growth performance has been extraordinary, while India has also grown extraordinarily during the last two decades when compare with both

countries to world. Both China's and India's economic growth is remarkable across agriculture, industry, and services.

This chapter contains three sections: first section contains a comparative analysis between China's and India's gross domestic product at constant prices with their economic growth rate since 1970 to 2015. Second section contains merchandise trade scenario between China and India at current prices since 2008 to 2017. Third section contains service trade scenario between China and India at current prices since 2008 to 2017.

SECTION A

3.1 Comparative Analysis between China's and India's Gross Domestic Product with their Growth Rate

The monetary value of all goods and services are produced within a country's geographical borders over a specified period of time is called gross domestic product (GDP). It comprises consumption, government expenditures, investment, and net exports (exports minus imports). Where gross domestic product has divided into two categories i.e. current price GDP and constant price GDP. The value of all goods and services produced within a nation geographical border relation to base year is called constant price GDP. Annual average growth rate of GDP is calculated to understand whether the country's economy is improving or declining on the basis of base year. It is the direct comparison of GDP from the previous year to current year. If the growth rate is positive, the economy is to be improving and if the growth rate is negative, the economy is to be declining. Growth rate can be calculated annually or quarterly. In this research study growth rate has been calculated on yearly basis.

3.1.1 Data Sources

Secondary data sources have been collected from United Nations Conference on Trade and Development (UNCTAD) for both China's and India's comparative analysis of GDP with their growth rate since 1970 to 2015 at constant prices.

Conversion of current price GDP to constant price GDP: The following formulas are used for conversion of GDP to constant prices from current prices.

Constant Year Price of GDP = (Current Year Price of GDP / Current Year Index of GDP) * Base Year Index of GDP

In recent time 2018, India is the seventh largest economy in terms of nominal GDP to world, whereas China is the second largest economy in terms of nominal GDP to world. During 2018, India's per capita nominal GDP is 2135 USD and rank to world is 142 where as China's per capita nominal GDP is 10,088 USD and rank to world is 72.[5]

3.1.2 Comparative Analysis of Gross Domestic Product (GDP) since 1970 to 1990

Table 3.1.1 shows that GDP at constant prices (2010) and GDP at constant prices (2010) per capita since the year 1970 to 1990 of both China and India. During 1970, China's and India's constant price GDP were 1,86,202.8 million USD and 1,95,828.7 million USD respectively. In the same year both China's and India's per capita constant price GDP were 225.75 USD and 353.75 USD respectively. Since the year 1970 to 1983 India's per capita GDP was higher than China. But since the year 1984 to 1990 there was a reverse trend whereas, China's per capita GDP was higher than India. Similarly, during 1970 and 1971 India's GDP was higher than China, but since 1972 to 1990 China's GDP was higher than India.

During 1983, China's and India's GDP were 4,31,926.1 million USD and 3,12,104.5 million USD respectively, whereas China's GDP growth rate was higher than India. In the same year 1983, both China's and India's per capita GDP were almost equal to 416.46 USD for China and 417.83 USD for India.

[5] GDP, per capita GDP and projected GDP ranking data on 2018 have been collected from International Monetary Fund, World Economic Outlook for both China and India.

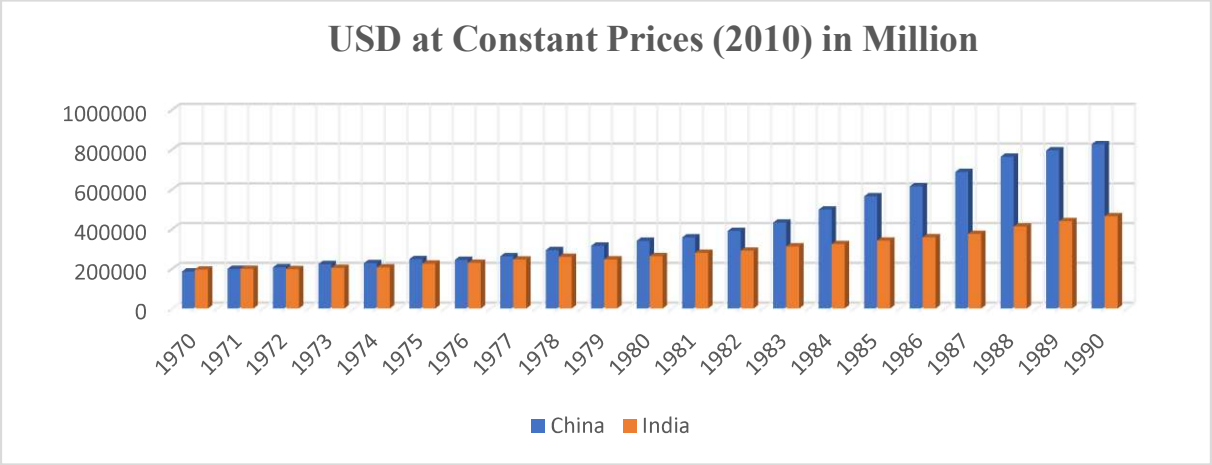
Table 3.1.1

China's and India's Constant Prices (2010) GDP with per capita since 1970 to 1990

	US Dollars at constant price (2010) in million			Per capita GDP US Dollars at constant price (2010) in million	
Year	China	India		China	India
1970	186202.8	195828.7		225.76	353.75
1971	199348.7	199385.4		235.78	352.13
1972	206943.8	198154.8		239.05	341.99
1973	223002.7	204008.7		251.94	343.99
1974	228154.1	206441		252.49	340.07
1975	248049.1	225413		269.34	362.81
1976	244154.7	229418		260.57	360.85
1977	262637.2	245926.7		275.90	378.07
1978	293365.8	259543.2		303.68	390.00
1979	315661.6	246465.7		322.14	361.96
1980	340283.2	262773.5		342.38	377.12
1981	357637.6	279942.9		354.80	392.56
1982	389825	290528.2		381.34	398.06
1983	431926.1	312104.5		416.47	417.84
1984	497578.9	323584.3		472.44	423.40
1985	564254.5	341279.2		526.92	436.60
1986	614473.1	357898.1		563.56	447.83
1987	686366.5	374967		617.60	459.07
1988	763239.5	412176.8		673.72	493.93
1989	795295.6	439267		689.42	515.41
1990	826312.1	464133.4		704.78	533.40

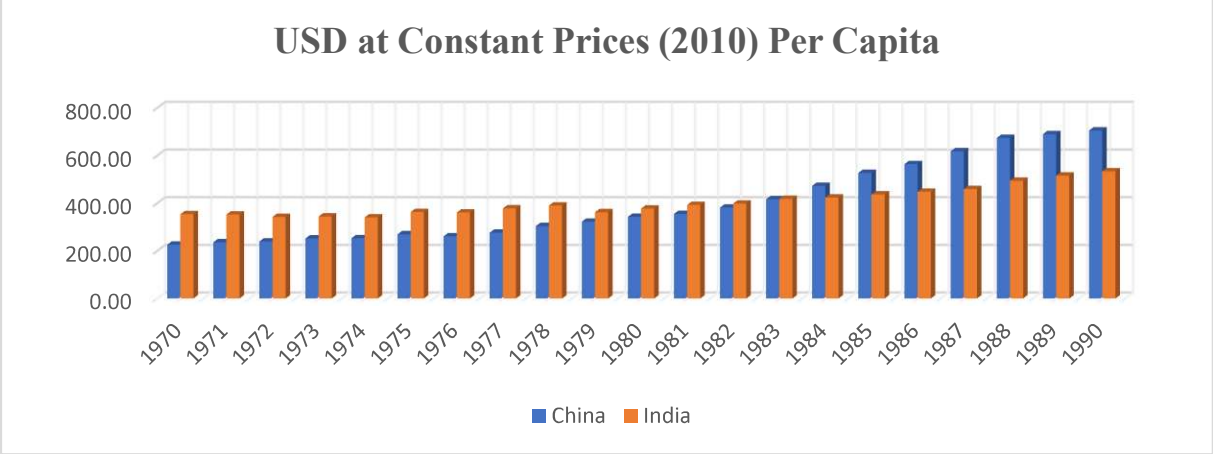
Source: Author's calculation from UNCTAD Statistics

Figure 3.1.1A China's and India's Constant Price GDP since 1970 to 1990



Source: Author's calculation using data from UNCTAD statistics

Figure 3.1.1B China's and India's Per Capita Constant Price GDP since 1970 to 1990



Source: Author's calculation using data from UNCTAD statistics

During 1985 China's GDP was 5,64,254.5 million USD, it was increased to 8,26,312 million USD in 1990 by 2,62,057.6 million USD. Similarly, during 1985 India's GDP was 3,41,279.2 million USD, it was increased to 4,64,133.4 million USD in 1990 by 1,22,854.2 million USD. During the year 1975 China's GDP was 2,48,049.1 million USD and India's GDP was 2,25,413 million USD in which China was almost equal with India. But in 1990, China's GDP was approximately 1.8

times larger than India. During 1990, China's and India's per capita GDP were 704.78 USD and 533.4 USD in which China was 1.32 times larger than India. China's strong economic reforms after 1978 help towards its GDP growth and per capita GDP growth.

3.1.3 Comparative Analysis of Per Capita GDP since 1970 to 1990

Figure 3.1.1A shows that during 1970 to 1972 China's and India's constant price GDP were almost equal, then since 1973 to 1990 China's GDP was Increasing at higher rate than India. Therefore since 1973 to 1990 China's constant price GDP was larger than India.

Figure 3.1.1B shows that since 1970 to 1983 per capita constant price GDP of India was higher than China. After that since 1984 to 1990 per capita constant price GDP of China was higher than India, due to its strong macroeconomic reforms towards FDI inflows, currency weakness, openness economy and focusing more towards manufacturing sector for both unskilled and skilled labour.

3.1.4 Comparative Analysis of Gross Domestic Product (GDP) since 1991 to 2015

Table 3.1.2 shows that GDP at constant prices (2010) and GDP at constant prices (2010) per capita of China and India since the period 1991 to 2015. During 1991, China's GDP was 9,03,159.1 million USD and India's GDP was 4,66,098.2 million USD, similarly China's per capita GDP was 759.48 USD and India's per capita GDP was 524.85 USD. There was an increasing trend of both China and India's constant price GDP and per capita constant price GDP since the year 1991 to 2015, but in the same period growth rate of China was higher than India.

During 2004, China's and India's GDP were 31,87,669 million USD and 10,13,122 million USD respectively, whereas both countries GDP had increased by 2,92,420 million USD and 77,612.7 million USD. In the same year China's GDP was 3.15 times larger than India. Similarly, during the same year China's and India's per capita constant price GDP was 2425.9 USD and 899.6 USD respectively, whereas both countries per capita constant price GDP were increased by 209.6 USD and 55.3 USD respectively, therefore China's per capita GDP was 2.7 times larger than India.

Consequently, both countries GDP and per capita GDP had increased at higher growth rate but China's growth rate was more than India's growth rate annually. Finally, during 2015 China's and

Table 3.1.2 China's and India's Constant Prices GDP with per capita since 1991 to 2015

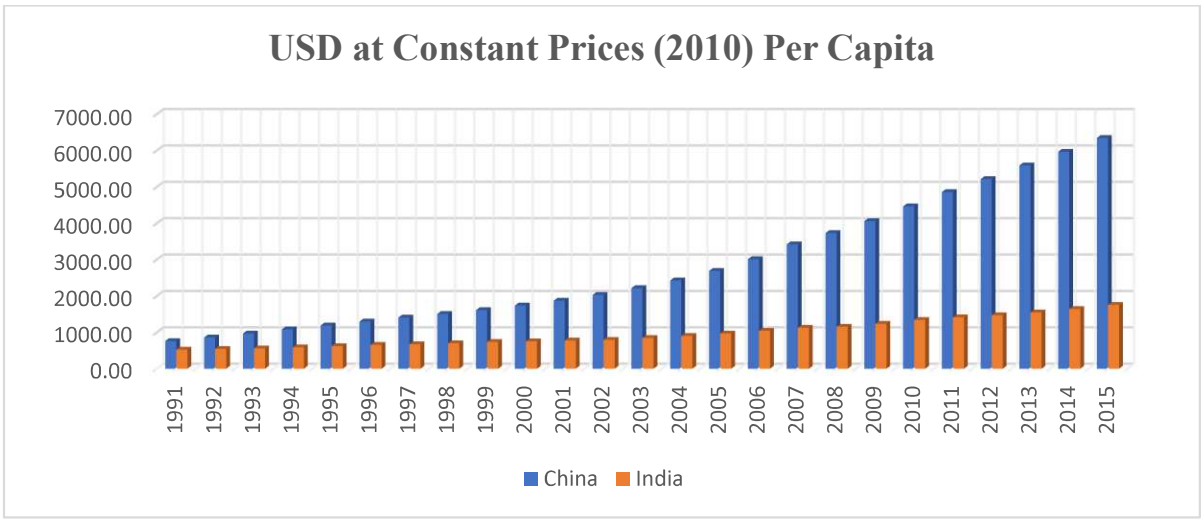
	US Dollars at constant price (2010) in million			Per capita GDP US Dollars at constant price (2010) in million	
Year	China	India		China	India
1991	903159.1	466098.2		759.48	524.85
1992	1031408	491362.6		856.65	542.33
1993	1174773	515709.4		965.20	558.09
1994	1327494	554200		1080.15	588.20
1995	1473518	596572.8		1188.38	621.12
1996	1619397	640687.3		1295.54	654.50
1997	1768381	669378.4		1404.52	671.12
1998	1906315	709456.6		1504.07	698.30
1999	2053101	760031.2		1609.76	734.66
2000	2227615	790663.6		1735.99	750.83
2001	2412507	831911.7		1868.80	776.42
2002	2632045	863247.8		2026.76	792.11
2003	2895249	935509.3		2216.30	844.30
2004	3187669	1013122		2425.91	899.64
2005	3551064	1107189		2686.90	967.72
2006	4002049	1209759		3010.85	1041.12
2007	4570340	1328332		3418.86	1126.01
2008	5013663	1380017		3729.25	1152.76
2009	5484947	1497039		4056.71	1232.87
2010	6066351	1650635		4461.36	1340.91
2011	6642655	1760210		4857.59	1411.29
2012	7167424	1856254		5211.92	1469.64
2013	7726483	1974796		5587.59	1544.54
2014	8290517	2123009		5963.93	1640.83
2015	8862562	2293063		6343.87	1751.70

Source: Author's calculation from UNCTAD Statistics

Figure 3.1.2A China's and India's Constant Price GDP since 1991 to 2015

Source: Author's calculation using data from UNCTAD statistics

Figure 3.1.2B China's and India's Per Capita Constant Price GDP since 1991 to 2015



Source: Author's calculation using data from UNCTAD statistics

India's GDP were touched to 88,62,562 million USD and 22,93,063 million USD respectively, where as China's GDP was 3.86 times larger than India's GDP. Similarly, per capita constant price

GDP of China was 6343.87 USD and India was 1751.7 USD respectively, in which China was 3.62 times larger than India.

3.1.5 Comparative Analysis of Per Capita GDP since 1991 to 2015

Figure 3.1.2A shows that GDP China and GDP India at Constant prices (2010) in Million. Since 1991 to 2015, China's GDP was increasing much faster rate than India's GDP due to China's higher exports of steels, toys, garments, FDI inflows into unskilled labour intensive manufacturing products. During 2015 China's GDP was around 8.9 trillion USD and India GDP was around 2.3 trillion USD in which China was 3.8 times larger than India.

Figure 3.1.2B shows that China's and India's per capita GDP at constant prices (2010) from 1991 to 2015. During 1991 per capita constant price GDP of China was 1.4 times larger than India. But since 1991 to 2015 China per capita GDP had increased at a higher growth rate than India. Similarly, during 2014 China per capita GDP was 3.6 times larger than India, so that it was helped towards China lower middle-income group countries to upper middle-income group countries.

3.1.6 Comparative Analysis of Annual Average Growth Rate since 1971-73 to 2013-15

Table 3.1.3 shows that since 1971-1973 to 2013-2015, China's and India's annual average growth rate at constant prices GDP with their per capita constant prices GDP. During 1971-1973, annual average growth rate of GDP had begun from 6.21% for China and 1.38% for India, strengthen to 8.96% for China and 2.56% for India in 1977-1979, again strengthen to 13.13% for China and 5.52% for India in 1983-1985. After that it had weakened to 5.8% for China and 4.22% for India in 1989-1991, then bounced back to peak level 13.7% for China and 5.95% for India during study period 1992-94, and again slowed down to 8% for China and 5.72% for India. Conclusively it had gone up to 11.4% for China and peak level 8.95% for India during 2004-2006. Similarly, at the end 2013-2015 it had gone down to 7.33% for China and 7.3% for India.

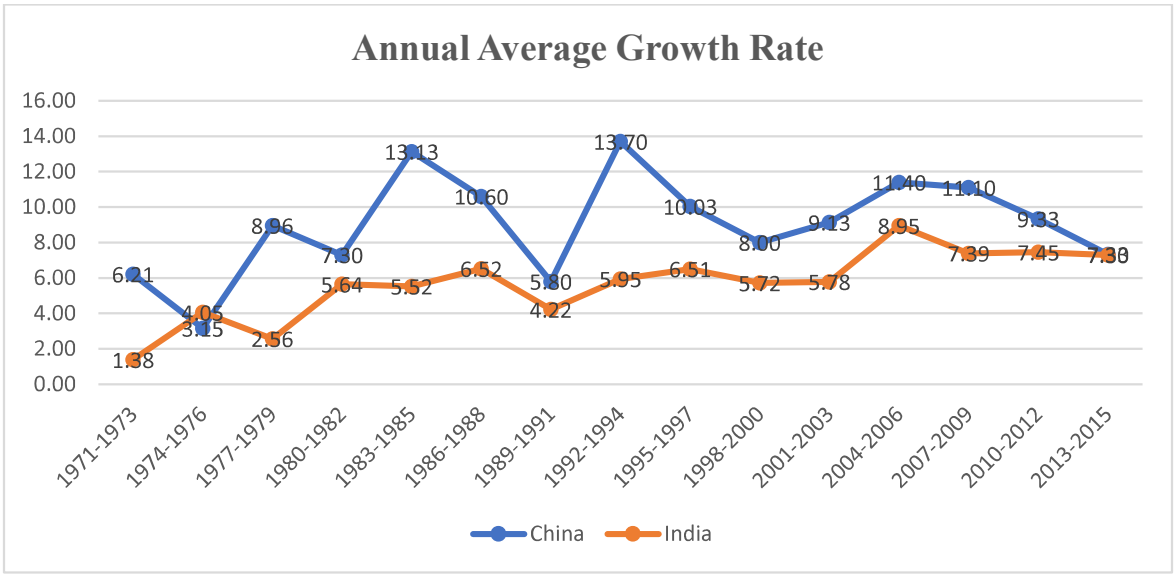
Table 3.1.3

Annual average growth rate of China and India with per capita since 1971-73 to 2013-15

	Annual average growth rate			Annual average growth rate per capita	
Year	China	India		China	India
1971-1973	6.21	1.38		3.74	-0.92
1974-1976	3.15	4.05		1.21	1.67
1977-1979	8.96	2.56		7.34	0.25
1980-1982	7.30	5.64		5.80	3.23
1983-1985	13.13	5.52		11.39	3.14
1986-1988	10.60	6.52		8.54	4.22
1989-1991	5.80	4.22		4.11	2.08
1992-1994	13.70	5.95		12.46	3.88
1995-1997	10.03	6.51		9.15	4.50
1998-2000	8.00	5.72		7.32	3.82
2001-2003	9.13	5.78		8.49	4.01
2004-2006	11.40	8.95		10.76	7.24
2007-2009	11.10	7.39		10.47	5.83
2010-2012	9.33	7.45		8.72	6.05
2013-2015	7.33	7.30		6.77	6.03

Source: Author's calculation from UNCTAD Statistics

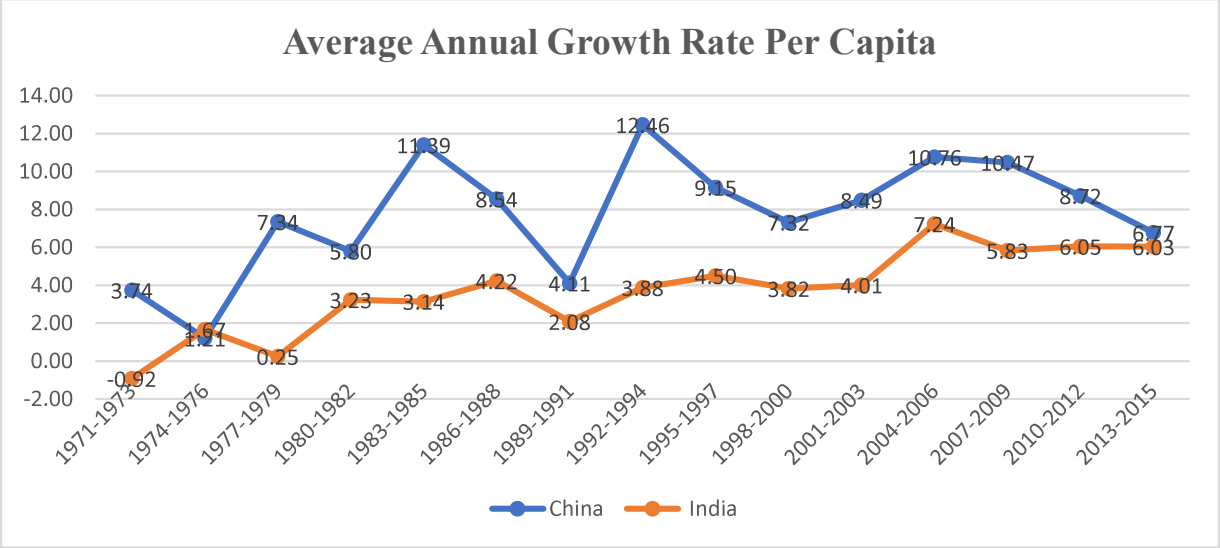
Figure 3.1.3A Annual average growth rate of China and India since 1971-73 to 2013-15



Source: Author's calculation using data from UNCTAD statistics

Figure 3.1.3B

Annual average growth rate per capita of China and India since 1971-73 to 2013-15



Source: Author's calculation using data from UNCTAD statistics

3.1.7 Comparative Analysis of Per Capita Annual Average Growth Rate since 1971-73 to 2013-15

On the other hand, figure 3.1.3B shows that annual average growth rate at constant prices GDP per capita had introduced from 3.74% for China and -0.92% for India during 1971-1973, increased to 7.34% for China and 0.25% for India in 1977-1979, 11.39% for China and 3.14% for India in 1983-1985, and again increased to peak level for China 12.46% and 3.88% for India in 1992-1994. After that it had downturned to 7.32% for china and 3.82% for India during 1998-2000. Furthermore in 2004-2006 it had enlarged to 10.76% for China and 7.24% for India, at the end 2013-15 pushed to 6.77% for China and 6.03% for India.

SECTION B

3.2 Merchandise Trade Scenario between China and India

The developed and developing countries' economy in the world are now highly interdependent due to foreign trade. During past two decades, free movement of capitals and liberalization of global trade authorized to move manufactured goods and raw materials from one geographical part of world to another geographical part of world with the aim to expand their market share and gains by reducing production cost of firms. On this aspect, China and India have been the favourable destination for many producers from USA, UK, Germany, Japan, Canada, etc., due to availability of natural resources with skilled and unskilled cheap labour force. Due to China's open-door policy during 1978 onwards, it has the largest producer and exporter of merchandise goods to world.

The main aim of this section is to show the merchandise trade scenario between China and India since 2008 to 2017. The structure of this section is as follows: first, merchandise exports and imports of China and India with their annual average growth rate to world. Second, their percentage of merchandise exports and imports to total world. Third, merchandise trade balance of China and India to world. Fourth, China's and India's primary-manufactured goods exports and imports with their percentage share. Fifth, sector wise China's and India's commodities composition of primary-manufactured goods exports and imports with their percentage share. Sixth India's exports, imports, and trade deficit with world and China.

Merchandise exports are a method of providing retail goods for sale in a foreign consumer market. Similarly, merchandise imports are a method of retail goods purchase by a resident from foreign country. Merchandise trade surplus is an economic measure of a positive balance of trade, where country's merchandise exports exceed its merchandise imports. On the other hand, merchandise trade deficit is an economic measure of a negative balance of trade, where country's merchandise imports exceed its merchandise exports.

The scope and level of foreign trade of both China and India are influenced by many factors. The most important factor is trade policy. It is a part of general economic policy of the country. Trade policy is the rules and regulations, that relates to trade relation between countries. These policies are unique to each country and are prepared by its government body. It is influenced by entire

economic policy of the state, geographical size, and its development process. Most of the companies now are expanding their market share to foreign markets for the reason of economic benefits. The countries effort to take care of its exports in order to increase economic growth, employment, and economic welfare of the country. Sometimes the country supports to some domestic industries from competition and unfair trade practices by foreign industries.

3.2.1 Data Sources

Secondary data sources have been collected for merchandise trade scenario between China and India from United Nations Conference on Trade and Development (UNCTAD), National Bureau of Statistics of China, and CMIE Economic Outlook. Data has employed for comparative analysis at current prices since 2008 to 2017.

3.2.2 Analysis of Data

Research study tends toward Chinese economy was a merchandise trade surplus economy so that its economy always gained inflows of foreign exchange reserves through merchandise trade, but Indian economy was a merchandise trade deficit economy, so it loosed foreign exchange reserves through merchandise trade. During 2015, China's exports was 13.76% against imports was 10.06%, while India's exports was 1.62% against imports was 2.35%.

3.2.3 Comparative analysis of merchandise exports and its growth rate

Table 3.2.1 shows that merchandise exports of China and India had increased annually, consequently their growth rate were positive since 2008 to 2014 except on the year 2009, but in 2015 and 2016 merchandise exports of China and India had decreased, so that their growth rate were also negative. Due to global financial crisis (GFC) between mid 2007 to early 2009, both China's and India's merchandise exports to world had reduced to 12,01,612 million USD and 1,64,908.7 million USD respectively on 2009 from 14,30,693 million USD and 1,94,828.3 million USD respectively on 2008, so that on the same year both China's and India's annual average growth rate were maximum negative i.e. -16.01% and -15.36% respectively out of all economic period.

Table 3.2.1 Merchandise Exports

	US Dollars at current prices in million		Annual average growth rate	
Year	China	India	China	India
2008	1430693	194828.3	17.23	29.75
2009	1201612	164908.7	-16.01	-15.36
2010	1577754	226351.4	31.30	37.26
2011	1898381	302905.4	20.32	33.82
2012	2048714	296828.2	7.92	-2.01
2013	2209005	314847.7	7.82	6.07
2014	2342293	322693.7	6.03	2.49
2015	2273468	267444.1	-2.94	-17.12
2016	2097632	264143.9	-7.73	-1.23
2017	2263329	298376.2	7.90	12.96

Source: Author's calculation from UNCTAD statistics

During 2010, again china's and India's exports were rebounded to 15,77,754 million USD and 2,26,351.4 million USD respectively from the previous year, therefore their annual average growth rate also bounced back to 31.3% and 37.26% respectively and it was highest out of all economic

period. During 2017, China's and India's exports had recovered their amount to 22,63,329 million USD and 2,98,376.2 million USD respectively after a decline on 2016 from 20,97,632 million USD and 2,64,143.9 million USD respectively. Similarly, on the same year their growth rate was 7.9% and 12.96% respectively.

Figure 3.2.1A **Merchandise Exports**

Source: Author's calculation using data from UNCTAD statistics

Figure 3.2.1B **Annual Average Growth Rate of Merchandise Exports**

Source: Author's calculation using data from UNCTAD statistics

3.2.4 Comparative analysis of merchandise imports and its growth rate

Table 3.2.2 shows that merchandise imports of China against India and their annual average growth rate since 2008 to 2017, so during 2009, 2015 and 2016 China's and India's imports had slowed down from previous year similar to merchandise exports performance of both countries. During 2008, China's merchandise imports was 11,32,567 million USD with its growth rate from past year was 18.45% against India's merchandise imports was 3,21,031.5 million USD with its growth rate from past year was 39.96%. Similarly, during 2010 China's and India's merchandise imports had bounced back to 13,96,247 million USD and 3,50,232.8 million USD from 10,05,923 million USD and 2,57,202.2 million USD respectively on 2009, therefore on the same year both countries annual average growth rate was significantly very high i.e. 38.80% for China and 36.17% for India.

Table 3.2.2 Merchandise Imports

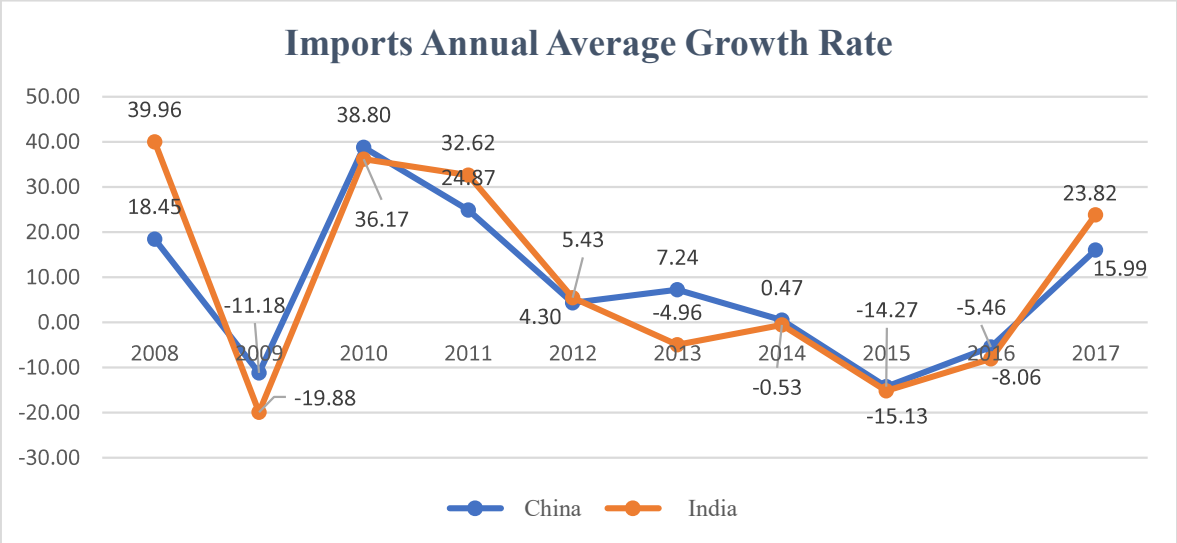
	US Dollars at current prices in million		Annual average growth rate	
Year	China	India	China	India
2008	1132567	321031.5	18.45	39.96
2009	1005923	257202.2	-11.18	-19.88
2010	1396247	350232.8	38.80	36.17
2011	1743484	464462	24.87	32.62
2012	1818405	489693.9	4.30	5.43
2013	1949990	465397.1	7.24	-4.96
2014	1959233	462909.6	0.47	-0.53
2015	1679566	392866.4	-14.27	-15.13
2016	1587925	361207.7	-5.46	-8.06
2017	1841889	447241	15.99	23.82

Source: Author's calculation from UNCTAD statistics

Figure 3.2.2A **Merchandise Imports**

Source: Author's calculation using data from UNCTAD statistics

Figure 3.2.2B **Annual Average Growth Rate of Merchandise Imports**



Source: Author's calculation using data from UNCTAD statistics

But during 2015, both China's and India's merchandise imports had reduced to 16,79,566 million USD and 3,92,866.4 million USD jointly, so that their growth rate had also declined to -14.27%

and -15.13%. At the end during 2017, both countries GDP had expanded to 18,41,889 million USD and 4,47,241 million USD with their annual average growth rate was 15.99% and 23.82% respectively.

3.2.5 Comparative analysis of percentage of exports and imports to total world

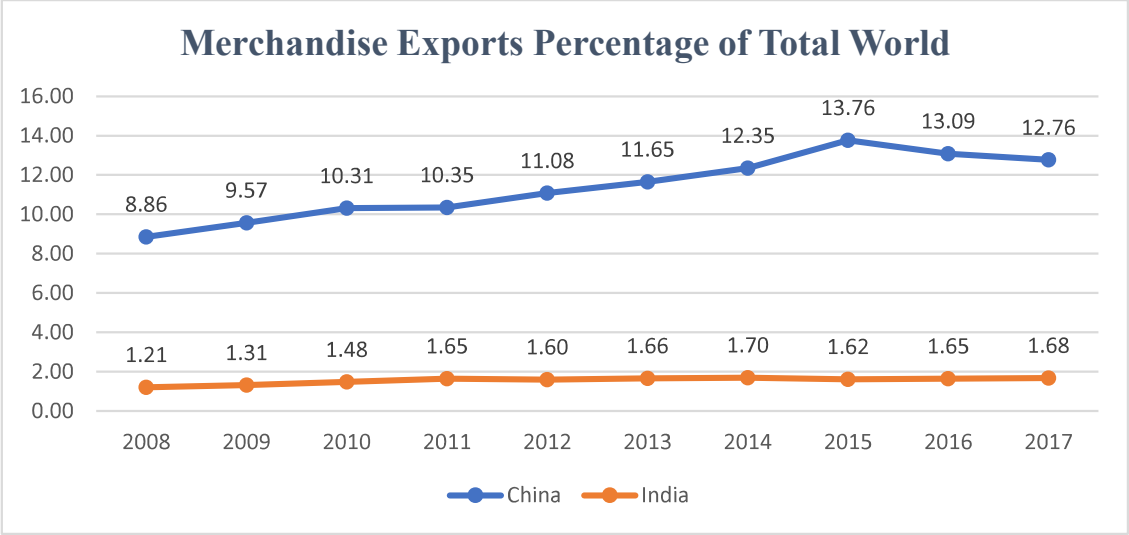
Table 3.2.3 shows that china's and India's merchandise exports and imports to percentage of total world since the study period 2008 to 2017. Above table indicates that China's merchandise exports were varying range from 8.86% to 13.76% against merchandise imports were varying range from 6.88% to 10.30% to percentage of total world. Similarly, India's merchandise exports were varying range from 1.21% to 1.70% against merchandise imports were range from 1.95% to 2.63% to percentage of total World.

Table 3.2.3 Exports and Imports to Percentage of Total World

	Merchandise Exports		**Merchandise Imports**	
Year	China	India	China	India
2008	8.86	1.21	6.88	1.95
2009	9.57	1.31	7.93	2.03
2010	10.31	1.48	9.05	2.27
2011	10.35	1.65	9.47	2.52
2012	11.08	1.60	9.76	2.63
2013	11.65	1.66	10.30	2.46
2014	12.35	1.70	10.30	2.43
2015	13.76	1.62	10.06	2.35
2016	13.09	1.65	9.79	2.23
2017	12.76	1.68	10.26	2.49

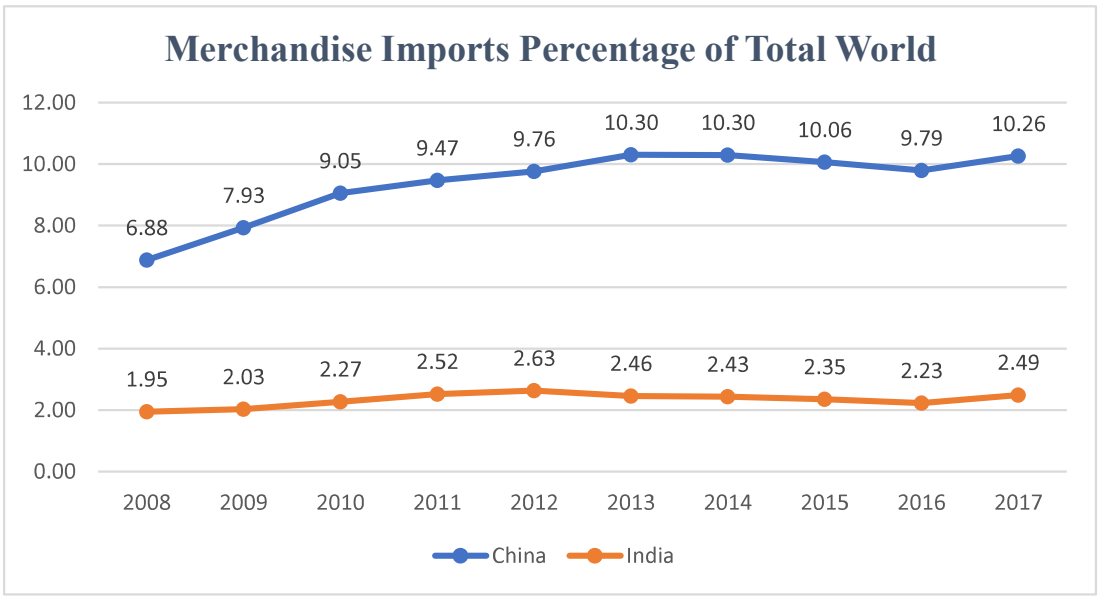
Source: Author's calculation from UNCTAD statistics

Figure 3.2.3A Merchandise Exports to Percentage of Total World



Source: Author's calculation using data from UNCTAD statistics

Figure 3.2.3B Merchandise Imports to Percentage of Total World



Source: Author's calculation using data from UNCTAD statistics

Due to both countries have emerging economy, most populous compare to the global population, large amount of GDP when compare with the world, their merchandise exports percentage and

merchandise imports percentage to the total world had increased annually. Above the table tends toward Chinese economy was a merchandise trade surplus economy so that its economy always gained inflows of foreign exchange reserves through merchandise trade, but Indian economy was a merchandise trade deficit economy, so it loosed foreign exchange reserves through merchandise trade. During 2015, China's exports was 13.76% against imports was 10.06%, while India's exports was 1.62% against imports was 2.35%. But during 2017 China's exports reduced to 12.76% against imports increased to 10.26%, while India's exports increased to 1.68% against imports also increased to 2.49% of total World from 2015.

3.2.6 Comparative analysis of merchandise trade balance with percentage of imports

Table 3.2.4 shows that China was a merchandise trade surplus country and India was a merchandise trade deficit country with the both countries had a significant percentage of imports. During 2009, China's merchandise trade surplus had reduced to 1,95,689 million USD with percentage of imports also reduced to 19.45% from 2,98,126 million USD with percentage of imports 26.32% on 2008 and same trend had continued to 2010 and 2011. Similarly, during 2009 India's merchandise trade deficit had reduced to -92,293.5 million USD from -1,26,203 million USD with percentage of imports also reduced to -35.88% from -39.31% and identical trend also continued to 2010 and 2011. During 2008 to 2011, above analysis shows China had increased at decreasing rate its foreign exchange reserves through merchandise trade surplus while India had loosed at decreasing rate its foreign exchange reserves through merchandise trade deficit.

Similarly, during 2012 to 2015, China had increased its foreign exchange reserves at increasing rate, so that during 2015 China's merchandise trade surplus was made greater in size to 5,93,902 million USD from 3,83,060 million USD on 2014 with highest percentage of imports was 35.36%. On the same way during 2012, India had made greater in size its trade deficit that was -1,92,866 million USD with 39.39% of imports compared to previous year and succeed years, but during 2013 to 2016 there was a decreasing trend of India's trade deficit in absolute amount while percentage of imports was a fluctuating trend. Conclusively in 2017, China's merchandise trade surplus was 4,21,440 million USD and India's merchandise trade deficit was -1,48,865 million USD with both countries merchandise trade balance as a percentage of imports were 22.88% and -33.29% respectively.

Table 3.2.4 Merchandise Trade Balance in USD at Current Prices in Millions

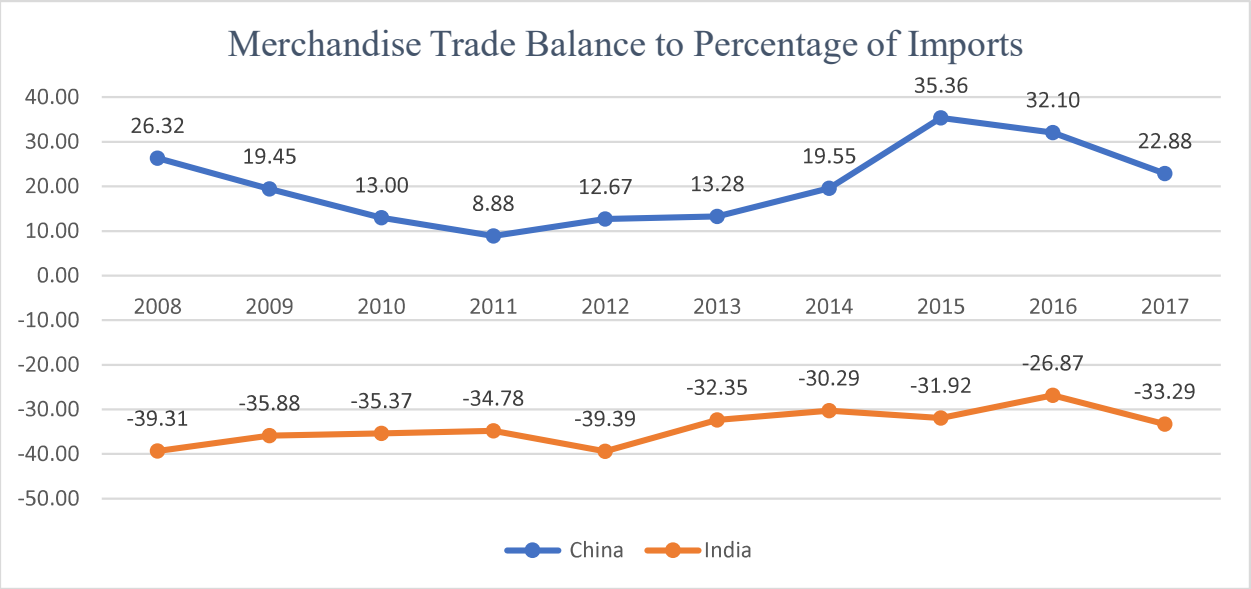
	US Dollars at current prices in million		Percentage of imports	
Year	China	India	China	India
2008	298126	-126203	26.32	-39.31
2009	195689	-92293.5	19.45	-35.88
2010	181507	-123881	13.00	-35.37
2011	154897	-161557	8.88	-34.78
2012	230309	-192866	12.67	-39.39
2013	259015	-150549	13.28	-32.35
2014	383060	-140216	19.55	-30.29
2015	593902	-125422	35.36	-31.92
2016	509707	-97063.8	32.10	-26.87
2017	421440	-148865	22.88	-33.29

Source: Author's calculation from UNCTAD statistics

Figure 3.2.4A Merchandise Trade Balance in USD at Current Prices in Millions

Source: Author's calculation using data from UNCTAD statistics

Figure 3.2.4B Merchandise Trade Balance to Percentage of Imports



Source: Author's calculation using data from UNCTAD statistics

3.2.7 Comparative analysis of China's merchandise exports and imports along with its percentage share

Table 3.2.5 shows that China's primary and manufactured goods exports with imports since 2008 to 2016. China's primary goods exports had expanded in absolute amount but its percentage share on total exports was fluctuated within range from 4.57% to 5.45%, similar case to its manufactured goods exports had expanded but its percentage share on total exports also was fluctuated range from 94.55% to 95.43% during the study period.

During 2010, China's primary goods and manufactured goods exports had increased to 816.86 hundred million USD from 631.12 hundred million USD and 14,960.69 hundred million USD from 11,384.83 hundred million USD respectively with its percentage share for primary goods had decreased to 5.18% from 5.25% and manufactured goods had increased to 94.82% from 94.75% respectively in 2009.

Table 3.2.5 China's Primary - Manufactured Goods Exports-Imports and Share

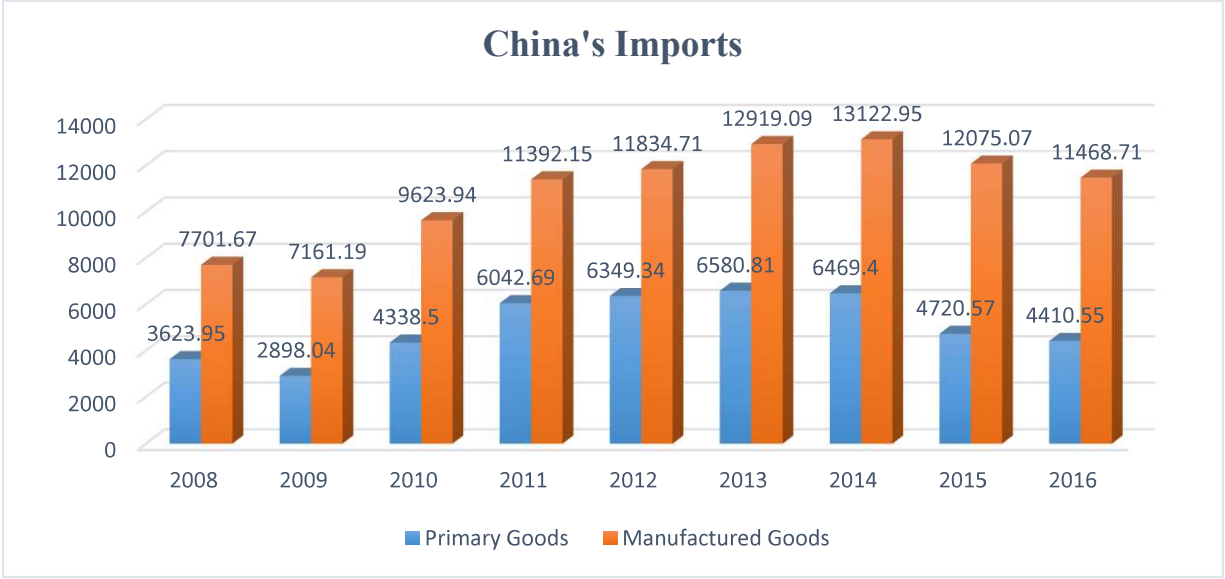
China's Merchandise Exports							
	Amount (USD 100 Million)				Percentage Share		
Year	Total	Primary Goods	Manufactured Goods		Total	Primary Goods	Manufactured Goods
2008	14306.93	779.57	13527.36		100	5.45	94.55
2009	12016.12	631.12	11384.83		100	5.25	94.75
2010	15777.54	816.86	14960.69		100	5.18	94.82
2011	18983.81	1005.45	17978.36		100	5.3	94.7
2012	20487.14	1005.58	19481.56		100	4.91	95.09
2013	22090.04	1072.68	21017.36		100	4.86	95.14
2014	23422 .93	1126.92	22296.01		100	4.81	95.19
2015	22734.68	1039.27	21695.41		100	4.57	95.43
2016	20976.31	1051.87	19924.44		100	5.01	94.98
China's Merchandise Imports							
	Amount (USD 100 Million)				Percentage Share		
Year	Total	Primary Goods	Manufactured Goods		Total	Primary Goods	Manufactured Goods
2008	11325.62	3623.95	7701.67		100	32	68
2009	10059.23	2898.04	7161.19		100	28.81	71.19
2010	13962.44	4338.5	9623.94		100	31.07	68.93
2011	17434 .84	6042.69	11392.15		100	34.66	65.34
2012	18184 .05	6349.34	11834.71		100	34.92	65.08
2013	19499.89	6580.81	12919.09		100	33.75	66.25
2014	19592.35	6469.4	13122.95		100	33.02	66.98
2015	16795.64	4720.57	12075.07		100	28.11	71.89
2016	15879.26	4410.55	11468.71		100	27.78	72.22

Source: Author's calculation from National Bureau of Statistics of China

Figure 3.2.5A China's Primary - Manufactured Goods Exports

Source: Author's calculation using data from National Bureau of Statistics of China

Figure 3.2.5B China's Primary - Manufactured Goods Imports



Source: Author's calculation using data from National Bureau of Statistics of China

At the end during 2016, China's primary goods exports had grown to 1051.87 hundred million USD from 1039.27 hundred million USD while manufactured goods had declined to 19924.44 hundred million USD from 21,695.41 hundred million USD in 2015. Similar case in 2016 its

percentage share also grew to 5.01% from 4.57% of primary goods and compressed to 94.98% from 95.43% of secondary goods in 2015.

Above table study also shows China's primary goods imports had expanded from 3,623.95 hundred million USD in 2008 to 6469.4 hundred million USD in 2014, then it had compressed to 4,410.55 hundred million USD in 2016. Similar case for manufactured goods had expanded from 7,701.67 hundred million USD in 2008 to 13,122.95 hundred million USD in 2014, after that it had compressed to 11468.71 hundred million USD in 2016. China's primary goods imports were varied within range from 27.78% to 34.92% while manufactured goods imports were varied within range from 65.08% to 72.22%. During 2015, China's primary goods imports were 4,720.57 hundred million USD while its percentage share in total imports was 28.11% accompanied by manufactured goods imports were 12,075.07 hundred million USD while its share in total was 71.89%.

3.2.8 China's sector wise primary goods exports with their percentage share of total exports

Table 3.2.6 shows that China's commodities composition of primary goods exports had divided in to four categories i.e. food and live animals used: mainly for food, beverages and tobacco, non-edible raw materials, mineral fuels, lubricants and related materials, and animal and vegetable oils, fats and wax.

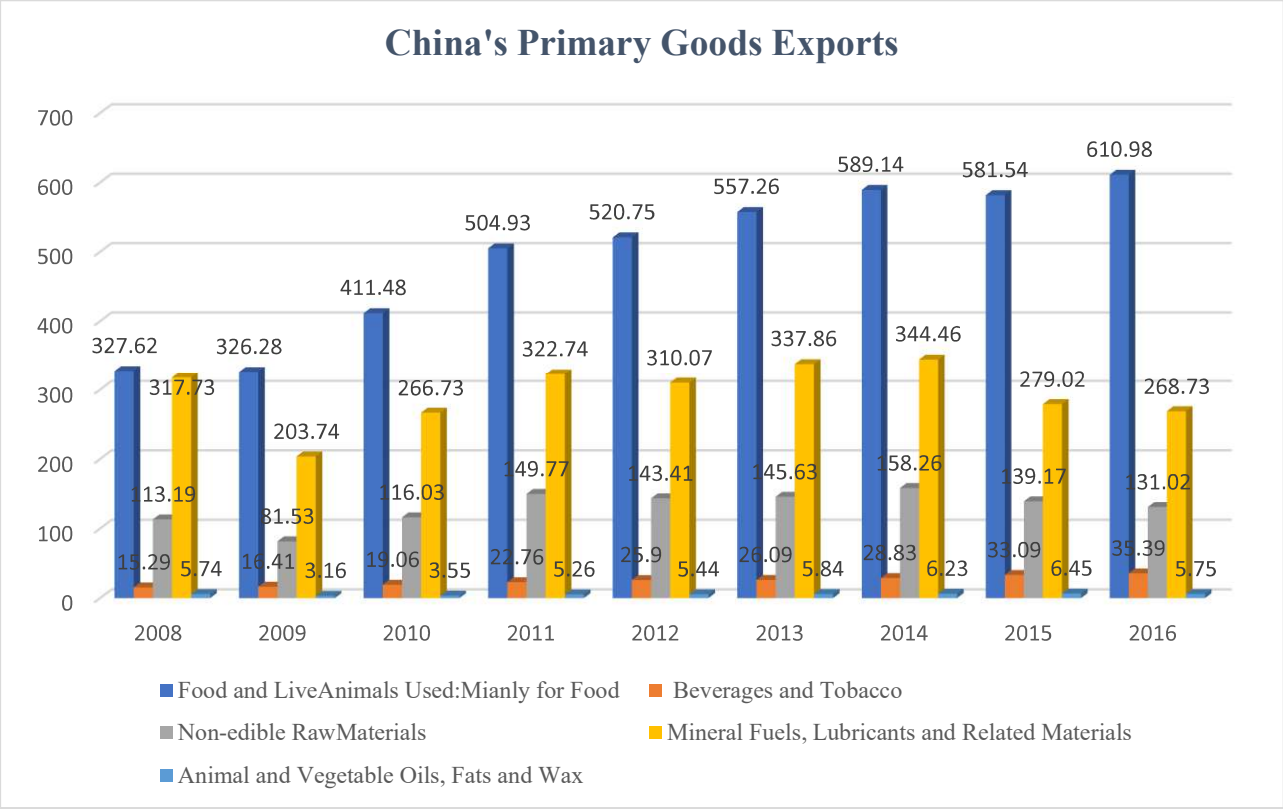
Firstly, since 2008 to 2016 food and live animals used: mainly for food had increased in absolute amount but its percentage share of total exports was fluctuated within range from 2.29% to 2.91%. During 2010, it had raised to 411.48 hundred million USD from 326.28 hundred million USD in 2009 on the contrary its share had fallen to 2.61% from 2.71%. Similarly, it had extended to 589.14 hundred million USD in 2014 from 557.26 hundred million USD in 2013 with its share of total exports almost equal to 2.51% in 2014 from 2.52% in 2013. Conclusively in 2016 it had raised to 610.98 hundred million USD while its share of total exports also expanded to 2.91%.

Table 3.2.6 China's commodities composition of Primary Goods Exports

China's Primary Goods Exports					
	Amount (USD 100 Million)				
Year	Food and Live animals used: mainly for Food	Beverages and Tobacco	Non-edible Raw Materials	Mineral Fuels, Lubricants and Related Materials	Animal and Vegetable Oils, Fats and Wax
2008	327.62	15.29	113.19	317.73	5.74
2009	326.28	16.41	81.53	203.74	3.16
2010	411.48	19.06	116.03	266.73	3.55
2011	504.93	22 .76	149.77	322.74	5.26
2012	520.75	25.9	143.41	310.07	5.44
2013	557.26	26.09	145.63	337.86	5.84
2014	589.14	28.83	158.26	344.46	6.23
2015	581.54	33.09	139.17	279.02	6.45
2016	610.98	35.39	131.02	268.73	5.75
	Percentage Share of Total Exports				
Year	Food and Live animals used: mainly for Food	Beverages and Tobacco	Non-edible Raw Materials	Mineral Fuels, Lubricants and Related Materials	Animal and Vegetable Oils, Fats and Wax
2008	2.29	0.11	0.79	2.22	0.04
2009	2.71	0.14	0.68	1.69	0.03
2010	2.61	0.12	0.74	1.69	0.02
2011	2.66	0.12	0.79	1.7	0.03
2012	2.54	0.13	0.7	1.51	0.03
2013	2.52	0.12	0.66	1.53	0.03
2014	2.51	0.12	0.68	1.47	0.03
2015	2.56	0.14	0.61	1.23	0.03
2016	2.91	0.17	0.62	1.28	0.03

Source: Author's calculation from National Bureau of Statistics of China

Figure 3.2.6 China's Commodities Composition of Primary Goods Exports



Source: Author's calculation using data from National Bureau of Statistics of China

Secondly, since 2008 to 2016 beverages and tobacco exports had hiked annually from the previous year along with its percentage share of total exports had also hiked range from 0.11% to 0.17%. During 2008 it had begun from 15.29 hundred million USD, raised to 25.9 hundred million USD in 2012, again raised to 35.39 hundred million USD in 2016. Correspondingly its percentage share of total exports had begun from 0.11% in 2008, raised to 0.13% during 2012, and again move up to 0.17% during 2016.

Thirdly, non-edible raw materials exports had expanded since 2008 to 2014 except 2009 annually, after that in 2015 and 2016 it had decreased in absolute amount, although its percentage share in total exports had varied within range from 0.61% to 0.79% over the study period from 2008 to 2016. During 2011, it had increased to 149.77 hundred million USD from 116.03 hundred million USD in 2010 along with its percentage share in total was 0.79%, which was uppermost over the study period. Again in 2016, it had diminished to 131.02 hundred million USD from 139.17

hundred million USD in 2015 with its percentage share had increased insignificantly to 0.62% from 0.61%.

Fourthly, mineral fuels, lubricants and related materials exports had varied on the contrary its percentage share in total exports had diminished over the study period since 2008 to 2016. During 2008, it had begun from 317.73 hundred million USD and slowed down to 266.73 hundred million USD in 2010 along with its share in total had begun from 2.22% slowed down to 1.69%. Similarly, during 2014 it had increased to 344.46 hundred million USD from 337.86 hundred million USD in 2013 on the contrary its share in total exports had reduced to 1.47% from 1.53%.

At the end fifthly, animal and vegetable oils, fats and wax exports had oscillated, but its share in total exports had remain same over the study period from 2008 to 2016. During 2008, it had started from 5.74 hundred million USD, where its share in total exports was 0.04%. After that it had bounced back to 6.45 hundred million USD in 2015 from 3.55 hundred million USD in 2010 where its share in total was 0.03%.

3.2.9 China's manufactured goods exports with their percentage share of total exports

Table 3.2.7 shows that China's commodities composition of manufactured goods exports had divided into chemicals and related products, light textiles industrial products, rubber products, minerals and metallurgical products, machinery and transport equipment, miscellaneous products, and products not otherwise classified since the study period 2008 to 2016.

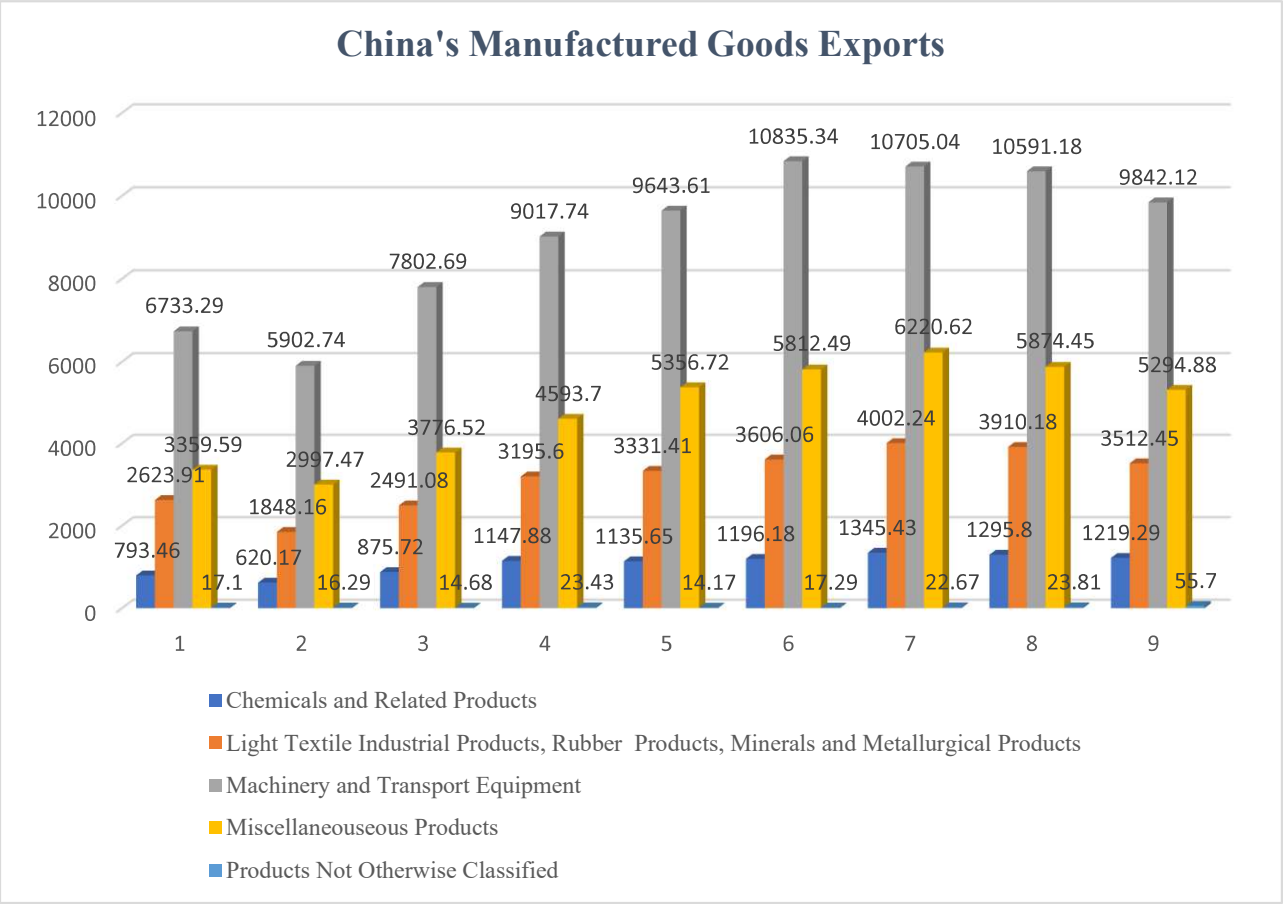
Firstly, chemical and related products had increased in absolute amount since 2008 to 2014 except 2012, on the other hand its percentage share in total exports had varied over the study period 2008 to 2016. During 2008, it had begun from 793.46 hundred million USD, made greater in size to 1345.43 hundred million USD in 2014, then diminished to 1219.29 hundred million USD in 2016. Similarly, its percentage share had begun from 5.55% in 2008, hiked to 6.05% in 2011, and at the end 2016 it had attained to 5.81%.

Table 3.2.7 China's commodities composition of Manufactured Goods Exports

China's Manufactured Goods Exports					
Amount (USD 100 Million)					
Year	Chemicals and Related Products	Light Textile Industrial Products, Rubber Products, Minerals and Metallurgical Products	Machinery and Transport Equipment	Miscellaneous Products	Products Not Otherwise Classified
2008	793.46	2623.91	6733.29	3359.59	17.1
2009	620.17	1848.16	5902.74	2997.47	16.29
2010	875.72	2491.08	7802.69	3776.52	14.68
2011	1147.88	3195.6	9017.74	4593.7	23.43
2012	1135.65	3331.41	9643.61	5356.72	14.17
2013	1196.18	3606.06	10835.34	5812.49	17.29
2014	1345.43	4002.24	10705.04	6220.62	22.67
2015	1295.8	3910.18	10591.18	5874.45	23.81
2016	1219.29	3512.45	9842.12	5294.88	55.7
	Percentage Share of Total Exports				
2008	5.55	18.34	47.06	23.48	0.12
2009	5.16	15.38	49.12	24.95	0.14
2010	5.55	15.79	49.45	23.94	0.09
2011	6.05	16.83	47.5	24.2	0.12
2012	5.54	16.26	47.07	26.15	0.07
2013	5.41	16.32	47.01	26.31	0.08
2014	5.74	17.09	45.7	26.56	0.1
2015	5.7	17.2	46.59	25.84	0.1
2016	5.81	16.74	46.92	25.24	0.27

Source: Author's calculation from National Bureau Statistics of China

Figure 3.2.7 China's commodities composition of Manufactured Goods Exports



Source: Author's calculation using data from National Bureau Statistics of China

Secondly light textile industrial products, rubber products, mineral and metallurgical products exports had oscillated in absolute amount and its percentage share of total exports also oscillated within range from 15.38% to 18.34%. During 2008 it had begun from 2623.91 hundred million USD, increased to 3195.6 hundred million USD in 2011. Where its percentage share in total exports also began from 18.34% during 2008, decreased to 16.83% during 2011. Similarly, during 2014, it had peaked to 4002.24 hundred million USD, then it had slowed down to 3512.45 hundred million USD in 2016, on the other hand its percentage share also peaked to 17.09% in 2014, then slowed down to 16.74% during 2016.

Thirdly machinery and transport equipment exports had begun from 6733.29 hundred million USD during 2008, peaked to highest amount 10835.34 hundred million USD in 2013, while its percentage share in total exports had begun from 47.06%, reached to almost equal share in total

exports 47.01%. Similarly, during 2016 it had reduced to 9842.12 hundred million USD from 10591.18 hundred million USD in 2015, where its share in total exports almost equal to 46.92% from 46.59%.

Fourthly miscellaneous products exports had commenced from 3359.59 hundred million USD during 2008, increased to 6220.62 hundred million USD in 2014, then it had slowed down to 5294.88 hundred million USD at the end 2016. On the other hand, its share in total exports commenced from 23.48% in 2008, reached to peak 26.56% in 2014, then at last during 2016 slowed down to 25.24%.

At the end fifthly, products not otherwise classified exports had started from 17.1 hundred million USD during 2008, increased annually to 23.43 hundred million USD in 2011, again expanded to 55.7 hundred million USD at the end 2016. Similarly, its percentage share in total exports began from 0.12% during 2008, expanded to peak share 0.27% in total exports.

3.2.10 China's sector wise primary goods imports with their percentage share of total imports

Table 3.2.8 shows that China's commodities composition of primary goods imports had segregated to food and live animals used: mainly for food, beverages and tobacco, non-edible raw materials, mineral fuels, lubricants and related materials, and animal and vegetable oils, fats and waxes since the study period 2008 to 2016.

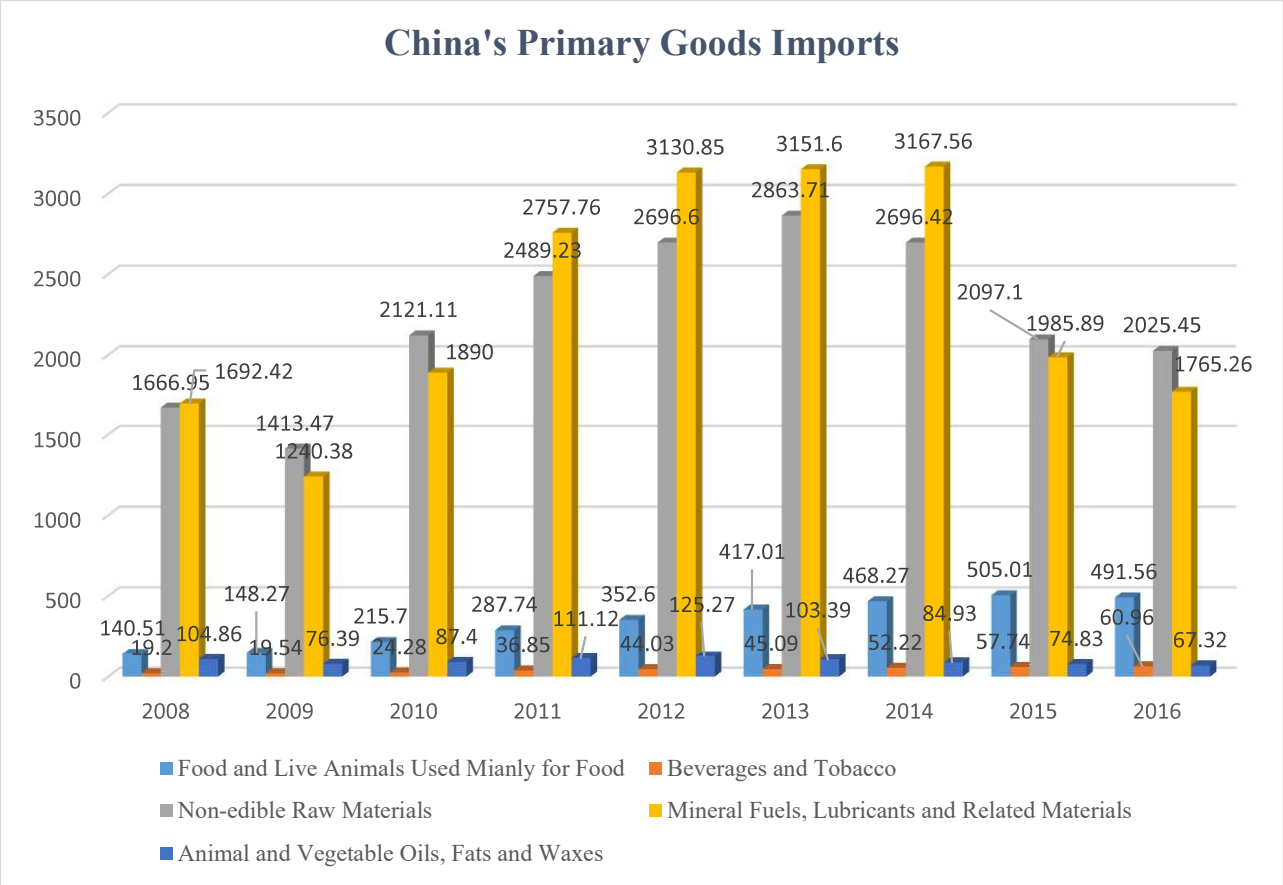
Firstly, food and live animals used: mainly for food imports had increased tremendously annually along with its percentage share of total imports also increased within range from 1.24% to 3.1%. During 2008, its imports had commenced from 140.51 hundred million USD expanded to 287.74 hundred million USD in 2011 while its share also expanded to 1.65% from 1.24% of total imports. Similarly, during 2016 it had weakened to 491.56 hundred million USD from 505.01 hundred million USD in 2015, while its share had increased to 3.1% from 3.01%.

Table 3.2.8 China's commodities composition of Primary Goods Imports

China's Primary Goods Imports					
	Amount (USD 100 Million)				
Year	Food and Live animals used: mainly for Food	Beverages and Tobacco	Non-edible Raw Materials	Mineral Fuels, Lubricants and Related Materials	Animal and Vegetable Oils, Fats and Waxes
2008	140.51	19.2	1666.95	1692.42	104.86
2009	148.27	19.54	1413.47	1240.38	76.39
2010	215.7	24.28	2121.11	1890	87.4
2011	287.74	36.85	2849.23	2757.76	111.12
2012	352.6	44.03	2696.6	3130 .85	125.27
2013	417.01	45.09	2863.71	3151 .60	103.39
2014	468.27	52.22	2696.42	3167.56	84.93
2015	505.01	57.74	2097.1	1985.89	74 .83
2016	491.56	60.96	2025.45	1765.26	67.32
	Percentage Share of Total Imports				
2008	1.24	0.17	14.72	14.94	0.93
2009	1.47	0.19	14.05	12.33	0.76
2010	1.54	0.17	15.19	13.54	0.63
2011	1.65	0.21	16.34	15.81	0.64
2012	1.94	0.24	14.83	17.22	0.69
2013	2.14	0.23	14.69	16.16	0.53
2014	2.39	0.27	13.76	16.17	0.43
2015	3.01	0.34	12.49	11.82	0.45
2016	3.1	0.38	12.76	11.12	0.42

Source: Author's calculation from National Bureau Statistics of China

Figure 3.2.8 China's commodities composition of Primary Goods Imports



Source: Author's calculation using data from National Bureau Statistics of China

Secondly beverages and tobacco imports also increased tremendously on annual basis both in absolute amount and percentage share of total imports since 2008 to 2016. During 2008, it had begun from 19.2 hundred million USD where its share was 0.17%, increased to 45.09 hundred million USD on its share was 0.23% in 2013. At the end during 2016, it was bounced back to 60.96 hundred million USD throughout the time its percentage share of total imports was also bounced back to 0.38%.

Thirdly, non-edible raw materials imports had expansioned to 2863.71 hundred million USD during 2013 from 1666.95 hundred million USD in 2008, then it had contracted to 2025.45 hundred million USD at the end 2016. On the other hand, its percentage share of total imports

slightly diminished to 14.69% during 2013 from 14.72% in 2008, then at last it had slightly expansioned to 12.76% during 2016 from the previous year 2015 in 12.49%.

Fourthly, mineral fuels, lubricants and related materials imports had increased from 1692.42 hundred million USD along with its share of total imports from 14.94% during 2008 to 3167.56 hundred million USD and 16.17% in 2014, then both had slowed down to 1765.26 hundred million USD and 11.12% at the end 2016.

Fifthly, animal and vegetable oils, fats and waxes imports had fluctuated in absolute amount, but its share in total imports had reduced during the study period since 2008 to 2016. During 2008, it had begun from 104.86 hundred million USD after slowed down succeeding two years, it was regained to 111.12 hundred million USD and 125.27 hundred million USD during 2011 and 2012 respectively. Again, after that it had slowed down annually, finally during 2016 reached to 67.32 hundred million USD. On the other hand, gradually its percentage share of total imports had reduced annually from 0.93 in 2008 to 0.53 in 2013, again reduced to 0.42% in 2016.

3.2.11 China's sector wise manufactured goods imports with their percentage share of total imports

Table 3.2.9 shows that China's manufactured goods imports had divided into four categories i.e. chemical and related products, light textile industrial products, rubber products, minerals and metallurgical products, machinery and transport equipment, miscellaneous products, and products not otherwise classified since the period 2008 to 2016.

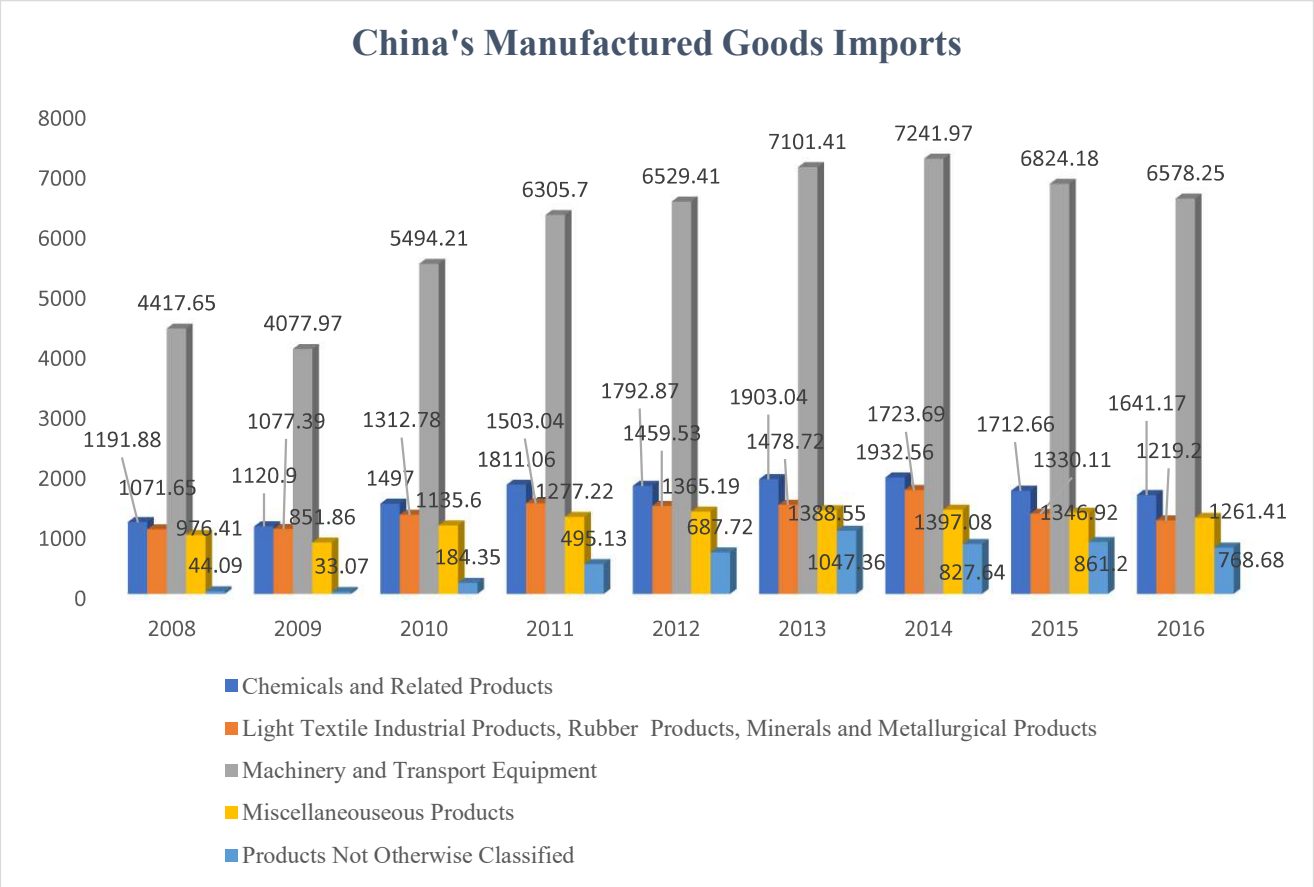
Firstly, chemical and related products imports had oscillated along with its percentage share of total imports also oscillated during the study period since 2008 to 2016. During 2008, it had begun from 1191.88 hundred million USD, reduced to 1120.9 hundred million USD in 2009 again bounced back to 1497 hundred million USD in 2010 and 1811.06 hundred million USD in 2011 respectively. Similarly, it also hiked to 1903.04 hundred million USD for 2013 and 1932.56 hundred million USD for 2014 from previous year, at the end it had slowed down to 1712.66 hundred million USD in 2015 and 1641.17 hundred million USD in 2016. On the other hand, its share of total imports started from 10.52% during 2008, hiked to 11.14% in 2009, then cut down to 9.86% in 2014, at the end 2016 it had touched to 10.33%.

Table 3.2.9 China's commodities composition of Manufactured Goods Imports

China's Manufactured Goods Imports					
	Amount (USD 100 Million)				
Year	Chemicals and Related Products	Light Textile Industrial Products, Rubber Products, Minerals and Metallurgical Products	Machinery and Transport Equipment	Miscellaneous Products	Products Not Otherwise Classified
2008	1191.88	1071.65	4417.65	976.41	44.09
2009	1120.9	1077.39	4077.97	851.86	33.07
2010	1497	1312.78	5494.21	1135.6	184 .35
2011	1811.06	1503.04	6305.7	1277.22	495.13
2012	1792.87	1459.53	6529.41	1365.19	687.72
2013	1903.04	1478.72	7101.41	1388.55	1047.36
2014	1932.56	1723.69	7241.97	1397.08	827.64
2015	1712.66	1330.11	6824.18	1346.92	861.2
2016	1641.17	1219.2	6578.25	1261.41	768.68
	Percentage Share of Total Imports				
2008	10.52	9.46	39.01	8.62	0.39
2009	11.14	10.71	40.54	8.47	0.33
2010	10.72	9.4	39.35	8.13	1.32
2011	10.39	8.62	36.17	7.33	2.84
2012	9.86	8.03	35.91	7.51	3.78
2013	9.76	7.58	36.42	7.12	5.37
2014	9.86	8.8	36.96	7.13	4.22
2015	10.2	7.92	40.63	8.02	5.13
2016	10.33	7.68	41.43	7.94	4.84

Source: Author's calculation from National Bureau Statistics of China

Figure 3.2.9 China's commodities composition of Manufactured Goods Imports



Source: Author's calculation using data from National Bureau Statistics of China

Secondly, light textile, industrial products, rubber products, mineral and metallurgical products imports had introduced from 1071.65 hundred million USD in 2008, expanded to 1312.78 hundred million USD in 2010 and 1503.04 hundred million USD in 2011. Then it had gone back to 1478.72 hundred million USD in 2013, at the end it had diminished to 1330.11 hundred million USD in 2015 and 1219.2 hundred million USD in 2016. Similarly, its share of total imports had varied within range from 7.58% to 10.71%, its share had peaked to top level 10.71% during 2009, diminished to 7.58% in 2013, conclusively in 2016 it had contracted to 7.68%.

Thirdly, machinery and transport equipment imports had commenced from 4417.65 hundred million USD during 2008, increased to 6305.7 hundred million USD in 2011 and 7241,97 hundred million USD in 2014, then finally cut back to 6824.18 hundred million USD in 2015 and 6578.25

hundred million USD in 2016. Furthermore, its percentage share of total imports had introduced from 39.01% in 2008, increased to 40.54% in 2009, gone back to 35.91% in 2012, and finally it increased to 40.63% in 2015 and 41.43% in 2016.

Fourthly, miscellaneous products imports had increased annually from 976.41 hundred million USD in 2008 to 1277.22 hundred million USD in 2011, and 1397.08 hundred million USD in 2014, after that it had slowed down for succeeding two years i.e. in 2015 to 1346.92 hundred million USD and in 2016 to 1261,41 hundred million USD. Similarly, its percentage share of total imports had fluctuated within range from 7.12% to 8.62%. Above table study shows that its percentage share of total imports had begun from 8.62% in 2008, reduced to very low level 7.12% in 2013, after that it had bounced back to 8.02% in 2015 and finally settled down to 7.94% in 2016.

Finally, products not otherwise classified had begun from 44.09 hundred million USD in 2008, gone back slightly to 33.07 hundred million USD in 2009, after that it had bounced back to 687.72 hundred million USD in 2012 and 1047.36 hundred million USD in 2013, on the contrary in succeeding years it had reduced to 827.64 hundred million USD in 2014 and 768.68 hundred million USD in 2016. On the other hand, its share of total imports began from very low 0.39% in 2008, went to peak level 5.37% in 2013, then reduced to 4.84% at the end 2016.

3.2.12 India's sector wise merchandise exports with their percentage share of total exports

Table 3.2.10 shows that India's commodities composition of merchandise exports had divided into petroleum and crude products, agricultural and allied commodities, ores and minerals, manufactured goods, and other commodities since the study period 2008-09 to 2017-18.

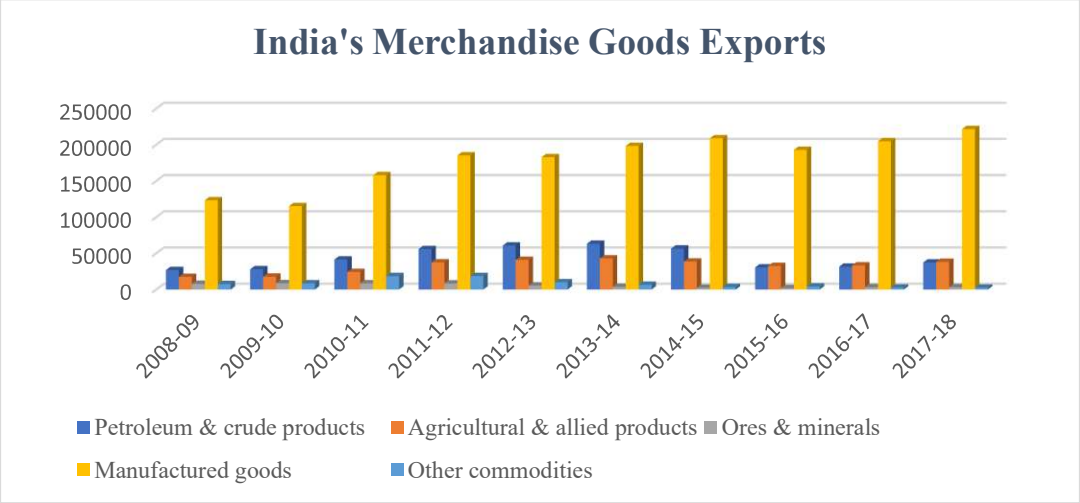
Firstly, petroleum and crude products exports had increased throughout the year annually from 26,872.4 million USD in 2008-09 to 55,873.8 million USD in 2011-12 and hiked to highest amount 63,346.8 million USD in 2013-14. While its percentage share of total exports also increased from 14.68% in 2008-09 to 18.28% in 2011-12 and hiked to peak level 20.24% in 2012-13. Furthermore, it had come down to 30,497.7 million USD during 2015-16, at the end again it had bounced back to 37,375 million USD in 2017-18, where its percentage share of total exports also come down to 11.44% in 2016-17, then bounced back to 12.32% in 2017-18.

Table 3.2.10 India's commodities composition of Merchandise Exports

India's Exports						
	Amount in USD Million					
Year	All commodities	Petroleum & crude products	Agricultural & allied products	Ores & minerals	Manufactured goods	Other commodities
2008-09	183,091.3	26,872.4	17,562.9	7,812.9	123,345.4	7,497.6
2009-10	178,307.4	28,025.9	17,742.8	8,666.7	115,237.4	8,634.5
2010-11	250,805.8	41,426.2	24,203.7	8,635.7	157,968.2	18,572.1
2011-12	305,726.7	55,873.8	37,452.1	8,445.6	185,317.9	18,637.3
2012-13	300,150.4	60,751.2	40,907.5	5,619.3	182,817.5	10,054.9
2013-14	314,877.9	63,346.8	42,955.4	3,585.8	198,404.7	6,585.2
2014-15	310,130.1	56,595.7	38,722.1	2,409.0	208,957.1	3,446.2
2015-16	262,202.6	30,497.7	32,474.4	2,018.2	192,889.7	4,322.5
2016-17	275,663.8	31,526.2	33,281.5	3,253.6	204,782.9	2,819.6
2017-18	303,309.5	37,375.0	38,249.9	3,286.2	221,745.7	2,652.7
	Percentage Share of Total Exports					
Year	All commodities	Petroleum & crude products	Agricultural & allied products	Ores & minerals	Manufactured goods	Other commodities
2008-09	100.00	14.68	9.59	4.27	67.37	4.09
2009-10	100.00	15.72	9.95	4.86	64.63	4.84
2010-11	100.00	16.52	9.65	3.44	62.98	7.41
2011-12	100.00	18.28	12.26	2.76	60.62	6.09
2012-13	100.00	20.24	13.63	1.87	60.91	3.35
2013-14	100.00	20.12	13.64	1.14	63.01	2.09
2014-15	100.00	18.25	12.49	0.78	67.38	1.11
2015-16	100.00	11.63	12.39	0.77	73.57	1.65
2016-17	100.00	11.44	12.07	1.18	74.29	1.02
2017-18	100.00	12.32	12.61	1.08	73.11	0.87

Source: Author's calculation from CMIE Economic Outlook

Figure 3.2.10 India's commodities composition of Merchandise Exports



Source: Author's calculation using data from CMIE Economic Outlook

Secondly, agricultural and allied products exports had raised from 17562.9 million USD in 2008-09 to 37,452.1 million USD in 2011-12 and to highest amount to 42,955.4 million USD in 2013-14. Then it had slowed down to 32,474.4 million USD in 2015-16, and at the end it had bounced back to 33,281.5 million USD in 2016-17 and 38,249.9 million USD in 2017-18. Similarly, its percentage share of total exports had varied within range from 9.59% to 13.64%. During 2008-09 it had begun from 9.59%, hiked to peak level i.e. 13.64% in 2013-14, then it slowed down to 12.07% in 2016-17, and again hiked to 12.61% in 2017-18.

Thirdly, ores and minerals exports had made greater in size from 7,812.9 million USD in 2008-09 to 8666.7 million USD in 2009-10, then it slightly slowed down to 8635.7 million USD in 2010-11 and 8445.6 million USD in 2011-12. After that it had again slowed down very rapidly to 2018.2 million USD in 2015-16, and finally it had touched to 3,286.2 million USD in 2017-18. Similarly, its percentage share of total exports had begun from 4.27% in 2008-09, hiked to top level 4.86% in 2009-10, then gradually it had slowed down to lowest level 0.77% in 2014-15, at the end it had touched to 1.08% in 2017-18.

Fourthly, manufactured goods exports had commenced from 123,345.4 million USD in 2008-09, raised to 157,968.2 million USD in 2010-11, 208,957.1 million USD in 2014-15, then slowed down to 192,889.7 million USD in 2015-16, after that it had bounced backed to 204,782.9 million USD in 2016-17 and at the end in 2017-18 to 221,745.7 million USD. But its percentage share of

total exports had decreased annually from 67.37 % in 2008-09 to 60.62% in 2011-12, then it was hiked annually 67.38% in 2014-15 and 74.29% in 2016-17. And at the end in 2017-18 it had gone back to 73.11%.

Fifthly, other commodities exports had increased annually from 7497.6 million USD during 2008-09 to 18572.1 million USD in 2010-11 and 18637.3 million USD in 2011-12 while its percentage share of total exports had increased from 4.09% in 2008-09 to 7.41% in 2010-11. Similarly, its amount had gone down annually since 2012-13 to 2017-18. During 2014-15 it went down to 3446.2 million USD from 10,054.9 million USD in 2012-13 and finally touched to 2,652.7 million USD in 2017-18.

3.2.13 India's commodities composition of manufactured goods exports with their percentage share of manufactured goods exports

Table 3.2.11 shows that India's commodities composition of manufactured goods exports had subdivided into leather and leather manufactures, chemicals and related products, engineering goods, electronic goods, textiles (excluding readymade garments), readymade garments, other manufactured goods.

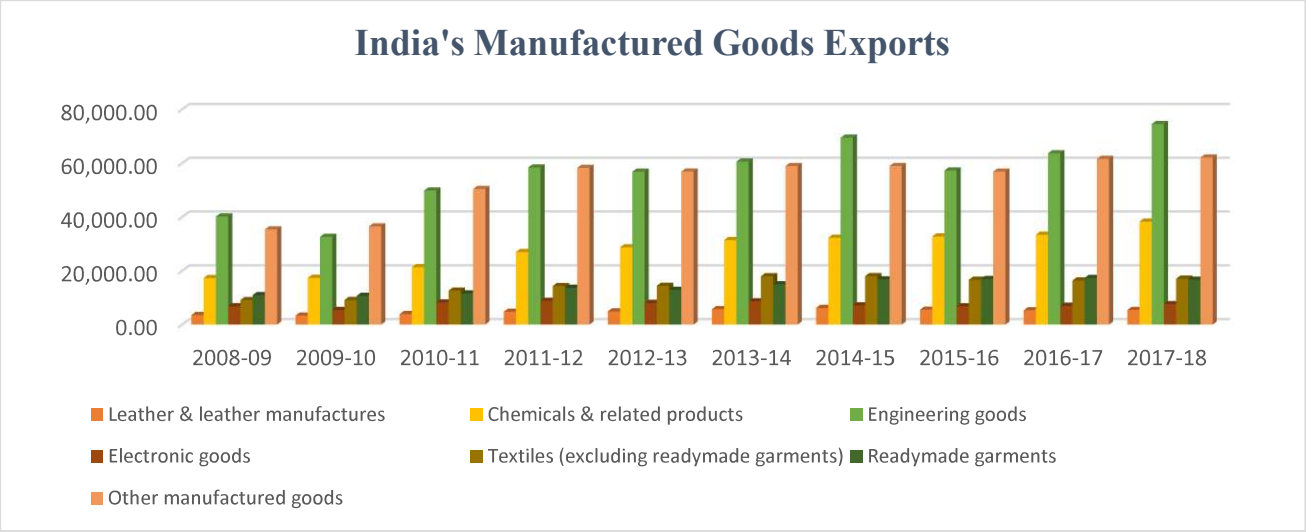
Firstly, leather and leather manufactures exports had increased in absolute amount since the study period 2008-09 to 2017-18, except it slowed down during 2015-16 and 2016-17 while its percentage share of manufactured goods exports had varied annually throughout the study period. During 2008-09 it was beginning from 3,561.6 million USD, increased to 3,910.0 million USD in 2010-11 and 4,884.6 million USD in 2012-13, gone to peak level 6,190.2 million USD in 2014-15, then it slowed down to 5307.5 million USD in 2016-17, and at the end it had touched to 5,444.0 million USD in 2017-18. Similarly, its percentage share of manufactured goods exports began from 2.89% in 2008-09, gone down to 2.48% in 2010-11, expansioned to 2.67% in 2012-13 and 2.96% in 2015-16, at the end then it reduced to 2.45% in 2017-18.

Table 3.2.11 India's commodities composition of Manufactured Goods Exports

India's Manufactured Goods Exports								
	Amount (USD Million)							
Year	Manufactured goods	Leather & leather manufactures	Chemicals & related products	Engineering goods	Electronic goods	Textiles (excluding readymade garments)	Readymade garments	Other manufactured goods
2008-09	123,345.4	3,561.6	17,318.3	40,205.5	6,816.5	9,095.9	10,952.4	35,395.2
2009-10	115,237.4	3,362.8	17,382.6	32,648.0	5,460.9	9,151.9	10,710.9	36,520.3
2010-11	157,968.2	3,910.0	21,340.4	49,855.4	8,202.4	12,621.1	11,599.9	50,439.0
2011-12	185,317.9	4,790.9	26,986.2	58,413.8	8,846.4	14,327.3	13,683.5	58,269.8
2012-13	182,817.5	4,884.6	28,739.6	56,883.2	8,052.4	14,424.0	12,918.8	56,914.8
2013-14	198,404.7	5,740.9	31,424.4	60,635.8	8,651.3	17,993.8	14,994.6	58,963.9
2014-15	208,957.1	6,190.2	32,308.4	69,506.3	7,140.8	18,020.4	16,834.5	58,956.4
2015-16	192,889.7	5,549.3	32,769.3	57,309.2	6,777.3	16,656.9	16,959.8	56,867.8
2016-17	204,782.9	5,307.5	33,423.5	63,687.5	6,979.6	16,402.0	17,358.6	61,624.1
2017-18	221,745.7	5,444.0	38,287.1	74,549.7	7,577.7	17,071.3	16,701.1	62,114.9
	Percentage Share of Manufactured Goods							
Year	Manufactured goods	Leather & leather manufactures	Chemicals & related products	Engineering goods	Electronic goods	Textiles (excluding readymade garments)	Readymade garments	Other manufactured goods
2008-09	100.00	2.89	14.04	32.60	5.53	7.37	8.88	28.70
2009-10	100.00	2.92	15.08	28.33	4.74	7.94	9.29	31.70
2010-11	100.00	2.48	13.51	31.56	5.19	7.99	7.34	31.93
2011-12	100.00	2.59	14.56	31.52	4.77	7.73	7.38	31.44
2012-13	100.00	2.67	15.72	31.11	4.40	7.89	7.07	31.13
2013-14	100.00	2.89	15.84	30.56	4.36	9.07	7.56	29.72
2015-16	100.00	2.96	15.46	33.26	3.42	8.62	8.06	28.21
2015-16	100.00	2.88	16.99	29.71	3.51	8.64	8.79	29.48
2016-17	100.00	2.59	16.32	31.10	3.41	8.01	8.48	30.09
2017-18	100.00	2.45	17.27	33.62	3.42	7.70	7.53	28.01

Source: Author's calculation from CMIE Economic Outlook

Figure 3.2.11 India's commodities composition of Manufactured Goods Exports



Source: Author's calculation using data from CMIE Economic Outlook

Secondly, chemical and related products exports had expanded annually throughout the study period since 2008-09 to 2017-18 both in absolute amount and percentage share. During 2008-09 it had expanded from 17,318.3 million USD to 21,340.4 million USD in 2010-11, 28,739.6 million USD in 2012-13, 32,769.3 million USD in 2015-16, and at the end touched to greatest amount 38,287.1 million USD in 2017-18. On the other hand, its percentage share of manufactured goods exports had raised from 14.04% in 2008-09 to 14.56% in 2011-12, 15.84% in 2013-14, 16.99% in 2015-16, and gone to peak level 17.27% in 2017-18.

Thirdly, engineering goods exports was introducing from 40,205.5 million USD in 2008-09, made a greater size to 58,413.8 million USD in 2011-12, 69,506.3 million USD in 2014-15, then gone down to 57,309.2 million USD in 2015-16, conclusively it had gone up to peak amount 74,549.7 million USD in 2017-18. Similarly, its percentage share of manufactured goods varied within range from 28.33% to 33.62%. Its share introduced from 32.6% in 2008-09, went down to 31.52% in 2011-12, 30.56% in 2013-14, 29.71% in 2015-16. Again, it bounced back to 31.1% in 2016-17 and to peak level 33.62% in 2017-18.

Fourthly, electronic goods exports had fluctuated during the study period both in absolute amount and percentage share of manufactured goods exports. During 2008-09 it had recommenced from

6,816.5 million USD, increased to 8,202.4 million USD in 2010-11 and 8,846.4 million USD in 2011-12. While its share recommenced from 5.53% in 2008-09, reduced to 5.19% in 2010-11 and 4.77% in 2011-12. Similarly, it had reduced from 8,651.3 million USD in 2013-14 to 7,140.8 million USD in 2014-15 and 6,777.3 million USD in 2015-16, conclusively it had bounced back to 6,979.6 million USD in 2016-17 and 7,577.7 million USD in 2017-18. On the other hand, its share reduced from 4.36% in 2013-14 to 3.51% in 2015-16 and at the end to 3.42% in 2017-18.

Fifthly, there was an increasing trend annually for Textiles (excluding readymade garments) from 2008-09 on 9,095.9 million USD to 12,621.1 million USD in 2010-11, 14,424 million USD in 2012-13, 18,020.4 million USD in 2014-15. After that it reduced to 16,402.0 million USD in 2016-17 conclusively it had bounced back to 17,071.3 million USD in 2017-18. Similarly, its percentage share of manufactured goods exports had increased from 7.37% in 2008-09 to 7.73% in 2011-12, 9.07% in 2013-14, then it slowed down to 8.64% in 2015-16 and 7.70% in 2017-18.

Sixthly, readymade garments exports had varied both in absolute amount and percentage share of manufactured goods during the study period since 2008-09 to 2017-18. It had introduced from 10,952.4 million USD in 2008-09, increased to 11599.9 million USD in 2010-11, and 13,683.5 million USD in 2011-12. Then it had decreased to 12,918.8 million USD in 2012-13, again increased to 16,834.5 million USD in 2014-15 and 17,358.6 million USD in 2016-17, and at the end of year 2017-18 it had slowed down to 16,701.1 million USD. On the other hand, its percentage share of manufactured goods exports had varied within range from 7.07% to 9.29%. It had begun from 8.88% in 2008-09, gone to peak level 9.29% in 2009-10 then reduced to very low level 7.07% in 2012-13, again increased to 8.79% in 2015-16. Finally, it had gone down to 7.53% in 2017-18.

Seventhly, other manufactured goods exports had risen and fallen during the study period since 2008-09 to 2017-18 both in absolute amount and percentage share of manufactured goods. During 2008-09 it had initiated from 35,395.2 million USD, enlarged to 50,439.0 million USD in 2010-11, 58,269.8 million USD in 2011-12, 58,963.9 million USD in 2013-14, again slowed down to succeeding two years 2014-15 and 2015-16. After that it had bounced back to 61,624.1 million USD in 2016-17 and 62,114.9 million USD in 2017-18. Similarly, its share of manufactured goods initiated from 28.7% in 2008-09, enlarged to highest level 31.93% in 2010-11, come down to 28.21% in 2015-16 again increased to 30.09% in 2016-17, at last come down to very low level 28.01% in 2017-18.

3.2.14 India's commodities composition of merchandise imports with their percentage share of total imports

Table 3.2.12 displays that India's commodities composition of merchandise imports had divided into petroleum crude and products (POL), agricultural and allied Products, ores and minerals, manufactured goods, and other commodities during 2008-09 to 2017-18.

Firstly, petroleum crude and products (POL) imports had introduced from 91,456.4 million USD in 2008-09, increased annually to 1,54,968.7 million USD in 2011-12 and 1,64,939.7 million USD in 2013-14. Then it slowed down to 1,37,837.2 million USD in 2014-15 and 82,570.2 million USD in 2015-16, at last bounced back to 1,08,649.1 million USD in 2017-18. On the contrary its percentage share of total imports had varied within range from 21.70% to 36.75%. During 2008-09 it had introduced from 30.56%, increased to 31.68% in 2011-12 and 36.75% in 2013-14. Then it had gone down very rapidly to 30.79% in 2014-15 and 21.70% in 2015-16, and at the end it had hiked to 23.38% in 2017-18.

Secondly, agricultural and allied products imports had increased throughout the year annually since 2008-09 to 2016-17, on the contrary its percentage share of total imports had varied annually during the study period since 2008-09 to 2016-17. During 2008-09 it had begun from 7,407.8 million USD, expanded to 12,119.7 million USD in 2010-11 and 18,924.1 million USD in 2012-13. Then it had reduced to 15,781.2 million USD in 2013-14, after that it again expanded very rapidly to 25,588.3 million USD in 2016-17, and at the end it had gone down to 24,824.1 million USD in 2017-18. On the other hand, its percentage share of total imports had varied within range from 2.47% to 6.66%. During 2008-09 it had started from 2.47%, increased to 3.86% in 2012-13, 4.71% in 2014-15, and at the end it had gone to peak level i.e. 6.66% in 2016-17.

Thirdly, ores and minerals imports had begun from 19,001.1 million USD in 2008-09, enlarged to 31,884.4 million USD in 2011-12 and 32,932.7 million USD in 2012-13. Then it diminished to 26,927.5 million USD in 2014-15 and 20,628.8 million USD in 2015-16, conclusively it had bounced back to 31,746.3 million USD. Similarly, its percentage share of total imports had oscillated within range from 5.42% to 6.83%. Its share of total imports had begun from 6.35% in 2008-09, then slowed down for succeeding two years in 2009-10 and 2010-11, after that it had

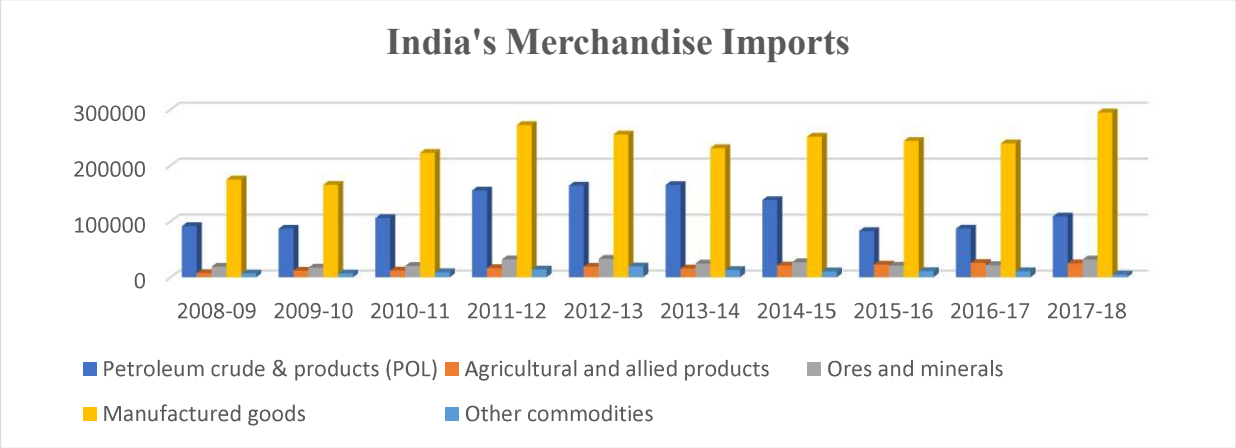
again bounced back to 6.52% in 2011-12 and 6.72% in 2012-13, conclusively it had hiked to peak level i.e. 6.83% in 2017-18.

Table 3.2.12 India's commodities composition of Merchandise Imports

India's Imports						
	Amount (USD Million)					
Year	All commodities	Petroleum crude & products (POL)	Agricultural and allied products	Ores and minerals	Manufactured goods	Other commodities
2008-09	299310.9	91,456.4	7407.8	19001.1	174679.8	6765.9
2009-10	287586.6	86,809.2	11725.8	17194.4	165129	6728.2
2010-11	369424.4	105,833.2	12119.7	20190.2	222278.8	9002.5
2011-12	489147.7	154,968.7	16308.4	31884.4	272090.4	13895.8
2012-13	490204.2	163,796.3	18924.1	32932.7	255164.6	19386.5
2013-14	448832.1	164,939.7	15781.2	24526.1	230715.2	12869.7
2014-15	447602.1	137,837.2	21075.4	26927.5	251237.2	10524.8
2015-16	380430.5	82,570.2	22524.7	20628.8	243696.5	11010.2
2016-17	384210.1	86,930.6	25588.3	21639.2	239318.4	10733.7
2017-18	464772.3	108,649.1	24824.1	31746.3	294536.1	5016.7
Percentage Share of Total Imports						
Year	All commodities	Petroleum crude & products (POL)	Agricultural and allied products	Ores and minerals	Manufactured goods	Other commodities
2008-09	100.00	30.56	2.47	6.35	58.36	2.26
2009-10	100.00	30.19	4.08	5.98	57.42	2.34
2010-11	100.00	28.65	3.28	5.46	60.17	2.44
2011-12	100.00	31.68	3.33	6.52	55.63	2.84
2012-13	100.00	33.41	3.86	6.72	52.05	3.96
2013-14	100.00	36.75	3.52	5.46	51.40	2.87
2014-15	100.00	30.79	4.71	6.02	56.13	2.35
2015-16	100.00	21.70	5.92	5.42	64.06	2.90
2016-17	100.00	22.63	6.66	5.63	62.29	2.79
2017-18	100.00	23.38	5.34	6.83	63.37	1.08

Source: Author's calculation from CMIE Economic Outlook

Figure 3.2.12 India's commodities composition of Merchandise Imports



Source: Author's calculation using data from CMIE Economic Outlook

Fourthly, manufactured goods imports had initiated from 1,74,679.8 million USD in 2008-09, increased to 2,22,278.8 million USD in 2010-11 and 2,72,090.4 million USD in 2011-12. Then reduced to 2,30,715.2 million USD in 2013-14, after that it had hiked to peak level 2,94,536.1 million USD in 2017-18. Similarly, its percentage share of total imports had varied within range from 51.40% to 64.06% during the study period. Its percentage share of total imports had recommenced from 58.36% during 2008-09, increased to 60.17% in 2010-11, and gone to peak level 64.06% in 2015-16. At the end it had touched to 63.37% in 2017-18.

Fifthly, other commodities imports had introduced from 6,765.9 million USD in 2008-09, increased annually to 9,002.5 million USD in 2010-11, gone to peak level 19,386.5 million USD in 2012-13. Then it had reduced annually to 11,010.2 million USD in 2015-16, at the end to smallest level 5,016.7 million USD in 2017-18. Similarly, its percentage share of total imports had varied within range from 1.08% to 3.96% over the study period since 2008-09 to 2017-18. Its percentage share of total imports had begun from 2.26% in 2008-09, increased to 2.44% in 2010-11 and to peak level 3.96% in 2012-13. Then it had slowed down to 2.35% in 2014-15, and at the end touched to 1.08% in 2017-18.

3.2.15 India's sector wise composition of manufactured goods imports with their percentage share of manufactured goods

Table 3.2.13 shows that India's commodities composition of manufactured goods imports had sub grouped into leather and leather manufactures, chemical and related products, engineering goods, electronic goods, textiles (excl.rmg), readymade garments, and other manufactured goods.

Firstly, leather and leather manufactures imports had recommenced from 459.7 million USD in 2008-09, enlarged to 539.9 million USD in 2011-12, to highest amount 1092.9 million USD in 2014-15 and at the end bring down to 1056.7 million USD in 2017-18. On the other hand, its percentage share of manufactured goods had varied within range from 0.2% to 0.44%. Its share recommenced from 0.26% in 2008-09, come down to 0.2% in 2011-12, again enlarged to peak level 0.44% in 2014-15, and after a while come down to 0.36% in 2017-18.

Secondly, chemicals and related products imports had taken off from 30,305.8 million USD in 2008-09, raised to 38,314.5 million USD in 2011-12 and 39,004.1 million USD in 2014-15, then contracted to 34,186.2 million USD in 2016-17. Conclusively it had gone forward to peak amount 40,904.9 million USD in 2017-18. Similarly, its percentage share of manufactured goods imports had varied within 13.06% to 17.35%. Its percentage share of manufactured goods imports had recommenced from highest 17.35% in 2008-09, come down to 14.08% in 2011-12, again enlarged to 15.52% in 2014-15, after that it slowed down to 13.89% in 2017-18.

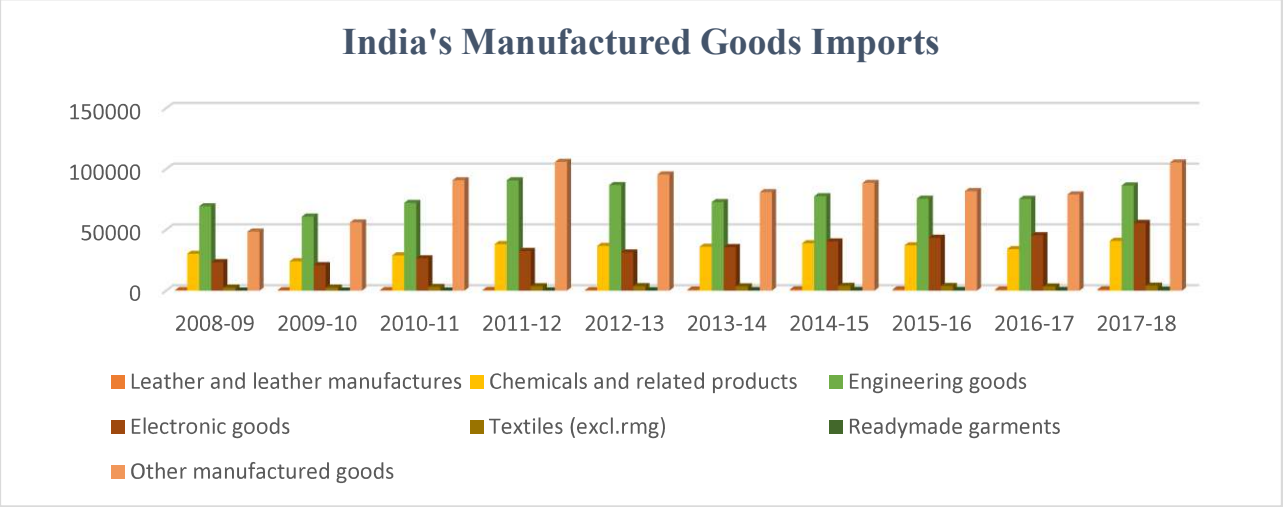
Thirdly, engineering goods imports had taken off from 69,376.3 million USD in 2008-09, made grater in size to 90,724.4 million USD in 2011-12. It depreciated to 77,638.4 million USD in 2014-15 and 75,457.6 million USD in 2016-17, finally gone up to 86,496.3 million USD in 2017-18. Similarly, its share had varied within range from 29.37% to 39.72% during the study period. It had begun from peak level 39.72% in 2008-09, come down to 34.04% in 2012-13, 31.03% in 2015-16, and conclusively again reduced to 29.37% in 2017-18.

Table 3.2.13 India's commodities composition of Manufactured Goods Imports

India's Manufactured Goods Imports								
	Amount (USD Million)							
Year	Manufactured goods	Leather and leather manufactures	Chemicals and related products	Engineering goods	Electronic goods	Textiles (excl.rmg)	Readymade garments	Other manufactured goods
2008-09	174,679.8	459.7	30,305.8	69,376.3	23,371.0	2,450.4	138.9	48,577.8
2009-10	165,129.0	406.3	24,166.2	60,884.2	20,965.5	2,475.0	107.6	56,124.2
2010-11	222,278.8	496.4	29,035.5	72,166.9	26,556.3	3,045.0	197.2	90,781.4
2011-12	272,090.4	539.9	38,314.5	90,724.4	32,638.9	3,652.6	316.5	105,903.6
2012-13	255,164.6	508.2	36,796.4	86,850.2	31,402.2	3,727.3	326.8	95,553.5
2013-14	230,715.2	901.4	36,147.4	72,876.3	35,798.9	3,497.7	436.9	81,056.7
2014-15	251,237.2	1,092.9	39,004.1	77,638.4	40,417.5	3,936.5	524.4	88,623.4
2015-16	243,696.5	1,031.3	37,338.6	75,613.2	43,451.7	3,827.8	582	81,852.0
2016-17	239,318.4	992.6	34,186.2	75,457.6	45,549.5	3,417.4	595.7	79,119.2
2017-18	294,536.1	1,056.7	40,904.9	86,496.3	55,751.2	4,112.7	773.2	105,441.1
	Percentage Share of Manufactured Goods							
Year	Manufactured goods	Leather and leather manufactures	Chemicals and related products	Engineering goods	Electronic goods	Textiles (excl.rmg)	Readymade garments	Other manufactured goods
2008-09	100.00	0.26	17.35	39.72	13.38	1.40	0.08	27.81
2009-10	100.00	0.25	14.63	36.87	12.70	1.50	0.06	33.99
2010-11	100.00	0.22	13.06	32.47	11.95	1.37	0.09	40.84
2011-12	100.00	0.2	14.08	33.34	12.00	1.34	0.12	38.92
2012-13	100.00	0.2	14.42	34.04	12.31	1.46	0.13	37.45
2013-14	100.00	0.39	15.67	31.59	15.52	1.52	0.19	35.13
2014-15	100.00	0.44	15.52	30.90	16.09	1.57	0.21	35.27
2015-16	100.00	0.42	15.32	31.03	17.83	1.57	0.24	33.59
2016-17	100.00	0.41	14.28	31.53	19.03	1.43	0.25	33.06
2017-18	100.00	0.36	13.89	29.37	18.93	1.40	0.26	35.80

Source: Author's calculation from CMIE Economic Outlook

Figure 3.2.13 India's commodities composition of Manufactured Goods Imports



Source: Author's calculation using data from CMIE Economic Outlook

Fourthly, electronic goods imports had turned up from 23,371.0 million USD in 2008-09 strengthened to 32,638.9 million USD in 2011-12, again strengthened to 35,798.9 million USD in 2013-14, and 43,451.7 million USD in 2015-16. Conclusively it touched to highest amount 55,751.2 million USD in 2017-18. Similarly, its share of manufactured goods imports had turned up from 13.38% in 2008-09, weakened to 11.95% in 2010-11, again strengthen to 15.52% in 2013-14 and 19.03% in 2016-17, and at the end come down to 18.93% in 2017-18.

Fifthly, textiles excluding readymade garments imports had recommenced from 2,450.4 million USD in 2008-09, expanded to 3,652.6 million USD in 2011-12, again 3,936.5 million USD in 2014-15, conclusively reached to highest amount 4,112.7 million USD in 2017-18. Similarly, its percentage share had fluctuated within range from 1.34% to 1.57%. Its share had begun from 1.40% in 2008-09, gone up to 1.46% in 2012-13, peak level 1.57% in 2015-16, and at the end slowed down to 1.40% in 2017-18.

Sixthly, readymade garments had taken off from 138.9 million USD in 2008-09, strengthen to 316.5 million USD in 2011-12. It had subsequently strengthened to 524.4 million USD in 2014-15, and 773.2 million USD in 2017-18. On the other hand, its percentage share of manufactured goods imports had varied within range from 0.06% to 0.26%. Its percentage share had continuously expanded annually since 2008-09 to 2017-18. During 2008-09 it had begun from 0.08%, enlarged to 0.12% in 2011-12, 0.21% in 2014-15, and finally reached to peak share 0.26%.

Seventhly, other manufactured goods imports had undertaken from 48,577.8 million USD in 2008-09, up trended to 90,781.4 million USD in 2010-11, and highest amount 1,05,903.6 million USD in 2011-12. Then it had down trended to 95,553.5 million USD in 2012-13, 88,623.4 million USD in 2014-15 and 79,119.2 million USD in 2016-17. Conclusively it bounced back to 1,05,441.1 million USD in 2017-18. Complementarily its percentage share of manufactured goods imports had varied within range from 27.81% to 40.84% during the study period. Its share had taken off from 27.81% in 2008-09, up trended to highest level 40.84% in 2010-11. Subsequently it had down trended to 38.92% in 2011-12, 35.27% in 2014-15, 33.06% in 2016-17. Conclusively it bounced back to 35.80% in 2017-18.

3.2.16 India's Exports to World and China

Table 3.2.14 shows that there was an increasing trend of India's exports to world and China in absolute amount since 2008-09 to 2013-14. But India's exports percentage share with China had decreased when compare with total world since the period 2008-09 to 2016-17. Similarly, there was a fluctuating trend year on year (Y-o-Y) percentage change on India's exports to world and China since the study period 2008-09 to 2017-18. Due to global financial crisis (GFC) between mid-2007 to early-2009 India's export to world had reduced to 1,78,307.4 million USD and its Y-o-Y change was -2.61% during 2009-10, from 183,091.3 million USD and its Y-o-Y change in USD was 12.33% in 2008-09. But on the same period 2009-10 India's exports to China had increased that was 11,538.2 million USD from the previous year 2008-09 that was 9,290.4 million USD, and on the same period India's exports to China on percentage share in total world was highest i.e. 6.47% when compare with all economic study period.

Table 3.2.14 India's Exports to World and China

	In USD Million at Current Prices			Percentage Share in Total			Y-o-Y Percentage Change in USD	
Year	World	China		World	China		World	China
2008-09	183,091.3	9,290.4		100	5.07		12.33	4.91
2009-10	178,307.4	11,538.2		100	6.47		-2.61	18.85
2010-11	250,805.8	15,451.8		100	6.16		40.66	31.23
2011-12	305,726.7	18,283.5		100	5.98		21.9	25.02
2012-13	300,150.4	13,548.7		100	4.51		-1.82	-4.79
2013-14	314,877.9	15,011.5		100	4.77		4.91	3.91
2014-15	310,130.1	11,965.4		100	3.86		-1.51	6.47
2015-16	262,202.6	9,006.0		100	3.43		-15.45	-10.87
2016-17	275,663.8	10,172.8		100	3.69		5.13	15.79
2017-18	303,309.5	13,346.7		100	4.4		10.03	4.89

Source: Author's calculation from CMIE Economic Outlook

During 2010-11 India's exports to world and China were 2,50,805.8 million USD and 15,451.8 million USD respectively, and its Y-o-Y percentage change was highest i.e. 40.66% and 31.23% when compare with all the economic study period. India's fourth largest exporting partner was China on the study period from 2008-09 to 2017-18 after USA, UAE and Hong Kong. Again, similarly during 2017-18 India's exports to world and China were increased to 3,03, 309.5 million USD and 13,346.7 million USD respectively from 2,75,663.8 million USD and 10,172.8 million USD respectively in 2016-17. But there was a decreasing trend India's exports to world in absolute amount i.e. 3,10,130.1 million USD and 2,62,202.6 million USD respectively during 2014-15 and 2015-16 from the previous period 2013-14. And in 2015-16 India's Y-o-Y percentage change in USD was highest negative for both world and China i.e. -15.45% and -10.87% due to strong demonetization effect.

3.2.17 India's Imports from World and China

Table 3.2.15 shows that India's imports from world and China since the study period 2008-09 to 2017-18. There was an increasing trend annually India's imports from world and China in absolute amount except 2013-14 and 2015-16, and imports from China on percentage share in total world also increased annually, but there was a fluctuating trend Y-o-Y percentage change in USD. Study period showed that India's first largest importing partner was China. During 2011-12, India's imports from world and China were 4,89,147.7 million USD and 57,559.7 million USD respectively, and imports from China was 11.77% on percentage share in total world, similarly Y-o-Y percentage change in USD for world and China were almost equal i.e. 32.41 and 32.42 respectively.

Table 3.2.15 India's Imports from World and China

	In USD Million at Current Prices			Percentage Share in Total			Y-o-Y Percentage Change in USD	
Year	World	China		World	China		World	China
2008-09	299,310.9	32,144.1		100	10.74		19.82	18.54
2009-10	287,586.6	30,798.9		100	10.71		-3.92	-4.18
2010-11	369,424.4	43,467.0		100	11.77		28.46	41.13
2011-12	489,147.7	57,559.7		100	11.77		32.41	32.42
2012-13	490,204.2	52,228.6		100	10.65		0.22	-9.26
2013-14	448,832.1	51,113.2		100	11.39		-8.44	-2.14
2014-15	447,602.1	60,435.9		100	13.5		-0.27	18.24
2015-16	380,430.5	61,723.7		100	16.22		-15.01	2.13
2016-17	384,210.1	61,274.9		100	15.95		0.99	-0.73
2017-18	464,772.3	76,266.2		100	16.41		20.97	24.47

Source: Author's calculation from CMIE Economic Outlook

Similarly, in 2017-18 India's imports had increased to world 4,64,772.3 million USD and to China 76,266.2 million USD from the previous year 2016-17 to world 3,84,210.1 million USD and to China 61,274.9 million USD. Above table analysis concluded that India's imports from China on percentage share in total world was an increasing annually due to low and cheapest manufactured goods imported from China when compare with all other countries individually. So that imports from China on percentage share in total World was 16.41% and Y-o-Y percentage change in USD was 24.47% during 2017-18. The Cheapest manufactured goods are produced by highly skilled labour with cheap labour cost.

3.2.18 India's Trade Deficit with World and China

Table 3.2.16 shows that since 2008-09 to 2017-18, India's trade deficit had increased annually in terms of percentage share in total world with China, and in terms of percentage of imports with China. But on the same period 2008-09 to 2017-18, India's trade deficit was a fluctuating trend in absolute amount, Y-o-Y percentage change in USD with world and China, and percentage of imports with world. Above table shows that India's trade deficit was positive correlation between world and China i.e. 0.28. So that India's trade deficit with world had decreased from the previous year during 2009-10, 2013-14, 2015-16, and 2016-17. But India's trade deficit with China had decreased from the previous year only in 2009-10, 2012-13, 2013-14 and 2016-17 out of all economic period.

Table 3.2.16 India's Trade Deficit with World and China

	In USD Million at Current Prices			Percentage Share in Total			Y-o-Y Percentage Change in USD			Percentage of Imports	
Year	World	China		World	China		World	China		World	China
2008-09	-116219.6	-22854		100	19.66		33.89	40.36		-38.83	-71.10
2009-10	-109279.2	-19261		100	17.63		-5.97	-15.72		-38.00	-62.54
2010-11	-118618.6	-28015		100	23.62		8.55	45.45		-32.11	-64.45
2011-12	-183421	-39276		100	21.41		54.63	40.20		-37.50	-68.24
2012-13	-190053.8	-38680		100	20.35		3.62	-1.52		-38.77	-74.06
2013-14	-133954.2	-36102		100	26.95		-29.52	-6.67		-29.85	-70.63
2014-15	-137472	-48471		100	35.26		2.63	34.26		-30.71	-80.20
2015-16	-118227.9	-52718		100	44.59		-14.00	8.76		-31.08	-85.41
2016-17	-108546.3	-51102		100	47.08		-8.19	-3.06		-28.25	-83.40
2017-18	-161462.8	-62920		100	38.97		48.75	23.13		-34.74	-82.50

Source: Author's calculation from CMIE Economic Outlook

During 2009-10, India's trade deficit with world and China had decreased to -1,09,279.2 million USD and -19,261 million USD from -1,16,219.6 million USD and -22,854 million USD respectively on the previous year 2008-09. So that during 2009-10 India's trade deficit on percentage share in total world was decreased to 17.63% from 19.66% in 2008-09. Similarly, in the same year 2009-10 Y-o-Y percentage change in USD of India's trade deficit with world and China also decreased to -5.97% and -15.72% respectively. Again in 2009-10 India's trade deficit on percentage of imports with China i.e. -62.54% was much higher when compare with world i.e. -38%, but they also decreased from previous year. During 2016-17 India's trade deficit with world and China was -1,08,546.3 million USD and -51,102 million USD respectively. Similarly trade deficit with China in terms of percentage share in total world was 47.08% and it was highest out of all economic period. Again on 2016-17, trade deficit with China in terms of percentage of imports was highest i.e. -83.4% and with world was -28.25%.

SECTION C

3.3 Services Trade Scenario between China and India

Services trade means delivery and sale of intangible product, called service between producer and consumer. If the producer and consumer are based on different countries for the services trade, it is called international trade in services. Services trade balance is services exports minus services imports. If the producer or seller of services is from domestic country and receiver or buyer is from foreign country, so the producer or seller is service exporter and receiver or buyer is service importer. In Balance of Payments statistics, the current account is subdivided into goods, services (including government goods and services), primary income, and secondary income. Where commercial services comprise all services categories except government goods and services. These commercial services are classified into manufacturing services on physical inputs owned by others, transport, travel, construction, insurance and pension services, financial services, telecommunications, computer and information services, and other business services.[6]

Previous literature studies show that China is a service trade deficit country while India is a service trade surplus country. Therefore, China is loosed its foreign exchange reserves through service trade deficit, surprisingly India is gained foreign exchange reserves and strengthen balance of payments through service trade surplus.

The main aim of this section is to show the service trade scenario between China and India at current prices since 2008 to 2017. The structure of this section is as follows: first, services exports, imports, and trade balance of China and India. Second, commercial services exports, imports, and trade balance of China and India. Third, percentage of services and commercial services to total world. Fourth, China's and India's sector wise services exports. Fifth, China's and India's sector wise services imports.

3.3.1 Data Source: Secondary data source has been collected for service trade scenario of both China and India from United Nations Conference on Trade and Development (UNCTAD.

[6] Definition of commercial services in the Balance of Payments is given by World Trade Organisation statistical data sets – Metadata.

3.3.2 Comparative Analysis of Services Exports, Imports, and Trade Balance

Table 3.3.1 shows that services exports from China and India to world had begun from 1,25,447 million USD and 86,552 million USD respectively during 2007, it had contracted to 1,22,563 million USD of China and enlarged to 92,889.5 million USD of India in 2009. Thenceforth exports of both China and India had expanded to 2,01,047 million USD and 1,38,528 million USD during 2011, again expanded to 2,07,006 million USD and 1,49,164 million USD during 2013 and at last hiked to 2,18,634 million USD and 1,56,278 million USD in 2015. Finally, during 2017 it had hiked for both China and India to 2,28,090 million USD and 1,83,980 million USD respectively.

Along with their exports percentage change year on year had varied within range from -15.67% to 45.51% for China and -12.41% to 26.03% for India. During 2007, services exports had initiated from 33.35% of percentage change on previous year, it had gone down to negative -15.67% of China and -12.41% of India but during 2010 both had hiked to peak level 45.51% and 26.03% respectively. However, during 2012 both countries percentage change year on year exports had slowed down to 0.26% and 5.05%, at last 2017 both countries exports percentage change had gone up to 8.86% and 13.70%.

Similarly, during 2007 China's and India's imports had recommenced from 1,29,126 million USD and 91,036 million USD, in 2009 it had enlarged to 1,45,979 million USD of China and reduced to 80,552.8 million USD of India. But in 2011 both countries imports had enlarged to 2,47,844 million USD and 1,25,289 million USD respectively. Repeatedly during 2013, both China's and India's imports had touched to 3,30,608 million USD and 1,26,891 million USD. In 2015 imports had raised to 4,35,541 million USD of China and fallen to 1,23,567 million USD of India. At the end both countries imports had increased to maximum level 4,67,589 million USD and 1,54,014 million USD respectively.

On the contrary, imports percentage change had fluctuated within range from -6.66% to 32.49% of China and -8.42% to 42.67% of India. During 2007 both China's and India's imports percentage had changed to 28.05% and 21.10% from previous year. Similarly, during 2010 their percentage change had increased to highest level 32.49% and 42.67%, and in 2014 their percentage change had increased to 30.94% of China and 1.16% of India from previous year 2013. At the end 2017, both percentage change had increased to 3.43% and 15.34% respectively from 2016.

Table 3.3.1 Services Trade at US Dollars Current Price in Million

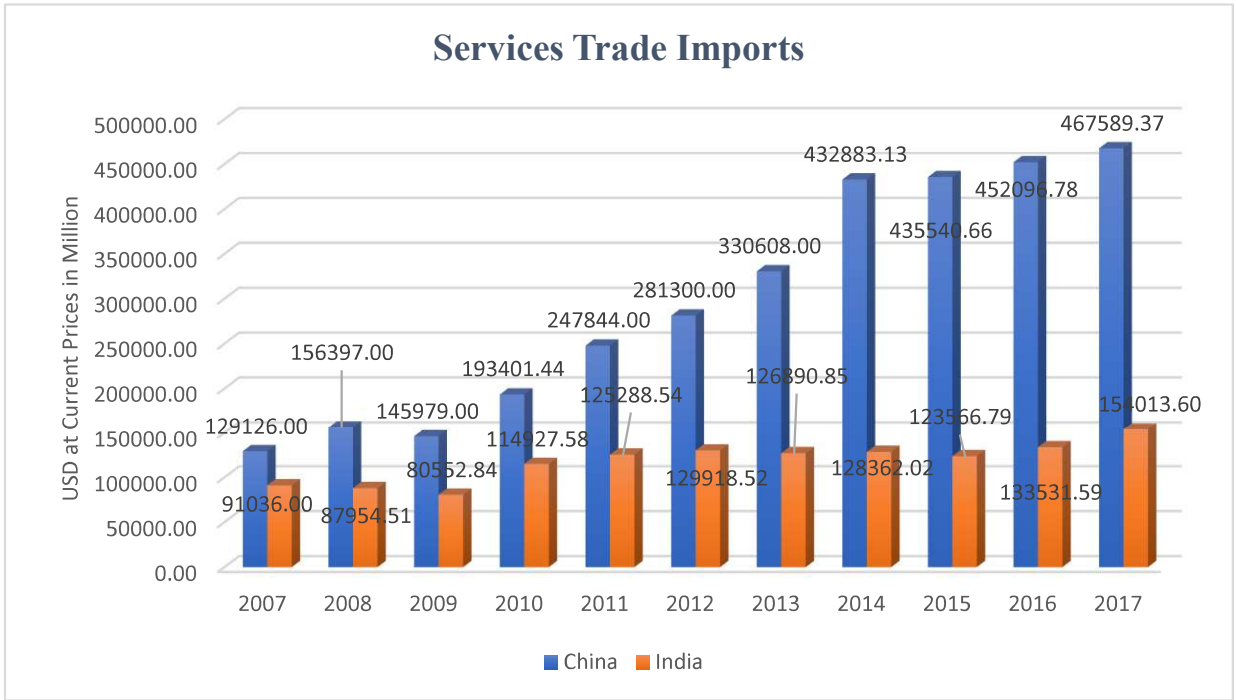
Services US Dollars at current prices in million								
	Exports			Imports			Trade Balance	
YEAR	China	India		China	India		China	India
2007	125447	86552.5		129126	91036		-3679	-4483.5
2008	145343	106054		156397	87954.5		-11054	18099.5
2009	122563	92889.5		145979	80552.8		-23416	12336.7
2010	178339	117068		193401	114928		-15063	2140.42
2011	201047	138528		247844	125289		-46797	13239.5
2012	201576	145525		281300	129919		-79724	15606.5
2013	207006	149164		330608	126891		-123602	22272.8
2014	219141	157196		432883	128362		-213742	28834.1
2015	218634	156278		435541	123567		-216907	32711.4
2016	209529	161819		452097	133532		-242568	28287.4
2017	228090	183980		467589	154014		-239499	29966.8
Percentage change (year-on-year)								
	Exports			Imports			Trade Balance	
YEAR	China	India		China	India		China	India
2007	33.35	24.64		28.05	21.10			
2008	15.86	22.53		21.12	-3.38		200.46	-503.69
2009	-15.67	-12.41		-6.66	-8.42		111.83	-31.84
2010	45.51	26.03		32.49	42.67		-35.67	-82.65
2011	12.73	18.33		28.15	9.02		210.68	518.54
2012	0.26	5.05		13.50	3.70		70.36	17.88
2013	2.69	2.50		17.53	-2.33		55.04	42.71
2014	5.86	5.39		30.94	1.16		72.93	29.46
2015	-0.23	-0.58		0.61	-3.74		1.48	13.45
2016	-4.16	3.55		3.80	8.06		11.83	-13.52
2017	8.86	13.70		3.43	15.34		-1.27	5.94

Source: Author's calculation from UNCTAD Statistics

Figure 3.3.1A **Services Trade Exports of China and India**

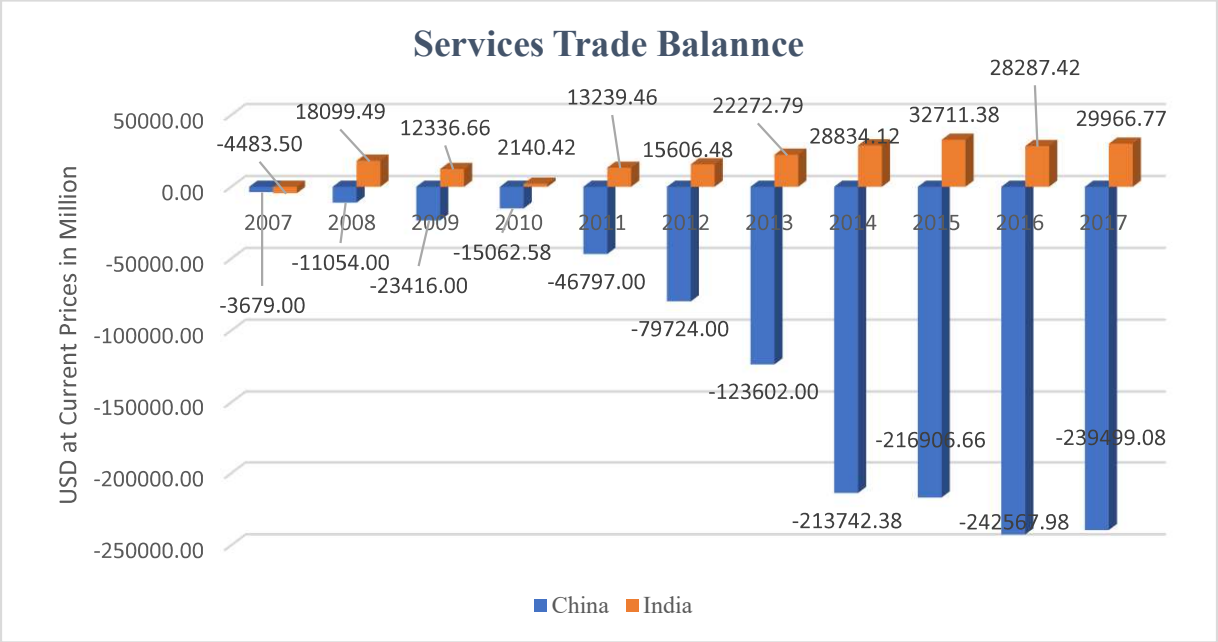
Source: Author's calculation using data from UNCTAD Statistics

Figure 3.3.1B **Services Trade Imports of China and India**



Source: Author's calculation using data from UNCTAD Statistics

Figure 3.3.1C Services Trade Balance of China and India



Source: Author's calculation using data from UNCTAD Statistics

Therefore, during 2007 both China and India had begun from services trade deficit -3,679 million USD and -4,483.5 million USD, but in 2009 China had demoted to services trade deficit -23,416 million USD and India had improved to services trade surplus 12,336.7 million USD. Similarly, during 2011 China's trade deficit had increased to -46,797 million USD and India's trade surplus had increased to 13,239.5 million USD respectively. Repeatedly during 2013 China's trade deficit had increased to -1,23,602 million USD and India's trade surplus had increased to 22,272.8 million USD. In 2015 both had continuing same trend China's trade deficit expanded to -2,16,907 million USD and India's trade surplus expanded to peak level 32,711.4 million USD, at the end 2017 China's trade deficit had gone up to maximum amount -2,39,499 million USD and India's trade surplus had slowed down to 29,966.8 million USD.

3.3.3 Comparative Analysis of Commercial Services Exports, Imports, and Trade Balance

Table 3.3.2 shows that memo item: commercial services exports of China and India had recommenced from 1,24,894.66 million USD and 86,235.11 million USD during 2007, increased to 2,00,294.23 million USD and 1,37,935.34 million USD during 2011, repeatedly again increased to 2,18,086.46 million USD and 1,56,614.39 million USD respectively in 2014. Conclusively, during 2017 China's and India's commercial services exports had hiked to peak level 2,26,389.43 million USD and 1,83,359.19 million USD respectively.

On the other hand, its exports percentage change year on year had fluctuated within range from -15.94% to 45.86% of China and -12.48% to 26.06% of India. China's commercial services exports percentage change had begun from 33.59% on 2007, increased to peak level 45.86% during 2010, then slowed down to -4.25% during 2016, again gone up to 8.67% in 2017. Similarly, India's commercial services exports percentage change from previous year had begun from 24.68% in 2007, gone down to -12.48% in 2009 and -0.57% in 2015. At last in 2017 again it had gone up to 13.72%.

Similarly, China's and India's memo item: commercial services imports during 2007 had recommenced from 1,28,269.40 million USD and 90,618.28 million USD, increased to 2,46,779.27 million USD and 1,24,445.92 million USD respectively in 2011. Furthermore, during 2014 both countries imports had increased to 4,30,856.05 million USD and 1,27,404.37 million USD. Conclusively during 2017 their commercial services imports had gone up to 4,64,133.04 million USD and 1,53,378.34 million USD respectively.

On the other hand, their commercial services imports percentage share had varied within range from -6.65% to 32.46% of China and -8.72% to 43.08% of India. During 2007 both countries began from 27.85% and 21.31%, in 2010 expansioned to 32.46% and 43.08%, in 2015 went down to 0.49% and -3.7%, and at last in 2017 again gone up to 3.32% and 15.45% respectively.

Table 3.3.2 Memo item: Commercial services US Dollars at current prices in million

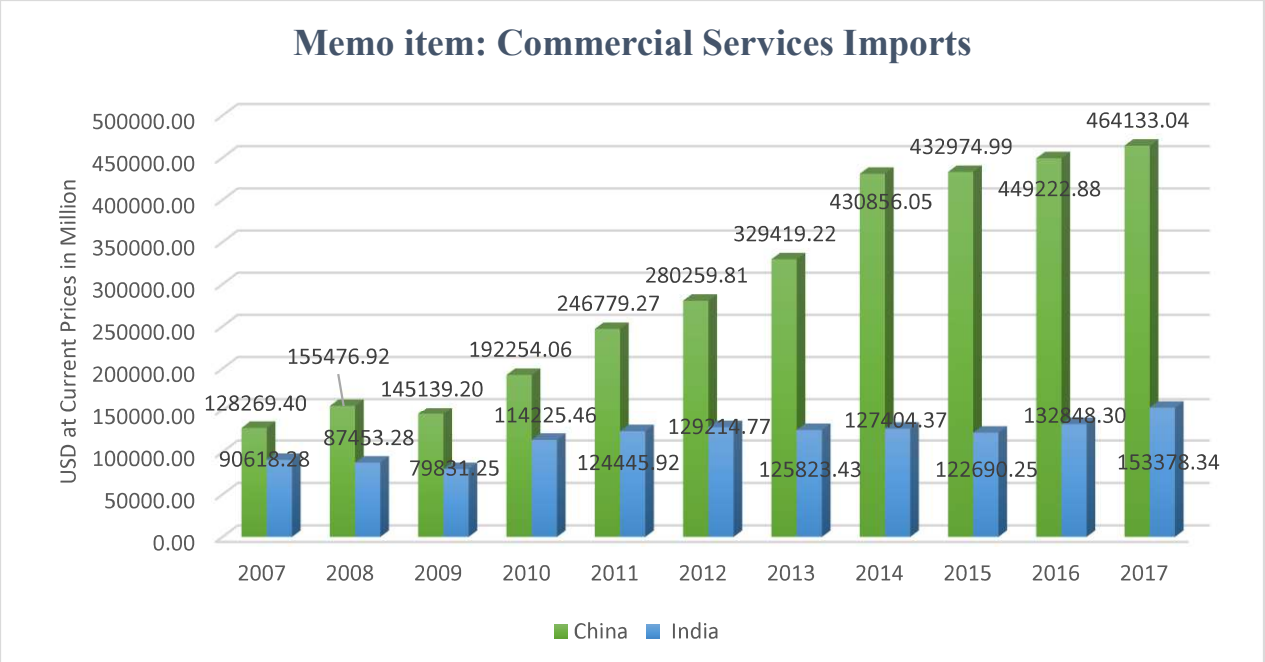
Memo item: Commercial services							
	US Dollars at current prices in million						
	Exports			Imports		Trade Balance	
YEAR	China	India		China	India	China	India
2007	124894.66	86235.11		128269.40	90618.28	-3374.74	-4383.17
2008	144676.81	105668.35		155476.92	87453.28	-10800.11	18215.07
2009	121613.48	92484.33		145139.20	79831.25	-23525.72	12653.09
2010	177384.23	116582.77		192254.06	114225.46	-14869.83	2357.31
2011	200294.23	137935.34		246779.27	124445.92	-46485.04	13489.42
2012	200585.96	145029.62		280259.81	129214.77	-79673.85	15814.84
2013	205778.37	148702.92		329419.22	125823.43	-123640.85	22879.49
2014	218086.46	156614.39		430856.05	127404.37	-212769.59	29210.02
2015	217569.82	155717.12		432974.99	122690.25	-215405.17	33026.87
2016	208320.20	161234.42		449222.88	132848.30	-240902.68	28386.12
2017	226389.43	183359.19		464133.04	153378.34	-237743.61	29980.85
Percentage change (year-on-year)							
	Exports			Imports		Trade Balance	
YEAR	China	India		China	India	China	India
2007	33.59	24.68		27.85	21.31		
2008	15.84	22.54		21.21	-3.49	220.03	-515.57
2009	-15.94	-12.48		-6.65	-8.72	117.83	-30.54
2010	45.86	26.06		32.46	43.08	-36.79	-81.37
2011	12.92	18.32		28.36	8.95	212.61	472.24
2012	0.15	5.14		13.57	3.83	71.40	17.24
2013	2.59	2.53		17.54	-2.62	55.18	44.67
2014	5.98	5.32		30.79	1.26	72.09	27.67
2015	-0.24	-0.57		0.49	-3.70	1.24	13.07
2016	-4.25	3.54		3.75	8.28	11.84	-14.05
2017	8.67	13.72		3.32	15.45	-1.31	5.62

Source: Author's calculation from UNCTAD Statistics

Figure 3.3.2A Memo item: Commercial Services Exports of China and India

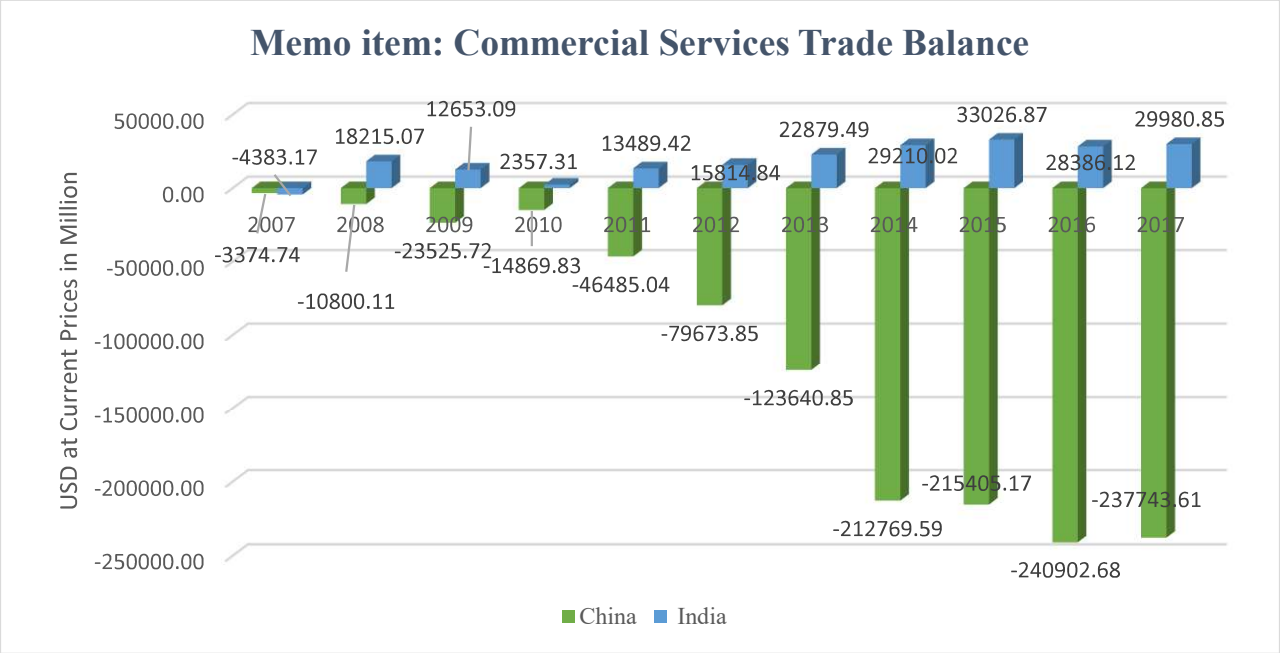
Source: Author's calculation using data from UNCTAD Statistics

Figure 3.3.2B Memo item: Commercial Services Imports of China and India



Source: Author's calculation using data from UNCTAD Statistics

Figure 3.3.2C Memo item: Commercial Services Trade Balance of China and India



Source: Author's calculation using data from UNCTAD Statistics

Correspondingly, China's and India's memo item: commercial services trade deficit during 2007 had recommenced from -3,374.74 million USD and -4,383.17 million USD, but in 2011 China's trade deficit had increased to -46,485.04 million USD and India's trade surplus had increased to 13,489.42 million USD respectively. Furthermore, during 2014 China's trade deficit had expanded to -2,12,769.59 million USD and India's trade surplus had expanded to 29,210.02 million USD. Lastly in 2017 China's trade deficit had expanded to maximum amount -2,37,743.61 million USD and India's trade surplus had expanded to 29,980.85 million USD.

3.3.4 Services and Commercial Services to Percentage of Total World

Table 3.3.3 shows that China's and India's services exports and imports to percentage of total world since 2007 to 2017, similarly memo item: commercial services exports and imports to percentage of total world since 2007 to 2017. Above table indicates that China's and India's services exports to percentage of total world had oscillated within range from 3.41% to 4.56% and 2.41% to 3.44% respectively. During 2007, both countries services exports introduced from 3.50% and 2.41%, but in 2009 China's services exports had diminished to 3.41% and India's services exports had grown to 2.58% from 2007. Identically, during 2011 both China's and India's share to percentage of total world had gone up to 4.56% and 3.14%, hereafter in 2014 both countries share had gone down to 4.22% and 3.08%, finally during 2017 both countries share had again gone up to 4.26% and 3.44% respectively.

On the contrary above study period both China's and India's services imports share to percentage of total world had varied within range from 3.74% to 9.02% and 2.24% to 2.97%. During 2007 both countries imports introduced from 3.74% and 2.64%, and in 2010 these countries share had extended to 5.04% and 3.00% respectively. But in 2014 China's share had continued to rise 8.43% and India's share had continued to diminish lowest level 2.50%, at the end 2017 both countries share had again gone up to 9.02% and 2.97% respectively.

Above table also demonstrates China's and India's memo item: commercial services exports had fluctuated within range from 3.55% to 4.62% and 2.45% to 3.47% respectively. During 2007 China's and India's commercial services exports started from 3.55% and 2.45%, in 2011 enlarged to 4.62% and 3.18%. Identically during 2014 both countries share had slowed down to 4.26% and 3.06%, finally in 2017 their share had gone up to 4.29% and 3.47% respectively.

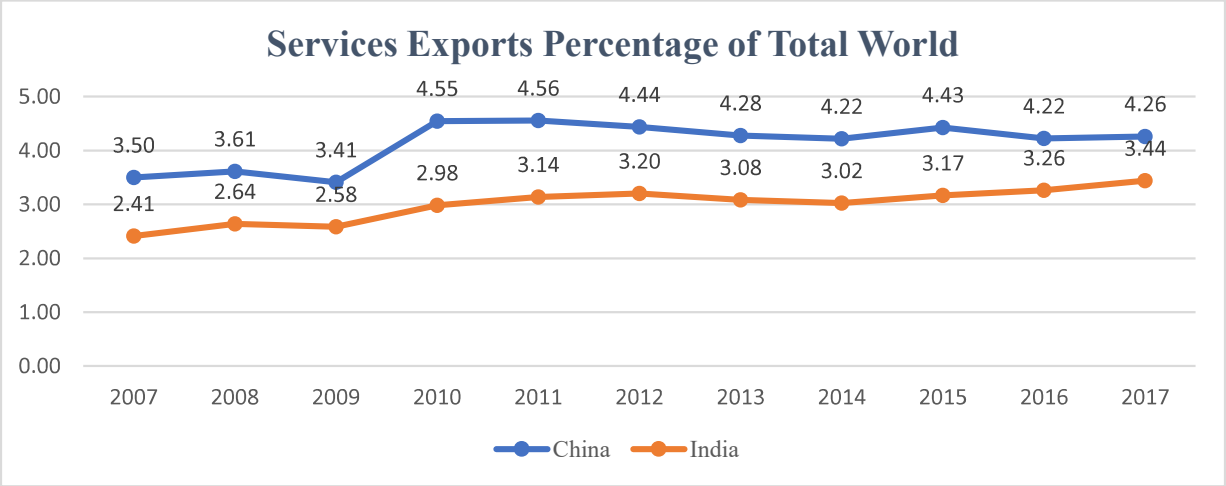
On the contrary, both countries commercial services imports had varied within range from 3.82% to 9.42% and 2.29% to 3.08% respectively. During 2007 their share had started from 3.82% and 2.70%, enlarged to 5.18% and 3.08%, but in 2014 China's share had continued to rise 8.61% and India's share had gone down to lowest level 2.55%. Conclusively during 2017 both countries share had again gone up to 9.15% and 3.02% respectively.

Table 3.3.3 Services and Commercial Services to Percentage of Total World

Percentage of total world										
Services						Memo item: Commercial services				
	Exports			Imports			Exports			Imports
YEAR	China	India		China	India	YEAR	China	India		China	India
2007	3.50	2.41		3.74	2.64	2007	3.55	2.45		3.82	2.70
2008	3.61	2.64		3.99	2.24	2008	3.66	2.67		4.08	2.29
2009	3.41	2.58		4.18	2.31	2009	3.45	2.62		4.29	2.36
2010	4.55	2.98		5.04	3.00	2010	4.61	3.03		5.18	3.08
2011	4.56	3.14		5.78	2.92	2011	4.62	3.18		5.92	2.99
2012	4.44	3.20		6.31	2.91	2012	4.49	3.25		6.45	2.97
2013	4.28	3.08		6.99	2.68	2013	4.32	3.12		7.14	2.73
2014	4.22	3.02		8.43	2.50	2014	4.26	3.06		8.61	2.55
2015	4.43	3.17		8.98	2.55	2015	4.47	3.20		9.15	2.59
2016	4.22	3.26		9.28	2.74	2016	4.26	3.30		9.42	2.78
2017	4.26	3.44		9.02	2.97	2017	4.29	3.47		9.15	3.02

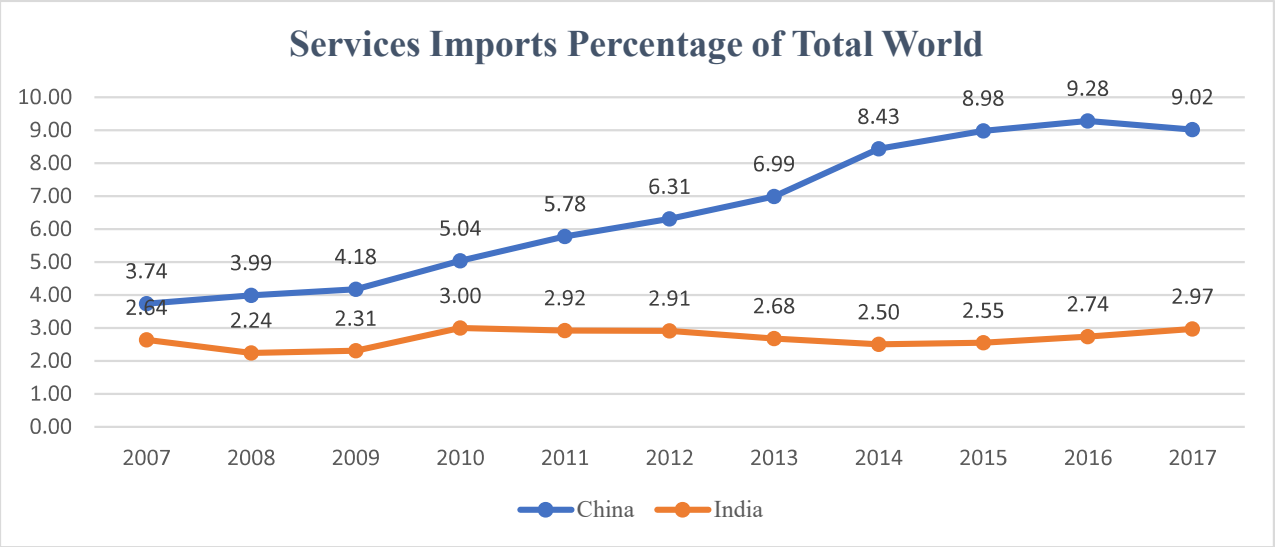
Source: Author's calculation from UNCTAD Statistics

Figure 3.3.3A China's and India's Services Exports to Percentage of Total World



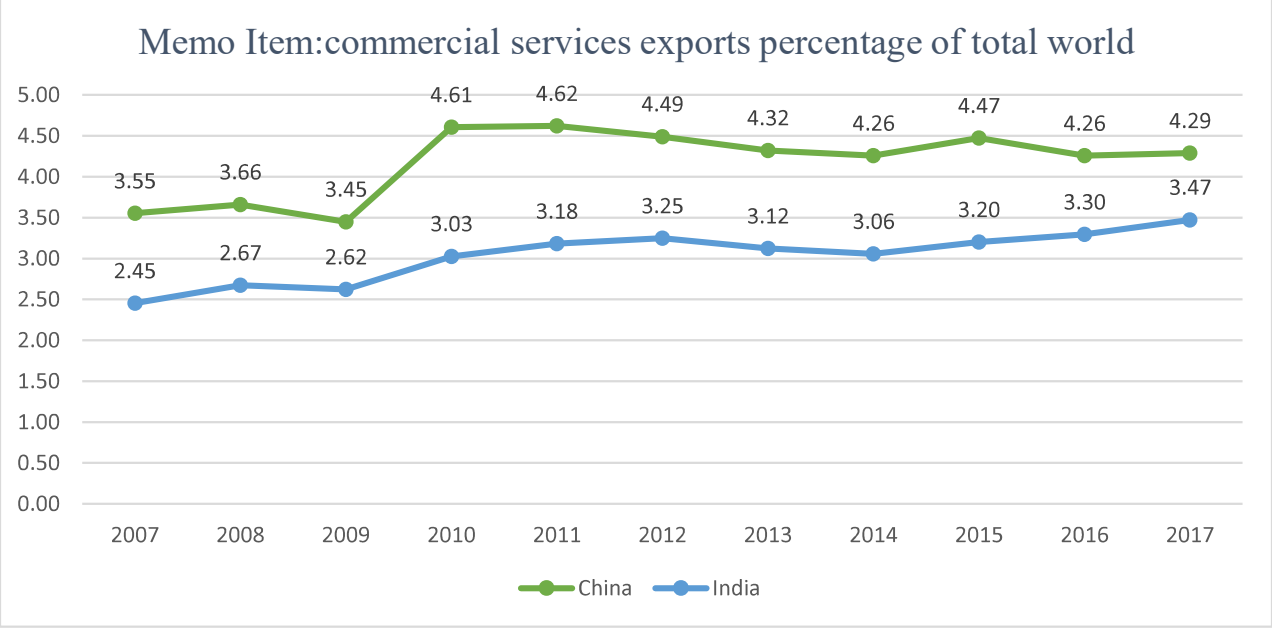
Source: Author's calculation using data from UNCTAD Statistics

Figure 3.3.3B China's and India's Services Imports to Percentage of Total World



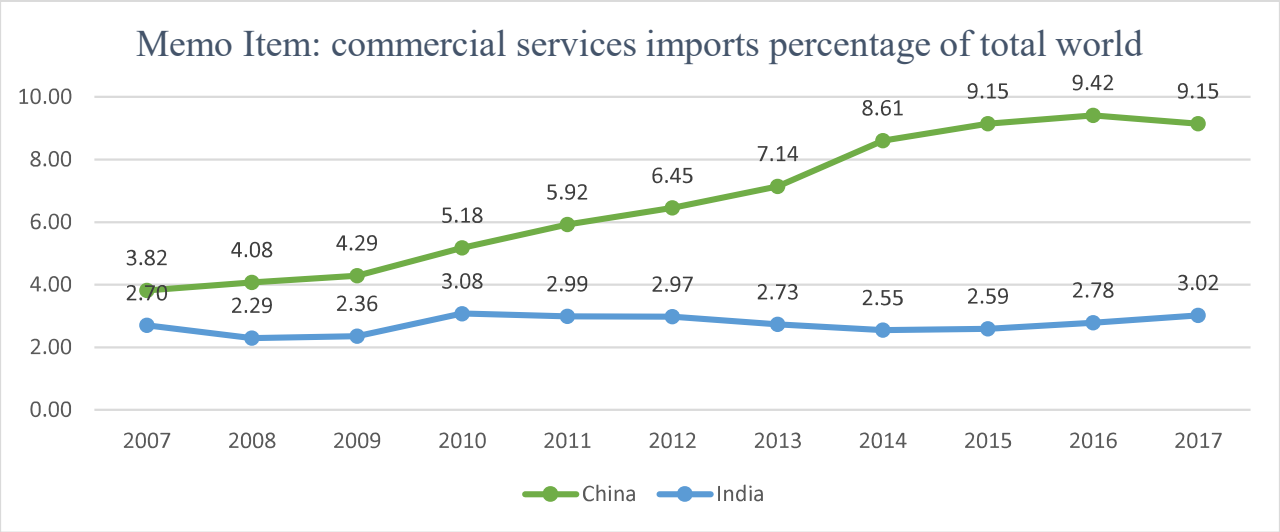
Source: Author's calculation using data from UNCTAD Statistics

Figure 3.3.3C China's and India's memo item: commercial services exports to percentage of total world



Source: Author's calculation using data from UNCTAD Statistics

Figure 3.3.3D China's and India's memo item: commercial services imports to percentage of total world



Source: Author's calculation using data from UNCTAD Statistics

3.3.5 China's Sector Wise Services Exports

Table 3.3.4 shows that China's total services exports were subdivided into goods related services, transport services, travel services and other services. Other services exports include construction services, insurance and pension services, financial services, use of intellectual property services, telecommunication, computer and information services, research and development (R&D) services, legal, accounting, management consulting, and public relations services, operating leasing services, trade related services, other business services, and government goods and services.

China's goods related services exports were introduced during 2007 in 19,929.2 million USD, they had made greater in size to 26,529 million USD in 2011. Then in 2014 them had reduced to 21,420.7 million USD, hereafter in 2017 again gone up to 23,993.2 million USD. Simultaneously, their percentage shares of total trade in services were fluctuating within range from 9.77% to 17.59%. Their shares had started in 2007 from 15.89%, in 2009 gone up to peak level 17.59%, after that in 2014 slowed down to 9.77%. At the end in 2016 their share again climbed up to 11.30%.

Table 3.3.4

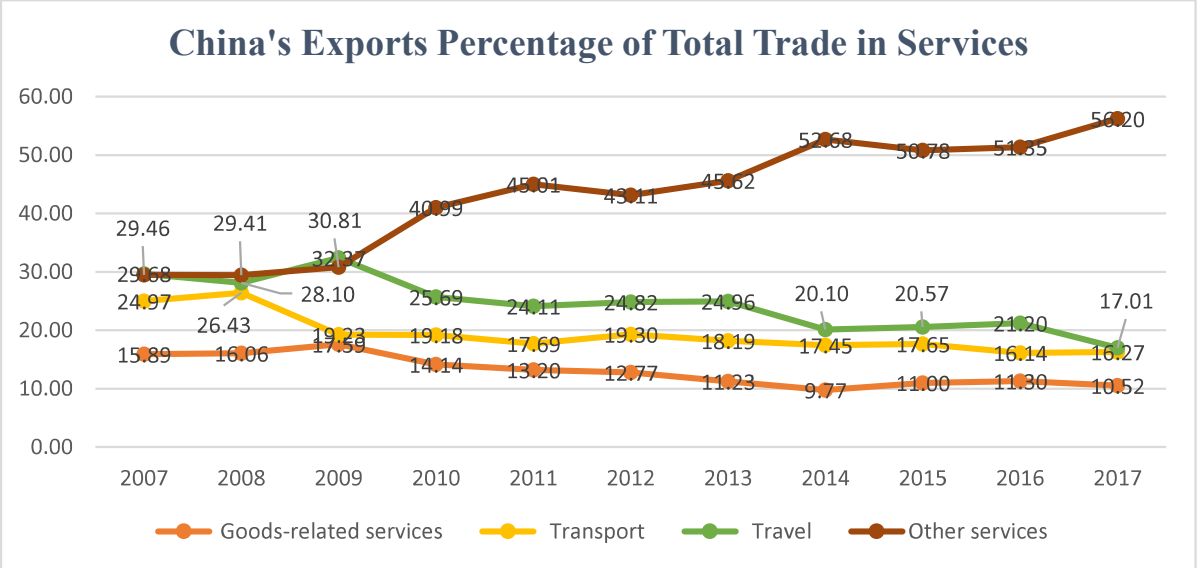
China's Sector Wise Services Exports					
	US Dollars at current prices in million				
Year	Goods-related services	Transport	Travel	Other services	Total Exports
2007	19929.20	31323.80	37233.00	36960.52	125446.52
2008	23340.50	38417.60	40843.00	42741.90	145343.00
2009	21563.60	23568.90	39675.00	37755.98	122563.48
2010	25212.00	34210.50	45814.00	73102.36	178338.86
2011	26529.00	35569.90	48464.00	90484.10	201047.00
2012	25745.20	38912.20	50028.00	86890.60	201576.00
2013	23256.90	37645.70	51664.00	94438.55	207005.15
2014	21420.70	38242.80	44043.68	115433.50	219140.68
2015	24040.82	38594.33	44968.72	111030.12	218633.99
2016	23672.80	33827.13	44425.97	107602.88	209528.80
2017	23993.20	37103.79	38799.28	128194.03	228090.29
	Percentage of total trade in services				
Year	Goods-related services	Transport	Travel	Other services	Total Exports
2007	15.89	24.97	29.68	29.46	100.00
2008	16.06	26.43	28.10	29.41	100.00
2009	17.59	19.23	32.37	30.81	100.00
2010	14.14	19.18	25.69	40.99	100.00
2011	13.20	17.69	24.11	45.01	100.00
2012	12.77	19.30	24.82	43.11	100.00
2013	11.23	18.19	24.96	45.62	100.00
2014	9.77	17.45	20.10	52.68	100.00
2015	11.00	17.65	20.57	50.78	100.00
2016	11.30	16.14	21.20	51.35	100.00
2017	10.52	16.27	17.01	56.20	100.00

Source: Author's calculation from UNCTAD Statistics

Figure 3.3.4A China's sector wise services exports

Source: Author's calculation using data from UNCTAD Statistics

Figure 3.3.4B China's percentage of sector wise services exports to total trade in services



Source: Author's calculation using data from UNCTAD Statistics

During the study period 2007 to 2017 there was a fluctuating trend of China's transport services export both in absolute amount and percentage share of total trade in services. They had started during 2007 in 31,323.8 million USD, in 2008 them had enlarged to 38,417.6 million USD, then in 2009 them had slowed down to lowest amount to 23,568.9 million USD. Hereafter in 2012 they were increased to maximum amount 38,912.2 million USD, conclusively in 2017 them had touched to 37,103.79 million USD. Simultaneously on the same period, their percentage share of total trade in services had fluctuated within range from 16.14% to 26.43%. During 2008 their percentage shares of total trade in services were started from peak level 26.43%, in 2011 gone down to 17.69%, here after in 2012 again they had gone up to 19.30%. Then their share had continued to decline annually in succeeding years, finally in 2016 they were diminished to lowest share 16.14%.

Correspondingly China's travel services exports both in absolute amount and percentage share of total trade in services were fluctuating trend during the study period 2007 to 2017. During 2007 they had started from 37,233 million USD, annually them had increased to 51,664 million USD in 2013, henceforth them had gradually diminished to 2017 finally reached on same year 38,799.28 million USD. On the other hand, their share was varied within range from 17.01% to 32.37%. During 2007 their share was started from 29.68%, in 2009 their share had gone up to highest percentage 32.37%, then went back to 24.96% in 2013 and lowest level 17.01% in 2017.

In the same way there was an increasing trend of China's other services exports both in absolute amount and percentage share of total trade in services since the study period 2007 to 2017. During 2007 they had recommenced from 36,960.52 million USD, expanded to 90,484.1 million USD in 2011, further more expanded to 1,15,433.5 million USD in 2014, finally it had gone up to maximum amount 1,28,194.03 million USD in 2017. On the other hand, their share of total trade in services began from 29.46% in 2007, hiked to 45.01% in 2011, and finally they had raised to 56.20% in 2017.

3.3.6 India's Sector Wise Services Exports

Table 3.3.5 shows that India's services exports had also subdivided into goods related services, transports services, travel services, and other services. During 2012, India's goods related services exports had recommenced from 133.6 million USD, increased to 382.98 million USD in 2014, then slowed down to 276.73 million USD in 2016, finally they had bounced back to 334.32 million USD in 2017. On the other hand, their percentage share of total trade in services was varying within range from 0.09% to 0.24%.

During the study period 2007 to 2017 there was a fluctuating trend of India's transport services exports both in absolute amount and percentage share of total trade in services. During 2007 they had recommenced from 10,210.8 million USD, increased to 17,701.5 million USD in 2011, and made greater in size to 18,597.11 million USD in 2014. Here after they had declined to 14,319.03 million USD in 2015, then them bounced back to 16,979.15 million USD in 2017. On the other hand, their percentage share of total trade in services had oscillated within range from 9.16% to 12.78%. During 2007 their share had recommenced from 11.8%, strengthened to 12.78% in 2011, hereafter they had weakened to lowest level 9.16% in 2015, and finally their share touched to 9.23% in 2017.

In the same way there was an increasing trend annually of India's travel services exports since 2007 to 2017. During 2007 they had taken off from 10,729.5 million USD, gone up to 17,791.5 million USD in 2012 and 19,700.2 million USD in 2014. Furthermore, in 2017 they had bounced back to 27,635.1 million USD. Relatedly their percentage share of total trade in services was oscillating within range from 11.16% to 14.87%. Their share had taken off from 12.4% in 2007, gone down to 11.16% in 2008, henceforth their share had bounced back to 12.78% in 2011, and 13.45% in 2015. Finally, their share had reached to peak level 14.87% in 2017.

Correspondingly India's other services exports were an increasing trend in absolute amount and fluctuating trend in percentage share of total trade in services since the study period 2007 to 2017. During 2007 they had taken off from 65,612.2 million USD, increased to 1,03,119 million USD in 2011 and 1,18,515.89 million USD in 2014. Conclusively them had raised to maximum amount 1,39,301.81 million USD in 2017. Relatedly their percentage share had fluctuated within range from 74.44% to 77.18%.

Table 3.3.5

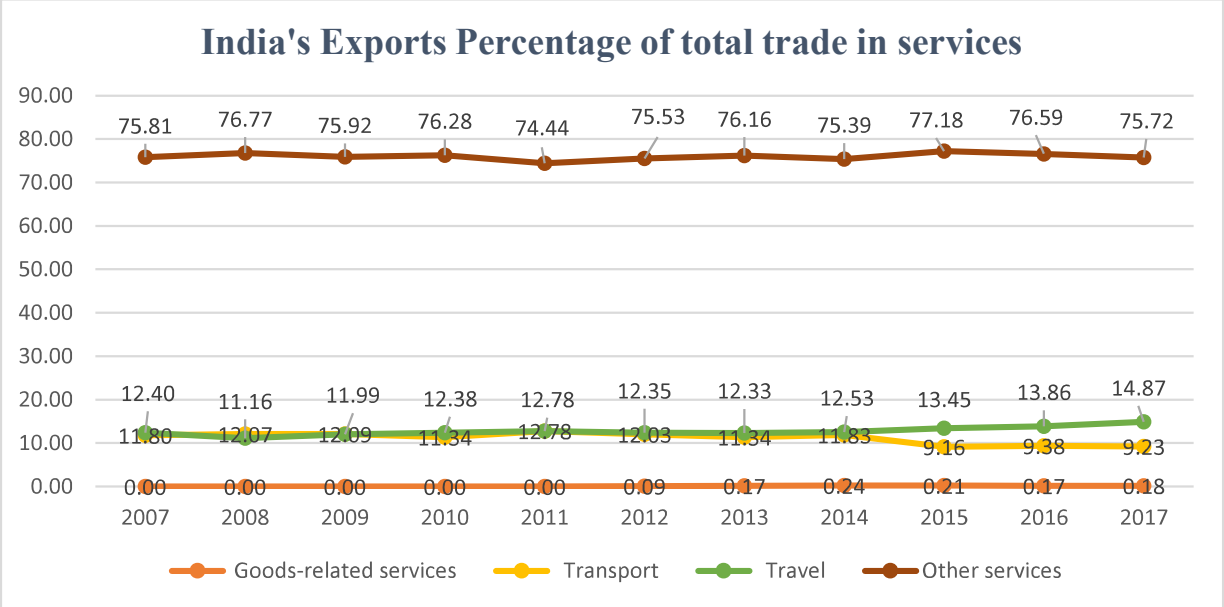
India's Sector Wise Services Exports					
	US Dollars at current prices in million				
Year	Goods-related services	Transport	Travel	Other services	Total Exports
2007		10210.80	10729.50	65612.20	86552.50
2008		12804.30	11832.10	81417.60	106054.00
2009		11232.50	11135.90	70521.10	92889.50
2010		13275.10	14489.70	89303.20	117068.00
2011		17701.50	17707.50	103119.00	138528.00
2012	133.60	17506.70	17971.50	109913.20	145525.00
2013	255.11	16915.70	18397.10	113595.72	149163.63
2014	382.98	18597.11	19700.20	118515.89	157196.18
2015	324.06	14319.03	21012.66	120622.43	156278.17
2016	276.73	15175.52	22427.37	123939.39	161819.00
2017	334.32	16979.15	27365.10	139301.81	183980.37
	Percentage of total trade in services				
Year	Goods-related services	Transport	Travel	Other services	Total Exports
2007		11.80	12.40	75.81	100.00
2008		12.07	11.16	76.77	100.00
2009		12.09	11.99	75.92	100.00
2010		11.34	12.38	76.28	100.00
2011		12.78	12.78	74.44	100.00
2012	0.09	12.03	12.35	75.53	100.00
2013	0.17	11.34	12.33	76.16	100.00
2014	0.24	11.83	12.53	75.39	100.00
2015	0.21	9.16	13.45	77.18	100.00
2016	0.17	9.38	13.86	76.59	100.00
2017	0.18	9.23	14.87	75.72	100.00

Source: Author's calculation from UNCTAD Statistics

Figure 3.3.5A India's sector wise services exports

Source: Author's calculation using data from UNCTAD Statistics

Figure 3.3.5B India's Percentage of Sector Wise Exports to Total Trade in Services



Source: Author's calculation using data from UNCTAD Statistics

3.3.7 China's sector wise services imports

Table 3.3.6 shows that China's services imports had subdivided into goods related services, transport services, travel services, and other services. There was an increasing trend annually of China's goods related services imports both in absolute amount and percentage share of total trade in services since the study period 2007 to 2017. During 2007 China's goods related services imports had recommenced from 13.81 million USD, increased to 189.82 million USD in 2011, hereafter they had decreased for succeeding two years i.e. 2012 (120.13 million USD) and 2013 (79.3 million USD). Then them had bounced back to 1479.64 million USD in 2015 and at the end 2447.58 million USD in 2017. Similarly, their percentage share of total trade in services had varied within range from 0.01% to 0.51%. During 2007 their share had begun from 0.01%, hiked to 0.08% in 2011, fallen to 0.03% in 2014, and finally their share had gone up to peak level 0.52% in 2017.

In accordance with China's transport services imports had initiated from 43,275.7 million USD during 2007, expanded to 63,256.7 million USD in 2010, and again expanded to maximum amount 96,157.8 million USD in 2014. Hereafter they had contracted to 80,580.22 million USD in 2016 and at the end strengthened to 92,945.05 million USD in 2017. In addition to their share had oscillated within range from 17.82% to 33.51%. During 2007 their share had initiated from highest level 33.51%, weakened to 32.46% in 2011, again weakened to 22.21% in 2014. Henceforth at the end 2016 their share had gone down to 17.82% and grown to 19.88% in 2017.

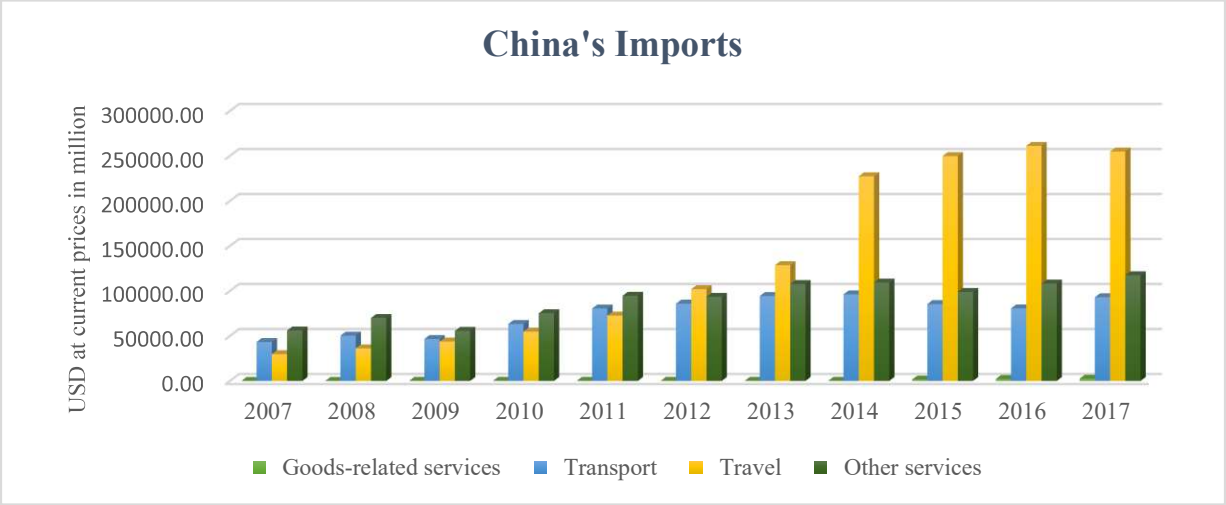
Furthermore, there was an increasing trend annually of China's travel services imports since the study period 2007 to 2017. During 2007 they had opened from 29,786 million USD, enlarged to 54,880 million USD in 2010 and 1,28,576 million USD in 2013, after that again enlarged to maximum amount 2,61,129.14 million USD in 2016. Conclusively they had diminished to 2,54,788.89 million USD in 2017. Equivalently, their percentage share of total trade in services was also an increasing trend since 2007 to 2017 except 2010 and 2017. Their share had varied within range from 23.07% to 57.76%. During 2007 their share had opened from 23.07%, enlarged to 36.25% in 2012, henceforth enlarged to peak level 57.76% in 2016. At the end their share diminished to 54.49% in 2017.

Table 3.3.6

China's sector wise services imports					
	US Dollars at current prices in million				
Year	Goods-related services	Transport	Travel	Other services	Total Imports
2007	13.81	43275.70	29786.00	56050.50	129126.00
2008	25.08	50328.70	36157.00	69886.22	156397.00
2009	63.97	46574.00	43701.70	55639.33	145979.00
2010	80.40	63256.70	54880.00	75184.34	193401.44
2011	189.82	80444.70	72585.10	94624.38	247844.00
2012	120.13	85861.60	101977.00	93341.35	281300.08
2013	79.30	94323.80	128576.00	107628.82	330607.92
2014	115.73	96157.80	227343.73	109265.86	432883.13
2015	1479.64	85339.75	249830.54	98890.72	435540.66
2016	2177.43	80580.22	261129.14	108209.99	452096.78
2017	2447.58	92945.05	254788.89	117407.86	467589.37
Percentage of total trade in services					
Year	Goods-related services	Transport	Travel	Other services	Total Imports
2007	0.01	33.51	23.07	43.41	100.00
2008	0.02	32.18	23.12	44.69	100.00
2009	0.04	31.90	29.94	38.11	100.00
2010	0.04	32.71	28.38	38.87	100.00
2011	0.08	32.46	29.29	38.18	100.00
2012	0.04	30.52	36.25	33.18	100.00
2013	0.02	28.53	38.89	32.55	100.00
2014	0.03	22.21	52.52	25.24	100.00
2015	0.34	19.59	57.36	22.71	100.00
2016	0.48	17.82	57.76	23.94	100.00
2017	0.52	19.88	54.49	25.11	100.00

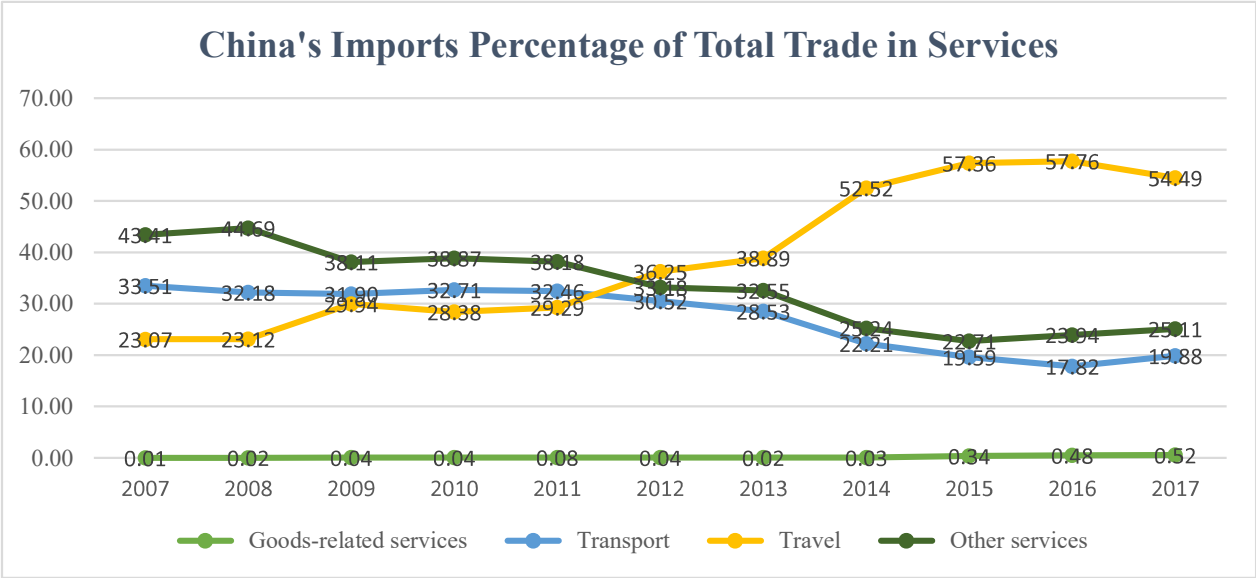
Source: Author's calculation from UNCTAD Statistics

Figure 3.3.6A **China's sector wise services imports**



Source: Author's calculation using data from UNCTAD Statistics

Figure 3.3.6B China's percentage of sector wise services imports to total trade in services



Source: Author's calculation using data from UNCTAD Statistics

Correspondingly China's other services imports had oscillated during the study period 2007 to 2017 both in absolute amount and percentage share of total trade in services. During 2007 they had taken off from 56,050.5 million USD, strengthened to 75,184.34 million USD in 2010, and 1,09,265.86 million USD in 2014. Hereafter they had weakened to 98,890.72 million USD in 2015,

finally bounced back to maximum amount 1,17,407.86 million USD in 2017. Relatedly their share had oscillated range from 44.69% to 22.71%. During 2008, their share had gone up to peak level 44.69% and in 2015 their share had gone down to lowest level 22.71%.

3.3.8 India's sector wise services imports

Table 3.3.7 shows that India's services imports were subdivided into goods related services imports, transport services imports, travel services imports, and other services imports. During 2012 India's goods related services imports had opened from 320.4 million USD, enlarged to 336.29 million USD in 2013, then diminished to 245.84 million USD in 2014, hereafter again enlarged to 373.81 million USD in 2016. At the end 2017 they had furthermore raised to 549.36 million USD. Along with their percentage share of total trade in services was varied within range from 0.19% to 0.36%.

In accordance with India's transport services imports had fluctuated during the study period 2007 to 2017 both in absolute amount and percentage share of total trade in services. During 2007 they had recommenced from 50,042.19 million USD, gone down to 35,860.9 million USD in 2009, hereafter again gone up to 60,704.67 million USD in 2012. Furthermore, in 2013 they had contracted to 57,362.76 million USD, and at the end in 2016 again contracted to 47,952.23 million USD. In addition to their share had oscillated annually within range from 54.97% to 35.91%. During 2007 their share was initiated from 54.97% weakened to 40.64% in 2010, further strengthened to 46.73% in 2012. Henceforth in 2013 their share had gone down to 45.21% and at the end 2016 again gone down to lowest level 35.91%.

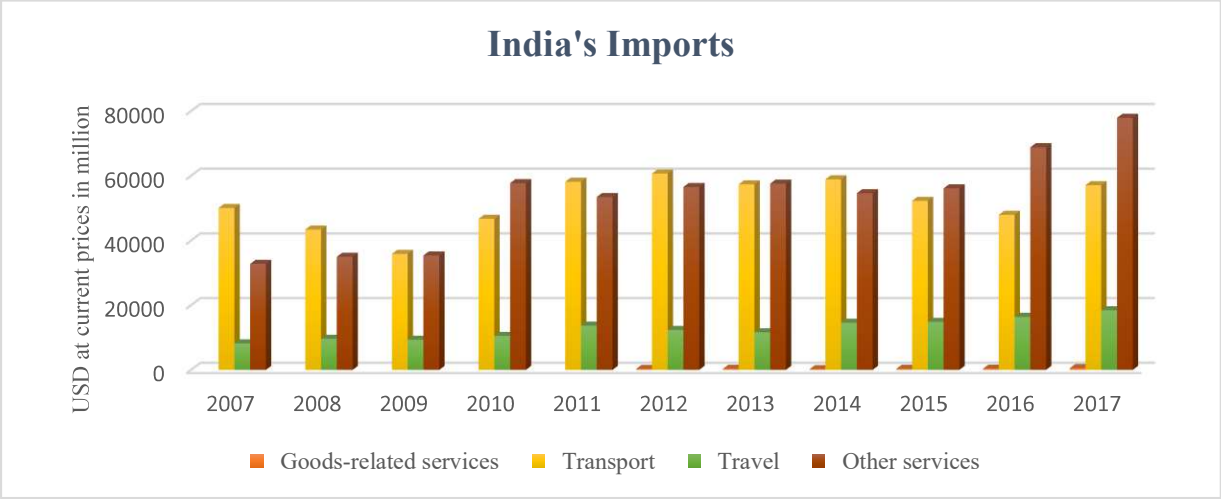
In the same way since the study period 2007 to 2017 there was an increasing trend on India's travel services imports in absolute amount except 2012 & 2013, and fluctuating trend in its percentage share of total trade in services. In 2007 India's travel services imports had taken off from 8,218.94 million USD expanded to 13,699.2 million USD in 2011, hereafter contracted to 11,614.65 million USD in 2013. Furthermore, in 2015 they had again expanded to 14,837.56 million USD and at the end in 2017 gone up to 18,428.67 million USD. Their percentage share was fluctuated within range from 9.03% to 12.26%. During 2007 their share had opened in lowest level 9.03%, similarly in 2016 their share had gone up to maximum level 12.26%.

Table 3.3.7

India's sector wise services imports					
	US Dollars at current prices in million				
Year	Goods-related services	Transport	Travel	Other services	Total Imports
2007		50042.19	8218.94	32774.87	91036.00
2008		43381.42	9606.00	34967.09	87954.51
2009		35860.90	9309.55	35382.40	80552.84
2010		46704.73	10489.60	57733.25	114927.58
2011		58153.30	13699.20	53436.05	125288.54
2012	320.40	60704.67	12341.60	56551.84	129918.52
2013	336.29	57362.76	11614.65	57577.15	126890.85
2014	245.84	58899.46	14594.99	54621.73	128362.02
2015	336.13	52256.88	14837.56	56136.23	123566.79
2016	373.81	47952.23	16376.54	68828.59	133531.18
2017	549.36	57103.36	18428.67	77932.21	154013.60
Percentage of total trade in services					
Year	Goods-related services	Transport	Travel	Other services	Total Imports
2007		54.97	9.03	36.00	100.00
2008		49.32	10.92	39.76	100.00
2009		44.52	11.56	43.92	100.00
2010		40.64	9.13	50.23	100.00
2011		46.42	10.93	42.65	100.00
2012	0.25	46.73	9.50	43.53	100.00
2013	0.27	45.21	9.15	45.38	100.00
2014	0.19	45.89	11.37	42.55	100.00
2015	0.27	42.29	12.01	45.43	100.00
2016	0.28	35.91	12.26	51.54	100.00
2017	0.36	37.08	11.97	50.60	100.00

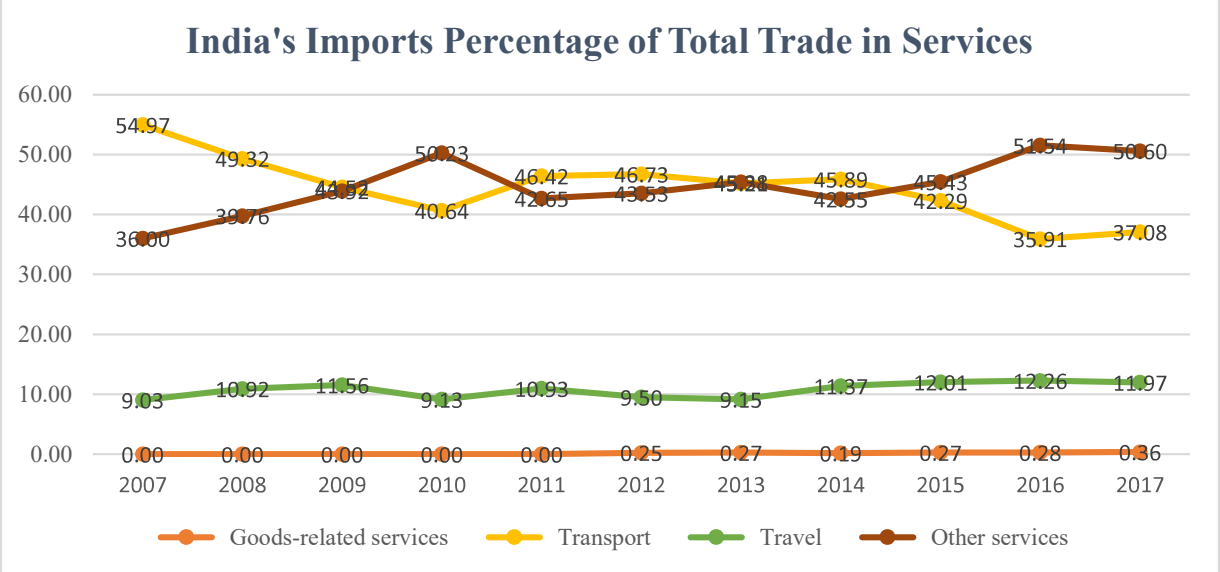
Source: Author's calculation from UNCTAD Statistics

Figure 3.3.7A India's sector wise services imports



Source: Author's calculation using data from UNCTAD Statistics

Figure 3.3.7B India's percentage of sector wise services imports to total trade in services



Source: Author's calculation using data from UNCTAD Statistics

Correspondingly India's other services imports had initiated from 32,774.87 million USD in 2007, grown to 57,733.25 million USD in 2010. Thenceforward they were narrowing to 53,436.05 million USD in 2012 and again they had bounced back to 57,577.15 million USD in 2013.

Conclusively they had further grown to 68,828.59 million USD in 2016 and 77,932.21 million USD in 2017. Complementarily their share was varied annually within range from 36% to 51.54%. During 2007 their share was taken off from 36% strengthened to 50.23% in 2010, henceforth their share was weakened to 42.65% in 2011. Conclusively their share was again bounced back to 51.54% in 2016 and then slowed down to 50.6% in 2017.

CHAPTER IV

Empirical Analysis of China's and India's International Trade with its Determinants

4.1 Introduction

There are so many determinants related to international trade in an economy as recommended by current literature applicable on these issues. It is important to know the expected association between international trade and their determinants in this research study, before doing empirical analysis regarding association of international trade and some other economic variables. The following are important determinants for international trade and foreign direct investments (FDI) of China and India.

(I) Market size: Past research studies show that the size of market in terms of GDP has positive relationship with international trade. Countries economy has larger the size of market in terms of GDP can attract more international trade. The main aim of international trade is to establish new enterprises for supplying goods and services to the local or domestic markets. High degree of economic development, rapid economic growth, larger market size will contribute more and better opportunities for these enterprises of host countries market.

(II) Resource location: Host country's international trade is attracted by location specific determinants. Three aspects of international trade are influenced by location specific determinants. These are

(1) The motive for international trade i.e. natural resources, human resources, market size, or cost effectiveness work.

(2) The classification of international trade i.e. mining and quarrying industries, manufacturing industries, or service industries.

(3) The size of the international trader i.e. small and medium multinational enterprises (MNE) or large multinational enterprises (MNE).

Natural resources of a country are preserved by imposing high tariffs and quotas from global competition. But it has played supreme role for FDI inflows to both developed and developing

countries. Another way, both policy related variables and economic variables can describe the variation for international trade and FDI in a country. Long term debt is an important variable for FDI inflows to India but foreign exchange reserve is an important variable for FDI inflows to China.

(III) Foreign exchange reserves: The strength of external payments position is based on high amount of foreign exchange reserves in connection with merchandise exports and service exports. Foreign exchange reserve will help to build confidence among prospective investors. Most of the economist have argued in their research study, there is positive relationship between foreign direct investment inflows and forex reserves.

(IV) Trade openness: Country's trade openness is estimated by proportion of total trade i.e. sum of exports and imports to gross domestic product (GDP). More trade openness can attract more FDI to host country's economy. Trade openness can help for importing raw materials, capital goods to the country's economy.

(V) Government regulations: Government regulations contain entry, operation, and exit of foreign traders. Open policies are basically determined to encourage international trade, while restrictive policies are determined for discourage to international trade. When changes in government rules and regulations will command for more or less trade openness.

(VI) Tax policies: Country's fiscal policies ascertain the general tax level for goods and services, personal tax, and corporate tax. So that it affects FDI inflows, exports, and imports. Other things remaining same, country's economy with lower tax rate will encourage more FDI inflows. It tends toward more exports than a country with higher tax rate.

(VII) Inflation: Foreign direct investment to host country depends on internal economic stability. So that lower inflation is regarded as internal stability of economy and higher inflation is regarded as internal instability of economy. Higher inflation rate indicates central bank failure and government is incapable to balance budget of a country. Previous literature shows that lower inflation will encourage FDI inflows and higher inflation will discourage FDI inflows.

(VIII) Industrial organization: Industrial organization theories express that managerial skills and practices, competitive capability, industry specific advantage, etc. are a few critical points to survive industrial organization.

(IX) Foreign exchange rate: Foreign exchange rate is a rate in which country's currency can be converted to another country's currency. Another way is that the relative strength of domestic currency in association with foreign currency. Larger volatility of host country's currency may discourage for international trade and foreign direct investment (FDI) to foreign firms. Because it increases uncertainty to country's economy in near future.

4.2 Conversion of current price variable to constant price variable

All variables are used for model analysis based on constant prices, so that the following formulas have used for conversion of variables to constant prices from current prices.

Constant Year Price of Variable = (Current Year Price of Variable / Current Year Index of Variable) * Base Year Index of Variable

Current Year Index of Variable = (Current Year Price of Variable / Constant Year Price of Variable) * 100

4.3 Variables, Data Source and Period of the Study

This chapter investigates the determinants of gross domestic product (GDP) which influence by foreign direct investment inflow, total (merchandise and services) trade as percentage of GDP, rate of inflation, real effective exchange rate index for both China and India. Annual data since the period 1991 to 2017 has been used for this empirical analysis. The data sources have been used from UNCTADstat published by United Nations Conference on Trade and Development (UNCTAD) for both China and India. The variables have been examined as independent variable i.e. gross domestic product (GDP) and dependent variables i.e. foreign direct investment inflow (FDIIF), total trade as percentage of GDP (TTPGDP), rate of inflation (RTOFINF), real effective exchange rate index (REER), lag foreign direct investment inflow (LAGFDIIF).

Description of variables:

Variables	Description
LGDP	Natural Log of Gross Domestic Product
LFDIIF	Natural Log of Foreign Direct Investment Inflow

LTTPGDP Natural Log of Total (merchandise and services) Trade as Percentage of GDP

RTOFINF Rate of Inflation

LREER Natural Log of Real Effective Exchange Rate Index

LAGLFDIIF Lag on Natural Log of Foreign Direct Investment Inflow

4.3.1 Multiple Linear Regression Analysis Model for both China and India

The model for multiple linear regression, given n observations, is

$$(LGDP)_i = \beta_0 + \beta_1(LFDIIF)_{i2} + \beta_2(LTTPGDP)_{i3} + \beta_3(RTOFINF)_{i4} + \beta_4(LREER)_{i5} + \beta_5(LAGLFDIIF)_{i6} + \varepsilon_i \quad \ldots\ldots\ldots\ldots (1)$$

Where β_0 is constant or an intercept

β_1 is the Slope (Beta coefficient) for LFDIIF

β_2 is the Slope (Beta coefficient) for LTTPGDP

β_3 is the Slope (Beta coefficient) for RTOFINF

β_4 is the Slope (Beta coefficient) for LREER

β_5 is the Slope (Beta coefficient) for LAGLFDIIF

ε is an error or residual.

$i = 1, 2, 3, \ldots\ldots\ldots, 26$

4.4 Statistical Diagnostic for China

Applying ordinary least square (OLS) linear equation, the explanatory variables are regressed to test the significance of these variables. The multiple regression analysis has been used and the regression results have been reported in Table 4.1.1. In the analysis a combination of these variables like LREER, LTTPGDP and RTOFINF have been found to be statistically insignificant P-value of China. Similarly, LFDIIF and LAGFDIIF have been found to be statistically significant P-value while they have insignificant t-statistic of China. The value of adjusted R-squared is found

to be 0.974, which indicates the percentage variation in GDP due to the combination of these variables taken into the study. Further analysis also reveals that the value of Durbin-Watson statistic is 1.719, which is close to 2, it means there is no autocorrelation. The P value for the F-statistic of overall significance test is less than 0.05% significance level, so that reject the null-hypothesis and conclude that the model provides a better fit. Therefore, there has a positive impact of FDI inflow, total (merchandise and services) trade as percentage of GDP, rate of inflation, real effective exchange rate on GDP growth of China.

Table 4.1.1

H0: There has no impact of FDI inflow, total (merchandise and services) trade as a percentage of GDP, rate of inflation, real effective exchange rate on GDP growth for China.

H1: There has impact of FDI inflow, total (merchandise and services) trade as a percentage of GDP, rate of inflation, real effective exchange rate on GDP growth for China.

China's

Regression Model

Dependent Variable: LGDP
Method: Least Squares
Date: 10/17/18 Time: 13:22
Sample (adjusted): 1992 2017
Included observations: 26 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-15.32031	1.348316	-11.36255	0.0000
LFDIIF	0.390491	0.289738	1.347740	0.1928
LREER	4.707661	0.256857	18.32797	0.0000
LTTPGDP	1.320467	0.149754	8.817550	0.0000
RTOFINF	-0.023784	0.004578	-5.195145	0.0000
LAGLFDIIF	-0.051746	0.167247	-0.309397	0.7602

R-squared	0.979220	Mean dependent var	15.05462
Adjusted R-squared	0.974024	S.D. dependent var	0.708962
S.E. of regression	0.114263	Akaike info criterion	-1.301454
Sum squared residual	0.261121	Schwarz criterion	-1.011124
Log likelihood	22.91890	Hannan-Quinn criteria	-1.217849
F-statistic	188.4883	Durbin-Watson stat	1.718647

Prob(F-statistic)	0.000000

Table 4.1.2

Null Hypothesis: Residuals are not serially correlated.

Alternative Hypothesis: Residuals are serially correlated.

China's Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.517631	Prob. F (2,18)	0.6045
Observed*R-squared	1.414051	Prob. Chi-Square (2)	0.4931

Breusch-Godfrey serial correlation LM test shows that residual of P value (Prob.Chi-Square) is 49.31%, which is more than 5% and observed R-squared is 1.414 for China GDP as dependent variable. So that null hypothesis cannot be rejected, rather it is accepted. In this case residuals are not serially correlated, which is desirable.

Table 4.1.3

Null Hypothesis: Residuals are not heteroskedasticity.

Alternative Hypothesis: Residuals are heteroskedasticity.

China's Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.682755	Prob. F (5,20)	0.0518
Observed*R-squared	10.43756	Prob. Chi-Square (5)	0.0637
Scaled explained SS	4.180550	Prob. Chi-Square (5)	0.5237

Heteroskedasticity Test: Breusch-Pegan-Godfrey shows that residual of P value (Prob.Chi-Square) is 6.37%, which is more than 5% and observed R-squared is 10.437 for China GDP as dependent

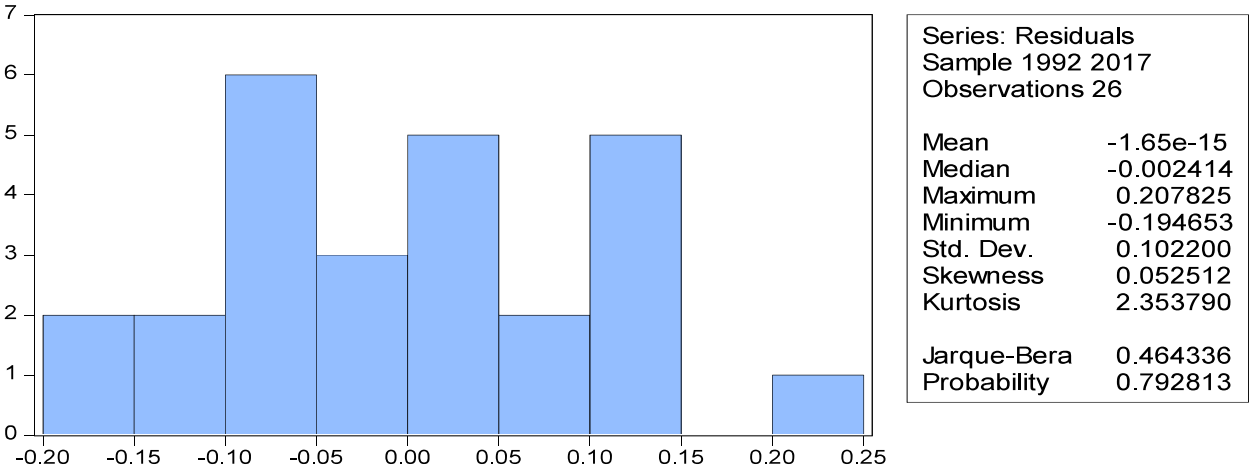
variable. So that null hypothesis cannot be rejected, rather it is accepted. Therefore, residuals are not heteroskedasticity, it means homoskedasticity which is desirable.

Figure 4.1.1

Null Hypothesis: Residuals are normally distributed.

Alternative Hypothesis: Residuals are not normally distributed.

China's Histogram - Normality Test



Histogram-Normality Test shows that Residual of P value is 79.28% that is more than 5%, where Jarque-Bera statistic is 0.464 for GDP China as dependent variable. So that null hypothesis cannot be rejected, rather it is accepted. In this case residuals are normally distributed, which is desirable.

4.5 Statistical Diagnostic for India

The multiple regression analysis has been used to obtain the impact of variables like FDIIF, TTPGDP, RTOFINF, REER and LAGFDIIF on GDP in India. By employing ordinary least square (OLS), these explanatory variables are regressed to obtain the determinants of GDP in India. The regression results of the below analysis have been reported in Table 4.2.1, which shows that a combination of variables like LREER, LTTPGDP and RTOFINF have found to be statistically insignificant P-value in India. While LFDIIF and LAGFDIIF have shown to be statistically insignificant t-value. The value of adjusted R-squared has estimated to be 0.972, which indicates 97.2% variation in GDP is explained by the combination of these three variables i.e. LTTPGDP,

LREER and RTOFINF in India. Further analysis also reveals that the value of Durbin-Watson statistics is 1.584, which is close to 2, it means there is no autocorrelation. The P value for the F-statistic of overall significance test is less than 0.05% significance level, so that reject the null-hypothesis and conclude that the model provides a better fit. Therefore, there has a positive impact of FDI inflow, total (merchandise and services) trade as percentage of GDP, rate of inflation, real effective exchange rate on GDP growth of India.

Table 4.2.1

H0: There has no impact of FDI inflow, total (merchandise and services) trade as a percentage of GDP, rate of inflation, real effective exchange rate on GDP growth for India.

H1: There has impact of FDI inflow, total (merchandise and services) trade as a percentage of GDP, rate of inflation, real effective exchange rate on GDP growth for India.

India's

Regression Model

Dependent Variable: LGDP
Method: Least Squares
Date: 10/17/18 Time: 13:05
Sample (adjusted): 1992 2017
Included observations: 26 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.398638	1.158203	-1.207593	0.2413
LFDIIF	0.036451	0.067971	0.536275	0.5977
LREER	2.911234	0.289929	10.04120	0.0000
LTTGDP	0.410326	0.119942	3.421035	0.0027
RTOFINF	-0.013402	0.005927	-2.261237	0.0350
LAGFDIIF	0.061966	0.046739	1.325786	0.1999

R-squared	0.977708	Mean dependent var	13.91335
Adjusted R-squared	0.972134	S.D. dependent var	0.520375
S.E. of regression	0.086866	Akaike info criterion	-1.849723
Sum squared residual	0.150914	Schwarz criterion	-1.559393
Log likelihood	30.04640	Hannan-Quinn criteria.	-1.766118
F-statistic	175.4328	Durbin-Watson stat	1.584387
Prob(F-statistic)	0.000000		

Table 4.2.2

Null Hypothesis: Residuals are not serially correlated.

Alternative Hypothesis: Residuals are serially correlated.

India's Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.139466	Prob. F (2,18)	0.1467
Observed*R-squared	4.993607	Prob. Chi-Square (2)	0.0823

Breusch-Godfrey serial correlation LM test shows that residual of P value (Prob.Chi-Square) is 8.23%, which is more than 5% and observed R-squared is 4.9936 for India GDP as dependent variable. So that null hypothesis cannot be rejected, rather it is accepted. In this case residuals are not serially correlated, which is desirable.

Table 4.2.3:

Null Hypothesis: Residuals are not heteroskedasticity.

Alternative Hypothesis: Residuals are heteroskedasticity.

India's Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.778342	Prob. F (5,20)	0.0460
Observed*R-squared	10.65702	Prob. Chi-Square (5)	0.0586
Scaled explained SS	4.683826	Prob. Chi-Square (5)	0.4557

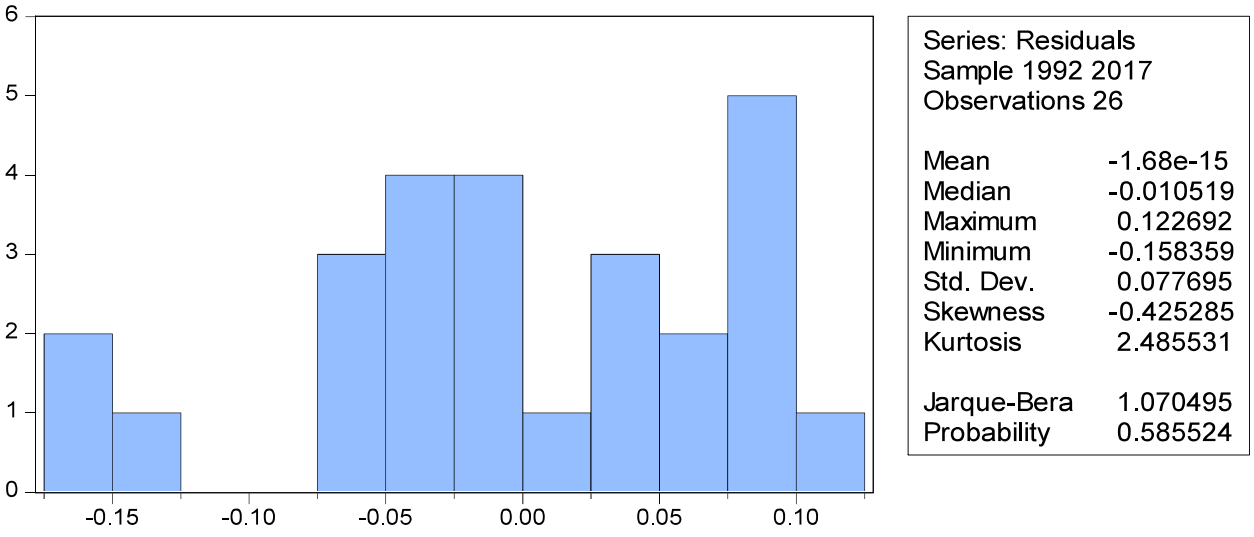
Heteroskedasticity Test: Breusch-Pegan-Godfrey shows that residual of P value (Prob.Chi-Square) is 5.86%, which is more than 5% and observed R-squared is 10.657 for India GDP as dependent variable. So that null hypothesis cannot be rejected, rather it is accepted. Therefore, residuals are not heteroskedasticity, it means homoskedasticity which is desirable.

Figure 4.2.1

Null Hypothesis: Residuals are normally distributed.

Alternative Hypothesis: Residuals are not normally distributed.

India's Histogram – Normality Test



Histogram-Normality Test shows that Residual of P value is 58.55% that is more than 5%, where Jarque-Bera statistic is 1.07 for GDP India as dependent variable. So that null hypothesis cannot be rejected rather it is accepted. In this case residuals are normally distributed, which is desirable.

4.6 Unit Root Test:

The conventional Granger causality (Granger, 1988) test based on vector auto regressive (VAR), which is very conditional with respect to stationarity of the variables. In addition to, if the time series are non-stationary, the stability condition of VAR is not meet. So that, Granger causality test statistic is invalid. Therefore, cointegration and vector error correction model (VECM) are recommended to ascertain the association among non-stationary variables. So that the foremost condition of VAR process is to test stationarity of the variables. Augmented Dickey Fuller (ADF) [Dickey and Fuller, 1981] and Phillips-Perron (PP) [Phillips and Perron, 1988] tests are employed

for stationary of time series variables. The lags have been selected by Schwarz Information Criterion (SIC) for unit root test.[7]

4.7 Johansen Cointegration Test:

Cointegration is an econometric method of time series variable, after employing unit root tests i.e. integrated of order one to the two or more variables, cointegration test is carried out. Its essential condition is the existence of long run equilibrium relationship among two or more variables. The main aim of cointegration test is to ascertain the group of non-stationary time series data are cointegrated or not. Johansen cointegration test can ascertain the number of cointegrated vectors for any provided number of non-stationary variables in the identical order. If every variable of time series data is non-stationary at level and stationary at first difference, then two or more time series variables are presumed to be cointegrated. Granger causality test is based on long run equilibrium relationship among two or more variables. Firstly, Augmented Dickey Fuller (ADF) test and Phillips-Perron test of unit root test of time series variables are non-stationary at integrated of order one Iβ (1). Secondly time series variables are cointegrated for long run relationship. Engle and Granger (1987) had developed the theory of cointegration in which economic variables have a long-run equilibrium that determines a stable relationship among them. The condition of time series variables are presumed to be co-integrated, they must be integrated of order one (non-stationary) and the linear combination of them is stationary I(0).[8]

4.8 Granger Causality Test:

Causality is a kind of statistical regression concept which is extensively applied to build the forecasting models. Historically, Granger (1969) and Sim (1972) had developed the application of

[7] Rudra Prakash Pradhan had suggested for stationarity of the time series variable in his article "The Nexus between Financial Development and Economic Growth in India: Evidence from Multivariate VAR Model."

[8] Sarpriya Ray had explained in her article 'Impact of Foreign Direct Investment on Economic Growth in India: A Co integration Analysis' about Johansen Cointegration test for applying in time series variables i.e. Log FDI inflow and Log GDP.

causality in economics. The standard Granger causality test is a method for determining whether one time series is significant to forecast another (Granger, 1969). The standard Granger causality test (Granger, 1988) seeks to determine whether past values of a variable assists to predict changes in another variable. There is no theoretical or empirical evidence that could conclusively stipulate sequencing from either direction. For this reason, the Granger causality test was applied on these variables. The spirit of Engle and Granger (1987) states that the idea if the two variables are integrated as order one i.e. I (1), and both residuals are I (0), this indicates that the two variables are cointegrated. Therefore, a time series X is said to Granger-cause Y, if it can be displayed through a series of Chi-square tests on lagged values of X (and with lagged values of Y also known) that those X values forecast statistically significant information about future values of Y.[9]

Log of GDP (LGDP), Log of Total Exports (LTEX), Log of FDI Inflows (LFDI IN), and Log of CPI (LCPI) are interlinked and co-related through various channel. In the context of this analysis, the Granger causality method is based on the estimation of following equations:

4.8.1 Following pairs of regressions have to be seen for the granger causality test.

$(\text{Log GDP})_t = \beta_0 (\text{Log GDP})_{t-i} + \beta_1 (\text{Log TEX})_{t-j} + \beta_2 (\text{Log FDI IN})_{t-k} + \beta 3 (\text{Log CPI})_{t-l} + U_{1t}$ ..... (1)

$(\text{Log TEX})\ t = \beta_4 (\text{Log GDP})\ t\text{-}i + \beta_5 (\text{Log TEX})\ t\text{-}j + \beta_6 (\text{Log FDI IN})\ t\text{-}k + \beta_7 (\text{Log CPI})\ t\text{-}l + U2t$

..... (2)

$(\text{Log FDI IN})\ t = \beta_8 (\text{Log GDP})\ t\text{-}i + \beta_9 (\text{Log TEX})\ t\text{-}j + \beta_{10} (\text{Log FDI IN})\ t\text{-}k + \beta_{11} (\text{Log CPI})\ t\text{-}l + U_{3t}$ ..... (3)

$\text{Log (CPI)}t = \beta 12(\text{Log GDP})\ t\text{-}i + \beta 13 (\text{Log TEX})_{t-j} + \beta 14 (\text{Log FDI IN})_{t-k} + \beta 15 (\text{Log CPI})\ t\text{-}l + U_{4t}$ ..... (4)

Log GDP = Natural Log of Gross Domestic Product

Log TEX = Natural Log of Total Exports

[9] Sarbapriya Ray also explained in her article 'Impact of Foreign Direct Investment on Economic Growth in India: A Co integration Analysis' about the Granger causality test for causal relationship between Log GDP and Log FDI in the building of forecasting models

Log FDI IN = Natural Log of Foreign Direct Investment inflow

Log CPI = Natural Log of Consumer Price Index

t-i is the lag of Log GDP which varies from 1 to i

t-j is the lag of Log Total Exports varies from 1 to j

t-k is the lag of Log FDI inflows varies from 1 to k

t-l is the lag of Log CPI inflows varies from 1 to l

U1t, U2t, U3t and U4t are error terms which are assume to be uncorrelated.

4.9.1 Unit Root Test for China

H_0: China's Log FDI Inflow, Log Total Exports and Log CPI are not stationary at first difference.

H_1: China's Log FDI Inflow, Log Total Exports and Log CPI are stationary at first difference.

Table 4.3.1: Unit Root Test results for China

China								
	ADF Statistics				PP Statistics			Conclusion
	LD	FD	SD		LD	FD	SD	
Log GDP	-0.7497	-1.8969	-4.3230*		-2.0961	-1.9428	-4.3034*	I (2)
Log FDI IN	-11.4980	-4.0893*			-11.4980	-9.5225*		I (1)
Log TEX	-1.8344	-4.8987*			-1.9069	-4.8987*		I (1)
Log CPI	-2.0943	-3.1444**			-3.2698**	-1.9959		I (1)

Note; ADF: Augmented Dickey Fuller Test; PP: Phillips-Perron Test; LD: Level Data; FD: First Difference Data; SD: Second Difference Data; I (1): integrated of order one; I (2): Integrated of order two; Test critical values obtained from Mackinnon (1996) for unit root are -3.73785*, -2.99188**, -2.63554 at 1%, 5% and 10% respectively.

Table 4.3.1 presents the unit root tests for China time series data. Lag lengths for ADF tests and PP tests are determined by the Schwartz Information Criterion (SIC). Both ADF and PP

test results suggest that all series contain a single unit root, which would require first differencing to achieve stationarity. Except Log GDP which contain a double unit root, it would require second differencing to achieve stationarity for China.

4.9.2 Johansen Cointegration Test for China

H0: There is no cointegration among China's Log GDP, Log TEX, Log FDI IN and Log CPI.

H1: There is cointegration among China's Log GDP, Log TEX, Log FDI IN and Log CPI.

Table 4.3.2: Results of Cointegrating Relations among Log GDP, Log TEX, Log FDI IN and Log CPI for China.

China's trace statistic for cointegrating rank						
Hypothesized rank	Eigen value	Trace Statistic	Likelihood ratio (LR)	5% critical value	1% critical value	Probability
None *	0.8717	125.3308	NA	47.8561	54.6815	0.0000
At most 1 *	0.8358	73.9887	219.5273	29.7971	35.4582	0.0000
At most 2 *	0.5112	28.8270	58.48498*	15.4947	19.9371	0.0003
At most 3 *	0.3543	10.9340	17.1893	3.8415	6.6349	0.0009

Trace test indicates 4 cointegrating equation(s) at the 0.05 level and 0.01 level.

* denotes rejection of the hypothesis at the 0.05 level and 0.01 level critical value.

**MacKinnon-Haug-Michelis (1999) p-values

LR: Sequential modified LR test statistics (each test at 5% level), * indicates lag order selected by the criterion.

China's maximum Eigen value statistic for cointegrating rank						
Hypothesized rank	Eigen value	Max-Eigen Statistics	Likelihood ratio (LR)	5% critical value	1% critical value	Probability**
None *	0.8717	51.3421	NA	27.5843	32.7153	0.0000
At most 1 *	0.8358	45.1616	219.5273	21.1316	25.8612	0.0000
At most 2 *	0.5112	17.8930	58.48498*	14.2646	18.5200	0.0128
At most 3 *	0.3543	10.9340	17.1893	3.8415	6.6349	0.0009

Max-eigenvalue test indicates 4 cointegrating equation(s) at the 0.05 level and 2 cointegrating equation(s) at the 0.01 level.

* denotes rejection of the hypothesis at the 0.05 level and 0.01 level critical value.

**MacKinnon-Haug-Michelis (1999) p-values

LR: Sequential modified LR test statistics (each test at 5% level), * indicates lag order selected by the criterion.

There is a probability of cointegrating vector, whose coefficient can explain long run equilibrium relationship for cointegration analysis. So that cointegration analysis has been applied to study the long run relationship among these variables. Firstly, Cointegration Trace statistic and Maximum-Eigen statistic have been employed to investigate the cointegration relationship. Table 4.3.2 shows of these test results, in which 4 cointegrating equations at 0.05 level. This cointegrating relationship represents the foundation of Granger causality test. Four alternative cointegrating equations the relationship among these variables.

4.9.3 Granger Causality Test for China

Table 4.3.3: China

VEC Granger Causality/Block Exogeneity Wald Tests
Date: 10/23/18 Time: 20:52
Sample: 1991 2017
Included observations: 25

Sub Table 1:
Dependent variable: D(LGDP)

Excluded	Chi-sq	df	Prob.
D(LTEX)	0.000115	1	0.9914
D(LFDI IN)	1.134762	1	0.2868
D(LCPI)	4.113662	1	0.0425
All	4.229515	3	0.2377

Sub Table 2:
Dependent variable: D(LTEX)

Excluded	Chi-sq	df	Prob.

D(LGDP)	0.072808	1	0.7873
D(LFDI IN)	4.963752	1	0.0259
D(LCPI)	2.768491	1	0.0961
All	6.772958	3	0.0795

Sub Table 3:
Dependent variable: D(LFDI IN)

Excluded	Chi-sq	df	Prob.
D(LGDP)	9.465416	1	0.0021
D(LTEX)	0.285314	1	0.5932
D(LCPI)	1.995991	1	0.1577
All	9.818028	3	0.0202

Sub Table 4:
Dependent variable: D(LCPI)

Excluded	Chi-sq	df	Prob.
D(LGDP)	6.896890	1	0.0086
D(LTEX)	0.192991	1	0.6604
D(LFDI IN)	2.237898	1	0.1347
All	16.18871	3	0.0010

In Table 4.3.3, the results of pairwise Granger causality among Log of GDP, Log of TEX, Log of FDI IN, Log of CPI are contained for China.

Sub Table 1 shows that only independent variable LCPI has Granger caused to significantly influence dependent variable LGDP, because its P-value is 4.25% which is less than 5%.

In Sub Table 2 shows independent variable only LFDI IN has Granger caused to significantly influence dependent variable LTEX because its P-value is less than 5% i.e. 2.59%.

Similarly, in sub table 3 only independent variable LGDP has Granger caused to significantly influenced dependent variable LFDI IN, because its P-value is 0.21%. Again, when combining of all these independent variables have also Granger caused to significantly influenced LFDI IN, because their combining P-value is 2.02% which is less than 5%.

At last in sub table 4 only independent variable LGDP has Granger caused to influence to dependent variable LCPI due to its P-value 0.86% and combine all independent variables have also Granger caused to influence LCPI due to its P-value 0.10% which is less than 5%.

4.10.1 Unit Root Test for India

H0: India's Log GDP, Log FDI IN, Log TEX and Log CPI are not stationary at first difference.

H1: India's Log GDP, Log FDI IN, Log TEX and Log CPI are stationary at first difference.

Table 4.4.1: Unit Root Test results for India

India						
	ADF Statistics			PP Statistics		Conclusion
	LD	FD		LD	FD	
Log GDP	1.1931	-3.8994*		1.0953	-3.8646*	I (1)
Log FDI IN	-4.3737	-4.1402*		-4.1882	-4.1402*	I (1)
Log TEX	-1.6904	-4.3418*		-1.6740	-4.3339*	I (1)
Log CPI	-0.5288	-5.0867*		-0.8690	-2.6117	I (1)

Note; ADF: Augmented Dickey Fuller Test; PP: Phillips-Perron Test; LD: Level Data; FD: First Difference Data; I (1): Integrated of order one; Test critical values obtained from Mackinnon (1996) for rejection of hypothesis for unit root are -3.73785*, -2.99188**, -2.63554 at 1%, 5% and 10% respectively.

Similarly, Table 4.4.1 presents unit root tests for India. Lag lengths for ADF tests and PP tests are determined by the Schwartz Information Criterion (SIC). Both ADF and PP test results found that all time series data contain a single unit root, which need first differencing to achieve stationarity.

4.10.2 Johansen Cointegration Test for India

H0: There is no cointegration among India's Log GDP, Log TEX, Log FDI IN and Log CPI.

H1: There is cointegration among India's Log GDP, Log TEX, Log FDI IN and Log CPI.

Table 4.4.2: Results of Cointegrating Relations between Log of GDP, Log of TEX, Log of FDI IN and Log of CPI for India.

India's trace statistic for cointegrating rank						
Hypothesized rank	Eigen value	Trace Statistic	Likelihood ratio (LR)	5% critical value	1% critical value	Probability**
None *	0.8094	74.1996	NA	47.8561	54.6815	0.0000
At most 1 *	0.5886	34.4159	200.5573	29.7971	35.4582	0.0137
At most 2	0.3997	13.0980	39.46101*	15.4947	19.9371	0.1113
At most 3	0.0348	0.8492	23.6880	3.8415	6.6349	0.3568

Trace test indicates 2 cointegrating equation(s) at the 0.05 level and 1 cointegrating equation(s) at the 0.01 level.

* denotes rejection of the hypothesis at the 0.05 level and 0.01 critical value.

**MacKinnon-Haug-Michelis (1999) p-values

LR: Sequential modified LR test statistics (each test at 5% level), * indicates lag order selected by the criterion.

India

Maximum Eigen value statistic for cointegrating rank						
Hypothesized rank	Eigen value	Max-Eigen Statistics	Likelihood ratio (LR)	5% critical value	1% critical value	Probability**
None *	0.8094	39.7837	NA	27.5843	32.7153	0.0009
At most 1 *	0.5886	21.3179	200.5573	21.1316	25.8612	0.0471
At most 2	0.3997	12.2488	39.46101*	14.2646	18.5200	0.1016
At most 3	0.0348	0.8492	23.6880	3.8415	6.6349	0.3568

Max-eigenvalue test indicates 2 cointegrating equation(s) at the 0.05 level and 1 cointegrating equation(s) at the 0.01 level.

* denotes rejection of the hypothesis at the 0.05 level and 0.01 level.

**MacKinnon-Haug-Michelis (1999) p-values

LR: Sequential modified LR test statistics (each test at 5% level), * indicates lag order selected by the criterion.

Cointegration analysis has been employed to determine the long run association among these variables. Firstly, Cointegration Trace test statistic and Maximum Eigenvalue test statistic have been applied to find out the existence of cointegration relationship. Table 4.4.2 exhibits these results showing the presence of two cointegrating equations at the 0.05 level, which represents the foundation of a Granger causality test. Two alternative cointegrating equations representing the associations among these variables under study have been found after accomplishing cointegration test. Therefor in these equations Log GDP appears as an independent variable.

4.10.3 Granger Causality Test for India:

Table 4.4.3 India

VEC Granger Causality/Block Exogeneity Wald Tests
Date: 10/23/18 Time: 21:10
Sample: 1991 2017
Included observations: 24

Sub Table 1:
Dependent variable: D(LGDP)

Excluded	Chi-sq	df	Prob.
D(LTEX)	0.654442	2	0.7209
D(LFDI IN)	2.196845	2	0.3334
D(LCPI)	3.840438	2	0.1466
All	5.451472	6	0.4873

Sub Table 2:
Dependent variable: D(LTEX)

Excluded	Chi-sq	df	Prob.
D(LGDP)	3.281600	2	0.1938
D(LFDI IN)	8.171375	2	0.0168
D(LCPI)	4.661044	2	0.0972
All	25.51056	6	0.0003

Sub Table 3:
Dependent variable: D(LFDI IN)

Excluded	Chi-sq	df	Prob.
D(LGDP)	2.154744	2	0.3405
D(LEX)	0.192090	2	0.9084
D(LCPI)	2.277342	2	0.3202
All	4.887483	6	0.5583

Sub Table 4:
Dependent variable: D(LCPI)

Excluded	Chi-sq	df	Prob.
D(LGDP)	16.35734	2	0.0003
D(LTEX)	17.13280	2	0.0002
D(LFDI IN)	2.647618	2	0.2661
All	24.58672	6	0.0004

In Table 4.4.3, the results of pairwise Granger causality among Log of GDP, Log of TEX, Log of FDI IN, Log of CPI are contained for India.

In sub table 1 no independent variables have Granger caused to influence dependent variable LGDP, because all of their P-value are greater than 5% at individually and combinelly.

In sub table 2 only independent variable LFDI IN has Granger caused to influence dependent variable LTEX, because its P-value is 1.68%. By combining of all these independent variables have also Granger caused to influence LTEX due to their P-value is 0.03% which is less than 5%.

In sub table 3 none of the independent variable i.e. LGDP, LTEX, and LCPI have Granger caused to significantly influence dependent variable LFDI IN both individually and combinelly because of their P-value is more than 5%.

At the end in sub table 4, two independent variables i.e. LGDP and LTEX have Granger caused to significantly influence LCPI individually due their P-value are less than 5%. Again, in combining of all these independent variables have also significantly influenced to LCPI, because of their P-value is 0.04% which is less than 5%.

CHAPTER V

5.1 Summary and Conclusion

Before 1980, China's and India's growth rates were relatively inactive. But since 1990 the world has witnessed rapid economic transformation and growth because of the market oriented and long-term economic reforms which led to increased living standards of the people worldwide. In the 21st century, both countries observed accelerated economic growth, which would build to both countries as major players in the global economic scenario. In recent times the economic development of both countries have depended on the diversified decisions taken by policy makers.

During 1970 to 1972 China's and India's constant price GDP were almost equal, then China's constant price GDP was increasing at higher rate than India's constant price GDP since 1973 to 1990. So that China's constant price GDP was larger than India since 1973 to 1990. Since 1991 to 2015 China's constant price GDP was increasing much faster rate than India's constant price GDP, due to higher exports of steel, toys, garments, FDI inflows into both skilled and unskilled labour intensive manufacturing products in China. During 2015 China's GDP was around 8.9 trillion USD and India GDP was around 2.3 trillion USD in which China was 3.8 times larger than India.

India's per capita constant price GDP was higher than China since 1970 to 1983. After that China's per capita constant price GDP was higher than India since 1984 to 1990, due to strong macroeconomic reforms towards FDI inflows, currency weakness, openness economy and focusing more towards manufacturing sector for both unskilled and skilled labour. During 1991 China per capita constant price GDP was 1.4 times larger than India, but afterwards China per capita constant price GDP had increased at a higher growth rate than India since 1991 to 2015. Similarly, during 2014 China per capita was 3.6 times larger than India, so that it was helped towards China lower middle-income group countries to upper middle-income group countries.

During the study period 2008 to 2017, China had faced merchandise trade surplus while India had faced merchandise trade deficit at current prices to world. On the other had during the same study period 2008 to 2017, China had faced services trade deficit while India had faced services trade

surplus to world. Study period showed that since 2008-09 to 2017-18, India's fourth largest exporting partner was China after USA, UAE and Hong Kong, whereas India's first largest importing partner was China.

Above research studies demonstrate that the labour market rigidities and distinctive policy approach, foreign investment has focused into China's unskilled labour intensive manufacturing sector. But foreign investment has focused on India's capital-intensive manufacturing sector such as telecommunications, pharmaceuticals, software and business process outsourcing (BPO). Surprisingly India's first growing exports of goods and services are either capital intensive or skilled labour products. When India is compared with China, it is absent for toys and vast majority of light manufacturer to the global market. Another way India is miniscule when compare with China for infrastructure i.e. roads, railways, airports, ports, etc. Indian industries have paid high prices for electricity because subsidize power at lower prices provide to households and its result is transmission and distribution (T&D) losses for Indian industries when compared with China. Its outcome directly affects to Indian manufacturing industries, so that they have gone to highly inefficient and costly for generating their own electricity.

Study period also shows that china's and India's merchandise exports and imports to percentage of total world since 2008 to 2017. It indicates that China's merchandise exports were varying within range from 8.86% to 13.76% against merchandise imports were varying range from 6.88% to 10.30% to percentage of total world. Similarly, India's merchandise exports were varying within range from 1.21% to 1.70% against merchandise imports were varying range from 1.95% to 2.63% to percentage of total World.

Due to both countries have emerging economy, most populous compare to the global population, large amount of GDP when compare with the world, their merchandise exports percentage and merchandise imports percentage to the total world had increased annually. Research study tends toward Chinese economy was a merchandise trade surplus economy so that its economy always gained inflows of foreign exchange reserves through merchandise trade, but Indian economy was a merchandise trade deficit economy, so it loosed foreign exchange reserves through merchandise

trade. During 2015, China's exports was 13.76% against imports was 10.06%, while India's exports was 1.62% against imports was 2.35%.

Research study shows that China's primary and manufactured goods exports with imports since 2008 to 2016. China's primary goods exports had expanded in absolute amount but its percentage share on total exports was fluctuated within range from 4.57% to 5.45%, similar case to its manufactured goods exports had expanded but its percentage share on total exports also was fluctuated range from 94.55% to 95.43% during this period.

Merchandise trade chapter shows that China's primary goods imports had expanded in absolute amount but its percentage share of total imports were varied within range from 27.78% to 34.92%, while manufactured goods imports were varied within range from 65.08% to 72.22%. During 2015, China's primary goods imports were 4,720.57 hundred million USD while its percentage share in total imports was 28.11%, accompanied by manufactured goods imports were 12,075.07 hundred million USD while its share in total was 71.89%.

India's commodities composition of merchandise exports had divided into petroleum and crude products, agricultural and allied commodities, ores and minerals, manufactured goods, and other commodities since the study period 2008-09 to 2017-18. Petroleum & crude products percentage share of total exports had varied within range from 11.44% to 20.24%. Similarly, agricultural & allied products share of total exports were varied within range from 9.59% to 13.64%. Another commodities composition ores and minerals were varied range from 0.77% to 4.86% on percentage share of total exports. Major commodities composition i.e. manufactured goods exports were varied within range from 60.62% to 74.29%, and other commodities were varied range from 0.87% to 7.41%.

In the same way, India's commodities composition of merchandise imports had divided into petroleum crude and products (POL), agricultural and allied Products, ores and minerals,

manufactured goods, and other commodities during 2008-09 to 2017-18. Petroleum crude & products (POL) imports percentage share of total imports was varied within range from 21.7% to 36.75%. Similarly, agricultural and allied products imports share of total imports were varied within range from 2.47% to 6.66%. Another composition ores and minerals imports share of total imports were varied within range from 5.42% to 6.75%. At the end manufactured goods imports share of total imports had varied within range from 51.4% to 64.06%, and other commodities imports share of total imports were varied within range from 1.08% to 3.96%.

Literature studies show that in recent years India has merchandise trade deficit with top five economies, these are China, Switzerland, Saudi Arabia, Iraq, and South Korea. Similarly, India has merchandise trade surplus with top economies, these are USA, UAE, UK, Bangladesh, and Nepal. India's highest merchandise trade deficit with China since last decade, its percentage share in total merchandise trade deficit with China expanded from 20.3% in 2012-13 to 47.08% in 2016-17 and 38.97% in 2017-18. The major items import from China are personal computers which includes laptop, telephone sets including mobiles, automatic data processing machines, other electronic devices, chemical fertilisers, etc. The major items export from India to China are copper, refined and copper alloys unwrought, PoL items, granite, aluminium ores, iron and ore, cotton yarn, vegetables. India's merchandise trade deficit with Switzerland is mainly for imports of gold. Similarly, India's merchandise trade deficit with Saudi Arabia and Iraq is mainly for imports of crude oil. Lastly India's merchandise trade deficit with South Korea is mainly for imports of electrical machinery & equipment and iron & steel.

During the study period 2007 to 2017 China's and India's services exports to percentage of total world were varied within range from 3.41% to 4.56% and 2.41% to 3.44% respectively. On the contrary above study period both China's and India's services imports share to percentage of total world were varied within range from 3.74% to 9.02% and 2.24% to 2.97% respectively. Similarly, China's and India's memo item: commercial services exports had fluctuated within range from 3.55% to 4.62% and 2.45% to 3.47% respectively. On the contrary both countries commercial services imports had varied within range from 3.82% to 9.42% and 2.29% to 3.08% respectively.

5.2 Findings of the Study

Multiple regression analysis result shows that there is an impact of FDI inflow, total (merchandise and services) trade as percentage of GDP, rate of inflation, real effective exchange rate on GDP growth for both China and India.

Breusch-Godfrey serial correlation LM test shows that residuals are not serially correlated which is desirable, due to its P value of 8.23% i.e. more than 5%, and observed R-squared is 1.414 for China GDP as dependent variable. Breusch-Pegan-Godfrey test for heteroskedasticity shows that residual of P value is 6.37%, which is more than 5%, and observed R-squared is 10.44 for China GDP as dependent variable, therefore residuals are homoscedasticity which is desirable. Histogram-Normality Test shows that residual of P value is 79.28% that is more than 5%, where Jarque-Bera statistic is 0.464 for GDP China as dependent variable, so that residuals are normally distributed which is desirable.

Breusch-Godfrey serial correlation LM test shows that residual of P value is 8.23% which is more than 5%, and observed R-squared is 4.994 for India GDP as dependent variable, so that residuals are not serially correlated which is desirable. Breusch-Pegan-Godfrey statistic for heteroskedasticity test shows that residual of P value is 5.86% which is more than 5%, and observed R-squared is 10.66 for India GDP as dependent variable, residuals are homoskedasticity which is desirable. Histogram-Normality test shows that residual of P value is 58.55% i.e. more than 5%, Jarque-Bera statistic is 1.07 for GDP India as dependent variable, so that residuals are normally distributed, which is desirable.

Both China's and India's constant price variables are measured through ADF statistics and PP statistics. China's log FDI inflow, log total exports, and log CPI are stationary at first difference, but its log GDP is stationary at second difference. Similarly, India's log GDP, log FDI inflow, log total exports, and log CPI are stationary at first difference.

Then China's log GDP, log FDI inflow, log total exports, and log CPI have indicated four cointegrating equations at the 0.05 level and 0.01 level critical value by Johansen cointegration test's trace statistic. Similarly, these variables have indicated four cointegrating equations at 0.05 level and two cointegrating equation at 0.01 level critical value by Johansen's cointegration test's maximum-Eigen statistic. On the other hand, India's log GDP, log total exports, log FDI inflow,

and log CPI have indicated two cointegrating equations at 0.05 level and one cointegrating equation at 0.01 level critical value by both Johansen's cointegration test's trace statistic and maximum-Eigen statistic.

After that China's independent variable log CPI has Granger caused to significantly influence dependent variable log GDP. Independent variable log FDI inflow has Granger caused to significantly influence dependent variable log total exports. Independent variable log GDP and combining of all these independent variables have Granger caused to significantly influenced dependent variable log FDI inflow. Similarly, log GDP and combining of all these independent variables have also Granger caused to significantly influence log CPI.

Again, India's independent variable log FDI inflow and combining of all these independent variables have Granger caused to influence dependent variable log total exports. Similarly, India's none of the independent variable log GDP, log total exports, and log CPI have Granger caused to influence dependent variable log FDI inflow both individually and combinelly. At the end India's two independent variables i.e. log GDP and log total exports have Granger caused to influence log CPI individually, and combining of all these independent variables have also Granger caused to significantly influence log CPI.

5.3 Policy Suggestion

- Indian government should focus on exports of unskilled labour intensive products, because of huge unskilled labour force are availabled in India, so that proper policies are required and made for labour force by the Indian government.
- Indian government should focus more on foreign direct investment (FDI) inflows, as it helps for bring up new and advanced technology, so they have indicated economic growth as well as high standard of living of people. Therefore, Indian government should do easing FDI policy.
- There is lack of communication facilities in India such as transports services, internet services, etc. So that Indian government should more focus towards proper communication facilities, that will help for economic growth through directly and indirectly. Therefore, our international trade will improve in agricultural sector, industrial sector, and service sector.
- India is very poor for management of natural resources and environment, when compare with China and world. There are numerous causes for these reasons such rapid increase in population, lack of understanding to precious environment and education, profit motive and capitalist view of industrialist, etc. So, our government should build appropriate environment policy for sustainable management of natural resources and environment.

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APPENDIX

Table 1: China Total Exports

China				
	US Dollars at constant prices (2010) in millions			
Year	Merchandise Exports	Service Exports	Total Exports	Log Total Exports
1991	156269.5	15166.3	171435.8	12.05196
1992	176746.1	19245.6	195991.7	12.18583
1993	172984.1	21104.5	194088.5	12.17607
1994	283570.8	38948.0	322518.9	12.68392
1995	297515.1	38254.8	335769.9	12.72418
1996	282057.2	38469.0	320526.2	12.67772
1997	334852.4	45007.4	379859.7	12.84756
1998	339165.3	44114.5	383279.8	12.85652
1999	364779.1	49118.5	413897.6	12.93337
2000	456927.7	55796.0	512723.8	13.14749
2001	477623.9	59831.8	537455.7	13.19460
2002	580021.8	70801.5	650823.2	13.38599
2003	759263.8	81014.8	840278.6	13.64149
2004	961898.4	105236.6	1067135.0	13.88049
2005	1171926.5	120689.3	1292615.8	14.07218
2006	1397797.1	135701.9	1533499.1	14.24306
2007	1561218.3	160532.9	1721751.3	14.35885
2008	1557144.7	158265.8	1715410.5	14.35516
2009	1285112.8	131256.1	1416368.8	14.16361
2010	1580000.0	178338.9	1758338.9	14.37988
2011	1677861.2	177541.6	1855402.7	14.43361
2012	1714425.0	168579.0	1883004.0	14.44838
2013	1772234.7	166001.5	1938236.2	14.47729
2014	1843350.0	172460.5	2015810.5	14.51653
2015	1794799.5	172601.6	1967401.1	14.49222
2016	1777332.7	177534.7	1954867.3	14.48583
2017	1914032.9	192885.9	2106918.8	14.56074

Table 2: China Total Imports

China				
	US Dollars at constant prices (2010) in millions			
Year	Merchandise Imports	Service Imports	Total Imports	Log Total Imports
1991	138625.9	8955.5	147581.4	11.90214
1992	167715.2	19630.6	187345.8	12.14071
1993	196015.5	22694.0	218709.5	12.29550
1994	270988.9	38195.8	309184.7	12.64169
1995	264118.1	50438.0	314556.1	12.65892
1996	259453.1	42173.8	301626.9	12.61695
1997	260472.7	51232.1	311704.8	12.64981
1998	259028.2	49241.3	308269.5	12.63873
1999	310243.1	59113.3	369356.4	12.81952
2000	412594.2	66064.1	478658.3	13.07874
2001	437157.5	70481.0	507638.5	13.13752
2002	525820.4	82885.7	608706.1	13.31909
2003	715138.5	95822.4	810961.0	13.60598
2004	909862.8	117894.7	1027757.6	13.84289
2005	1015044.8	129151.7	1144196.4	13.95021
2006	1141720.4	145463.6	1287184.0	14.06797
2007	1223529.4	165240.9	1388770.3	14.14393
2008	1230471.0	170302.6	1400773.6	14.15254
2009	1081636.6	156332.9	1237969.5	14.02898
2010	1400000.0	193401.4	1593401.4	14.28138
2011	1536567.6	218867.3	1755434.9	14.37823
2012	1522074.9	235252.6	1757327.5	14.37930
2013	1563736.5	265119.9	1828856.4	14.41920
2014	1541887.4	340672.6	1882560.0	14.44814
2015	1325940.9	343839.5	1669780.4	14.32820
2016	1345455.7	383063.6	1728519.3	14.36278
2017	1559213.5	395419.7	1954633.2	14.48571

Table 3: China Constant Price GDP (Base Year 2010) and Consumer Price Index (CPI)

China					
	GDP US Dollars at constant prices (2010) in millions			Consumer Price Index (Base Year 2010)	
YEAR	GDP	Log GDP		CPI	Log CPI
1991	903159.1	13.71365		41.88	3.73477
1992	1031408	13.84644		44.54	3.79638
1993	1174773	13.97659		51.05	3.93274
1994	1327494	14.09880		63.43	4.14992
1995	1473518	14.20316		74.08	4.30514
1996	1619397	14.29756		80.24	4.38500
1997	1768381	14.38557		82.47	4.41248
1998	1906315	14.46068		81.84	4.40472
1999	2053101	14.53486		80.69	4.39061
2000	2227615	14.61644		80.97	4.39408
2001	2412507	14.69618		81.55	4.40124
2002	2632045	14.78327		80.96	4.39390
2003	2895249	14.87858		81.87	4.40511
2004	3187669	14.97480		85.00	4.44264
2005	3551064	15.08276		86.51	4.46025
2006	4002049	15.20232		87.94	4.47661
2007	4570340	15.33510		92.17	4.52366
2008	5013663	15.42768		97.63	4.58122
2009	5484947	15.51752		96.92	4.57391
2010	6066351	15.61827		100.00	4.60517
2011	6642655	15.70902		105.55	4.65922
2012	7167424	15.78506		108.32	4.68508
2013	7726483	15.86016		111.16	4.71095
2014	8290517	15.93062		113.29	4.72999
2015	8862562	15.99735		114.92	4.74425
2016	9505298	16.06736		117.22	4.76406
2017	10161164	16.13408		119.09	4.77986

Table 4: India Total Exports

India				
	US Dollars at constant prices (2010) in millions			
Year	Merchandise Exports	Services Exports	Total Exports	Log Total Exports
1991	29416.0	8173.4	37589.4	10.53448
1992	34190.0	8594.9	42784.9	10.66394
1993	40400.6	9564.7	49965.4	10.81909
1994	43958.3	10607.8	54566.2	10.90717
1995	51038.5	11288.7	62327.2	11.04015
1996	56208.2	12289.9	68498.1	11.13456
1997	57192.1	14883.8	72075.9	11.18548
1998	57528.3	20114.5	77642.8	11.25987
1999	61663.9	25084.5	86748.5	11.37077
2000	73874.3	29085.0	102959.2	11.54209
2001	77029.1	30798.5	107827.7	11.58829
2002	86834.7	34342.8	121177.5	11.70501
2003	96203.8	38998.0	135201.8	11.81452
2004	111938.1	55905.7	167843.7	12.03079
2005	135819.9	71142.6	206962.5	12.24029
2006	160325.8	91397.9	251723.7	12.43609
2007	170556.3	98309.6	268865.9	12.50197
2008	214269.5	116636.9	330906.3	12.70959
2009	190255.7	107166.7	297422.4	12.60291
2010	226351.0	117068.0	343419.0	12.74671
2011	284828.9	130261.2	415090.2	12.93625
2012	296090.6	145163.5	441254.1	12.99738
2013	324331.3	153656.5	477987.7	13.07734
2014	335956.4	163656.9	499613.3	13.12159
2015	287546.5	168024.8	455571.3	13.02931
2016	287101.1	175882.9	462984.0	13.04545
2017	305310.4	187761.0	493071.4	13.10841

Table 5: India Total Imports

India				
	US Dollars at constant prices (2010) in millions			
Year	Merchandise Imports	Services Imports	Total Imports	Log Total Imports
1991	33931.3	9865.3	43796.6	10.68731
1992	41072.5	11732.2	52804.7	10.87436
1993	42679.5	12167.2	54846.7	10.91230
1994	47157.3	14405.4	61562.7	11.02781
1995	57831.8	17109.2	74941.0	11.22446
1996	64421.0	18966.9	83387.9	11.33126
1997	67686.5	20327.4	88013.9	11.38525
1998	73946.8	25015.9	98962.7	11.50250
1999	81222.1	29860.2	111082.3	11.61803
2000	89813.1	33447.9	123261.1	11.72206
2001	89519.4	35704.9	125224.4	11.73786
2002	99647.4	37095.1	136742.5	11.82585
2003	118385.0	40590.7	158975.8	11.97651
2004	145712.6	52050.0	197762.6	12.19482
2005	194793.9	82672.7	277466.5	12.53346
2006	234826.4	98941.9	333768.3	12.71820
2007	260527.2	103402.2	363929.3	12.80472
2008	353067.1	96731.3	449798.4	13.01655
2009	296734.2	92933.9	389668.1	12.87305
2010	350233.0	114927.6	465160.6	13.05014
2011	436744.9	117811.9	554556.8	13.22592
2012	488477.4	129595.8	618073.2	13.33436
2013	479414.8	130712.8	610127.7	13.32142
2014	481935.2	133637.7	615572.9	13.33031
2015	422396.1	132854.7	555250.7	13.22718
2016	392600.9	145137.0	537737.9	13.19513
2017	456188.9	157178.4	613367.3	13.32672

Table 6: India Constant Price GDP (Base Year 2010) and Consumer Price Index (CPI)

India					
	GDP US Dollars at constant prices (2010) in millions			Consumer Price Index (Base Year 2010)	
YEAR	GDP	Log GDP		CPI	Log CPI
1991	466098.2	13.05215		26.13	3.26316
1992	491362.6	13.10494		29.21	3.37460
1993	515709.4	13.15330		31.06	3.43594
1994	554200	13.22528		34.24	3.53351
1995	596572.8	13.29896		37.75	3.63086
1996	640687.3	13.37030		41.13	3.71683
1997	669378.4	13.41410		44.08	3.78602
1998	709456.6	13.47225		49.91	3.91028
1999	760031.2	13.54111		52.24	3.95592
2000	790663.6	13.58063		54.34	3.99523
2001	831911.7	13.63148		56.39	4.03233
2002	863247.8	13.66846		58.82	4.07440
2003	935509.3	13.74885		61.05	4.11175
2004	1013122	13.82855		63.35	4.14873
2005	1107189	13.91733		66.04	4.19032
2006	1209759	14.00593		69.87	4.24667
2007	1328332	14.09943		74.32	4.30845
2008	1380017	14.13761		80.53	4.38864
2009	1497039	14.21900		89.29	4.49194
2010	1650635	14.31667		100.00	4.60517
2011	1760210	14.38094		108.86	4.69005
2012	1856254	14.43407		119.00	4.77909
2013	1974796	14.49598		131.98	4.88262
2014	2123009	14.56834		140.36	4.94421
2015	2293063	14.64540		148.60	5.00128
2016	2456031	14.71406		155.95	5.04950
2017	2608305	14.77421		159.83	5.07411

Table 7: China and India Inward Flow FDI

	China Inward Flow FDI			India Inward Flow FDI	
	US Dollars at constant prices (2010) in millions			US Dollars at constant prices in millions on FDI Inflow	
Year	FDI IF	Log FDI IF		FDI IF	Log FDI IF
1991	9488.61	9.15785		124.46	4.82395
1992	22904.81	10.03910		438.97	6.08443
1993	51879.66	10.85668		996.36	6.90411
1994	79129.92	11.27885		1711.12	7.44491
1995	75029.74	11.22564		3584.19	8.18429
1996	77915.52	11.26338		4287.13	8.36337
1997	82905.30	11.32545		5912.29	8.68479
1998	83932.39	11.33777		4530.07	8.41849
1999	75449.38	11.23122		3748.24	8.22904
2000	74652.89	11.22060		6254.47	8.74105
2001	84141.40	11.34025		9730.81	9.18305
2002	93956.95	11.45059		9925.90	9.20290
2003	92701.02	11.43713		7050.26	8.86082
2004	98293.18	11.49571		8437.94	9.04049
2005	111364.49	11.62056		10391.78	9.24877
2006	104894.87	11.56071		26755.75	10.19450
2007	106880.75	11.57947		28793.37	10.26790
2008	117942.28	11.67795		51802.67	10.85520
2009	101738.09	11.53016		41110.91	10.62403
2010	114734.00	11.65037		27417.08	10.21892
2011	109489.27	11.60358		34030.77	10.43502
2012	101259.80	11.52544		24135.66	10.09145
2013	99366.23	11.50657		29048.82	10.27673
2014	101127.60	11.52414		36003.42	10.49137
2015	107057.92	11.58113		47376.17	10.76587
2016	113293.06	11.63773		48346.45	10.78615
2017	115279.81	11.65512		40736.33	10.61488

Table 8

China						
Year	Total (Merchandise +Services) Trade as Percentage of GDP			Rate of Inflation (Index Base 2010)		GDP Implicit Price Deflators (Index Numbers 2010 = 100)
	TTPGDP	Log TTPGDP				
1991	35.32	3.56452		3.56		46.02
1992	37.17	3.61541		6.35		48.06
1993	35.14	3.55930		14.61		53.04
1994	47.59	3.86254		24.26		42.67
1995	44.13	3.78724		16.79		50.01
1996	38.42	3.64855		8.31		53.55
1997	39.11	3.66631		2.79		54.59
1998	36.28	3.59118		-0.77		54.17
1999	38.15	3.64152		-1.40		53.44
2000	44.50	3.79558		0.35		54.54
2001	43.32	3.76861		0.72		55.71
2002	47.85	3.86815		-0.73		56.14
2003	57.03	4.04363		1.13		57.72
2004	65.72	4.18538		3.82		61.68
2005	68.62	4.22861		1.78		65.02
2006	70.48	4.25534		1.65		69.32
2007	68.06	4.22037		4.82		78.14
2008	62.15	4.12961		5.93		91.83
2009	48.39	3.87936		-0.73		93.38
2010	55.25	4.01189		3.18		100.00
2011	54.36	3.99560		5.55		113.24
2012	50.79	3.92770		2.62		119.57
2013	48.76	3.88682		2.62		124.70
2014	47.02	3.85062		1.92		127.07
2015	41.04	3.71454		1.44		126.67
2016	38.75	3.65715		2.00		118.02
2017	39.97	3.68816		1.59		118.25

Table 9

India						
Year	Total (Merchandise + Services) Trade as Percentage of GDP			Rate of Inflation (Index Base 2010)		GDP Implicit Price Deflators (Index Numbers 2010 = 100)
	TTPGDP	Log TTPGDP				
1991	17.46	2.85998		13.87023		60.26
1992	19.45	2.96805		11.78784		57.41
1993	20.32	3.01180		6.32688		53.39
1994	20.95	3.04234		10.24792		56.92
1995	23.01	3.13591		10.22488		60.01
1996	23.71	3.16576		8.97717		58.90
1997	23.92	3.17456		7.16425		61.21
1998	24.89	3.21459		13.23084		58.12
1999	26.03	3.25922		4.66982		57.84
2000	28.61	3.35381		4.00943		57.37
2001	28.01	3.33271		3.77930		56.29
2002	29.88	3.39712		4.29714		56.72
2003	31.45	3.44826		3.80587		61.29
2004	36.09	3.58594		3.76725		68.47
2005	43.75	3.77856		4.24634		73.34
2006	48.40	3.87945		5.79653		75.98
2007	47.64	3.86364		6.37289		88.04
2008	56.57	4.03552		8.34927		90.93
2009	45.90	3.82639		10.88234		86.68
2010	48.99	3.89153		11.98939		100.00
2011	55.09	4.00891		8.85840		106.35
2012	57.07	4.04424		9.31237		100.25
2013	55.10	4.00915		10.90771		97.08
2014	52.53	3.96136		6.35315		96.05
2015	44.08	3.78605		5.87247		93.01
2016	40.75	3.70735		4.94103		92.00
2017	42.42	3.74762		2.49088		97.99

Trade Scenario Between China and India

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