INDIA - LATIN AMERICA TRADE RELATIONS:

A STUDY OF MAJOR TRADE PARTNERS

Thesis Submitted to Goa University for

the Award of the Degree of

Doctor of Philosophy in Economics

By

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Taleigao, Goa

June - 2015

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DEDICATED TO

AABHA & AAYEE

CERTIFICATE

This is to certify that **Ms. Rohita Damodar Deshprabhu** has worked on the thesis entitled **'India – Latin America Trade Relations: A Study of Major Trade Partners'** under my supervision and guidance. This thesis being submitted to Goa University, Taleigao Plateau, Goa, for award of the degree of Doctor of Philosophy in Economics is a record of an original work carried out by the candidate herself and has not been submitted for the award of any degree, diploma, a scholarship or fellowship of this or any other University.

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DECLARATION

I declare that the present thesis entitled **'India – Latin America Trade Relations: A Study of Major Trade Partners'** is a consolidation of an original work which has been carried out by me under the guidance of **Dr. P. K. Sudarsan** at the Department of Economics, Goa University, and that the same has not been submitted to any other University or Institution for the award of any other degree, diploma or other such title.

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CHAPTER – I

INTRODUCTION

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INTRODUCTION

1.1 Statement of the Research Problem

The present study is an endeavor to comprehend the economic effect of Regional Trade Agreement on individuals and non–individuals and how it influences the multilateral transactions and trade flow. In this context, the study investigates the role of MERCOSUR in the development/growth and composition of international trade, and to observe the trade creation/diversion impacts if any. The study concentrates on MERCOSUR as India consented to a Preferential Trade Arrangement with MERCOSUR which came into effect from 1st June 2009. The principal research issue floats around the investigation of the effect of India – MERCOSUR PTA on India's trade pattern.

The study aims to take a look at the pattern of revealed comparative advantage using the Balassa (1965) index for export and import data. The index has been computed at the sector and commodity level of the Harmonized System of classification. The study analyses whether the increased trade integration of China in the course of recent years is liable to have added to a shift in comparative advantage in the world market. This improvement is apropos to India, as China and India are comparative in size as well as in factor endowments. It is vital in this way, to investigate the degree of similarity in the patterns of comparative advantage for the two economies and its implications on India – Latin America trade. The study makes a systematic evaluation of whether there is trade creation or trade diversion between India and MERCOSUR PTA.

1.2 Background of the Study

Going back to the history, the Portuguese mariers of the l5th century can be ascribed with the ‘discovery’ of Latin America in their hunt of an ocean course to India in the absence and non-availability of the land route. It was the Iberian ocean explorers and seafarers who first brought India and Latin America together. The interaction and connection resulting from trade guaranteed an exchange of numerous products and thoughts in the accompanying hundreds of years. Indeed, a portion of the generally used fruits and vegetables grown in either locale owe their origins to the other. While rice, pepper, cinnamon and sugarcane were conveyed from India, pineapples, chillies, tapioca and so on came to India from Latin America.

An action plan, the Focus LAC was announced by the Government of India in 1997, with the express motive of revitalizing India-Latin America trade and economic relations. This venture enhanced the trade relationships between the two countries. Hundreds of companies from India invested approximately US 12 billion dollars in Latin America in various fields pertaining to agriculture, automobiles, cosmetics, energy, mining, etc. On the other hand Latin American countries too reciprocated by investment of approximately US one billion dollars in automobile parts, electronics, multiplexes, steel, etc.

1.3 Regional Trade Agreements

One of the major developments in the international economy in the last two decades of the twentieth century and early twenty-first century has been the growth of the formation and implementation of regional trade agreements. The early 1990s especially experienced a dramatic growth in the number of regional trade agreements that were established or under negotiation (WTO 2007). As reported by the World

Trade Organization (WTO), 130 RTAs were notified to them after January 1995. The total number of RTA's notified in the World as on 6th November 2014 is 391, with India having 15 RTA's and Latin America having 158 RTA's (WTO 2014) as compared to only forty RTAs in 1990 (Crawford and Laird 2001).

As more than one third of world trade is now carried out within regional trade agreements (Ghosh and Yamarik, 2004), the recent growth in the number of established RTAs and the strengthened implementation of their regional cooperation policies will become a more significant factor in stimulating the development of world trade and economies.

Usually RTAs are formed by more than two countries. When two countries decide to give each other free entry into their markets, it is called a bilateral free trade agreement. These began to proliferate from the 1990s. After 1990, more countries wished to develop bilateral trade and investment relationships, as a result many bilateral RTAs were concluded. For example, at the beginning of the twenty-first century, Japan signed a bilateral FTA with Singapore whilst Australia has become a bilateral trade partner with both Thailand and Singapore.

The phenomenon of the 'spaghetti bowl' came into existence as more RTAs were implemented, as pointed out by Bhagwati (1992). For instance, nowadays, most of the WTO members have participated in one or more RTAs (WTO 2007), which means those RTAs intersect each other. To outline the extent of this phenomenon, member countries of EU and European Free Trade Agreement (EFTA) are involved in more than 19 RTAs whilst South American countries like Brazil, Colombia, Venezuela, Chile and a number of countries from Central America are each involved in eight to eighteen RTAs (Crawford and Laird 2001).

Now RTAs include wider network of participants because of two factors. First the geographic restrictions have been relaxed. From the 1950s to the 1960s, it was common practice for countries within the same region to form RTAs. However, newly formed RTAs are not limited to geographical locations as earlier RTAs such as the EU used to be. More and more countries from various continents, especially Europe, America, Australia and Asia are beginning to form RTAs across continental boundaries. Another interesting aspect is that RTAs are no longer formed among solely developed or developing countries. Countries at different levels of economic development are willing to form RTAs according to their needs. For instance, NAFTA incorporates two developed countries – the United States and Canada and one developing country – Mexico.

Regional trade agreements not only involve free trade progress in commodity trade, but also have other aims, including free flow of inputs factors, free trade in services, facilitation of foreign direct investment, common currency policy and even some particular economic or political policies.

1.4 India-Latin America Trade Relations

Preferential Trade Agreements (PTAs) have been signed between India and some of the larger countries of the region like Colombia, Chile, Brazil and Venezuela. Joint Working Groups have been set up to explore bilateral mechanisms to improve the economic and trade linkages with Mexico, Brazil and Colombia. Major capital cities are the targets of various Indian banks who intend to open up their branches in the region. India's relation with Mexico has reached a stage of meaningful financial collaboration and a mature international partnership. The focus is on strengthening bilateral economic cooperation in agricultural development, food production,

industry, energy, science and technology, communication, tourism and financial cooperation. The commodity trade exchange is also a part of economic co-operation.

1.5 India – MERCOSUR Trade Relations

MERCOSUR (Southern Common Market) is an economic and political agreement among Argentina, Brazil, Paraguay, Uruguay, and Venezuela with Bolivia becoming an accessing member on 7 December 2012. PTA was signed between India and Latin America on January 25, 2004. India-MERCOSUR PTA came into effect from 1st June, 2009. India-Argentina relations are multifaceted and it encompasses different aspects like political, trade, cultural and cooperation in science and technology. Areas in which such technological collaboration have occurred incorporate joint ventures in sugar refining, consumable liquor, chemicals utilized as a part of textile industry, telecom sector, shipping containers, in all of which Argentine organizations/companies will work together with organizations/companies in India. Additionally, some Indian organizations have set up endeavors in Argentina for assembling and sale of bikes and production of reactive colour dyes for cotton and silk yarns.

The third ranking Latin American nation with which India is progressively moving closer on bilateral terms is Brazil. Persuaded of their parallel encounters in appreciation of economic advancement, the two nations have been making efforts for some time to build two-way relations. Concerning activities as far as swearing off relations with India, it might be said Venezuela is prepared to be the best business accomplice of India. Despite the fact that India is an expansive producer of oil, yet it is additionally a substantial buyer since 1994. Venezuela has been supplying fuel for an era in India. In the domain of trade, India has great business potential outcomes

with Venezuela in products such as pharmaceuticals, vehicles parts and materials. Indian industrialists ought to need to come to Venezuela and find for themselves the conceivable outcomes for joint endeavors. Truth be told, it is the enthusiastic ventures of individuals, for example, Vasco da Gama and Christopher Columbus whose endeavors made conceivable the Indian mango to turn into the national product of Venezuela pretty much as the European potato turned into a prominent dish in India.

Trade between India and Uruguay is ideal to India, though restricted. Nonetheless, since 1992 trade between the two nations has benefitted both the economies. Our fundamental exports to Uruguay are chemicals, materials, metal items, electrical material and some vehicle parts. Indian bikes, particularly Hero Puch, Kinetic, Bajaj and TATA vehicles are broadly acknowledged in the Uruguayan market. There is a Free Trade Zone in Uruguay where Tata Consultancy Services (TCS) have opened their branch. Our fundamental imports from Uruguay are materials, wool, cowhide and plastic materials.

Reduction of trade boundaries generates a potential for innovation and leads to rebuilding of an economy toward its comparative advantage. India has embraced a progression of financial changes towards opening up of the economy in the decade of the nineties. Remarkable among these has been the broad push to change its global trade. It is thus expected that trade liberalization in India would have prompted changes in the structure of exports in order to mirror India's comparative advantage in the worldwide economy.

1.6 Objectives of the Study

Latin America as a region has been treated with benign indifference and well-intentioned neglect but there have been certain developments from the India side vis-

à-vis certain countries of the region. Yet, the significant linkages between India and Latin America are minimal in scope. Against this backdrop, this study attempts to identify the current efforts being made to re-vitalize the relationship with the region with new, mature and achievable goals and its impact on the trade and economic relations with Latin America. This broad objective in turn leads to the following specific objectives:

1. To understand the economic and trade profile of Latin America with special reference to MERCOSUR.

2. To identify the complementary sectors and commodities which have been focused on the India – MERCOSUR PTA (Preferential Trade Agreement).

3. To measure the extent of trade creation/diversion in the MERCOSUR Preferential Trade Agreement.

4. To measure the trade potential between India and Latin America using the Gravity Model framework and to identify the major MERCOSUR countries for potential trade in future.

5. To study the structural changes in the commodity trade of China and India in Latin America and the World.

1.7 Significance of the Study

The study essentially investigates the chances of advancement of trade flows between India and Latin America in one another's regions. Latin America, which is esteemed for materials, autos and pharmaceuticals while, India is known for its specialization in IT, could effectively use their assets to enhance the economic conditions in both the countries. India consented to Preferential Trade Arrangement (PTA) with

MERCOSUR to enhance reciprocal trade relations. The Focus LAC Program expects to concentrate on the accompanying significant item amasses for upgrading India's exports to Latin America (i) Textiles including instant pieces of floor coverings & crafted works, (ii) Engineering items including vehicles, electrical machines and PC programming, (iii) Chemical items including agrochemicals, medications and pharmaceuticals.

India imports expansive amounts of metalliferous metals & metal scrap, non-ferrous metals, other crude minerals, chemicals and plastic materials from Latin American nations. There is a potential for further expanding imports of these items from Latin America. Since Latin America is rich in the natural assets that are deficient in India, with a populace of 1.1 billion, there is potential for 'enormous respective trade'.

The trade between India and Latin American Countries (LAC) is considerably less when contrasted with trade between LAC and China. China's trade with Latin America has been increasing, with its 2013 trade reaching 128.67 US billion dollars. While, India's trade increased to 13.13 US billion dollars (UNCTAD database). Latin America has turned into a rearing ground for trade and speculations over the globe owing to a few elements like opening up of economy, decrease of duty/non-levy boundaries, privatization and liberalization of money related markets. A few regional agreements, for example, MERCOSUR, ANDEAN PACT, CARICOM, and so forth have been structured to empower trade. All these agreements contribute in improving trade relations with Latin America. Trade relations between India and Latin America have enhanced through the years. Latin American exporters are centered around the huge and developing business of India. Nonetheless, India generates only one percent of LAC's trade, contrasted to China's 10 percent trade with Latin America. A few

Latin American Countries and authorities of the Government of India are discovering methods for expanding trade. With a combined GDP of three trillion USD, Latin America is a huge destination for Indian industry. In any case, both China and India are becoming progressively vital sources of development aid in Latin America. Since China and India are not just similar in size but also with respect to factor endowments, it is therefore important to explore the structure of comparative advantage of India and China and the degree to which the two economies compete with each other in the global market as well as in Latin America.

1.8 Methodology

Data

The main source of data collection for the study is the secondary data. Statistical data relating to the study is collected from publications of various institutions including International Trade Statistics published by World Trade Organisation (WTO), World Development Indicators (WDI), World Development Report (World Bank), Handbook of Statistics, RBI and UNCTAD Statistical Yearbook.

UNCTAD is the database from which the data for exports and imports has been derived. World Development Indicators (WDI) database is the source for all the details pertaining to GDP and population of the respective countries. From Jon Haveman's database the variables with regards to the gravity model like contiguous border, common (similar) language and distance in kilometers are extracted. Data for Latin American countries are collected from Directorate General of Commercial Intelligence and Statistics, International Trade Statistics database, UNCTAD and World Bank. Data for India is collected from the WTO statistical database,

UNCTAD, D.G.C.I. & S. Kolkata, RBI and Ministry of Commerce, Government of India.

Methods of Data Analysis

To analyze the data, the following methods are used:

(i) Trade Intensity Index (TII), (ii) Intra-Regional Trade Intensity Index, (iii) Revealed Comparative Advantage (RCA) Index, (iv) Gravity Model, (v) Trade Potential Analysis, (vi) Spearman's Rank Correlation and (vii) Factor Intensity Analysis.

Trade Intensity Index enables the assessment of the trade value in a bilateral context of the two countries with respect to the value of the trade whether increased or decreased. The study used the Intra-Regional Trade Intensity Index developed by Kawai (2004), to explain the significance of intra-regional trade of a RTA to the Global trade. If the index shows more than one then it is indicative of a healthy flourishing trade.

If the value of the Revealed Comparative Advantage (RCA_{ij}) is one and more than one, then the country is said to have a comparative advantage in that respective product and vice-versa. The study is based on export and import data on 17 sectors and the entire data are sourced from International Trade Statistics and cover a period from 1990 to 2013. The Product level RCA indices have been calculated for 255 commodities/products using the data provided by UNCTAD using the statistical database of the Harmonised system (HS – 1996) classification for the years 2007 – 2013.

The Gravity Model enables the estimation of varied factors to measure the level of trade between the two countries. It takes into consideration factors like the size of the population, the land masses of the two countries and the distance between both the

two together with the GDP. The Gravity Model has its origins with Tinbergen (1962) and as stated by Leamer & Levinsohn (1995), "Gravity Model provides some of the clearest and most robust findings in empirical economics".

The relationship between India and 20 countries of Latin America is considered for the study. Each country has got bilateral trade pair with other 20 countries for a span of 18 years. The study used the dataset of 420 bilateral country pair (panel) with 7560 observations for 18 years. The data is related to the period from 1995 to 2012. Three variations of the Basic Gravity Model, the Augmented Gravity Model and the Extended Gravity Model are used in the study. The analysis is extended to random effect panel data analysis. The coefficients of the Gravity Model, helps to study the Indian and MERCOSUR trade.

The Spearman Rank Correlation (SRC) coefficient is indicative of values ranging between +1 and -1. A strong positive rank is apparent if the value is close to +1 and it is a negative correlation rank if it is closer to -1. Further, a zero value indicates a complete lack of correlation. This method has been utilised to analyse drastic transformation in the structure during 2007 and 2013 in India's and China's individual sectors and commodities.

1.9 Outline of the Study

The entire study is divided into seven chapters. The **'Introduction'** chapter provides the broad framework and design of the study. In this chapter, the research topic is introduced and the research problem is delineated to be investigated in the study. It is followed by the objectives of the study, significance of the research problem, methodology used in the study, chapter scheme and limitations of the study.

The theoretical evolution and empirical advancements in the field of economic regional integration is systematically reviewed in the second chapter titled **'Review of Literature'**. The objective of the chapter is to identify the research gap that exists in the literature and to refine methodological and measurement problems based on the experiences of previous studies. This also helps in identifying pertinent research problem in the area and defines it in simple, clear and plausible manner for a systematic enquiry.

The economic structure and trade performance of Latin America and India is highlighted in the third chapter of the study titled '**Economic and Trade Profile of India and Latin America'**. The objective of the chapter is to provide an overview of the Latin American Countries with special reference to MERCOSUR and India and to understand the inherent strength and weaknesses, level of development and relative performance of the economy and trade and to see the compatibility of forming an economic cooperation agreement.

The fourth chapter titled as **'Trade Complementarity between Latin America and India'** form the analytical part of the study. The objective of the chapter is to measure the intensity and comparative advantage using trade indices which are constructed for sectors and products groups between India and Latin America. Three indices namely Intra–Regional Trade Intensity Index, Trade Intensity Index (Export Intensity Index and Import Intensity Index) and Revealed Comparative Advantage (RCA) Index were constructed for the analysis.

'Trade Creation and Trade Potential between India and MERCOSUR: A Gravity Model Analysis' is the title of the fifth chapter. The Gravity Model framework is the yard stick used to measure the creation and diversion in trade

together, as well as to measure the potentials of trade between India and MERCOSUR. The study used the Random Effects (RE) model for estimating the Gravity model. The chapter describes in detail the methodology employed in the study.

The sixth chapter is titled as **'The Changing Trade between India and Latin America: China's Role'** explores the direction of trade specialization pattern of China and India in Latin America. In the commodity sector, an analysis is made of the dynamic transformations as far as structural changes in 2007 and 2013 are concerned. This analysis was done for India and China by utilizing the Spearman Rank Correlation (SRC). The analysis takes into consideration the dynamic and static advantages of India and China together as well as individually.

The seventh chapter titled **'Summary of Findings, Conclusion and Suggestions'** summarizes major findings of the study with a conclusion.

1.10 Limitations of the Study

The study mainly relies on the panel data using the Gravity Model framework of analysis only for 18 years i.e. from 1995 – 2012 as per the data available from UNCTAD database. The study considered the six members of MERCOSUR i.e. Argentina, Bolivia, Brazil, Paraguay, Uruguay and Venezuela. The analysis does not include the new members who have joined at later periods due to lack of complete information. The study did not look into the impact of India's Preferential Trade Agreement with individual countries of the 'India-MERCOSUR PTA' on Indo-Latin trade, rather the study focused only on the India-MERCOSUR Preferential Trade Agreement.

CHAPTER – II

REVIEW OF LITERATURE

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REVIEW OF LITERATURE

2.1 Introduction

Economics as an organized science can be said to have originated with the publication in 1776 of The Wealth of Nations by Adam Smith. Writings on international trade preceded this date in countries such as England, Spain, France, Portugal, and the Netherlands as they developed into modern national states. Specifically, during the 17^{th} and 18^{th} centuries a group of men (merchants, bankers, government officials, and even philosophers) wrote essays and pamphlets on international trade that advocated an economic philosophy known as mercantilism. The mercantilist maintained that the way for a nation to become rich and powerful was to export more than it imported. The resulting export surplus would then be settled by an inflow of bullion, or precious metals, primarily gold and silver. The more gold and silver a nation had the richer and more powerful it was (Dominick Salvatore, 2004).

The systematic study of trade emerged in the mercantilist era as a crude set of arguments about how a nation should conduct its trade. It was felt that each nation's self interest was served by encouraging its exports to other countries and discouraging its imports from them. The mercantilist view began to yield, after the late 18^{th} century, to a free-trade view, arguing that a nation's self-interest and the world interest would both be served best by just letting people trade as they saw fit. The main hypothesis continued to be one about how trade should be conducted. No country can survive in isolation. For quick economic growth and to satisfy the needs of the public, every country has to export and import certain goods. Foreign trade has now become an

essential ingredient of the normal economic life of any country. In terms of economic development foreign trade is a potentially effective engine of growth.

International trade is the exchange of goods and services across international boundaries. In most countries, it represents a significant share of GDP. While international trade has been present throughout much of history, its economic, social, and political importance has been on the rise in recent centuries. Industrialization, advanced transportation, globalization, multinational corporations, and outsourcing are all having a major impact. Increasing international trade is the usually primary meaning of 'globalization'.

2.1.1 Brief Review of Theories on International Trade

Economists have propounded some theories to explain the factors prompting or necessitating trade between countries. The important theories are: (i) Theory of Comparative Advantage, (ii) The Classical Theory of Comparative Costs, and (iii) The Heckscher-Ohlin Theory. Besides these theories, there are group theories known as the New Trade Theories.

The Theory of Comparative Advantage states that a country will export those commodities in the production of which it has the greatest relative advantage over other countries. The advantage could be, by reason of exclusive natural resources, on account of which no other country can produce that particular commodity. The theory was proposed by the economist David Ricardo in the year 1817. The theory propounded by Professor Gottfried Haberler in the year 1936 was applied as a substitute for the doctrine of Comparative Cost, in terms of real cost. **The Classical Theory of Comparative Costs** states that International division of labour enables every country to specialize and to export those things that it can produce cheaper in

exchange for what others can provide at a lower cost which thus results in international trade. The Classical Theory of Comparative Costs demonstrated that the basis of foreign trade was the comparative cost differences. However, it did not explain the causes of such comparative cost differences.

The Heckscher-Ohlin Theory explains the reasons of comparative cost differences between the two nations with respect to two commodities. In nutshell, this theory states that a country will specialize in the production and export of the goods whose production requires a relatively large amount of the factor with which the country is relatively well-endowed. The theory was proposed by the economists Eli Heckscher and Bertil Ohlin in the year 1930. Their theorem states that, countries which are rich in labour, will export labour- intensive goods and countries, which have plenty of capital, will export capital- intensive products (E. Hecksher and B.Ohlin, 1930).

Several alternative trade models presented below focuses on an attribute of production in an industry or group of industries that makes them unlike the simple models assumed by the Ricardian and Heckscher Ohlin models. The theories are: (i) The Product Cycle, (ii) Intra-firm Trade, (iii) Intra-industry Trade, (iv) New Trade Theory, and (v) New Economic Geography.

The Product Cycle model of trade was developed by Raymond Vernon. He pointed out that many manufactured products, such as automobiles go through a product cycle in which the inputs change over time. Initially, when these goods are brand new, there is a great deal of experimentation in both the characteristics of the final product and its manufacturing process. As manufacturing processes become standardized, they can be performed by relatively unskilled labour. In effect, the blend of inputs changes over time, from highly skilled scientific, engineering, and marketing elements to basic

unskilled and semiskilled labour. Consequently, the opportunity cost of production in developing countries becomes lower than the cost in high-income countries. Advances in transportation and communication have played an important part in the development of a product cycle.

A significant share of world trade is international trade between a parent company and a foreign-owned affiliate, called **Intra-firm Trade**. When a firm spreads its production across international boundaries, it can take advantage of differences in the price of inputs. Firms may locate in a foreign market to deter entry by competitors, to use low production costs for one product line to subsidize production of another product line (cross subsidization), to subsidize one regions customers by another's, of to escape taxation. Firms share their production globally in order to take advantage of factor price differences across international boundaries.

Much of the world's trade is the export and import of the same good, or intra-industry trade (i.e. trade within the same industry). **Intra-industry Trade** is the exchange of similar items, implying similar relative factor endowments. Both trading industries have opportunities to expand their exports, although the total number of firms may ultimately decline. Furthermore, intra-industry trade is greatest between advanced industrial economies, where differences in factor endowments are least.

Paul Krugman (1979) the profounder of the **New Trade Theory** (NTT) received a Nobel Prize for his work. The new model showed that trade between countries with similar but not identical capital/labour endowment ratios would involve export of manufactures by the relatively capital-abundant nation and of the agricultural product by the more labour-abundant one. As long as factor endowments are not too diverse, and in the absence of transport costs, everyone benefits from trade. In this framework,

firms can earn oligopoly profits (unlike monopolistic competition, in which profits are competed away by free entry) and a government can use import tariffs and export subsidies to tilt the competitive struggle between home and foreign firms in favour of the former, so that a larger share of profits accrues to home nationals.

New Economic Geography (NEG) by Krugman (1991) was a natural outgrowth of New Trade Theory. New Trade Theory had also recognized in passing that higher wages would attract migrants, and shown that in the presence of transport costs, larger countries have higher wages, and more firms want to be located there due to the home market effect. He assumed that inter-regional trade in manufactured goods involves transport costs, and that industrial worker, but not farmers, can move from one region to another. At high levels of transport costs the dispersion force is stronger, maintaining a symmetric distribution of manufacturing activity in both regions as the only locally stable equilibrium, with workers having no incentive to migrate. At lower transport costs, outcomes with all industry become stable equilibria, coexisting with the symmetric one.

2.2 Theoretical Developments in Regionalism

'Regionalism v/s. Multilateralism' is a much discussed topic among trade economists, 'Regionalism' is defined as any policy designed to reduce trade barriers between a subset of countries regardless of whether those countries are actually contiguous or even close to each other. Whereas, Multilateralism is referred to as a process whereby, the countries solve problems in an interactive and cooperative fashion.

Regionalism as an alternative to multilateralism emerged mainly from the failure of the world trading system to provide a quick and acceptable solution to the problems it encounters during its existence. The economic outcome of multilateralism and

regionalism attracted huge interest among economists and number of studies were carried out to identify the determinants of world trade. But these studies could not decisively resolve the regionalism versus multilateralism debate with their empirical findings and the economists are divided between multilateralist and regionalist ideology. In this context an alternative view emerged known as 'open regionalism', which considered regionalism and multilateralism as complementarities and both can coexist and help each other in their pursuit. The growing participation of developing countries in WTO, as well as the boom of free trade agreements that grant exclusive preferences to its members, are both closely related to what has been widely denominated as 'new regionalism'. There is a connection between 'new regionalism' and a process of 'deep integration' since it transcends free trade issues.

2.2.1 Developments in Regionalism

Trade theorists have made strong theoretical expositions on the likely impact of regionalism on the international trade flows of products. The earliest work on the theory regional integration was presented by Viner (1950) in his seminal work 'The Customs Union Issue' in 1950. He demonstrated that the welfare of the members need not necessarily be improved by the preferential trade. However, it could reduce the trade by diverting it from a low cost country to a high cost country. To explain the economic outcome of regional integration, Viner used two concepts- 'Trade creation' and 'Trade diversion'. Viner explained that PTAs liberalise trade preferentially, by 'creating' new trade between union members and by 'diverting' from a low cost supplier to a high cost union supplier. The 'trade creation' is beneficial due to the replacement of the home country's less efficient industry and hence the consumers can avail the same commodity at a lower price. The 'trade diversion' effect arises when a more efficient outside supplier is displaced by a union member who takes an

advantage of the tariff preference. However, by shifting the intra-union terms of trade in its favour, an individual member country can benefit from a trade diverting union.

In his book 'The Theory of Customs Union', Meade (1955) outlined the modern static theory of regional integration arrangements. His model is an enhancement over Viners, as he disregarded the Vinerian assumption of constant costs of production in trading countries. He recognized the necessity of ensuring equilibrium in international payments balances. The focus of his analysis lay on the economic welfare of the world economy, rather than the countries forming a regional integration arrangement.

Lipsey (1960) explored the welfare effect of customs union. According to him, the concepts of trade creation as 'good' and trade diversion as 'bad' are no longer valid as he delineated production and consumption effect of the customs unions. His model depicts that the formation of a customs union may lead to an increase in welfare.

Through the Domino theory of Regionalism, Baldwin (1993) explained why countries prefer regional integration rather than multilateral liberalization. The Juggernaut theory of Baldwin (2005) suggests that liberalisation leads to further liberalisation, and once the process sets in, it is difficult or impossible to stop it. As an interaction between the domino theory and juggernaut theory, he suggests that in most cases regional trade blocs are building blocs toward free trade.

According to Zissimos (2002), optimal tariffs are higher in the absence of free trade agreements with regional partners rather than countries outside the region. Caldentey and Ali (2006) presented a two country model that of a leader and a follower. The model portrays the differences and growth disparities among countries. The hypothesis of 'natural-trading partners' enunciated by [Wonnacott and Lutz (1989) and espoused by Summers (1991) and Krugman (1993)] portrays that the increase in

trade between two countries relative to the outside world, there are less chances that the union between them would be harmful. Bhagavati and Panagaria (1996) and Schiff (1996) argues that the economic gains from forming a trade block are likely to be smaller and the tariff revenue loss will be substantial.

Wonnacott and Wonnacot (1981, 1992) explained the formation of regional trade agreements using the concepts of foreign trade barriers and transport costs. There is an exchange of preferences between the home country and the partner country in order to protect the greater savings from the high cost of transport of goods, associated with the home country's exports to the non-member country. But Panagaria (1997) criticizes this argument with the view that transport costs are no different than any other costs and hence deserve no special attention in considering PTAs. Bhagavati and Panagaria (1996) show that in general though there is an assumption about trade being better with proximate partners than trade with distant partners. However, this assumption is false (India-Pakistan versus India-U.S. relationship).

2.2.2 Development of Regional Trade Agreements

One of the major developments in the international economy in the last two decades of the twentieth century and early twenty-first century has been the growth of the formation and implementation of regional trade agreements. The early 1990s especially experienced a dramatic growth in the number of regional trade agreements that were established or under negotiation (WTO, 2007). As reported by the World Trade Organization (WTO), 130 RTAs were notified to them after January 1995. This phenomenon is believed to be stimulated partly by the United States, who began regional cooperation with Canada in their bilateral Free Trade Agreement (FTA), and trilateral North American Free Trade Agreement (NAFTA) with Mexico. The further

integration of the European Union (EU) and its success represents a good example for other countries in realizing huge benefits from integrating with other countries in their region (Siggel, 2005).

As of 6 November 2014, 391 RTAs have been notified to the General Agreement of Tariffs and Trade (GATT) or the World Trade Organization (WTO, 2014), compared with only forty RTAs in 1990 (Crawford and Laird, 2001). The number of such agreements that were notified to the WTO has been more than eight times that of RTAs during post World War II period to the end of the 1980s. In these 391 RTAs, of which 377 are the new RTAs formed and 14 are the Accessions. Even now, more potential RTAs are under negotiation and are likely to be concluded, forming new free trade areas (WTO, 2014). As more than one third of world trade is now carried out within regional trade agreements (Ghosh and Yamarik, 2004), the recent growth in the number of established RTAs and the strengthened implementation of their regional cooperation policies will become a more significant factor in stimulating the development of world trade and economies.

Usually RTAs are formed by more than two countries. When two countries decide to give each other free entry into their markets, it is called a Bilateral Free Trade Agreement. These began to proliferate from the 1990s. After 1990, more countries wished to develop bilateral trade and investment relationships, as a result many bilateral RTAs were concluded. For example, at the beginning of the twenty-first century, Japan signed a bilateral FTA with Singapore whilst Australia has become a bilateral trade partner with both Thailand and Singapore.

The phenomenon of the ‘spaghetti bowl’ came into existence as more RTAs were implemented, as pointed out by Bhagwati (1992). For instance, nowadays, most of the

150 WTO members have participated in one or more RTAs (WTO, 2007), which means those RTAs intersect each other. To outline the extent of this phenomenon, member countries of EU and European Free Trade Agreement (EFTA) are involved in more than 19 RTAs whilst South American countries like Brazil, Colombia, Venezuela, Chile and a number of countries from Central America are each involved in eight to eighteen RTAs (Crawford and Laird, 2001).

Now RTAs include wider network of participants because of two factors. First the geographic restrictions have been relaxed. From the 1950s to the 1960s, it was common practice for countries within the same region to form RTAs. However, newly formed RTAs are not limited to geographical locations as earlier RTAs such as the EU used to be. More and more countries from various continents, especially Europe, America, Australia and Asia are beginning to form RTAs across continental boundaries. Another interesting aspect is that RTAs are no longer formed among solely developed or developing countries. Countries at different levels of economic development are willing to form RTAs according to their needs. For instance, NAFTA incorporates two developed countries – the United States and Canada and one developing country – Mexico.

Regional trade agreements not only involve free trade progress in commodity trade, but also have other aims, including free flow of inputs factors, free trade in services, facilitation of foreign direct investment, common currency policy and even some particular economic or political policies.

Regional trade agreements are considered to have five different levels of integration based on their members' trade and economic cooperation and the sacrifices they make in their freedom to set their national policies independently of RTAs. The lowest level

is the preferential trade agreement, in which a member will give favourable trading conditions to other members, while maintain their freedom to impose their own trade barriers against non-members. When members of an RTA trade completely freely with each other without any trade barriers, they form a free trade area, which is the second level. At this stage, members may still have their own external trade barriers to non-members. The third level is the customs union, whose members share a common external tariff to other non-members while at the same time they trade freely with other members. At this level, each member of the RTA has to give up its own freedom to determine its country's external trade barriers and to cooperate with other members to decide sole external trade barriers for all members (Siggel, 2005).

A common market is the fourth level. It has the same character of the customs union and allows free flow of factors including capital and labour within the integrated area. Members have to give up their rights to decide where factors can come or go, this particularly affects the labour. The highest level at the moment is economic union. It has the basic characters of a common market, while at the same time member countries share the same currency and same monetary policies if possible. When politics is also involved, it can be called an economic and political union (Siggel, 2005). At this level, member countries have to give up considerable national sovereignty to the economic union in order to maintain and make further progress in having an integrated trade policy, monetary policy and other related policies.

All current RTAs can be categorized into these five levels based on the level of their regional trade and economic development. By liberalizing trade in goods and services within the region, by eliminating restrictions on FDI, by cooperating in currency to eliminate currency price fluctuation and minimizing currency exchange costs,

participating in RTAs and the development of RTAs have stimulated member countries achievements in many economic aspects, especially in foreign trade, FDI and technology.

2.3 Empirical Studies on Regionalism: An overview

There is a lot of empirical investigation conducted on the relationship between regional integration and economic growth. Thirlwall (2000), Wacziarg and Welch (2003), and Frankel and Romer (1999) highlighted a positive relationship in their studies between trade liberalization and growth. However, there exists skeptics like Rodriguez and Rodrik (1999) and Cruz (2008) who doubt the role of trade openness per se in stimulating growth. The relationship between different forms of international integration and economic growth was extensively surveyed and empirically investigated by Haveman, Lei and Netz (2001). They came to a conclusion that increased growth takes place due to membership into a trade block and foreign direct investment into a country. Two presumptions were tested by Dee (2007), which state that economic integration promotes economic growth and preferential trade agreements promote economic integration.

In a number of studies focuses on the reason behind the rapid increase in bilateral and regional trade agreements in the arena of international trade. The argument put forth by Fiorentino Verdeja and Toqueboeuf (2006) is that the proliferation of RTAs is a challenge as well as opportunities for the WTO members and that the RTAs should be designed and implemented in such a way so as to ensure that the RTAs complement the multilateral process. Sager (1997) said there is a widespread disagreement regarding the effect of regional trade agreements on the multilateral trading system.

A number of studies have been conducted that explore the determinants affecting the RTAs. Baier and Bergstrand (2005) found the difference in capital-labour endowment ratios are important factors that affect the RTAs. Holmes (2005) depicted that countries from the same continent have a higher chance of signing an RTA irrespective of their importance in each other's trade. Magee (2003) showed that though neighbouring countries are more likely to enter the PTAs, it cannot be necessarily be attributed to 'natural trading hypothesis'.

Amjadi and Winters (1997) found that MERCOSUR countries do not benefit in net welfare gain of intra regional transportation costs in comparison to inter-regional transportation costs. Studies were conducted that looked into the age of RTA and their economic outcome. Coulibalya (2004) found that for the first years of participation for the 'younger' developing RTAs (AFTA, CAN, MERCOSUR , NAFTA and SADC) are rewarded by a positive trade and welfare effects while the 'older' ones (CACM, ECOWAS and EU) depicted a more unpredictable trade as the number of years of participation of the members keep increasing. Magee (2008) observed that the average regional agreement affects trade for around eleven years and has significant anticipatory effects on trade flows after the deal begins. It is seen that the Customs unions have a bigger influence on trade over a longer period of time than free trade areas.

Regionalism versus broad liberalization was studied by Vamvakidis (1999). Through his study, he showed that member countries growth increased after broad liberalization. However, it was slower after participating in an RTA. According to Brown, Deardorff and Stern (2000), the welfare gains from multilateral trade liberalization are considerably greater than the gains from preferential trading

arrangements. The industrial growth of three Andean pact counties was studied by Madani (2001) which portrayed that unilateral liberalization had a more positive impact on output growth.

Estevadeordal, Freund and Omelas (2005) in their study depict that the multilateral (MFN) tariff in a particular product depends on the tariff preference that a country gives to its partners. Nitsch and Sturm (2005) showed that the country's trade policy can not be affected by an RTA membership.

According to Lee and Shin (2005) geographical distance, land borders, common language, and area, have a significant impact on trade creation and trade diversion. For example East Asian RTAs are more trade creating than trade diverting. Through the use of a computable general equilibrium model Sulamaa and Widgren (2005) showed that global free trade is better for all regions in the investigation. According to the study, the biggest winners of global free trade are Asian countries, Brasilia and developing countries.

By employing the New Trade Theory, Winters (1997) analysed the welfare impacts of an RTA on non-members. His argument is that the welfare impacts depend on the changes in the terms of trade, levels of output, number of firms, existing trade restrictions and induced investment effects. Brazil's entry in to MERCOSUR was analysed by Chang and Winters (2002) who found that non-members' export prices to Brazil fell relative to their export prices of the same commodities to other markets.

The economic size of countries joining the regional integration arrangement has been of considerable interest to economists recently (Bhagwathi and Panagaria, 1996, Schiff, 1997). The principal issue is whether a small country can expect to gain more from joining a large regional integration arrangement than a small regional integration

arrangement. Schiff (1999) in his study revealed that the impact of a preferential trade agreement on home country welfare increased by the level of imports from the trading partner. Schiff and Andriamananjara (1998) observed that a microstate's decision to join a regional organization is to reduce negotiating costs and increase the bargaining power.

A large number of studies in the area of regionalism were directed at examining the trade creation versus diversion effect of Regional Trade Agreements. Dee and Gali (2003) studied the preferential trading arrangements (PTAs) on merchandise trade and investment using the gravity models. Twelve out of the eighteen PTAs studied, were found to have more trade from non-members than they have created among members.

The Mexican entry into NAFTA was studied by Krueger (1999) which highlighted that the Mexican trade with the U.S. and Canada has risen sharply and that there is 'trade creation' and not 'trade diversion'. Soloaga and Winters (2001) studied nine PTAs to compare bloc' patterns of trade in EU and EFTA. Crawford and Laird (2001) found that RTAs are trade creating for members as well as for non members.

Using simplified gravity model, Kawai and Wignaraja (2008) showed that the trade creation and trade diversion dummies have statistically significant coefficients. The same issue was examined by Urata and Okabe (2007) who found trade creation effects and that the effects of trade diversion are limited. Koo, Kennedy and Skripnitchenko (2006) found that there is an increased trade volume among member countries through both inter- and intra industry trade.

Bhattacharya and Bhattacharyay (2007) studied India - China FTA by using the gravity model to identify trade complementarities and trade potential among them. Empirical results showed that the potential gain of India is relatively less compared to

China (because of its high tariffs). However, in the long run, India depicts higher gains than China (once tariffs are at par). Free trade arrangement provides a win-win situation for both countries as it is consistent with their growing dominance in the global trade.

2.4 RTA and Trade Development

RTAs including bilateral free trade arrangements are flourishing worldwide and still enjoy a favourable environment for fostering negotiations in the future. The success in pursuing regional trade cooperation has been noticed and provides a stimulus to further trade liberalization.

2.4.1 Augmenting Trade Effect

The formation and development of regional trade agreements has been found to have a crucial role on increasing trade, not only stimulating trade among member countries, but also stimulating trade between member countries with non-member countries.

Rajapakse and Arunatilake (1997) find that by removing restrictive trade barriers a large amount of more bilateral trade would be expected within the South Asian Association for Regional Cooperation (SAARC). Endoh (1999) finds that the EEC and Council of Mutual Economic Assistance (CMEA) members increased regional trade during the 1960-1994 period. Peridy (2005) studies Mediterranean countries' regional cooperation with the EU and finds that by implementing preferential trade with the EU since the 1970s, Mediterranean countries have successfully increased their exports to the EU area, and the 1995 Barcelona conference saw a great achievement in finalizing a free trade area between the EU and other Mediterranean countries to further increase trade between these two regions. Using trade data after the World War II, Plummer (2006) studies the benefits of membership in ASEAN to

its members and finds that being members in ASEAN simultaneously, two trading partners increased their bilateral trade by about 140 percent more than would have been expected. Bergstrand (1985) and Bergstrand (1989) find positive coefficients for members in the EEC and European Free Trade Association (EFTA) in the years 1965, 1966, 1975 and 1976 and EEC-EFTA trade pact in the years 1975 and 1976, suggesting that participation in preferential trading arrangements has stimulated trade among member countries in the EEC, EFTA and EEC-EFTA trade pact.

Moreover, Rajapakse and Arunatilake (1997) find that SAARC members anticipate enlarging their trade share with non-member countries in the world market as well as in their regional market. Endoh (1999) finds that EEC members have traded more with outer-region countries over the period 1960-1994. Plummer (2006) also notes that ASEAN countries are found to have increased their trade with non-ASEAN countries.

2.4.2 Trade Creation and Trade Diversion Effect

In early studies, Viner (1950) first calls people's attention to the two contradictory effects of a country's membership in an RTA. Generally speaking, a member country will benefit from importing lower cost commodities from another member to replace higher cost domestic production after import tariffs are removed, while suffering a loss when it diverts its imports from a low-cost third country outside the arrangement to a high-cost member country because of tariff reduction within the regional free trade area (Grimwade, 2000). The former is known as the trade creation and the latter the trade diversion effect. Results from the trade creation effect will stimulate free trade because of an improved resource allocation within the region. However, the trade diversion effect will result in strengthened protection from resources outside the

region. The net effect will depend on whichever is larger, that is, welfare enhancing in a member country when its trade creation effect is larger than trade diversion effect, or welfare loss in the same country when its trade creation effect is less than trade diversion effect. Furthermore, if more countries improve their welfare, the global welfare will be improved, if more countries experience welfare loss, then global welfare will be damaged.

After Viner, many researchers find that the trade diversion effect does exist. For instance, Yeats (1997, cited in Crawford and Laird, 2001) notes the evidence of trade diversion in MERCOSUR, which has caused fewer imports from non-members and subsequently altered import composition of the importing countries.

Aitken and Lowry (1973) concentrate their study on the Latin American Free Trade Association (LAFTA) and the Central American Common Market (CACM), whose members are all less developed countries pursuing trade and economic development through members' economic integration. They study the period from 1955 to 1967, incorporating both pre-integration period and post-integration period. Aitken and Lowry demonstrate from their empirical results that members in both LAFTA and CACM experienced strong cumulative trade creation benefits in most years after their regional integration, and no significant trade diversion loss was found for other non-member Latin American countries. The integration within LAFTA and CACM thus had a positive effect on enlarging trade and improving welfare among members.

Endoh (1999) finds that the EEC and CMEA had a positive trade creation effect when its members traded more within regional areas in the 1960s and the early 1990s. A trade diversion effect is reported for CMEA and LAFTA with them trading less with

non-member countries. However, the trade effects of these three regional economic arrangements had been weakening, especially during the 1990s.

Other researchers, such as Soloaga and Winters (2001), Clarete, Edmonds et al. (2003) and Fukao, Okubo and Stern (2003), show that after RTAs were implemented, some members increased their imports from other member countries whilst decreasing their import volumes from non-member countries.

Further to the studies mentioned above, Vines (1995) points out that these two trade effects will be different according to the different organization and objective of RTAs. Most of the RTAs in the world tend to liberalize inside the region while maintaining their own or common trade barriers to the outside region (called regional trading blocs in Vines' study). Trade creation effect and trade diversion effect will both occur for these blocks. However, for a few RTAs engaging in trade liberalization for their member countries and extending this to other non-member countries (called open regionalism in Vines' study) only the trade creation effect will be found, while the trade diversion effect will not occur as RTA members will non-discriminatorily import from members and non-members as they face the same trade barriers. Therefore, RTAs, such as APEC that does not forbid members from extending their regional trade negotiation outcomes to non-members unilaterally, may incur a trade creation effect, while other RTAs will have both trade creation and trade diversion effects.

2.5 Regional Integration studies based on Gravity Model

Following Tinbergen's (1962) introduction of examining the effect of economic integration in trade flows, Linnemann (1966) applies the gravity model to study the impact of the formation and implementation of regional trade agreements on member

countries' bilateral trade flows. From the late 1960s and the early 1970s, more studies have used the gravity model to estimate the effect of an RTA on bilateral trade by introducing additional RTA dummy variables. Aitken (1973), Braga, Sadafi et al. (1994), Bayoumi and Eichengreen (1997), Frankel (1997), Endoh (1999), Soloaga and Winters (2001), Clarete, Edmonds et al. (2003) have extended the gravity equation to include more variables to capture the impact of regional trade agreements on the change of members' trade flows. From the 1970s, the basic gravity model has been extended three times to study trade effects on members of a regional trade agreement. Aitken and Lowry (1973) and Braga, Sadafi et al. (1994) introduced a dummy variable to obtain the RTA impact on trade between members. The dummy variable takes the value of one if two trading countries are both members of one RTA, and zero when either of them is not a member of this RTA. When all the other variables remain unchanged, a positive coefficient indicates that an RTA member tends to trade more with other member countries as well as the rest of the world, while a negative coefficient means a member tends to reduce trade with non-member countries.

A general gravity equation is thus derived for aggregate trade flow studies, which is explained by GDP, population, distance and other factors. Later in the 1980s, Bergstrand (1985) theoretically justifies the gravity model in a microeconomic foundation from a general equilibrium framework. He derives a gravity-type equation based on several assumptions: (i) trades are undertaken between small open economies; (ii) same production and utility functions for each country; (iii) perfect substitution for production and consumption goods around the world.

Bergstrand (1985) further tests the derived gravity-type equation for differentiated products traded by each country by including price changes and exchange rate

changes. Bergstrand (1989) further theoretically justifies the gravity equation by employing trading partners' per capita income to represent a country's factor endowment level and taste preference to test whether the gravity model is in line with the Heckscher-Ohlin model and Linder hypothesis.

Bayoumi and Eichengreen (1997) and Frankel (1997) introduce another dummy variable to measure trade effects between RTA members with non-members. It takes the value of one if the importer is an RTA member and the exporter is a non-member, and zero otherwise. It therefore, not only measures trade creation and trade diversion effects from the perspective of member countries but also extends the study of changes in trade volumes to those of an RTA member with its extra-regional trading partners. A negative coefficient suggests that RTA members import less from the rest of the world than would be expected due to the formation and implementation of an RTA, when its other economic conditions are taken into account, thus, a trade diversion effect is created and will harm the member country by reducing its welfare.

2.6 MERCOSUR and India: The Preferential Trade Agreement

The Preferential Trade Agreement (PTA) between MERCOSUR and India came into effect on June 01, 2009. The objective of the PTA, signed on January 25, 2004, was to strengthen the existing relations between the two regions and promote expansion of trade by granting reciprocal fixed tariff preferences. The ultimate objective is to create a Free Trade Area (FTA) between the two parties. Six rounds of negotiations were held between the two parties to operationalize the PTA. As on 6 November 2014 (WTO, 2014), MERCOSUR's Member States are as follows:

- **Permanent Members** – Argentina, Brazil, Bolivia, Paraguay, Uruguay and Venezuela

- **Associate Members** – Colombia, Ecuador, Peru and Chile

MERCOSUR major commodities of exports to India in the year 2013 are Petroleum oils and crude oil which account for 85.1 percent of the total export trade followed by Fixed vegetable fats & oils (primarily soya) which sum up to 6.4 percent. The major imports of MERCOSUR from India are Petroleum oils or bituminous minerals of 43.6 percent, organic/inorganic compounds of 6.3 percent and textile yarn of 5.4 percent (UNCTAD database).

2.7 Studies on Revealed Comparative Advantage

International trade thrives on the comparative advantage that economies offer, as proactive players in the world market. While Ricardo laid down the basic tenets of comparative advantage, Balassa (1965) developed the concept of revealed comparative advantage (RCA). The term thus connotes the idea, that countries specialize and export items which they can produce at lower cost in comparison to the world. In Balassa's (1986) view, the comparative advantage that a country enjoys primarily depends on its physical and human capital endowments.

Balassa's results show that while the extent of export diversification tends to increase with the degree of technological development a reversal takes place at higher levels (Balassa 1965, 1977, 1979, 1986). Yeats (1997) uses the index of revealed comparative advantage in conjunction with the changes in the regional orientation of exports to identify any apparent inefficiency in trade patterns for the MERCOSUR group of countries.

Chow (1990) assessed the shift in comparative advantage of Japan and the Asian NICs (Newly Industrialized Countries). As opposed to conventional belief, Chow

(1990) put forth the argument that comparative advantage had not shifted from Japan. He highlighted the difference between the complementary effect and the substitution effect in manufacturing and trade. His argument lay on the basis that there may not be any shift in comparative advantages, as manufactured exports from different tier of economies are not substitutes to each other but are complementary. On the other hand, Leu (1998) presented a fairly contrasting view to that of Chow (1990). He assessed the shift in the comparative advantage from Japan to the other East Asian economies in the 1980s using the RCA index and he concludes that, in cases where the state played a crucial role in determining the social and economic conditions, a change in comparative advantages have been brought about.

Li and Bender (2003) however argued that instead of complimenting or substituting exports, the change in comparative advantage of the country, leads to gain as well as loss for the country. FertŐ and Hubbard (2002) used modifications of the RCA index as developed by Vollrath (1991), namely, the Relative Trade Advantage, to analyse the competitiveness of Hungarian agriculture with the EU as its comparator. Smyth (2005) analyzed the change in Irelands RCA over the period 1997 to 2002. The study sheds light on the changing structure of the Irish economy as indigenous industries lose their comparative advantage to high tech sector's driven by FDI. Widgren (2005) focused on the comparative advantage of a sample of Asian, American and European countries between 1996 and 2002. His study examined the basis of RCA for the sample countries using the Harmonised System (HS) classification at the 4-digit level.

Adding yet another dimension to the theory of revealed comparative advantage, Brackman, Garretsen and Marrewijk (2005), explain that even mergers and acquisitions follow comparative advantage. This occurs because a firm, which has a

cost advantage, is often keen to acquire another firm which is less strong than itself. On the other hand, Faustino (2008) draws a relation between intra-industry trade (IIT) and RCA.

In the Indian context, Batra and Khan (2005) assessed the RCA index at the 2 and 6-digit level of HS classification. They compared India's comparative advantage with that of China, and also studied the RCA for each of the countries individually. The study constructed the RCA index of India and China for the years 2000 and 2003, thereby enabling it to focus on the change in the structure of comparative advantage in the latter period. The authors also examined comparative advantage of the two countries according to factor intensity using the Standard International Trade Classification (SITC).

During the 1980s and 1990s, the traditional inward-looking policies were replaced by the structural changes in the Latin American countries that were linked to trade liberalization and economic openness. Distortions in factor allocation were reduced by the efficient trade policy. For instance, in order to implement the MERCOSUR trade agreements, Argentina achieved a greater degree of economic openness and ran a successful stabilization plan.

A paper prepared by BRICS-TERN (2011) studied the bilateral trade flows between India and 166 trading partners over the 2000-2010 time periods and concluded that a larger GDP and population of India's trading partner have a significant positive impact on bilateral trade flows while greater geographical distance reduces the trade. It shows trade creation in terms of India-Singapore CECA and also low trade creation for SAFTA and very less in case of MERCOSUR. Rajesh and Paul (2006) studied the

trade in assorted manufactured goods between India and MERCOSUR and concluded that there was trade creation rather than trade diversion between the two regions.

2.8 Major Findings

The growth in Regional Trade Agreements has been considerable since the 1990s and has attracted a large amount of attention from researchers and trade policy makers. Many studies on the impact of Regional Trade Agreements have documented the effects on members and non-members from regional trade agreements, for example, trade creation and trade diversion effects from participating in regional trade agreements. Because of these benefits, and in order to speed up economic cooperation with major trading partners, countries around the world increasingly pursue bilateral or regional trade and economic integration, including India and Latin America.

MERCOSUR and India are regions conscious of social inclusion alongside their development agendas. Substantial scope exists for MERCOSUR and India to explore complementarities and benefit from increased bilateral trade. MERCOSUR stands to benefit from India's world class capabilities in software and pharmaceutical industries and export of agricultural products like soybean and corn. On the other hand, India can secure its oil and other natural resource needs by partnering with MERCOSUR countries. However, there have been hurdles in the bilateral trade relationship like protectionist measures implemented by Argentina for certain goods from India.

A distinct feature of the trade relationship between MERCOSUR and China is that a very high percentage of MERCOSUR's exports to China are of raw commodities while imports from China have been concentrated in industrial products. One of the important factors for China's increasing trade with MERCOSUR has been China's direct shipping links through the Panama Canal. China also plans to build a train route

in Colombia connecting the Caribbean Coast of Colombia to its Pacific Coast (Carroll & Branigan, 2011). This will assist to channel the transport of raw materials from MERCOSUR countries to China. MERCOSUR's engagement with China, not only in terms of increased trade but also in areas like foreign direct investment and co-ordination between the central banks suggests scope for strong strategic ties in future, which India cannot ignore.

With the changing balance of power internationally, India's strategic association with a regional blocs like MERCOSUR has been long overdue. Both the regions have taken a unified stance on many international issues in the recent years. While an increased number of executive level exchanges have taken place between the two regions in the last few years, institutional level exchanges and consultations will ensure that both the sides understand each other's unique needs, priorities and the strategic imperatives they face. With the growing number of RTAs, more attention needs to be provided to India's strategic response to avoid trade diversion. Dynamic changes and competition effects should also be given more attention. Hence, in this context, the present study focuses on the above mentioned issues.

CHAPTER – III

ECONOMIC AND TRADE PROFILE

OF INDIA AND LATIN AMERICA

CHAPTER – III

ECONOMIC AND TRADE PROFILE OF INDIA AND LATIN AMERICA

As the nations of the World are preceding onward the street of globalization, neither India nor the nations of Latin America can remain committed to the rationale of collective self-reliance. In the quick changing world of today, nations are experiencing change by burying historical animosities and forgoing together for collective advancement. India's relations with the Latin American nations (LAC) have been generally friendly and cooperation with them is close both at bilateral and multilateral level. High-level visits supplemented by official and exchange visits have further cemented India's relations with Latin America. In the monetary field a concentrated effort has been made to improve and enhance the bilateral co-operation.

In continuation of her 'Focus LAC' Programme, Indian exhibitions and joint seminars are organised to discuss and explore the potential of mutual interactions, India has set up 'joint business councils' with some countries of Latin America. India appreciates and enjoys considerable goodwill in the LAC region. At the institutional level, there are cultural, educational and scientific exchange programmes that provide the framework for meaningful co-operation and interaction between academicians, scholars and scientists.

Growth in World merchandise trade remained subdued in 2013 at 2.2 percent, nearly identical to the previous year's increase of 2.3 percent. The total number of RTA's notified in the World as on 6th November 2014 is 391, with India having 15 RTA's and Latin America having 158 RTA's. The intra-regional trade for MERCOSUR

steadily decreased in the year 2012. For the same period, intra-regional import decreased from 53.8 billion US dollars to 47.8 billion US dollars while intra-regional exports decreased from 54.2 billion US dollars to 48.5 billion US dollars.

3.1 Latin America

While making a systematic analysis of Latin America, it is vital to identify some key features that differentiate the area from other developing regions of the World. Latin America has numerous features common with the other countries of the world, while nations inside Latin America contrast among themselves. However, most of the nations in the Latin American region share three specific features among themselves. The principal is of a financial nature: Latin America is the most monetarily open of the world's developing regions. The second is political: Latin America is also the world's most democratic developing region. The third includes both the financial and the social arenas: Latin America is additionally an area with the best monetary and social inequality. The study focuses only on the Latin American Countries excluding the Caribbean Countries. The twenty Latin American Countries used for the study are as follows: (i) Argentina, (ii) Belize, (iii) Bolivia, (iv) Brazil, (v) Chile, (vi) Colombia, (vii) Costa Rica, (viii) Ecuador, (ix) El Salvador, (x) Guatemala, (xi) Guyana, (xii) Honduras, (xiii) Mexico, (xiv) Nicaragua, (xv) Panama, (xvi) Paraguay, (xvii) Peru, (xviii) Suriname, (xix) Uruguay and (xx) Venezuela.

3.1.1 Brief Profile of Latin American Countries

Argentina, officially the **Argentine Republic** is a government republic situated in south eastern South America. With a territory range of 27,36,690 km2, Argentina is the eighth-biggest nation in the world and the biggest Spanish speaking country with a populace of 41446.2 billion. The economy of Argentina is the third largest having a

high Human Development Index and a moderately high GDP per capita. It is categorised as an ‘upper middle income’ economy by the World Bank. Manufacturing is the biggest single sector in the country's economy, and is also coordinated into Argentine agriculture, with half portion of the country's industrial exports being agrarian in nature. Major sectors of production are Food processing and beverages, Motor vehicles and automobile parts, Refinery items and biodiesel, Chemicals and pharmaceuticals, Steel and aluminium, Industrial and ranch machinery and Electronics and home appliances. Nuclear energy also is of high significance, and the nation is one of the biggest producers and exporters, along with Canada and Russia of cobalt-60, a radioactive isotope generally used in cancer therapy.

Belize is a nation on the north eastern coast of Central America. With 22,810 square kilometres of area and a populace of 331.9 billion (2013 est.), Belize has the least population density (of 14.6) in Central America. Belize has a small, generally privatized economy that is based primarily on export of petroleum and unrefined petroleum, agribusiness, agro-based industry, and promoting with tourism and development. The nation is a producer of industrial minerals. Sugar, the chief crop, represents almost a large portion of the exports, while the banana industry is the nation's biggest employer.

Bolivia, authoritatively known as the **Plurinational State of Bolivia** is a landlocked nation situated in central South America with a total land area of 10,83,300 km2. Bolivia's 2013 gross domestic product (GDP) totalled $ 30601157.7 billion at official exchange rate of 6.9 US dollars. It main economic activities incorporate farming, forestry, fishing, mining, and manufacturing goods, for example, materials, garments,

refined metals, and refined petroleum. Bolivia is extremely wealthy in minerals, particularly tin and has the second biggest natural gas reserves in South America.

Brazil, formally the **Federative Republic of Brazil**, is the fifth biggest nation in the world and also the biggest nation in both South America and the Latin American region. It is the biggest Lusophone nation in the world, and the one and only in the Americas with a geological area of 83,58,140 km^2 and a largest populace of 200361.9 billion. Brazil has a blended mixed economy with abundant natural resources. The Brazilian economy has a current GDP (PPP) per capita is $11.2 in 2013. Significant export items incorporate airplane, electrical hardware, autos, ethanol, materials, footwear, iron mineral, steel, coffee, orange juice, soybeans and corned beef, and has the fourth biggest car market globally.

Chile, authoritatively the **Republic of Chile** claims around 7,43,532 square kilometres of land area. Chile, being the most steady and a prosperous country of South America has a populace of 1,7619.7 billion. Escondida, being world's biggest copper mine is situated in Chile and it delivers 33 percent of the world's copper supplies. Some significant agribusiness products of Chile incorporates timber, corn, grapes, onions, apples, wheat, pears, peaches, oats, garlic, beans, asparagus, poultry, wool, beef and fish.

Colombia, authoritatively the **Republic of Colombia** is situated in north western South America with an aggregate area territory of 11,09,500 km2 and a populace of 48321.4 billion. Colombia is rich in natural resources, and its fundamental exports incorporate, gold, petroleum, valuable stones, coal, nickel, forest items, mash and paper, sugarcane, coffee, cereals and vegetable oils, rice, tobacco, soy beans, cotton, agrarian items, etc. Colombia is also called as the world's leading source of emeralds.

Costa Rica, formally the **Republic of Costa Rica**, is a nation in Central America with an aggregate land area of 51,060 km^2. Costa Rica has a total populace of 4872.2 billion (2013 est.). Pharmaceuticals, money outsourcing, programming and ecotourism are the prime commercial enterprises in Costa Rica's economy. The nation's three main cash crops are bananas, pineapples and coffee.

Ecuador, formally the **Republic of Ecuador** is a democratic republic in north western South America. The language spoken in Ecuador is Spanish (94 percent of the populace). Ecuador has an area territory of 2,48,360 km^2 with a populace of 15737.9 billion. Oil represents 40 percent of exports and adds to keeping up a positive trade balance. In the agricultural segment, Ecuador is a main exporter of bananas (holds the first position globally in production and export) and the seventh biggest producer of cocoa. The shrimp, sugarcane, rice, cotton, corn, palm, timber (like eucalyptus and mangroves) and coffee productions are also significant.

El Salvador, officially **Republic of The Savior** is the smallest (20,720 km^2) and the most thickly populated nation in Central America. In the year 2013, El Salvador had a populace of 6340.5 billion people. Instead of being the smallest nation in Central America, El Salvador has the third biggest economy, with a per capita income of 3.8.

Guatemala, authoritatively the **Republic of Guatemala**, is a nation in Central America. Its area is 1,07,160 km^2 with a populace of 15468.2 billion. The exports of Guatemala represent 53 percent of the world exports which include vegetables, fruits, flowers, handiworks, materials and others. Despite a rising interest for biofuels, the nation is developing and trading an expanding measure of crude materials for biofuel production, particularly sugarcane and palm oil. Mines produce gold, silver, zinc,

cobalt and nickel. Organic coffee, sugar, materials, fresh vegetables and bananas are the nation's prime exports.

Guyana, authoritatively the **Co-operative Republic of Guyana**, is a sovereign state on the northern coast of South America. Its populace is 799.6 billion with an area of 1,96,850 km^2. The prime activity in Guyana is farming (production of rice and Demerara sugar), gold mining, bauxite mining, shrimp fishing, timber and minerals.

Honduras, authoritatively the **Republic of Honduras**, is a republic in Central America. The land area of Honduras is around 1,11,890 km^2 with a populace of 8097.7 billion. Honduras is most remarkable for creation of minerals, coffee, tropical fruit, sugarcane and as of late for exporting apparel to the worldwide business sector.

Mexico, formally the **United Mexican States** is a government republic in North America. Covering 19,43,950 million square kilometres, Mexico is the fifth biggest nation in the Americas by aggregate territory and the 13th biggest independent country globally. With a populace of 122332.4 billion, it is the eleventh most populous nation in Latin America. Mexico is the tenth biggest oil and silver producer globally. The Mexican electronics industry is ruled by the manufacture and OEM configuration of TVs, displays, PCs, cell phones, circuit boards, semi-conductors, electronic apparatuses and LCD modules. Mexico is the sixth biggest oil producer globally, with 3.7 million barrels per day.

Nicaragua, authoritatively the **Republic of Nicaragua**, is the biggest nation in the Central American isthmus. The populace in Nicaragua is 6080.5 billion with an aggregate area of 1,20,340 km^2. Nicaragua is fundamentally an agrarian nation with 60 percent of its total exports worldwide.

Panama, authoritatively **Republic of Panama**, is the southern most nation of Central America and the entire of North America. Panama has an area territory of 74,340 km2 and a populace of 3864.2 billion. Panama's economy is very much supported by the trade and exportation of coffee and other agricultural products.

Paraguay, authoritatively the **Republic of Paraguay**, is a landlocked nation in South America. Paraguay has an aggregate area of 3,97,300 km^2 and a populace of 6802.3 billion. Paraguay is the fourth-biggest soybean producer globally, second-biggest producer of stevia, second-biggest producer of Tung, sixth biggest exporter of corn, tenth-biggest exporter of wheat and eighth biggest exporter of beef. Wood items, paper items, hides, furs and non-metallic mineral items also add to the manufacturing sector.

Peru, formally the **Republic of Peru**, is a nation in western South America with an area of 12,80,000 km^2. The populace in Peru is 29,98,780 billion individuals. Peru's prime exports are copper, gold, zinc, materials, and fish meal. Its major trading accomplices are the United States, China, Brazil, and Chile.

Suriname, formally known as the **Republic of Suriname**, is a nation on the north eastern Atlantic coast of South America. Suriname has an aggregate area of 1,56,000 km^2 with a populace of 539.3 billion. The economy of Suriname dominates the bauxite business along with alumina, rice, bananas, fish, shrimp, lumber, raw petroleum and gold reserves. Farming export items are rice, bananas, timber, coconuts, peanuts, citrus fruits and forest items.

Uruguay, formally the **Oriental Republic of Uruguay** or the **Eastern Republic of Uruguay**, is a nation in the south eastern locale of South America. Uruguay is home to 3407.1 billion individuals, with a land area of 1,75,020 square kilometres. Uruguay

is one of world's biggest producers of soybeans, greasy wool, horse meat, beeswax, and quinces. Beef and wool are the prime activities trailed by vegetable cultivating, dairy cultivating, pigs and poultry.

Venezuela, formally known as the **Bolivarian Republic of Venezuela**, and is situated on the northern coast of South America. Venezuela has a total land area of 8,82,050 square kilometres with a populace of 30405.2 billion. Venezuela manufactures and exports substantial industry items, for example, steel, aluminium and cement. Venezuela exports rice, tropical fruit, corn, coffee, fish, beef and pork. Oil is one of the leading exports of Venezuela and it is a founding member of OPEC.

3.1.2 Economic Profile of Latin American Countries

All the countries of Latin America have endured the impacts of the global economic crisis. Nonetheless, it is obvious that Latin America is rebounding from the shock more quickly than the majority of developed economies. In particular, it is doing so without sacrificing its huge advancement towards its long term improvement objectives. In 2013 in general, Latin America posted an annual growth of three percent (Appendix Table 3.A-1) which can be seen as a good performance in a year in which the euro area crisis deepened, adjusting the course of the recovery in the global economy.

Annual percentage growth rate of GDP at market prices (Table 3.1) is based on constant local currency. Paraguay has the highest GDP growth rate of 13.6 percent, followed by Panama with 8.4 percent, Bolivia with 6.8 percent, Peru with 5.8 percent and Guyana with 5.3 percent as compared to countries like Belize, Mexico, Venezuela and El Salvador which have a very low growth rate of 0.7, 1.1, 1.3 and 1.7 percent respectively. None country reflected a negative growth rate. Inflation (as measured by

the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring basket of goods and services on yearly basis) was around 9.5 percent (2011) for Argentina, Uruguay with 8.6 percent and 7.1 percent for Nicaragua, followed by Brazil (6.2 percent), Bolivia (5.7 percent), Costa Rica and Honduras was around 5.2 percent.

Table 3.1: Economic Indicators of Latin American Countries – 2013

Country	**GDP Growth Rate**	**Inflation Rate**	**Unemployment Rate**	**Trade/GDP Ratio**	**Exchange Rate**
	Percent	Percent	Percent	Percent of GDP	National Currency per US $
	2013	**2013**	**2012**	**2012**	**2013**
Argentina	3.0	9.5 (2011)	7.2	24.8	5.5
Belize	0.7	0.5	7.9	95.4	2.0
Bolivia	6.8	5.7	3.2	70.3	6.9
Brazil	2.5	6.2	6.9	21.2	2.2
Chile	4.1	1.8	6.4	59.4	495.3
Colombia	4.3	2.0	10.4	32.2	1868.8
Costa Rica	3.5	5.2	7.6	63.8	499.8
Ecuador	4.0	2.7	4.5	58.5	-
El Salvador	1.7	0.8	6.9	65.5	8.8
Guatemala	3.7	4.3	4.2	53.8	7.9
Guyana	5.3	2.1	21.7	112.2	205.4
Honduras	2.6	5.2	4.8	102.9	-
Mexico	1.1	3.8	4.9	63.3	12.8
Nicaragua	4.6	7.1	7.7	80.1	24.7
Panama	8.4	4.0	4.5	103.8	1.0
Paraguay	13.6	2.7	6.3	76.2	4320.7
Peru	5.8	2.8	4.0	45.8	2.7
Suriname	4.4	1.9	12.7	83.8	3.3
Uruguay	4.4	8.6	6.0	40.7	20.5
Venezuela	1.3	40.6	7.8	41.3	6.0

Data Source: Compiled from World Bank

While, Venezuela (40.6 percent) continue to show notable vulnerability owing to its high inflation rates in contrary to Belize and El Salvador having a low inflation rate below 1 percent. Comparing the unemployment rates for 2012, Guyana (21.7 percent), Suriname (12.7 percent) and Colombia (10.4 percent) have the highest unemployed population while Bolivia and Peru recorded low unemployment rates of

3.2 and 4 percent respectively. The Trade/GDP ratio (merchandise trade as a share of GDP is the sum of merchandise exports and imports divided by the value of GDP, all in current U.S. dollars) shows most of the countries in Latin America got high trade openness. The Trade openness (2012) is very high for Guyana with 112.2 percent, Panama with 103.8 percent and Honduras with 102.9 percent and high for countries like Belize, Suriname, Nicaragua, Paraguay and Bolivia with 95.4, 83.8, 80.1, 76.2 and 70.3 respectively.

3.1.3 Evolution of MERCOSUR

"MERCOSUR (Southern Common Market) is an economic and political agreement among Argentina, Brazil, Paraguay, Uruguay, and Venezuela with Bolivia becoming an accessing member on 7 December 2012. It was established in 1991 by the Treaty of Asunción, which was later amended and updated by the 1994 Treaty of Ouro Preto. Its purpose is to promote free trade and the fluid movement of goods, people, and currency. The official languages are Guaraní, Portuguese and Spanish. It has been updated, amended, and changed many times since. It is now a full customs union. Full membership for Venezuela became effective on 31 July 2012, after the suspension of Paraguay on 22 June 2012 for the violation of the Democratic Clause of MERCOSUR (Nitin Arya, 2013)".

3.1.4 Trade Profile of MERCOSUR

India consented to Preferential Trade Arrangement (PTA) with MERCOSUR to enhance bilateral trade relations with Latin America. MERCOSUR is originally a combination of four nations - Brazil, Argentina, Paraguay and Uruguay framed in 1991. PTA was signed between India and Latin America on January 25, 2004. India-MERCOSUR PTA came into effect from 1st June, 2009. As on 6th November, 2014

MERCOSUR comprises of six countries - Argentina, Bolivia, Brazil, Paraguay, Uruguay and Venezuela (UNCTAD Statistical Database).

Table 3.2: MERCOSUR's Total Merchandise Trade with the World

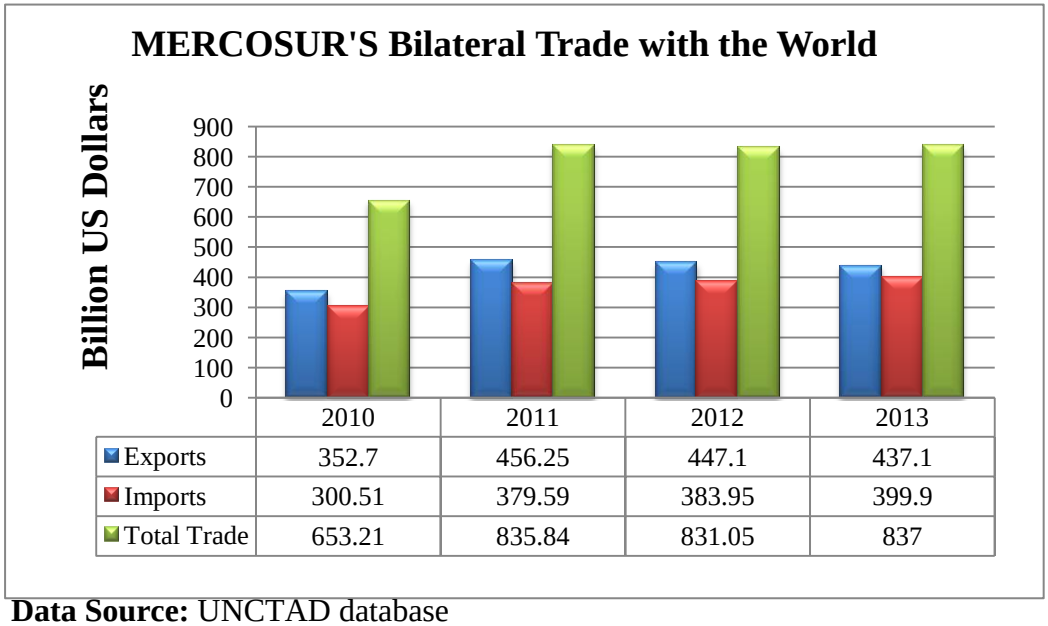
(Value in Billion US $)

Commodities	Exports			Imports		
	2010	2011	2012	2010	2011	2012
Agricultural Products	**112.05**	**142.22**	**140.29**	**15.40**	**19.22**	**18.50**
Food	102.59	131.15	129.43	11.95	14.59	14.85
Fish	1.72	1.91	1.71	1.25	1.54	1.52
Other Food Products	100.87	129.25	127.71	10.70	13.06	13.33
Raw Materials	9.46	11.06	10.86	3.44	4.63	3.65
Fuels and Mining Products	**66.80**	**88.47**	**76.29**	**47.72**	**68.05**	**64.85**
Ores and Other Minerals	35.66	49.86	38.96	3.49	4.60	3.52
Fuels	27.43	34.09	33.80	39.17	57.20	55.85
Non – Ferrous Metals	3.71	4.52	3.53	5.06	6.25	5.48
Manufactures	**94.43**	**113.12**	**109.78**	**203.30**	**246.31**	**240.85**
Iron and Steel	10.40	14.30	12.89	8.28	7.79	7.58
Chemicals	18.66	23.15	22.87	47.33	59.85	59.82
Pharmaceuticals	2.26	2.63	2.76	9.31	9.96	10.68
Other Chemicals	16.40	20.52	20.10	38.01	49.90	49.13
Other Semi-manufactures	13.94	15.34	15.25	14.94	18.31	17.75
Machinery & Transport Equipment	44.24	52.62	51.49	109.38	132.56	127.74
Office and Telecom Equipment	2.10	1.93	1.48	26.50	30.43	29.22
EDP and Office Equipment	0.40	0.44	0.40	7.84	8.73	8.59
Telecommunications Equipment	1.56	1.30	0.91	13.39	15.96	14.99
Integrated Circuits	0.15	0.19	0.17	5.27	5.74	5.64
Transport Equipment	28.69	34.25	33.25	39.44	49.86	47.20
Automotive Products	20.85	24.75	22.80	30.20	39.48	37.08
Other Transport Equipment	7.84	9.50	10.45	9.23	10.39	10.13
Other Machinery	13.45	16.44	16.77	43.44	52.27	51.31
Textiles	**1.46**	**1.54**	**1.33**	**5.38**	**6.21**	**6.00**
Clothing	**0.35**	**0.43**	**0.40**	**2.13**	**3.11**	**3.52**
Other Manufactures	**5.38**	**5.74**	**5.55**	**15.86**	**18.48**	**18.45**
Personal & Household Goods	2.64	2.54	2.32	2.44	3.18	3.24
Scientific Instruments	0.79	0.96	0.90	5.81	6.08	6.19
Miscellaneous Manufactures	1.96	2.24	2.33	7.62	9.22	9.01
Total Merchandise Trade	**748.24**	**936.46**	**896.78**	**783.28**	**972.96**	**945.67**

Data Source: WTO

The total World merchandise export of MERCOSUR in the year 2012 has decreased to 896.78 billion dollars as compared to the exports in the year 2011 which were 936.46 billion dollars. MERCOSUR exported Manufactures to the World of worth 109.78 billion dollars. Despite the significant fall in 2012, in exports of Machinery & Transport Equipment, Automotive Products – 'Manufacturers' are the largest import items for MERCOSUR from the global market. Whereas, MERCOSUR exports of 'Agricultural Products' are the largest export items in the world trade. Agricultural Products has the highest export of 140.29 billion dollars followed by Food with 129.43 billion dollars and Other Food Products 127.71 billion dollars. Other major items of export include Fuel and Mining Products. The total World imports of MERCOSUR depict a decrease of 27.29 billion dollars in the year 2012 as compared to the year 2011. MERCOSUR imports Manufactures of worth 240.85 billion dollars and Machinery & Transport Equipment of 127.74 billion dollars from the World. Imports of Pharmaceuticals have increased from 9.96 (2011) to 10.68 in 2012. Figure 3.1 shows MERCOSUR's total trade with the World.

Figure 3.1: MERCOSUR's Bilateral Trade with the World



	2010	2011	2012	2013
Exports	352.7	456.25	447.1	437.1
Imports	300.51	379.59	383.95	399.9
Total Trade	653.21	835.84	831.05	837

Data Source: UNCTAD database

As can be seen from the above figure, the total trade had increased by 835.84 billion dollars in the year 2011 from 653.21 billion dollars in the year 2010. But the total trade decreased by 4.79 billion dollars in the year 2012 depicting a total trade of 831.05 billion dollars. One of the reasons in the decreased trade could be the global financial crisis. MERCOSUR's total trade further increased by 5.95 billion dollars in the year 2013 implying the exports are more than the imports. These are the exports of natural resources, which play an important role in the growth of MERCOSUR member countries.

3.1.5 Intra and Inter Regional Trade of MERCOSUR

To respond to the developmental challenges, regional economic integration has been adopted as a policy in different regions. Regional integration provides a platform for effective integration in the world economy and is an important medium for enhancing the competitiveness of small economies. Preferential Trade Agreements carries around 50 percent of world trade. Trade agreements encourage economic and political integration, because they are complemented by other areas, such as Foreign Direct Investment and Services trade.

A comparison of intra-regional trade among various regional groupings helps to understand the intensity of trade among themselves. Despite of the global crisis in 2009, the intra-regional trade steadily increased in 2010. Comparing the years 2012 and 2013, the trade within the regions have almost remained the same. In sequential order, the intra-regional trade is highest in European Union (EU), NAFTA, ASEAN, MERCOSUR and ANDEAN. The intra-regional export for EU is 3769.5 billion dollars, NAFTA is 878.6 billion dollars, ASEAN is 334.2 billion dollars and

MERCOSUR is 51.6 billion dollars while ANDEAN is having an intra-regional export of just 9.9 billion dollars.

Table 3.3: Comparison of MERCOSUR's Intra-Regional Trade with other Regional Groupings

(Value in US $ billions)

Year	EU		NAFTA		ASEAN		MERCOSUR		ANDEAN	
	TIE	TII	TIE	TII	TIE	TII	TIE	TII	TIE	TII
2009	3087.7	3085.7	767.9	717.5	201.1	175.5	34.0	32.8	5.8	7.1
2010	3390.0	3390.0	956.7	899.6	264.8	230.7	44.6	44.7	7.8	9.5
2011	3928.8	3928.9	1102.2	1033.1	312.9	267.0	54.2	53.8	9.3	11.0
2012	3650.7	3650.7	1150.5	1077.8	325.0	278.6	48.5	47.8	10.3	11.7
2013	3769.5	3769.4	878.6	1094.0	334.2	279.7	51.6	49.2	9.9	11.4

Data Source: Compiled from International Trade Statistics, 2013
Total Intraregional Exports = (Intra exports + Extra exports)
Total Intraregional Imports = (Intra imports + Extra imports)

As compared to the intra-regional imports, EU is having the highest import of 3769.4 billion dollars followed by NAFTA with 1094.0 billion dollars, ASEAN with 279.7 billion dollars, MERCOSUR with 49.2 billion dollars and ANDEAN the least with 11.4 billion dollars. This implies that NAFTA and ANDEAN have an increased intra-regional import than intra-regional export.

3.1.6 MERCOSUR'S Trade with India

MERCOSUR major commodities of exports to India are Petroleum oils and crude oil which account for 85.1 percent of the total export trade followed by Fixed vegetable fats & oils (primarily soya) which sum up to 6.4 percent. The major imports of MERCOSUR from India are Petroleum oils or bituminous minerals of 43.6 percent, organic/inorganic compounds of 6.3 percent and textile yarn of 5.4 percent.

Table 3.4: MERCOSUR's Merchandise Trade of Top Ten Principal Commodities with India, 2013

EXPORTS			IMPORTS		
Rank	**Commodity**	**Percent**	**Rank**	**Commodity**	**Percent**
1	Petroleum oils, oils from bituminous materials, crude	85.1	**1**	Petroleum oils or bituminous minerals > 70 % oil	43.6
2	Fixed vegetable fats & oils, crude, refined	6.4	**2**	Organo-inorganic, heterocycl. compounds, nuclear acids	6.3
3	Sugar, molasses and honey	2.3	**3**	Textile yarn	5.4
4	Copper ores and concentrates; copper mattes, cement	1.7	**4**	Medicaments (incl. veterinary medicaments)	3.1
5	Leather	0.3	**5**	Parts & accessories of vehicles of 722, 781, 782, 783	2.8
6	Railway vehicles & associated equipment	0.2	**6**	Insectides & similar products, for retail sale	2.6
7	Other crude minerals	0.2	**7**	Nitrogen-function compounds	2.2
8	Ferrous waste, scrape; re-melting ingots, iron, steel	0.2	**8**	Telecommunication equipment and parts	2.0
9	Parts & accessories of vehicles of 722, 781, 782, 783	0.1	**9**	Synthetic organic colouring matter & colouring lakes	1.6
10	Aircraft & associated equipment; spacecraft	0.1	**10**	Medicinal and pharmaceutical products	1.5
Total Top Ten Commodity Exports		**96.6%**	**Total Top Ten Commodity Imports**		**71.1%**
Others		**3.4%**	**Others**		**28.9%**
Total		**100%**	**Total**		**100%**

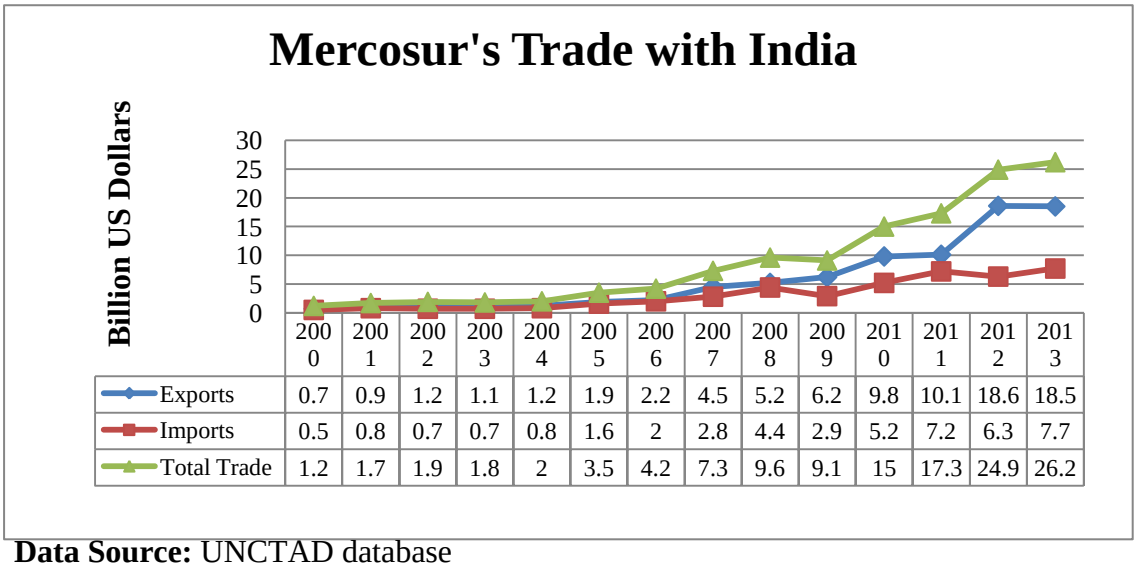
Data Source: UNCTAD database

The trade share of major commodities is listed in Table 3.4. The top ten commodity export group accounts for 96.6 percent exports while the top ten commodity import group accounts for 71.1 percent of imports.

Figure 3.2 shows the MERCOSUR's Bilateral Trade with India. The merchandise exports of MERCOSUR which was 0.7 billion dollars in 2000 rose to 18.5 billion dollars in 2013. The imports also showed a significant increase from 0.5 billion

dollars in 2000 to 7.2 billion dollars in 2011 but further decreased to 6.3 billion dollars in 2012 and further increased to 7.7 billion dollars in 2013. Apart from the fall in imports in 2012, the total trade depicts a significant growth of 24.9 million dollars.

Figure 3.2: MERCOSUR's Bilateral Trade with India



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Exports	0.7	0.9	1.2	1.1	1.2	1.9	2.2	4.5	5.2	6.2	9.8	10.1	18.6	18.5
Imports	0.5	0.8	0.7	0.7	0.8	1.6	2	2.8	4.4	2.9	5.2	7.2	6.3	7.7
Total Trade	1.2	1.7	1.9	1.8	2	3.5	4.2	7.3	9.6	9.1	15	17.3	24.9	26.2

Data Source: UNCTAD database

3.1.7 Composition and Direction of Latin American Trade

In 1997, the Government of India announced an Action Plan, the Focus LAC, with the express motive of revitalizing India-Latin America trade and economic relations. This venture enhanced the trade relationships between the two countries. Hundreds of companies from India invested approximately US 12 billion dollars in Latin America in various fields pertaining to agriculture, automobiles, cosmetics, energy, mining, etc. On the other hand Latin American countries too reciprocated by investment of approximately US one billion dollars in automobile parts, electronics, multiplexes, steel, etc.

Among the countries in LAC, the largest exporters are Brazil, Mexico, Colombia, Chile, Peru and Argentina, together accounting for as much as 91.3 percent of LAC's total exports in Apr-Sep 2013. Other important exporters from LAC include Eucador,

Guatemala, Panama, Venezuela and Uruguay (Appendix Table 3.A-2). Reflecting the exports of petroleum crude from LAC, mineral fuels are the largest export items from LAC, accounting for as much as 14.3 percent of LAC's total exports in 2013. Countries in LAC such as Venezuela and Mexico are among the leading global exporters of crude oil. Other items of exports from LAC include Motor vehicles for the transport of persons. Iron ore and concentrates, copper, gold, oil seeds, etc. The trade share of major commodities is listed in Table 3.5.

The Top Ten Commodity of LAC's exports account 40.7 percent while the other commodities account to 59.3 percent of total trade. As regards imports, the leading importers in LAC are Venezuela, Mexico, Colombia, Brazil, Chile and Argentina, together accounting for 95.6 percent of LAC's total imports in Apr-Oct 2013 (Appendix Table 3.A-3). Other important importers from LAC include Peru, Costa Rica, Eucador, Panama and Honduras.

In contrast to LAC's export basket which is dominated by petroleum oils (eight percent), LAC's import basket is relatively diversified. Telecommunication equipment, parts of accessories of vehicles, motor vehicles for the transport of persons, cathode valves & tubes, etc. are among the largest import items. The trade share of major commodities is listed in Table 3.5. The Top Ten Commodity of LAC's imports account 31.6 percent while the other commodities account to 68.4 percent of total trade.

Table 3.5: Latin America' Merchandise Trade of Top Ten Principal Commodities with the World, 2013

EXPORTS			IMPORTS		
Rank	**Commodity**	**Percent**	**Rank**	**Commodity**	**Percent**
1	Petroleum oils, oils from bitumin. materials, crude	14.3	**1**	Petroleum oils or bituminous minerals > 70 % oil	8.0
2	Motor vehicles for the transport of persons	4.0	**2**	Telecommunication equipment & parts	4.8
3	Petroleum oils or bituminous minerals > 70 % oil	3.5	**3**	Parts & accessories of vehicles of 722, 781, 782, 783	3.5
4	Iron ore and concentrates	3.4	**4**	Motor vehicles for the transport of persons	3.5
5	Oil seeds and oleaginous fruits (excluding flour)	3.0	**5**	Petroleum oils, oils from bituminous materials, crude	2.7
6	Copper ores and concentrates; copper mattes, cemen	2.7	**6**	Cathode valves & tubes	2.3
7	Copper	2.6	**7**	Apparatus for electrical circuits; board, panels	1.9
8	Parts & accessories of vehicles of 722, 781, 782, 783	2.5	**8**	Automatic data processing machines	1.7
9	Gold, non-monetary (excluding gold ores and concentrates)	2.4	**9**	Natural gas, whether or not liquefied	1.6
10	Motor vehic. for transport of goods, special purpo.	2.3	**10**	Medicaments (incl. veterinary medicaments)	1.6
Total Top Ten Commodity Exports		**40.7%**	**Total Top Ten Commodity Imports**		**31.6%**
Others		**59.3%**	**Others**		**68.4%**
Total		**100%**	**Total**		**100%**

Data Source: UNCTAD database

While LAC is emerging as a major exporter of crude petroleum, large imports of petroleum products by the major importers in LAC have resulted in mineral fuels and products being the largest import category of Latin America. These products include: large volumes of petroleum oils imported by Mexico, Brazil, Chile, Argentina,

Colombia, and Ecuador. Petroleum gases are imported by Mexico, Brazil, Argentina, Chile, and Ecuador. While, coal, briquettes etc are imported by Brazil, Mexico, Chile and Argentina.

While Western developed countries such as the US, Canada, Germany, Spain, UK and Netherlands continue to be major markets for LAC's exports, developing countries such as China and India have emerged as major export destinations in recent years. In fact, in 2011, China and India have emerged as the second and thirteenth largest markets for LAC's global exports, accounting for 10.8 percent and 1.5 percent respectively, of LAC's total exports (Table 3.6).

As in the case with LAC's export markets, developed countries such as USA, Japan, and Germany have continued to be the major sources for LAC's global imports. However, over the years, there has been a paradigm shift to emerging and developing countries for its imports. Though USA still retains its top position of being the largest supplier for LAC's imports, with a share of 33.5 percent, China has grown from being the third-largest supplier in 2005 (4.8 percent of total LAC import) to the second- largest supplier in 2011 (11.1 percent). India, which did not feature in the top-20 suppliers in 2005, emerged as the 17-largest supplier for LAC's imports in 2011 (Table 3.6).

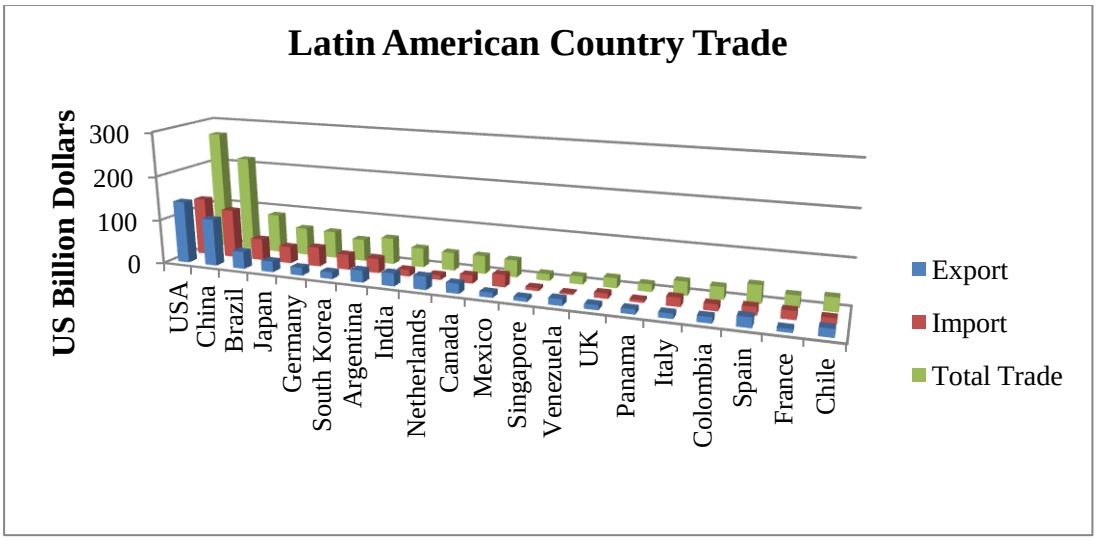
Table 3.6: Top 20 Latin American Trade Partner Countries/ Regions

Rank	EXPORTS				IMPORTS			
	Share in 2005		Share in 2011		Share in 2005		Share in 2011	
	Country	Percent	Country	Percent	Country	Percent	Country	Percent
1	USA	49.4	USA	40.4	USA	39.3	USA	33.5
2	**China**	4.4	**China**	10.8	Brazil	6.2	**China**	11.1
3	Canada	3.6	Canada	4.0	**China**	4.8	Brazil	5.2
4	Germany	2.8	Brazil	3.5	Japan	4.7	Japan	3.9
5	Japan	2.4	Germany	3.3	Germany	4.4	Germany	3.8
6	Spain	2.3	Japan	3.0	Argentina	3.3	South Korea	3.5
7	Argentina	2.2	Argentina	2.7	Venezuela	3.3	Argentina	3.1
8	Mexico	2.1	Spain	2.1	South Korea	2.9	Venezuela	2.8
9	Brazil	2.0	Netherlands	1.9	Mexico	2.3	Mexico	2.4
10	Chile	1.9	Chile	1.9	Italy	2.1	Italy	1.8
11	Netherlands	1.9	South Korea	1.8	Spain	2.1	Singapore	1.7
12	UK	1.7	Colombia	1.5	France	1.7	Colombia	1.7
13	Italy	1.5	**India**	1.5	Chile	1.6	Spain	1.6
14	France	1.4	Italy	1.5	Colombia	1.5	France	1.4
15	Venezuela	1.4	Mexico	1.3	Canada	1.4	Chile	1.3
16					UK	1.1	Canada	1.3
17					Netherlands	1.0	**India**	1.2
18					Russia	1.0	Netherlands	1.0
19					Singapore	0.9	UK	0.9
20					Hong Kong	0.9	Panama	0.9
	Others	**81%**	**Others**	**81.2%**	**Others**	**81.6%**	**Others**	**78.8%**
	Total	**100%**	**Total**	**100%**	**Total**	**100%**	**Total**	**100%**

Data Source: Exim Bank Research, Export – Import Bank of India**.**

Figure 3.3 shows the western countries which are the major markets for LAC's exports and imports.

Figure 3.3: Latin American Trade by Selected Partner/ Country, 2013



Data Source: UNCTAD database

3.2 India

3.2.1 Country Profile and Economic Profile of India

India recorded the most astounding development rates in the mid-2000s, and is one of the quickest developing economies in the World. India has recorded a development of more than 200 times in per capita income in a period from 1947 to 2012. The growth was led primarily due to a huge increase in the size of the middle class consumer, a large labour force, growth in the manufacturing sector due to rising education levels and engineering skills and considerable foreign investments. India is the nineteenth largest exporter and twelfth largest importer in the world (Appendix Table 3.A-4). Economic growth rate stood at around 5.0 percent for the year 2013.

Table 3.7: Country Profile and Economic Indicators of India

Economic Indicators	2007	2008	2009	2010	2011	2012	2013
Total Land Area (Km^2)	2973190	2973190	2973190	2973190	2973190	2973190	2973190
Total Population (in Thousands)	1173971	1190863	1207740	1224614	1241491	1236686	1252139
Population Density (Persons/ Km^2)	394.85	400.53	406.21	411.89	417.56	415.95	421.14
Population Growth (Percent)	1.45	1.43	1.41	1.39	1.37	1.3	1.2
GDP at current prices (US $ Billion)	1238.7	1224.1	1361.1	1365.4	1710.9	1873.0	1843.0
Per Capita GDP at current prices (US $ Billion)	1.0	1.0	1.1	1.4	1.5	1.5	1.4
GDP Growth Rate (Percent)	9.80	3.89	8.48	10.3	6.6	4.7	5.0
Inflation (Percent)	6.37	8.35	10.88	11.99	8.86	9.31	10.91
Trade/GDP Ratio (Percent)	30.64	42.14	31.01	33.84	40.45	42.49	-
Unemployment Rate	3.9	4.2	3.9	3.5	3.4	3.4	-

Data Source: Compiled from World Bank

As of 2013, India is the second most populous country with a population growth of 1.2 and population density of 421.14. India's share in the world GDP has decreased significantly from 1873.0 in 2012 to 1843.0 in the year 2013. India's large service industry accounts for 57.2 percent of the country's GDP while the industrial and agricultural sectors contribute 28.6 percent and 14.6 percent respectively.

The per capita GDP decreased to 1.4 billion dollars as compared to 1.5 billion dollars in 2012. However, inflation increased from 8.86 percent in 2011 to 9.31 percent in 2012, but steadily increased to 10.91 percent in 2013. The unemployment rate of India shows a decreasing trend. From 4.2 percent in the year 2008 to 3.9 percent in 2009 and further reducing to 3.4 in the year 2012, this shows a healthy situation as major of the Indian population is employed (Table 3.7).

3.2.2 Composition and Direction of India's Trade

With the increasing diversification of India's global trade towards other developing countries, India has emerged as an important export destination to the World. Table 3.8 presents trends in India's major export and import items to the World. As can be seen from the table, Petroleum, Pearls, precious and semi-precious stones, Jewellery and Medicaments are the largest items in India's export basket to the World. Petroleum's contributes 19.9 percent of the total exports. Other important items of India's export to the World include manufactures of Rice, Textile yarn, Motor vehicles for the transport of persons, Articles of apparel, cotton and made-up articles.

As can be seen from the Table 3.8 that Petroleum, Electronic goods, Pearls, precious and semi-precious stones, Gold and Coal are the largest items in India's import basket from the World. Petroleum's contributes 32 percent of the total imports. Other important items of India's import from the World include Telecommunication

equipment and parts, Natural gas, Fixed vegetable fats and oil, Copper ores, Fertilizers and Liquefied propane and butane.

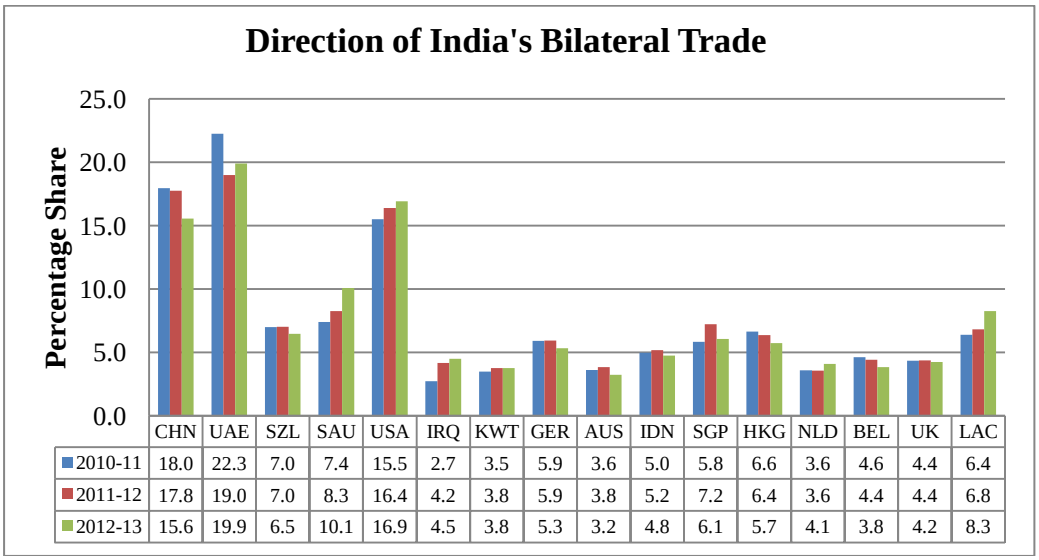
Table 3.8: India's Merchandise Trade of Top Ten Principal Commodities with the World, 2013

EXPORTS			IMPORTS		
Rank	**Commodity**	**Percent**	**Rank**	**Commodity**	**Percent**
1	Petroleum oils or bituminous minerals > 70 % oil	19.9	**1**	Petroleum oils, oils from bituminous. materials, crude	32.0
2	Pearls, precious & semi-precious stones	9.0	**2**	Pearls, precious & semi-precious stones	6.0
3	Jewellery & articles of precious material	3.3	**3**	Gold (excluding gold ores and concentrates)	5.9
4	Medicaments (incl. veterinary medicaments)	3.2	**4**	Coal, whether or not pulverized, not agglomerated	3.0
5	Rice	2.4	**5**	Telecommunication equipment & parts	2.4
6	Textile yarn	2.1	**6**	Natural gas, whether or not liquefied	1.8
7	Motor vehicles for the transport of persons	1.7	**7**	Fixed vegetable fats & oils, crude, refined	1.6
8	Articles of apparel, of textile fabrics	1.5	**8**	Copper ores and concentrates; copper mattes, cement	1.3
9	Cotton	1.4	**9**	Fertilizers (other than those of group 272)	1.3
10	Made-up articles, of textile materials	1.4	**10**	[342] Liquefied propane and butane	1.1
Total Top Ten Commodity Exports		**45.9%**	**Total Top Ten Commodity Imports**		**56.4%**
Others		**54.1%**	**Others**		**43.6%**
Total		**100%**	**Total**		**100%**

Data Source: UNCTAD database

Figure 3.4 shows the direction of India's bilateral trade for the period 2010-11 to 2012-13. In this period UAE emerged as the most important source for India, contributing its total share of 19.9 percent. U.A.E., USA, China, Singapore, LAC and Hongkong are the important countries India exports its products to.

Figure 3.4: Direction of India's Bilateral Trade

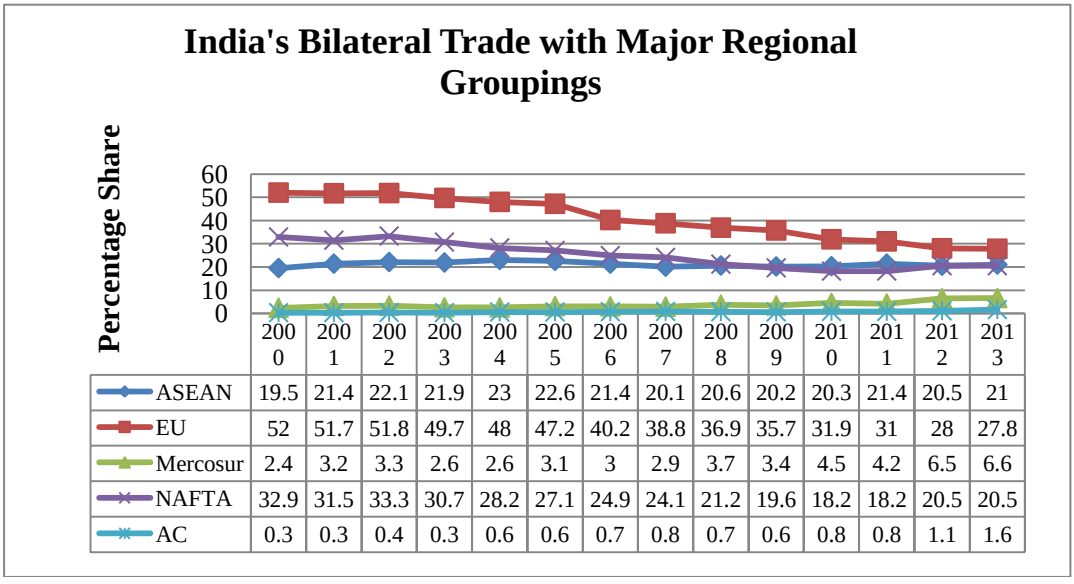


	CHN	UAE	SZL	SAU	USA	IRQ	KWT	GER	AUS	IDN	SGP	HKG	NLD	BEL	UK	LAC
2010-11	18.0	22.3	7.0	7.4	15.5	2.7	3.5	5.9	3.6	5.0	5.8	6.6	3.6	4.6	4.4	6.4
2011-12	17.8	19.0	7.0	8.3	16.4	4.2	3.8	5.9	3.8	5.2	7.2	6.4	3.6	4.4	4.4	6.8
2012-13	15.6	19.9	6.5	10.1	16.9	4.5	3.8	5.3	3.2	4.8	6.1	5.7	4.1	3.8	4.2	8.3

Data Source: RBI

India's bilateral trade with U.A.E., USA, Netherlands, Iraq and LAC have increased in 2012-13 as compared to 2011-12. The overall trade has increased during the year. It is clear from the diagram that total trade with China, Switzerland, Singapore and Hong Kong has declined.Countries like China, UAE, Saudi Arabia, Iraq, Kuwait, Indonesia, Netherlands and LAC are becoming important trade partners to India.

Figure 3.5: India's Bilateral Trade with Major Regional Groupings



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
ASEAN	19.5	21.4	22.1	21.9	23	22.6	21.4	20.1	20.6	20.2	20.3	21.4	20.5	21
EU	52	51.7	51.8	49.7	48	47.2	40.2	38.8	36.9	35.7	31.9	31	28	27.8
Mercosur	2.4	3.2	3.3	2.6	2.6	3.1	3	2.9	3.7	3.4	4.5	4.2	6.5	6.6
NAFTA	32.9	31.5	33.3	30.7	28.2	27.1	24.9	24.1	21.2	19.6	18.2	18.2	20.5	20.5
AC	0.3	0.3	0.4	0.3	0.6	0.6	0.7	0.8	0.7	0.6	0.8	0.8	1.1	1.6

Data Source: UNCTAD database

Figure 3.5 shows India's bilateral trade with major Regional Trade Agreements from 2000-2013. It is clear from the diagram that total trade in the year 2013 have almost remained the same as the prior year, 2012. In terms of absolute value, for the year 2013, India's total bilateral trade with European Union is 27.8 percent {exports worth 56.3 billion dollars (16.7 percent) and imports of worth 51.7 billion dollars (11.1 percent) the highest import share}. India's second highest bilateral trade is 21 percent with ASEAN {exports worth 37.9 billion dollars (11.3 percent) and imports worth 45.1 billion dollars (9.7 percent)}. Closely followed by, NAFTA with a total trade of 20.5 percent {exports worth 46.4 billion dollars (13.8 percent) and imports worth 31.2 billion dollars (6.7 percent)}. India's bilateral trade with MERCOSUR is 6.6 percent {exports worth 7.3 billion dollars (2.2 percent) and imports worth 20.3 billion dollars (4.4 percent)}. Andean Community ranks the last with a total trade of just 1.6 percent {exports worth 2.1 billion dollars (0.6 percent) and imports worth 4.8 billion dollars (1 percent)} with India.

3.3 Indo-Latin Trade

Going back history, the Portuguese mariners of the l5th century can be credited with the 'discovery' of Latin America in their pursuit of a sea route to India in the absence and non-accessibility of the land route. It was the Iberian ocean voyagers and seafarers who first brought India and Latin America together. The connection resulting from trade guaranteed an exchange of numerous merchandise and thoughts in the accompanying hundreds of years. In fact, some of the commonly used fruits and vegetables grown in either region owe their origins to the other. While rice, pepper, cinnamon and sugarcane were conveyed from India, pineapples, chillies, tapioca and so forth came to India from Latin America. The relations between the two countries

continued through trade and commerce, furthermore through the foundation of the Portuguese imperialism in parts of India.

Preferential Trade Agreements (PTAs) are signed between India and some of the larger countries of the Latin American region like Colombia, Chile, Brazil and Venezuela. Also, in addition Joint Working Groups further explore bilateral mechanisms to increase economic and trade linkages with Brazil, Colombia and Mexico.

3.3.1 Composition and Direction of Indo – Latin Trade

With the expanding diversification of India's worldwide trade towards other developing nations, Latin America has developed as an imperative accomplice for India, both as an export destination furthermore an import source. Diversification Index (DI) and Concentration Index (CI) demonstrate the structure of trade of a country and these indices are helpful in analysing the pattern of trade. Diversification Index is calculated by measuring total deviation of the nation share from the World structure. Diversification Index that ranges from zero to one reveals the degree of the contrasts between the structure of trade of the nation or nation group and the world average. The index value closer to one indicates a bigger difference from the World average.

Table 3.9 gives the Export and Import Concentration and Diversification Index for India and Latin America for the year 2013. The export diversification index is high for Guyana (0.81), Nicaragua (0.81), Bolivia (0.80) and Paraguay (0.80) and low for Panama (0.56), Brazil (0.55) and Mexico (0.39). That means, export of Guyana, Nicaragua, Bolivia and Paraguay are confined to few select products and very much different from the world export structure.

Table 3.9: Export and Import Concentration and Diversification Index for India and Latin America, 2013

Country	EXPORTS			IMPORTS		
	No. of Products Exported	CI	DI	No. of Products Imported	CI	DI
India	252	0.18	0.48	257	0.30	0.47
Latin America						
Argentina	245	0.15	0.60	247	0.10	0.32
Belize	120	0.31	0.73	197	0.23	0.52
Bolivia	159	0.48	0.80	238	0.07	0.39
Brazil	253	0.15	0.55	253	0.09	0.25
Chile	233	0.34	0.73	249	0.10	0.26
Colombia	236	0.46	0.64	244	0.10	0.33
Costa Rica	217	0.46	0.76	246	0.13	0.35
Eucador	203	0.53	0.75	240	0.12	0.39
El Salvador	201	0.20	0.70	237	0.12	0.44
Guatemala	222	0.14	0.67	240	0.13	0.41
Guyana	84	0.45	0.81	194	0.23	0.51
Honduras	212	0.22	0.75	235	0.17	0.49
Mexico	251	0.16	0.39	252	0.10	0.31
Nicaragua	167	0.21	0.81	220	0.10	0.39
Panama	239	0.15	0.56	242	0.27	0.55
Paraguay	155	0.34	0.80	228	0.13	0.44
Peru	237	0.23	0.71	248	0.09	0.31
Suriname	138	0.55	0.77	201	0.19	0.43
Uruguay	192	0.23	0.70	239	0.11	0.31
Venezuela	224	0.62	0.74	252	0.05	0.38

Data Source: UNCTAD database

On the other hand, exports of Panama, Brazil and Mexico are spread over large number of commodities and more similar to world export structure. India's export diversification index in the year 2005 was 0.54 which declined to 0.48 in 2013 (Appendix Table 3.A-5). This shows India which was exporting some select traditional commodities is widening its export basket by adding different commodities and moving towards the World export structure. Concentration Index for most of the Latin American countries and India are low showing the export markets are well spread out across the globe.

The Import Diversification Index is low for most of the Latin American Countries showing that it is not significantly different from the World import structure. Panama

(0.55 percent), Belize (0.52 percent) and Guyana (0.51 percent) are having higher diversification index showing their limited number of import commodities, while a lower diversification index for Brazil (0.25) and Chile (0.26). That means, import of Panama, Belize and Guyana are confined to few select products and very much different from the world import structure. On the other hand, imports of Brazil and Chile are spread over large number of commodities and more similar to world import structure. As compared to the DI of 0.42 in 2005, India's import diversification index in 2013 is slightly higher (0.47) mainly because of the large share of petroleum products in India's import basket from LAC (Appendix Table 3.A-6). The import concentration index showed that LAC and India have less market concentration of its imports.

Table 3.10 presents trends in India's major export items to LAC. As can be seen from the table, Petroleum, motor vehicles for the transport of persons and textile yarn are the largest items in India's export basket to LAC, with a combined share of 37.9 percent of India's total exports to LAC in 2013. LAC is increasingly emerging as an important destination for India's exports (Table 3.26) of petroleum oils, the major markets being Brazil, Suriname and Argentina. LAC currently accounts for around 23.5 percent of India's global exports of petroleum oils. LAC is a major destination for India's exports of Motor vehicles, Motorcycles and cycles accounting for a respectable 11.9 percent of India's exports in 2013. The leading destination in the LAC region for Motor vehicles, Motorcycles and cycles is Colombia followed by Mexico, Chile, and Brazil. LAC is an important market for India's exports of organic chemicals. The largest destinations are Brazil, Mexico and Argentina. Plastics and articles are also one of the largest items in India's exports basket to Brazil and Mexico. India's exports of machinery to LAC have risen significantly with the largest

destinations being Brazil, Mexico and Argentina, other countries such as Guatemala, Chile, Colombia, Peru, and Venezuela are also increasingly importing machinery from India.

Table 3.10: India's Merchandise Trade of Top Ten Principal Commodities to Latin America, 2013

EXPORTS			IMPORTS		
Rank	**Commodity**	**Percent**	**Rank**	**Commodity**	**Percent**
1	Petroleum oils or bituminous minerals > 70 % oil	23.5	**1**	Petroleum oils, oils from bituminous. materials, crude	75.58
2	Motor vehicles for the transport of persons	7.7	**2**	Copper ores and concentrates; copper mattes, cement	10.16
3	Textile yarn	6.7	**3**	Fixed vegetable fats & oils, crude, refined	3.71
4	Motorcycles & cycles	4.2	**4**	Sugar, molasses and honey	1.29
5	Insecticides & similar products, for retail sale	3.8	**5**	Gold, non-monetary (excluding gold ores and concentrates)	1.01
6	Medicaments (incl. veterinary medicaments)	3.4	**6**	Telecommunication equipment & parts	0.53
7	Parts & accessories of vehicles of 722, 781, 782, 783	3.3	**7**	Wood in the rough or roughly squared	0.43
8	Aluminium	1.9	**8**	Parts, accessories for machines of groups 751, 752	0.38
9	Medicinal and pharmaceutical products, excluding 542	1.8	**9**	Crude fertilizers (excluding those of division 56)	0.34
10	Organo-inorganic, heterocycl. compounds, nuclear acids	1.7	**10**	Inorganic chemical elements, oxides & halogen salts	0.30
Total Top Ten Commodity Exports		**58%**	**Total Top Ten Commodity Imports**		**93.73%**
Others		**42%**	**Others**		**6.27%**
Total		**100%**	**Total**		**100%**

Data Source: UNCTAD database

Reflecting the increased importance of the LAC region as sources for India's petroleum, crude oil imports, minerals fuels are the largest items in India's import

basket from LAC, accounting for as much as 75.58 percent of India's total imports from LAC in 2013. As regards copper ores and concentrates, the second largest items of India's imports from LAC, LAC is a major source for India's imports of copper ores and concentrates accounting for 10.16 percent of India's total imports from LAC. Other important items of imports from LAC include fixed vegetable fats and oils, sugar, molasses and honey, gold, telecommunication equipment, wood etc.

Brazil is India's largest export destination in LAC, accounting for around 2.55 percent of India's total exports to LAC in 2014 (Table 3.11). Other major export markets in LAC include Mexico, Colombia, Peru and Chile. The importance of Brazil can be assessed from the fact that it is the leading destination in LAC for India's exports of petroleum oils, organic chemicals and machinery and a major destination for vehicles and plastics and articles. All these items are among the major export items to LAC. Brazil is also an important destination for India's exports of electrical and electronic equipment, cotton, and pharmaceutical products.

In the case of Mexico (0.82 percent), the country is the largest destination in LAC for India's exports of meat and edible meat and also an important market for India's exports of vehicles, organic chemicals, machinery, plastics and articles, pharmaceutical products and articles of iron and steel. In the case of Colombia (0.33 percent) the country is the largest destination of Indian exports of vehicles to LAC. It is also a major destination in LAC for India's exports of cotton, organic chemicals, manmade staple fibres, miscellaneous chemical products, and iron and steel. As regards Peru (0.23 percent), important items of India's exports to the country include vehicles, cotton, iron and steel, manmade filaments, manmade staple fibres, plastics and articles and electrical equipment. In the case of Chile (0.18 percent) major items

of India's exports to the country include vehicles, iron and steel, manmade fibres, other made textile articles, sets, etc, pharmaceuticals, and rubber and articles.

Table 3.11: India's Exports to and Imports from Latin American Countries

(Value in US $ million)
(P) Provisional

Region/Country	EXPORTS		IMPORTS	
	Apr – Sep 2014 (P)	Percentage Share	Apr – Sep 2014 (P)	Percentage Share
Latin America	**7804.64**	**4.85**	**16158.74**	**6.89**
Argentina	240.17	0.15	1,083.63	0.46
Belize	11.74	0.01	0.15	0
Bolivia	40.78	0.03	1.3	0
Brazil	4,126.05	2.55	2,795.34	1.19
Chile	287	0.18	1,660.14	0.71
Colombia	537.6	0.33	1,145.70	0.49
Costa Rica	47.77	0.03	111.14	0.05
Eucador	118.11	0.07	948.47	0.41
El Salvador	31.13	0.02	4.04	0
Guatemala	110.28	0.07	10.25	0
Guyana	11.86	0.01	5.02	0
Honduras	86.1	0.05	14.27	0.01
Mexico	1,316.94	0.82	1,741.27	0.74
Nicaragua	33.34	0.02	1.46	0
Panama	145.44	0.09	17.74	0.01
Paraguay	43.3	0.03	35.12	0.01
Peru	368.48	0.23	207.64	0.09
Suriname	8.75	0.01	18.9	0.01
Uruguay	124.93	0.08	10.21	0
Venezuela	114.87	0.07	6,346.95	2.71

Data Source: Department of Commerce, System on Foreign Trade Performance Analysis (FTPA), India.

Venezuela is the seventh largest source, accounting for as much as 2.71 percent of India's imports from LAC, followed by Brazil accounting for 1.19 percent. Other

suppliers from LAC to India include Mexico (0.74 percent) and Chile (0.71 percent). These four LAC countries together accounted for as much as 5.35 percent of India's global imports in the year 2014. Other LAC countries such as Colombia (0.49 percent), Argentina (0.46 percent) and Eucador (0.41 percent) are also among the leading sources for India's imports.

Chile is the leading source for India's imports of copper ores and concentrates, with a share of 0.71 percent of India's total imports in 2014. Brazil and Peru are other leading import sources of copper ores and concentrates after Chile, Australia and Indonesia. Under the category of fixed vegetable fats and oils, LAC accounts for 3.71 percent of India's global imports (Table 3.10). The main suppliers from LAC are Argentina, Brazil and Paraguay. The major import partners for India in the LAC region. Venezuela is the largest import source, followed by Colombia, Mexico, Brazil, Chile and Argentina. In the case of Venezuela, Brazil and Mexico, these countries are important sources for India's global imports of crude petroleum. Venezuela is also a major source of iron and steel, inorganic chemicals, lead and articles and aluminium and articles.

Brazil is an important source of ores, slag and ash, iron and steel, animal, vegetable fats and oils, and machinery. Mexico is a leading source of electrical and electronic equipment, machinery, iron and steel, pearls and precious stones and plastics and articles. In the case of Chile, the country is a major supplier of copper ores and concentrates to India. In the case of Argentina, the country is the largest source for India's imports of animal, vegetable fats and oils from LAC, accounting for 0.46 percent of India's total imports from LAC in the year 2014. Colombia is a major source of India's imports of crude oil, iron and steel and wood and articles of wood.

Table 3.12: India's Total Bilateral Trade with Latin America, 2014

(Value in US $ million)

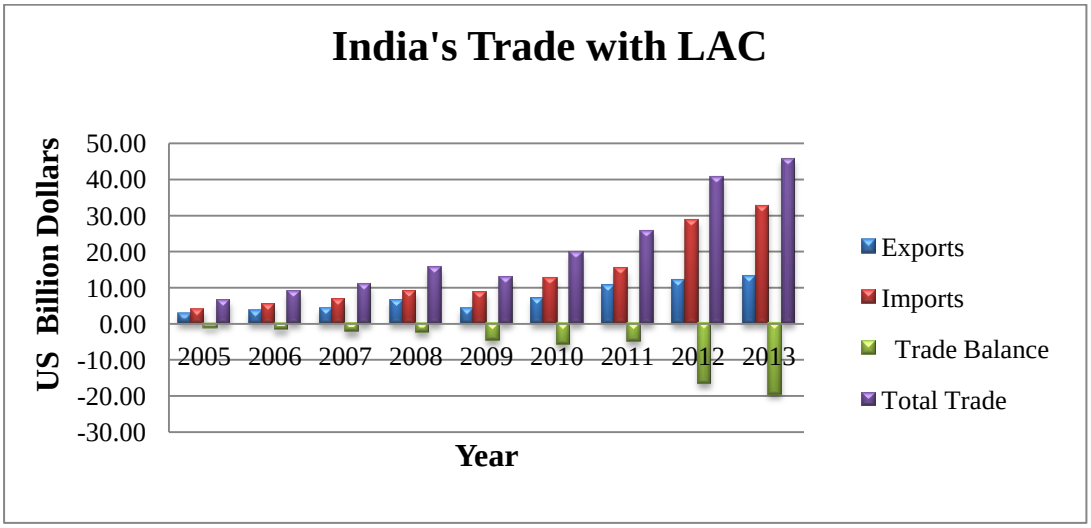
Countries	India's Exports to LAC	India's Imports from LAC	Balance of Trade	Total Trade
Latin America	**7804.64**	**16158.7**	**-8354.1**	**23963.38**
Argentina	240.17	1,083.63	-843.46	1323.8
Belize	11.74	0.15	11.59	11.89
Bolivia	40.78	1.3	39.48	42.08
Brazil	4,126.05	2,795.34	1330.71	6921.39
Chile	287	1,660.14	-1373.14	1947.14
Colombia	537.6	1,145.70	-608.1	1683.3
Costa Rica	47.77	111.14	-63.37	158.91
Eucador	118.11	948.47	-830.36	1066.58
El Salvador	31.13	4.04	27.09	35.17
Guatemala	110.28	10.25	100.03	120.53
Guyana	11.86	5.02	6.84	16.88
Honduras	86.1	14.27	71.83	100.37
Mexico	1,316.94	1,741.27	-424.33	3058.21
Nicaragua	33.34	1.46	31.88	34.8
Panama	145.44	17.74	127.7	163.18
Paraguay	43.3	35.12	8.18	78.42
Peru	368.48	207.64	160.84	576.12
Suriname	8.75	18.9	-10.15	27.65
Uruguay	124.93	10.21	114.72	135.14
Venezuela	114.87	6,346.95	-6232.08	6461.82

Data Source: Computed from UNCTAD database.

Underlying the robust trend in bilateral trade (total trade) between India and LAC, there has been a rising trend in India's trade deficit with LAC. India's trade balance with LAC has turned negative and amounted to a trade deficit of US 8354.1 million dollars in 2014 (Table 3.12). Amongst the major trade partners with which India maintains a trade deficit, the largest countries are Venezuela (-6232.08 million dollars), Chile (-1373.14 million dollars), Argentina (-843.46), Eucador (-830.36

million dollars), Colombia (-608.1 million dollars), Mexico (-424.33 million dollars), Costa Rica (-63.37) and Suriname (-10.15 million dollars). In the case of Venezuela in particular large and rising volume of crude petroleum imports have underlined India's rising trade deficit. It is interesting to note that these eight countries namely, Venezuela, Chile, Argentina, Eucador, Colombia, Mexico, Costa Rica and Suriname taken together, accounted for as much as 5.58 percent of India's total imports from the region in 2014. Figure 3.6 shows India's total trade (exports and imports) with Latin America.

Figure 3.6: India's Bilateral Trade with the Latin American Countries



Data Source: UNCTAD database

An analysis of the trend in India's exports to major destinations in LAC during the year 2014 would reveal that, while the share of major destinations such as Chile, Argentina and Belize in India's total exports to LAC has declined, other countries such as Brazil, Mexico, Colombia, Panama, Peru and Uruguay are increasingly emerging as important destinations, with rising share in India's exports to LAC.

3.4 Major Findings

A systematic study on the composition and direction of merchandise trade among the regions and groupings reveal that the World trade decelerated strongly in 2011 as the worldwide economy battled against the natural calamities, money related instability and civil conflict. The volume of World's merchandise trade registered an increment of 2.2 percent in 2013. As the number of Regional Trade Agreements increased, there is a formation of fiercely competing trade blocs. MERCOSUR has become a vibrant trade bloc in Asia with lower tariffs, export orientation and trade facilitation. But there exists diversity in size and population, a difference in the level of development, trade liberalisation, economic as well as financial stability among MERCOSUR members. The dominant players of MERCOSUR are Brazil and Venezuela as they contribute the majority of exports and imports. Though intra regional trade share in MERCOSUR is increasing steadily, it is still at a slower pace as compared to the European Union, NAFTA and ASEAN and yet higher than ANDEAN.

The top ten commodity group for exports account to 96.6 percent of the MERCOSUR export to India and 71.1 percent of imports from India. Whereas, the top ten commodity group of India’s export to Latin America account for 41.2 percent and 93.73 percent of India’s import from Latin America. Bolivia, Guyana, Paraguay and Nicaragua export structure is less diversified and exports of Mexico, Panama and Brazil are more diversified. Belize, Panama and Guyana import smaller variety of products. USA, China, Brazil and Japan are the major trade partners of Latin America. Maximum export is seen in the Manufacturing sector which provides- Engineering goods, Gems, Jewellery, Chemicals and Textiles products are the major items of export. Despite the reducing share in trade in the recent years, USA is India’s most important export partner. UAE, USA, China, Singapore, Hong Kong and Latin

American Countries are the other important countries to which India exports its products. Petroleum (32 percent) is the single largest item of import. MERCOSUR-India trade was growing steadily and trade between MERCOSUR and India grew at an increasing rate in the recent years having a positive impact on trade.

CHAPTER – IV

TRADE COMPLEMENTARITY

BETWEEN INDIA AND LATIN AMERICA

CHAPTER – IV

TRADE COMPLEMENTARITY BETWEEN INDIA AND LATIN AMERICA

It is comprehended that complementarity in the trade structure of the countries encourages more export and import between them and there is scope for common advantage from this expanded exchange. Thus distinguishing and measuring trade complementarity is an essential task in acknowledging trade potential among countries. Regional Trade Agreements are effective and successful only if they are carefully designed by identifying and collating complementary products and sectors. There are different indices developed to examine the trade pattern and to see whether expanded participation is conceivable between countries. These incorporate (i) Trade Intensity Index [(a) Export Intensity Index (EII) and (b) Import Intensity Index (III)] and (ii) Revealed Comparative Advantage Index. In this chapter an attempt is made to construct these indices for India and MERCOSUR and to see whether increased trade cooperation between these two trading partners is possible or not.

4.1 Trade Intensity Index (TII)

The index can be defined as a certain quantity share exports of a country to its partner divided by the quantity share exports of the world to its partner. The formula used is as follows:

$$T_{ij} = (X_{ij}/X_{it}) / (X_{wj}/X_{wt}) \quad (1)$$

Where, X_{ij} = the values of country i's exports to country j

X_{wj} = country i's total exports

X_{it} = the values of world exports to country j

X_{wt} = total world exports

An index value of more (less) than one indicates a bilateral trade flow that is larger (smaller) than expected, given the partner country's importance in World trade. Trade Intensity Index is divided into (a) Export Intensity Index (EII) and (b) Import Intensity Index (III) for understanding the pattern of exports and imports. The trade intensity index as stated by Kojima (1964) and Drysdale (1969) is as follows:

Export Intensity Index (EII)

$$\text{EII between India and MERCOSUR} = \frac{X_{IM} / X_I}{M_M / (M_W - M_I)} \quad (2)$$

X_{IM} = India's export to MERCOSUR

X_I = India's total export

M_M = MERCOSUR's total import

M_W = World's total import

M_I = India's total import

Import Intensity Index (III)

$$\text{III between India and MERCOSUR} = \frac{M_{IM} / M_I}{X_M / (X_W - X_I)} \quad (3)$$

M_{IM} = India's import from MERCOSUR

M_I = India's total import

X_M = MERCOSUR's total export

X_W = World's total export

X_I = India's total export

4.1.1 Trade Intensity Index between India and MERCOSUR

Trade Intensity Index (TII) is computed for MERCOSUR and India from the time period of 1995 to 2013 using the data from the UNCTAD (United Nations Conference on Trade and Development) statistical database. Both EII and III are ascertained for MERCOSUR and India. If the index is equivalent to one, it implies that there is a

higher degree of trade intensity between two given nations. Vice-versa, if the calculated index is nearing zero, then it implies that there is a lower trade relation. If the index is numerically greater than one, this would infer over-representation of one nation in the other nation's exports/imports. Then again, if estimation of the index is less than one, then it implies under-representation. Table 4.1 and Figure 4.1 demonstrate the Trade Intensity Index between India and MERCOSUR.

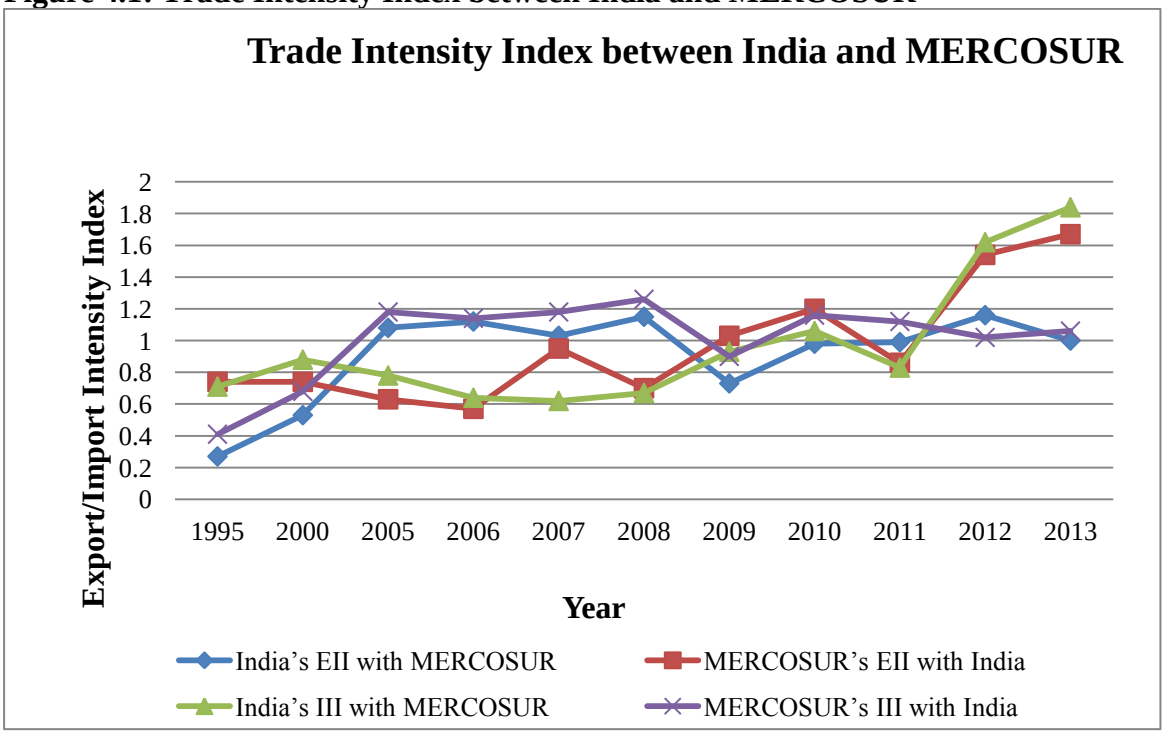
Table 4.1: Trade Intensity Index between India and MERCOSUR

Year	Export Intensity Index		Import Intensity Index	
	India's EII with MERCOSUR	MERCOSUR's EII with India	India's III with MERCOSUR	MERCOSUR's III with India
1995	0.27 (UR)	0.74 (UR)	0.71(UR)	0.41 (UR)
2000	0.53 (UR)	0.74 (UR)	0.88 (UR)	0.68 (UR)
2005	**1.08 (OR)**	0.63 (UR)	0.78 (UR)	**1.18 (OR)**
2006	**1.12 (OR)**	0.57 (UR)	0.64 (UR)	**1.14 (OR)**
2007	**1.03 (OR)**	0.95 (UR)	0.62 (UR)	**1.18 (OR)**
2008	**1.15 (OR)**	0.70 (UR)	0.67 (UR)	**1.26 (OR)**
2009	0.73 (UR)	**1.03 (OR)**	0.93 (UR)	0.90 (UR)
2010	0.98 (UR)	**1.20 (OR)**	**1.06 (OR)**	**1.16 (OR)**
2011	0.99 (UR)	0.86 (UR)	0.83 (UR)	**1.12 (OR)**
2012	**1.16 (OR)**	**1.54 (OR)**	**1.62 (OR)**	**1.02 (OR)**
2013	**1.00 (OR)**	**1.67 (OR)**	**1.84 (OR)**	**1.06 (OR)**

Note: (OR) denotes Over Representation and (UR) denotes Under Representation.
Data Source: Computed from UNCTAD database

It can be seen from the above Table 4.1 that the index value of India's export and import intensity for the years 1995-2011 with MERCOSUR maintained less than unity value throughout the period baring 2005-2008 and 2010, subsequently it mirrors that India has been under-represented in MERCOSUR's trade and trade relation appears to be feeble. The trade potential for the years 2012 and 2013 increased reflecting the trade intensity index above one. This reveals that India has strengthened the trade relation with MERCOSUR.

Figure 4.1: Trade Intensity Index between India and MERCOSUR



Data Source: Computed from UNCTAD database

MERCOSUR's export intensity with India maintained less than unity value throughout the period baring 2009-2010 and 2012-2013. This implies that exports to India from MERCOSUR are lower than would be expected given India's share of world trade. This situation is the reverse when examining the import intensity values, which was less than unity in 1995, 2000 and 2009. This analysis shows that India, as a source of exports for MERCOSUR is under-represented. Whereas, the import market for MERCOSUR's goods, is over-represented in India's trade. The natural trading partner theory reveals that the countries tend to trade more with neighbours and close proximate partners. Both the index will descend/reduce once it is adjusted for the geographical distance.

Table 4.2 gives India's Export Intensity with MERCOSUR Countries. Following are the six MERCOSUR countries along with their country codes: ARG – Argentina, BRAZ – Brazil, BOL – Bolivia, PRY – Paraguay, URY – Uruguay and VEN – Venezuela.

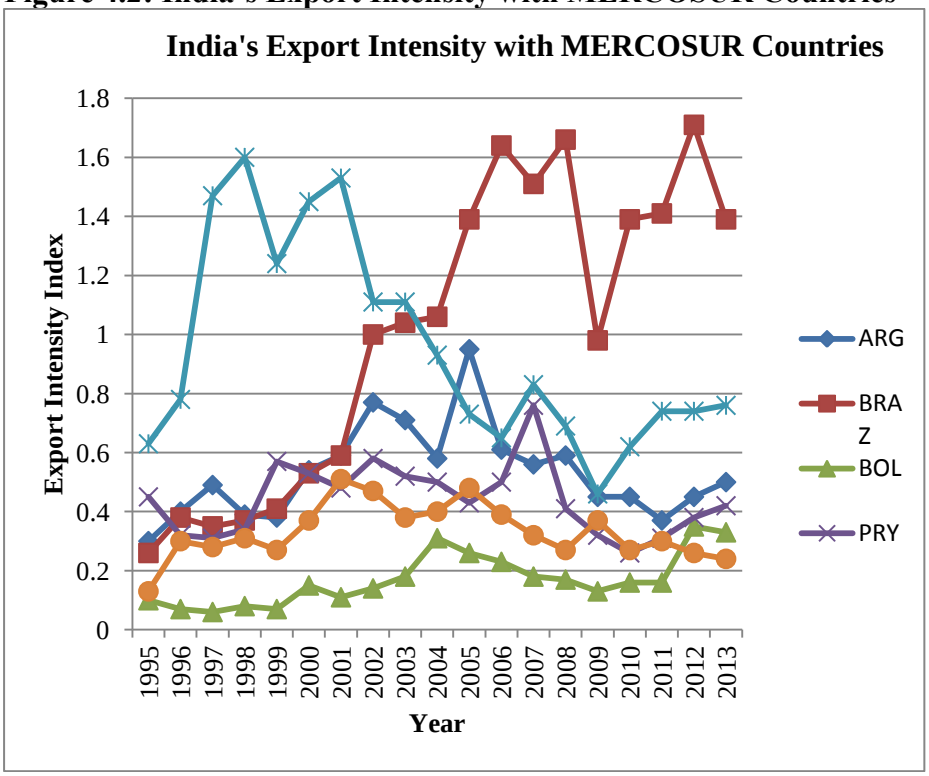
Table 4.2: India's Export Intensity with MERCOSUR Countries

Year	MERCOSUR Countries					
	ARG	**BRAZ**	**BOL**	**PRY**	**URY**	**VEN**
1995	0.30	0.26	0.10	0.45	0.63	0.13
2000	0.54	0.53	0.15	0.53	1.45	0.37
2005	0.95	1.39	0.26	0.43	0.73	0.48
2006	0.61	1.64	0.23	0.50	0.65	0.39
2007	0.56	1.51	0.18	0.76	0.83	0.32
2008	0.59	1.66	0.17	0.41	0.69	0.27
2009	0.45	0.98	0.13	0.32	0.46	0.37
2010	0.45	1.39	0.16	0.26	0.62	0.27
2011	0.37	1.41	0.16	0.31	0.74	0.30
2012	0.45	1.71	0.35	0.38	0.74	0.26
2013	0.50	1.39	0.33	0.42	0.76	0.24

Data Source: Computed from UNCTAD database

The trade intensity among the MERCOSURs' countries depicts that India's export intensity is above one only for Brazil. Except for the year 2000, where India got high import intensity with Uruguay. India yields a high trade potential for Argentina, Bolivia, Paraguay, Uruguay and Venezuela. Out of the total exports of 4.85 percent to Latin America, India exports around 2.55 percent of the commodities to Brazil. Figure 4.2 gives the country wise export intensity of India and MERCOSUR countries.

Figure 4.2: India's Export Intensity with MERCOSUR Countries



Data Source: Computed from UNCTAD database

The small quantum of imports that India has with Bolivia, Paraguay and Uruguay reflect its low import intensity. India's import intensity was small with Venezuela for many years but improved strongly after signing the bilateral trade agreement. India is having high import intensity with Venezuela as the values are above one.

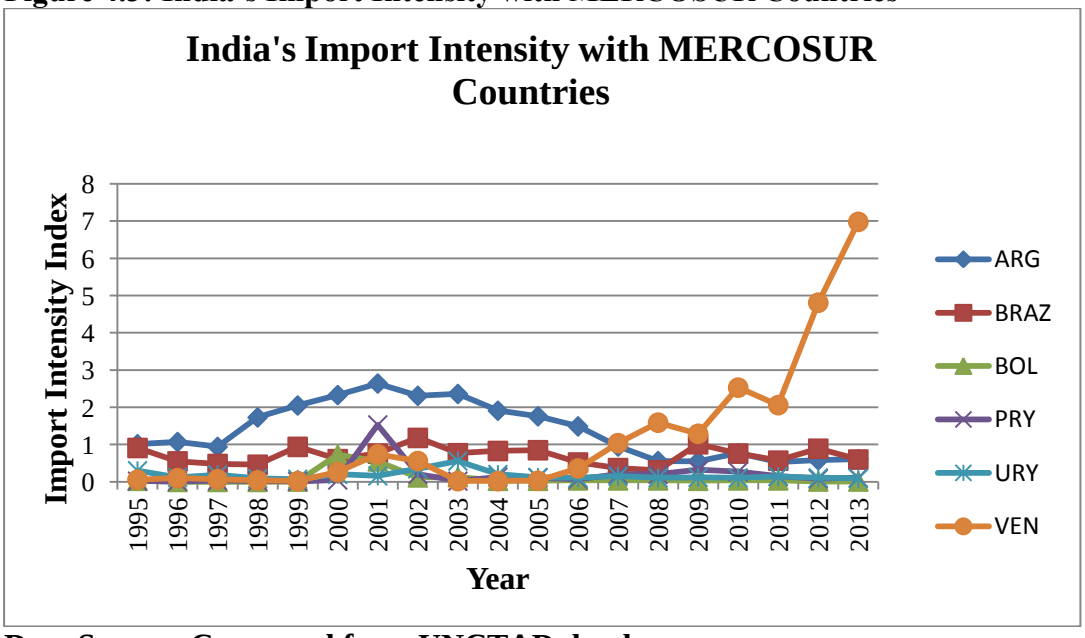
Venezuela is an important source for India's global imports of crude petroleum and also a major source of iron and steel, inorganic chemicals, lead and articles and aluminium and articles. Table 4.3 and Figure 4.3 give the import intensity of India and MERCOSUR countries.

Table 4.3: India's Import Intensity with MERCOSUR Countries

Year	MERCOSUR Countries					
	ARG	BRAZ	BOL	PRY	URY	VEN
1995	1.01	0.91	0.03	0.02	0.30	0.06
2000	2.33	0.61	0.73	0.05	0.20	0.26
2005	1.76	0.85	0.03	0.11	0.12	0.03
2006	1.49	0.52	0.04	0.07	0.11	0.36
2007	0.95	0.37	0.04	0.20	0.15	1.04
2008	0.56	0.31	0.04	0.20	0.11	1.59
2009	0.55	1.01	0.03	0.32	0.12	1.29
2010	0.77	0.76	0.04	0.27	0.11	2.53
2011	0.53	0.57	0.04	0.15	0.14	2.06
2012	0.58	0.89	0.01	0.08	0.11	4.81
2013	0.61	0.60	0.01	0.11	0.09	6.98

Data Source: Computed from UNCTAD database

Figure 4.3: India's Import Intensity with MERCOSUR Countries



Data Source: Computed from UNCTAD database

The above analysis indicate that, India can potentially attain ten times or more the level of the actual trade. In fact, most of the MERCOSUR countries reveal possibilities of expanding trade with India. For the region as a whole, however, the

estimates show that India has not surpassed its trade potential and has scope for future trade.

4.2 Intra-Regional Trade Intensity Index of MERCOSUR

The study used the Intra-Regional Trade Intensity Index developed by Kawai (2004), to explain the significance of intra-regional trade of a RTA to the global trade. If the index shows more than one then it is indicative of a healthy flourishing trade. The index is calculated with the following formulae:

$$\text{Intra–MERCOSUR Trade Intensity} = \frac{\dfrac{\text{Intra MERCOSUR Exports}}{\text{Total World Export}}}{\dfrac{\text{Total MERCOSUR Exports}}{\text{Total World Exports}} \; X \; \dfrac{\text{World Exports to MERCOSUR}}{\text{Total World exports}}} \qquad (4)$$

Table 4.4 provided the Intra – MERCOSUR trade intensity index for the period 1995 to 2013. All the years show a high intra – MERCOSUR trade intensity index. MERCOSUR's intra- regional trade is significantly higher in comparison to MERCOSUR's share in world trade.

Table 4.4: Intra – MERCOSUR Trade Intensity Index

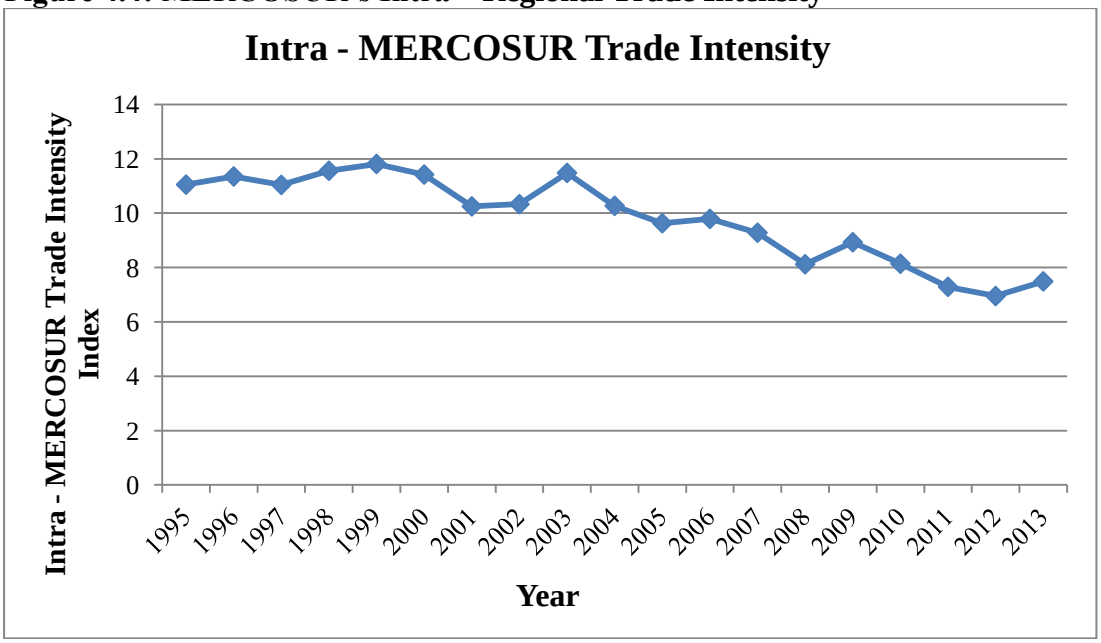
Year	Intra – MERCOSUR Trade Intensity Index
1995	11.05
2000	11.42
2005	9.63
2006	9.79
2007	9.28
2008	8.12
2009	8.93
2010	8.14
2011	7.29
2012	6.95
2013	7.49

Data Source: Computed from UNCTAD

MERCOSUR's Intra – Regional Trade Intensity is diagrammatically presented in Figure 4.4. The Intra – MERCOSUR Trade Intensity Index depicts a decreasing trend.

But from 2012 the index is above six, and stood at 7.49 in the year 2013, which shows a healthy trade growth in the MERCOSUR countries.

Figure 4.4: MERCOSUR's Intra – Regional Trade Intensity



Data Source: Computed from UNCTAD database

4.3 Revealed Comparative Advantage (RCA) Index

Revealed Comparative Advantage Index (RCAI) is an index which defines the relativity that the export of a country has in comparison to the share it holds in world trade. Nations with a higher RCAI benefit from export to the lower RCAI nations. Analysis of RCAI have been utilized to help evaluate a nation's export potential and provide important information regarding possible exchange of trade with new accomplices.

If the value of the Revealed Comparative Advantage (RCA_{ij}) is one and more than one, then the said country holds a comparative advantage in the respective commodity and vice-versa.

$$\mathbf{RCA_{ij}} = \frac{(x_{ij} / X_{it})}{(x_{wj} / X_{wt})} \qquad (5)$$

Where,

x_{ij} = Country i's exports of product j

x_{wj} = World exports of product j

X_{it} = Total exports of country i

X_{wt} = Total world exports

India's RCA is compared to the MERCOSUR countries RCA to check if trade complementarity exists between them based on the following three levels- Sector level, Product Groups and Harmonised System- three digit commodity level. Revealed Comparative Advantage calculated for six MERCOSUR countries across 17 major commodity sectors to ascertain the particular benefits which accrue from the trade.

RCA is calculated for the following commodities: (i) Agriculture products (ii) Fuels and mining (iii) Food (iv) Fuels (v) Iron and steel (vi) Manufactures (vii) Machinery and transport equipment (viii) Chemicals (ix) Office and telecom equipments, (x) Pharmaceuticals (xi) Textiles (xii) Electronic data processing and office equipment (xiii) Telecommunications equipment (xiv) Automotive (xv) Integrated circuits and electronic components (xvi) Clothing and (xvii) Transport equipment. The sectors calculated for RCA are an extract from the World Trade Organization (WTO) statistical database.

RCAI for MERCOSUR countries taken together at HS-3 classification for the year 2013 is calculated and compared against India to see any complementarity existing between India and MERCOSUR countries in international trade. The following section provides the analysis of RCA for various commodities between India and MERCOSUR countries.

4.3.1 Agricultural Products

India's RCA for agricultural products for the year 2013 is 1.62 which represented that India's agricultural exports are higher than share of agrarian exports in world trade. The RCA for agricultural products among MERCOSUR countries are high for Argentina, Bolivia, Brazil, Paraguay and Uruguay. This implies that India can have higher agricultural exports only with Venezuela.

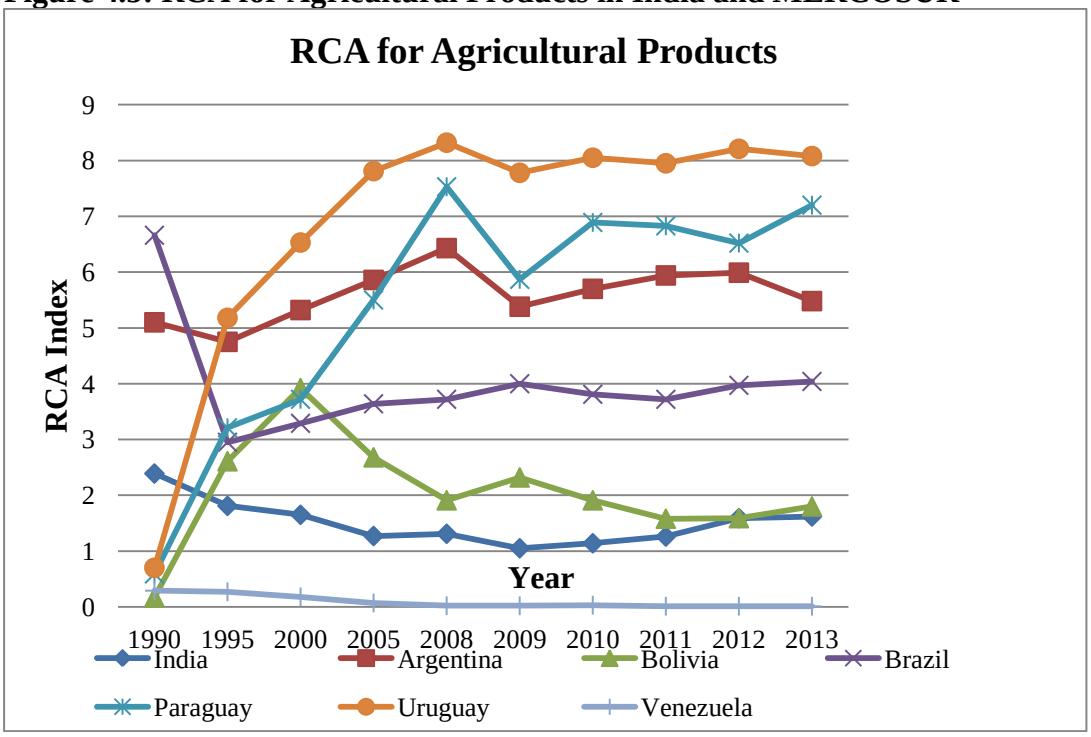
Table 4.5: RCA for Agricultural Products in India and MERCOSUR

Year	India	Argentina	Bolivia	Brazil	Paraguay	Uruguay	Venezuela
1990	2.39	5.10	0.17	6.66	0.59	0.70	0.29
1995	1.81	4.75	2.61	2.95	3.21	5.18	0.27
2000	1.65	5.32	3.92	3.29	3.72	6.53	0.18
2005	1.27	5.86	2.68	3.64	5.50	7.81	0.07
2008	1.31	6.43	1.91	3.72	7.53	8.32	0.02
2009	1.05	5.38	2.32	4.00	5.87	7.78	0.02
2010	1.14	5.70	1.91	3.81	6.89	8.05	0.03
2011	1.26	5.94	1.58	3.72	6.83	7.95	0.01
2012	1.59	5.99	1.59	3.97	6.52	8.21	0.01
2013	1.62	5.48	1.80	4.04	7.20	8.08	0.01

Data Source: Computed from WTO database

The RCAI for the period 1990 to 2013 (twenty four years) provide the long term trend for each product. As far as the agricultural commodity is concerned, the mean RCA is above one for Argentina, Bolivia, Brazil, Paraguay, Uruguay and India while it is below one for Venezuela. Hence there exists an opportunity for India to trade with countries of a lower RCA such as Venezuela. Figure 4.5 diagrammatically represents the RCA for MERCOSUR countries and India for the period 1990 to 2013.

Figure 4.5: RCA for Agricultural Products in India and MERCOSUR



Data Source: Computed from WTO database

4.3.2 Food

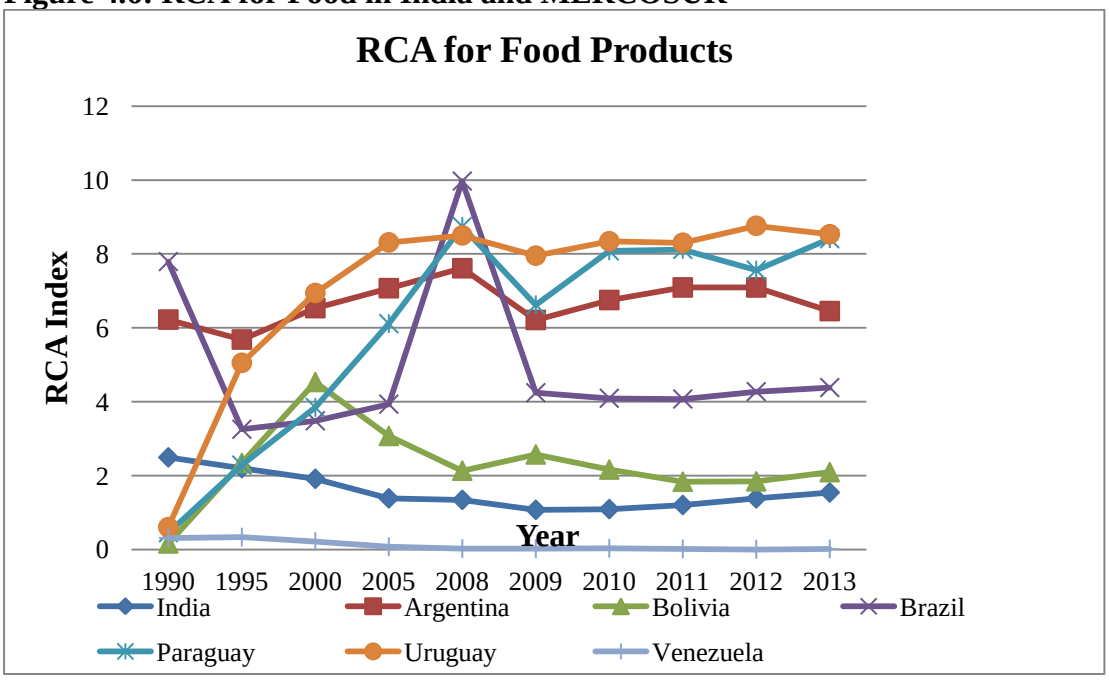
Food products being a part of agriculture are of the same prototype as agricultural products. Food has a high RCA in countries such as India, Argentina, Bolivia, Brazil, Paraguay and Uruguay and low for Venezuela. The mean RCA portrays that Argentina, Paraguay and Uruguay have a stronger RCA of six and above. India has a mean RCA of 1.56 and hence is able to export to Venezuela that has lower RCA in food. It is also revealed from the Table 4.6 that Paraguay and Uruguay which had a low RCA for food items in the early nineties strengthened its RCA over the period time. Table 4.6 and Fig. 4.6 provide the RCA for food items for India and MERCOSUR.

Table 4.6: RCA for Food in India and MERCOSUR

Year	India	Argentina	Bolivia	Brazil	Paraguay	Uruguay	Venezuela
1990	2.49	6.22	0.16	7.79	0.45	0.60	0.31
1995	2.20	5.68	2.34	3.25	2.28	5.05	0.33
2000	1.91	6.53	4.53	3.48	3.84	6.94	0.21
2005	1.38	7.07	3.07	3.93	6.11	8.31	0.07
2008	1.34	7.61	2.13	9.97	8.74	8.50	0.02
2009	1.07	6.21	2.57	4.24	6.62	7.95	0.02
2010	1.09	6.75	2.16	4.09	8.08	8.34	0.03
2011	1.20	7.09	1.83	4.07	8.12	8.30	0.01
2012	1.38	7.09	1.84	4.27	7.56	8.76	
2013	1.54	6.45	2.09	4.38	8.41	8.53	0.01

Data Source: Computed from WTO database

Figure 4.6: RCA for Food in India and MERCOSUR



Data Source: Computed from WTO database

4.3.3 Fuels and Mining Product

Fuel and Mining are resource based products that depend on the natural reserves of the nation. In this sector, the RCA is high for India, Bolivia, Brazil, Paraguay and Venezuela while low in Argentina and Uruguay. The two rich nations of MERCOSUR are Bolivia, rich in minerals and Venezuela, rich in petroleum and they

export petroleum related items to different parts of the world. Brazil and Paraguay additionally has a high RCA for fuels and mining items. India has a rich store of mineral ores and exports them to the mineral scarce nations of MERCOSUR and nations that are in need. The import of crude petroleum is high in India and its necessities are surging ahead consistently. Hence, they can anticipate MERCOSUR oil exporters to meet the country's demand. Table 4.7 and Figure 4.7 give the RCA for fuels and mining items taken together for India and MERCOSUR nations.

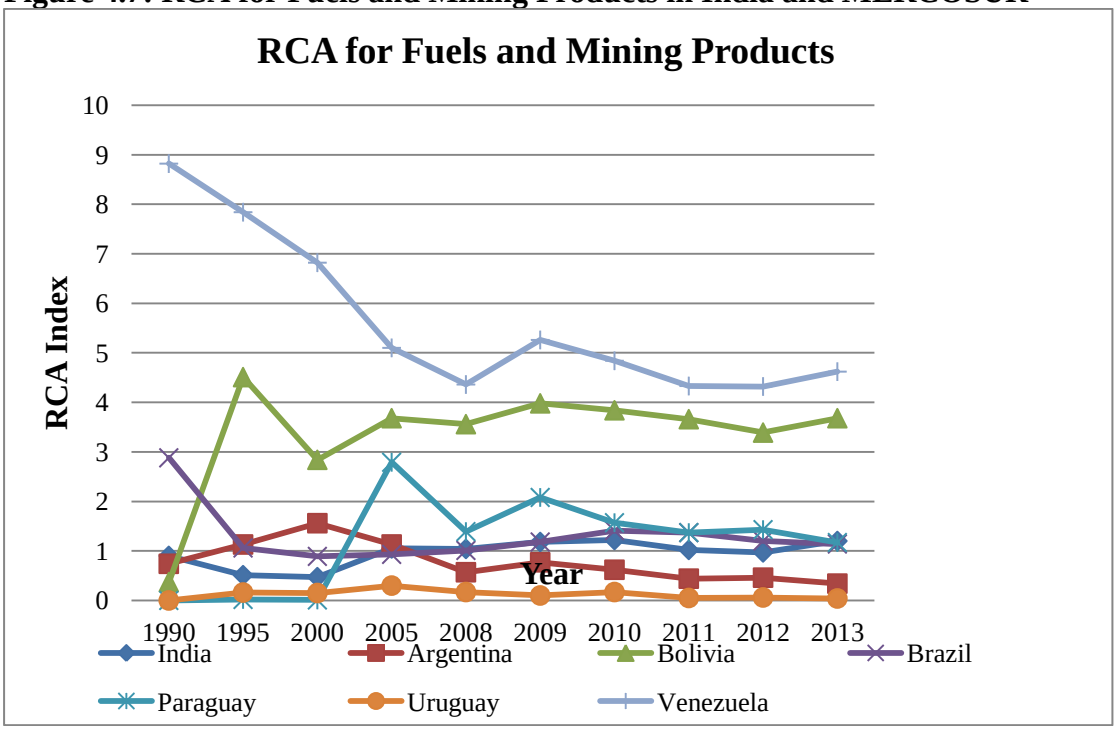
Table 4.7: RCA for Fuels and Mining Products in India and MERCOSUR

Year	India	Argentina	Bolivia	Brazil	Paraguay	Uruguay	Venezuela
1990	0.90	0.74	0.37	2.88			8.82
1995	0.51	1.13	4.51	1.06	0.02	0.16	7.84
2000	0.47	1.56	2.84	0.89	0.01	0.15	6.82
2005	1.05	1.13	3.68	0.93	2.79	0.30	5.10
2008	1.04	0.57	3.56	1.01	1.39	0.17	4.36
2009	1.18	0.77	3.98	1.18	2.08	0.10	5.26
2010	1.22	0.62	3.84	1.41	1.57	0.17	4.84
2011	1.02	0.44	3.66	1.37	1.37	0.05	4.33
2012	0.97	0.46	3.39	1.20	1.43	0.06	4.32
2013	1.20	0.34	3.68	1.14	1.17	0.04	4.62

Data Source: Computed from WTO database

The mean RCA (Table 4.16) shows, Bolivia and Venezuela got strong RCA for fuel and mining products while Brazil and Paraguay got high RCA and they can export fuel items to Uruguay who has a weak RCA alongside India and Argentina who have a low RCA. In the MERCOSUR countries the existence of trade complementarity in fuels is clearly highlighted. However, India has an advantage in the mining sector and hence can export to most of the MERCOSUR nations.

Figure 4.7: RCA for Fuels and Mining Products in India and MERCOSUR



Data Source: Computed from WTO database

4.3.4 Fuels

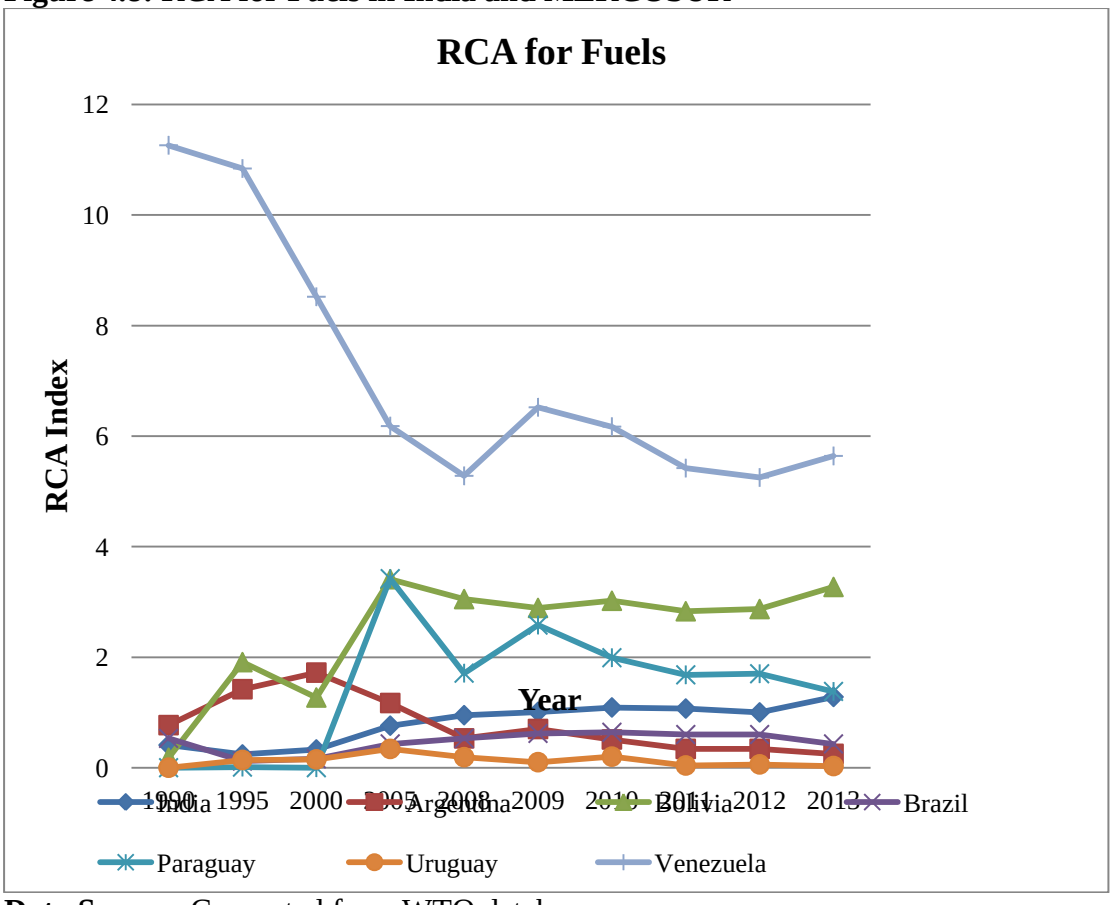
Taking fuels independently, India and Paraguay has got a high comparative advantage while Bolivia and Venezuela have got a strong comparative advantage. Venezuela's important export is petroleum and enjoys the mean RCA of 7.10. Venezuela is the founding member of OPEC (The Organization of the Petroleum Exporting Countries) and a wealthy Bolivia is exploring new wells to expand petroleum trade. Paraguay has got a high RCA in fuels for refining and exporting the items to different nations. India, Argentina, Brazil and Uruguay have got a weak RCA and import huge amount of fuel from different nations. Table 4.8 and Figure 4.8 give the RCA for fuels for India and MERCOSUR nations.

Table 4.8: RCA for Fuels in India and MERCOSUR

Year	India	Argentina	Bolivia	Brazil	Paraguay	Uruguay	Venezuela
1990	0.41	0.77	0.18	0.53			11.26
1995	0.24	1.42	1.91	0.12	0.01	0.14	10.84
2000	0.33	1.72	1.27	0.16		0.15	8.52
2005	0.76	1.17	3.41	0.43	3.42	0.34	6.18
2008	0.95	0.53	3.05	0.53	1.71	0.19	5.28
2009	1.01	0.70	2.89	0.62	2.58	0.10	6.52
2010	1.09	0.51	3.02	0.64	1.99	0.20	6.17
2011	1.07	0.34	2.83	0.60	1.68	0.04	5.42
2012	1.00	0.34	2.87	0.60	1.70	0.06	5.25
2013	1.28	0.25	3.27	0.43	1.38	0.03	5.64

Data Source: Computed from WTO database

Figure 4.8: RCA for Fuels in India and MERCOSUR



Data Source: Computed from WTO database

4.3.5 Manufacture

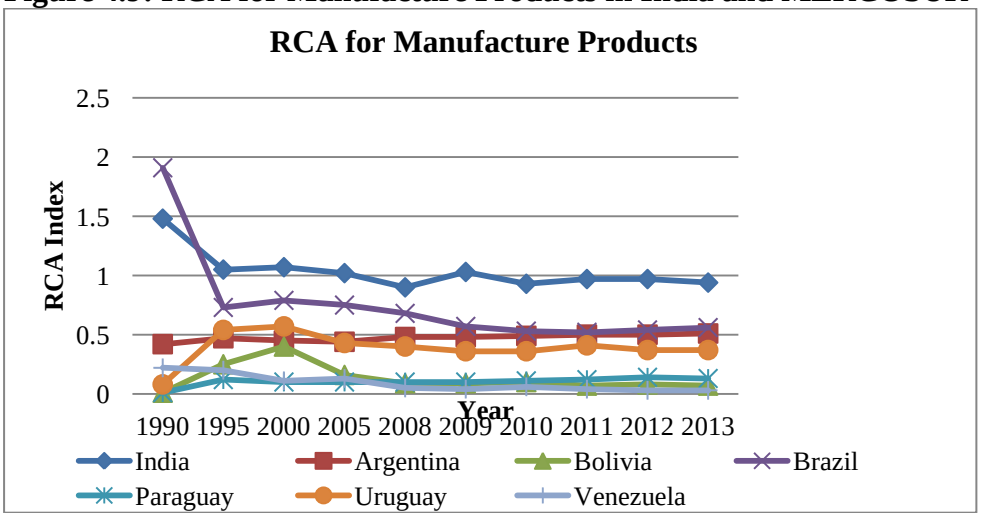
The export of Manufactured commodities depends upon the progress of the country with respect to its industrial growth. The calculation of RCA shows that all the countries got comparative disadvantage for manufactured products. Calculation of the mean RCA showed that India alone has a high RCA of 1.04. At the same time the disaggregation of Manufacture items into diverse classifications depicts that all nations enjoy clear RCA in specific product categories.

Table 4.9: RCA for Manufacture Products in India and MERCOSUR

Year	India	Argentina	Bolivia	Brazil	Paraguay	Uruguay	Venezuela
1990	1.48	0.42	0.01	1.91	0.01	0.08	0.22
1995	1.05	0.47	0.25	0.73	0.12	0.54	0.20
2000	1.07	0.45	0.40	0.79	0.10	0.57	0.11
2005	1.02	0.44	0.16	0.75	0.10	0.43	0.13
2008	0.90	0.48	0.09	0.68	0.10	0.40	0.05
2009	1.03	0.48	0.09	0.57	0.10	0.36	0.04
2010	0.93	0.49	0.10	0.53	0.11	0.36	0.06
2011	0.97	0.50	0.07	0.52	0.12	0.41	0.04
2012	0.97	0.50	0.08	0.54	0.14	0.37	0.03
2013	0.94	0.51	0.07	0.56	0.13	0.37	0.03

Data Source: Computed from WTO database

Figure 4.9: RCA for Manufacture Products in India and MERCOSUR



Data Source: Computed from WTO database

4.3.6 Iron and Steel

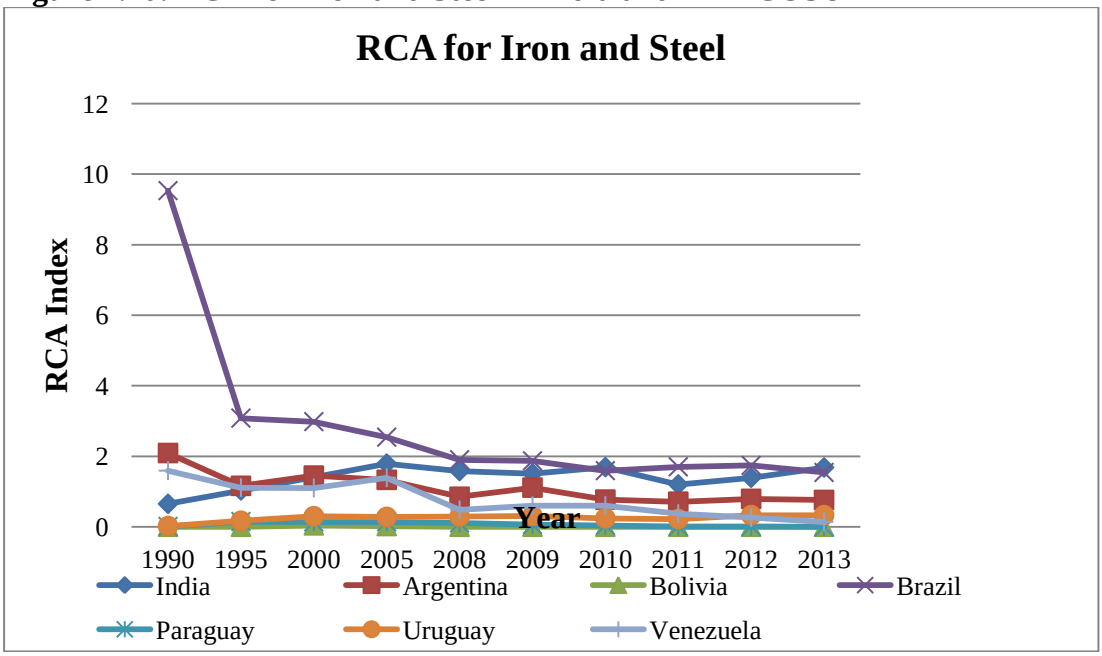
India and Brazil have a high RCA in the Iron and Steel industry, while all the other MERCOSUR nations have a comparative disadvantage. This industry relies on the availability of natural reserves, and since India and Brazil have tremendous iron ore reserves, they have the capacity to trade with the other MERCOSUR nations.

Table 4.10: RCA for Iron and Steel in India and MERCOSUR

Year	India	Argentina	Bolivia	Brazil	Paraguay	Uruguay	Venezuela
1990	0.65	2.09		9.53	0.01	0.02	1.59
1995	1.03	1.16		3.08	0.15	0.17	1.11
2000	1.41	1.45	0.04	2.98	0.14	0.30	1.10
2005	1.79	1.33	0.02	2.54	0.14	0.28	1.39
2008	1.58	0.85		1.90	0.11	0.29	0.48
2009	1.51	1.11		1.87	0.06	0.31	0.60
2010	1.69	0.77		1.59	0.04	0.24	0.60
2011	1.20	0.71		1.70	0.01	0.22	0.37
2012	1.39	0.79		1.74	0.01	0.33	0.26
2013	1.68	0.76		1.54		0.33	0.14

Data Source: Computed from WTO database

Figure 4.10: RCA for Iron and Steel in India and MERCOSUR



Data Source: Computed from WTO database

4.3.7 Chemicals

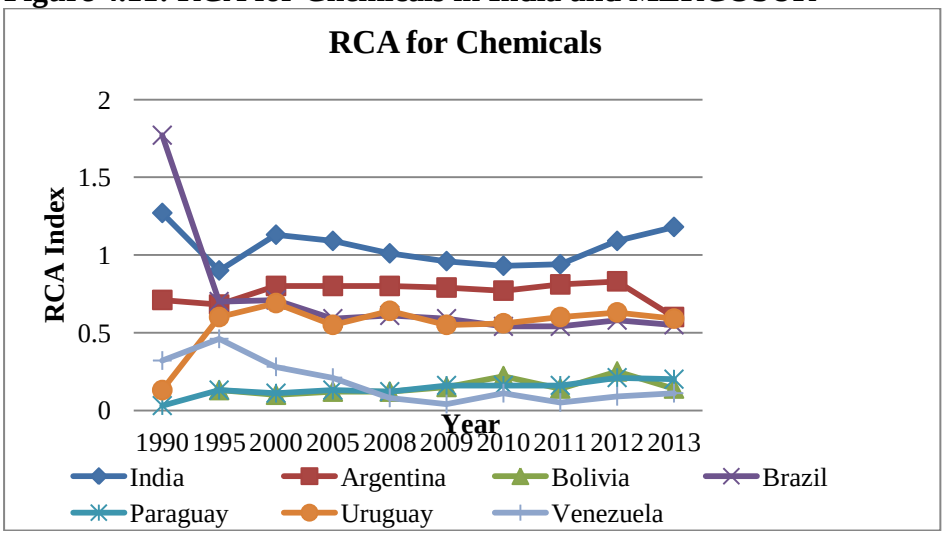
Using the calculated RCA values for Chemicals, India is seen to have gained a comparative advantage over time. In recent years, India's export share has increased specially in the export of various chemical products. India got a high mean RCA in Chemicals where as all the other MERCOSUR countries have a low RCA and hence, India is able to increase its trade with the MERCOSUR countries.

Table 4.11: RCA for Chemicals in India and MERCOSUR

Year	India	Argentina	Bolivia	Brazil	Paraguay	Uruguay	Venezuela
1990	1.27	0.71		1.77	0.03	0.13	0.32
1995	0.90	0.68	0.13	0.70	0.13	0.60	0.46
2000	1.13	0.80	0.10	0.71	0.11	0.69	0.28
2005	1.09	0.80	0.12	0.59	0.13	0.55	0.21
2008	1.01	0.80	0.12	0.61	0.12	0.64	0.08
2009	0.96	0.79	0.15	0.59	0.16	0.55	0.04
2010	0.93	0.77	0.22	0.54	0.16	0.56	0.11
2011	0.94	0.81	0.14	0.54	0.16	0.60	0.05
2012	1.09	0.83	0.25	0.58	0.21	0.63	0.09
2013	1.18	0.60	0.14	0.55	0.20	0.59	0.11

Data Source: Computed from WTO database

Figure 4.11: RCA for Chemicals in India and MERCOSUR



Data Source: Computed from WTO database

4.3.8 Pharmaceuticals

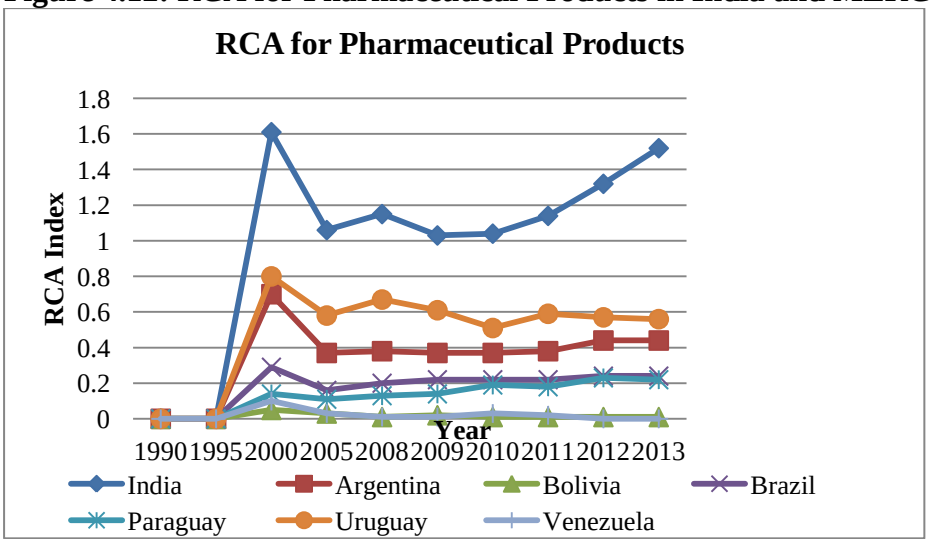
India has a high RCA in the pharmaceutical industry which demonstrates that the capacity has grown over time. All the MERCOSUR nations have weak RCA in this sector despite the fact that Argentina and Uruguay is gradually expanding its share in the long run. There exists a higher trade opportunity for Pharmaceutical products between India and the MERCOSUR nations.

Table 4.12: RCA for Pharmaceutical Products in India and MERCOSUR

Year	India	Argentina	Bolivia	Brazil	Paraguay	Uruguay	Venezuela
1990							
1995							
2000	1.61	0.70	0.05	0.29	0.14	0.80	0.10
2005	1.06	0.37	0.03	0.16	0.11	0.58	0.03
2008	1.15	0.38	0.01	0.20	0.13	0.67	0.01
2009	1.03	0.37	0.02	0.22	0.14	0.61	0.01
2010	1.04	0.37	0.01	0.22	0.19	0.51	0.03
2011	1.14	0.38	0.01	0.22	0.18	0.59	0.02
2012	1.32	0.44	0.01	0.24	0.23	0.57	
2013	1.52	0.44	0.01	0.24	0.22	0.56	

Data Source: Computed from WTO database

Figure 4.12: RCA for Pharmaceutical Products in India and MERCOSUR



Data Source: Computed from WTO database

4.3.9 Machinery and Transport Equipment

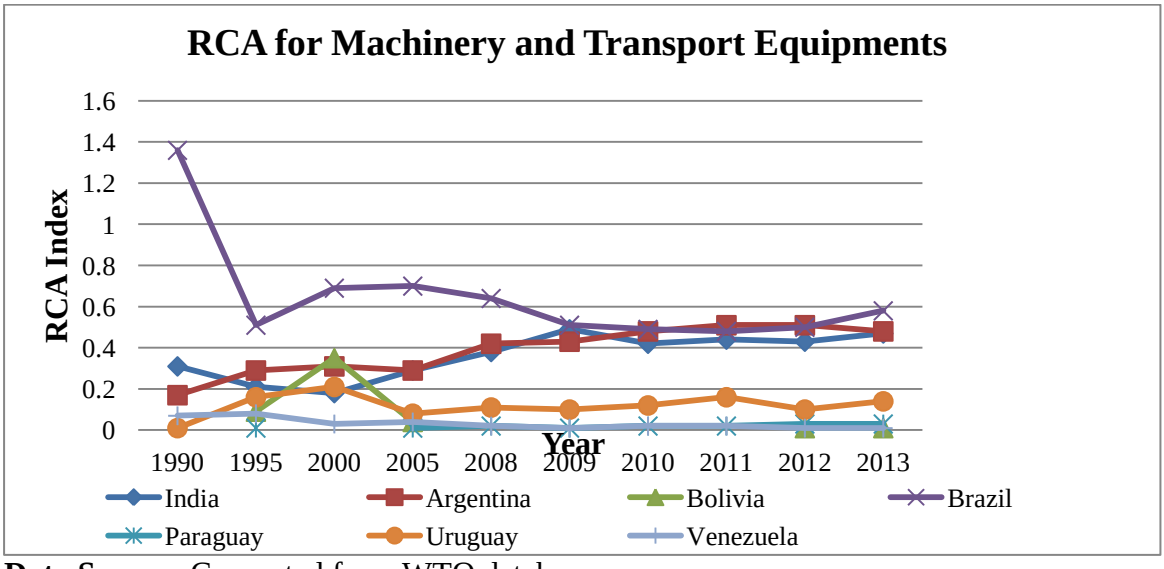
Machinery and Transport Equipment in all of the MERCOSUR countries along with India have got a comparative disadvantage. Countries like Bolivia, Paraguay, Uruguay and Venezuela have a weak RCA, whereas India, Argentina and Brazil are still in the process of increasing their comparative advantage in order to export to other countries.

Table 4.13: RCA for Machinery and Transport Equipments in India and MERCOSUR

Year	India	Argentina	Bolivia	Brazil	Paraguay	Uruguay	Venezuela
1990	0.31	0.17		1.36		0.01	0.07
1995	0.21	0.29	0.09	0.51	0.01	0.16	0.08
2000	0.18	0.31	0.35	0.69		0.21	0.03
2005	0.29	0.29	0.04	0.70	0.01	0.08	0.04
2008	0.38	0.42		0.64	0.02	0.11	0.02
2009	0.49	0.43		0.51	0.01	0.10	0.01
2010	0.42	0.48		0.49	0.02	0.12	0.02
2011	0.44	0.51		0.48	0.02	0.16	0.02
2012	0.43	0.51	0.01	0.50	0.03	0.10	0.01
2013	0.47	0.48	0.01	0.58	0.03	0.14	0.01

Data Source: Computed from WTO database

Figure 4.13: RCA for Machinery and Transport Equipments in India and MERCOSUR



Data Source: Computed from WTO database

4.3.10 Textiles

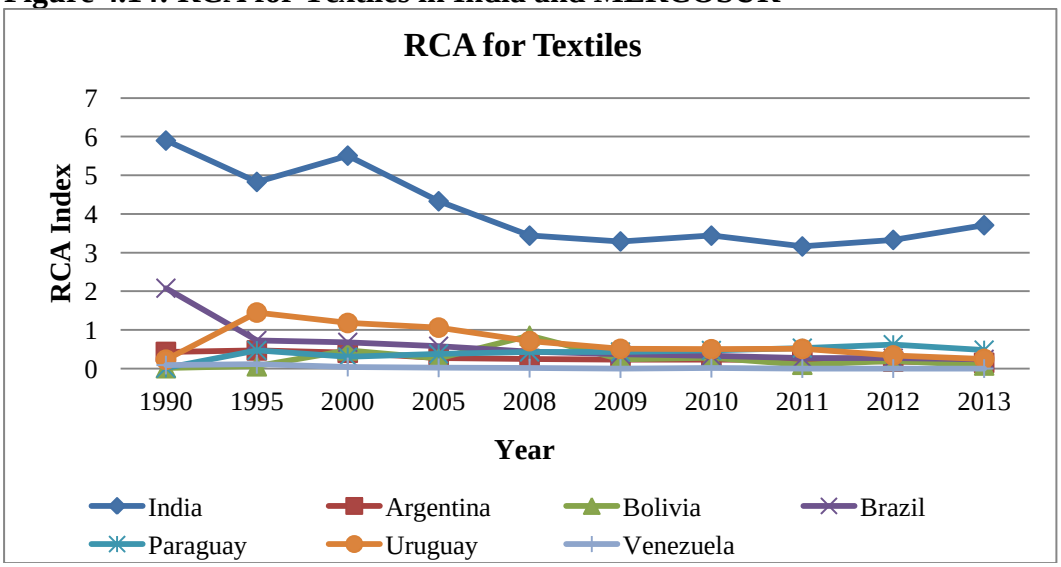
The textile industry is labour intensive and hence offers a high potential for employment. A country earns its foreign exchange depending upon its capacity to export. This pattern is seen in most of the developing countries of Asia. India has always had a good export in textiles which is evident in its strong RCA. The mean RCA computed for India is 4.09 (Table 4.16). The low RCA of MERCOSUR countries depict a complementarity in textiles which can allow India to trade with these countries.

Table 4.14: RCA for Textiles in India and MERCOSUR

Year	India	Argentina	Bolivia	Brazil	Paraguay	Uruguay	Venezuela
1990	5.90	0.43	0.01	2.08	0.01	0.23	0.09
1995	4.83	0.47	0.06	0.73	0.47	1.45	0.11
2000	5.51	0.41	0.47	0.68	0.30	1.18	0.04
2005	4.33	0.27	0.26	0.58	0.38	1.06	0.02
2008	3.44	0.25	0.85	0.44	0.43	0.71	0.01
2009	3.29	0.23	0.24	0.37	0.43	0.51	
2010	3.44	0.23	0.28	0.33	0.47	0.50	0.01
2011	3.16	0.22	0.10	0.27	0.53	0.51	
2012	3.33	0.18	0.20	0.27	0.62	0.34	
2013	3.71	0.15	0.08	0.24	0.48	0.25	

Data Source: Computed from WTO database

Figure 4.14: RCA for Textiles in India and MERCOSUR



Data Source: Computed from WTO database

4.3.11 Clothing

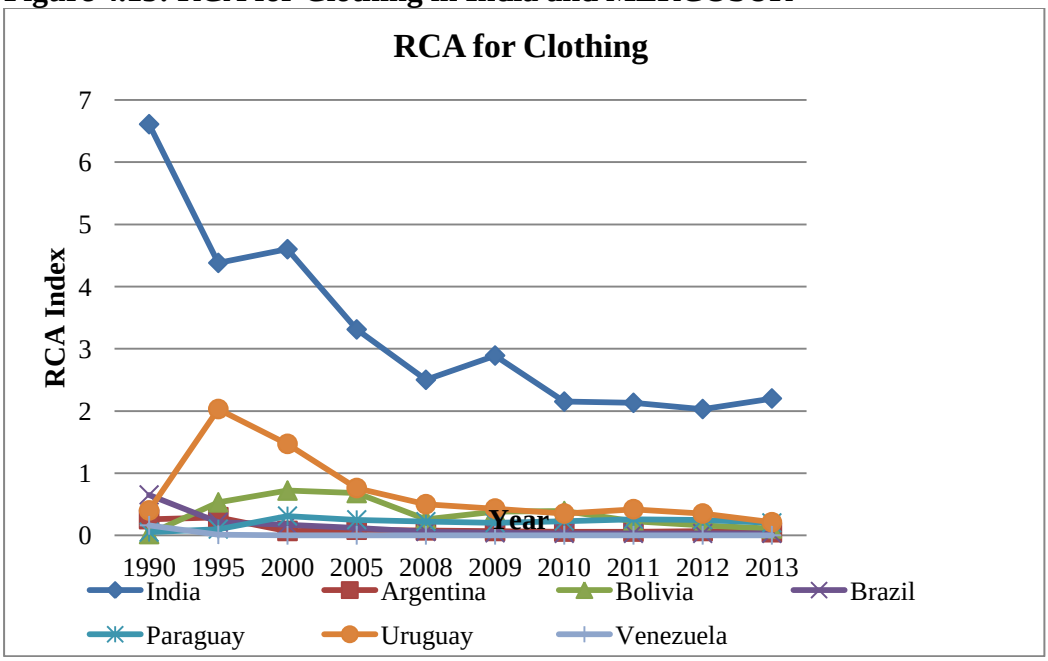
The weak RCA signifies the lack of competition among the MERCOSUR countries in the Clothing sector. India has a strong mean RCA of 3.28 (Table 4.16). Besides being a global exporter for clothing, India enjoys a high export of apparel with the MERCOSUR nations.

Table 4.15: RCA for Clothing in India and MERCOSUR

Year	India	Argentina	Bolivia	Brazil	Paraguay	Uruguay	Venezuela
1990	6.61	0.26	0.02	0.65	0.05	0.40	0.16
1995	4.38	0.29	0.53	0.21	0.10	2.03	0.01
2000	4.60	0.07	0.72	0.17	0.31	1.47	
2005	3.31	0.09	0.68	0.12	0.25	0.76	
2008	2.50	0.08	0.26	0.06	0.22	0.50	
2009	2.89	0.07	0.38	0.04	0.20	0.43	
2010	2.15	0.06	0.39	0.03	0.23	0.35	
2011	2.13	0.06	0.23	0.03	0.26	0.42	
2012	2.03	0.07	0.16	0.03	0.25	0.35	
2013	2.20	0.05	0.11	0.03	0.20	0.21	

Data Source: Computed from WTO database

Figure 4.15: RCA for Clothing in India and MERCOSUR



Data Source: Computed from WTO database

4.4 RCA Comparison

The Mean Revealed Comparative Advantage of India and the MERCOSUR nations are shown in the accompanying Table 4.16. The time period is from 1990 to 2013 for 17 sectors and offers a simple and easy comparison. From the mean RCA, nations are arranged into five classes based on their export performance. The classifications are as follows: (i) Weak RCA: RCA below 0.5 depicts a weak comparative advantage (ii) Low RCA: RCA greater than 0.5 to 1, implies a low comparative advantage (iii) High RCA: RCA between 1 and 2, implies a high comparative advantage and (iv) Strong RCA: Countries having RCA above 2, are the countries that have a strong comparative advantage by trading.

Table 4.16: Mean RCA of Major Sectors for India and MERCOSUR

Sector Categories	**IND**	**ARG**	**BOL**	**BRAZ**	**PRY**	**URY**	**VEN**
Agricultural Products	**1.51**	**5.60**	**2.05**	**3.98**	**5.39**	**6.86**	0.09
Food	**1.56**	**6.67**	**2.27**	**4.95**	**6.02**	**7.13**	0.10
Fuels and Mining Products	0.96	0.78	**3.35**	**1.31**	**1.18**	0.12	**5.63**
Fuels	0.81	0.78	**2.47**	0.47	**1.45**	0.13	**7.11**
Manufacture Products	**1.04**	0.47	0.13	0.76	0.10	0.39	0.09
Iron and Steel	**1.39**	**1.10**	0.01	**2.85**	0.07	0.25	0.76
Chemicals	**1.05**	0.76	0.14	0.72	0.14	0.55	0.18
Pharmaceutical Products	0.99	0.35	0.02	0.18	0.13	0.49	0.02
Machinery & Transport Equipment	0.36	0.39	0.05	0.65	0.02	0.12	0.03
Office & Telecom Equipment	0.26	0.03		0.19	0.01	0.01	
Electronic Data Processing & Office Equipment	0.07	0.01		0.06	0.01	0.01	
Telecommunications Equipment	0.24	0.02		0.24	0.01	0.01	
Integrated Circuits & Electronic Components	0.06			0.03			
Automotive Products	0.35	**1.22**	0.01	0.97		0.36	0.05
Textiles	**4.09**	0.28	0.26	0.60	0.41	0.67	0.03
Clothing	**3.28**	0.11	0.35	0.14	0.21	0.69	0.02
Transport Equipment	0.42	0.83	0.09	0.81	0.01	0.23	0.03

Data Source: Computed from WTO database

Table 4.17: Country Classification based on the Mean RCA of Sectors

Commodity Classification	Weak RCA RCA < 0.5	Low RCA RCA < 0.5 to 1	High RCA RCA 1 to 2	Strong RCA RCA above 2
Agricultural Products	VEN		IND	ARG, BOL, BRAZ, PRY, URY
Food	VEN		IND	ARG, BOL, BRAZ, PRY, URY
Fuels and Mining Products	URY	IND, ARG	BRAZ, PRY	BOL, VEN
Fuels	BRAZ, URY	IND, ARG	PRY	BOL, VEN
Manufacture Products	ARG, BOL, PRY, URY, VEN	BRAZ	IND	
Iron and Steel	BOL, PRY, URY	VEN	IND, ARG	BRAZ
Chemicals	BOL, PRY, VEN	ARG, BRAZ, URY	IND	
Pharmaceutical Products	ARG, BOL, BRAZ, PRY, URY, VEN	IND		
Machinery & Transport Equipment	IND, ARG, BOL, PRY, URY, VEN	BRAZ		
Office & Telecom Equipment	IND, ARG, BRAZ, BOL, PRY, URY, VEN			
Electronic Data Processing & Office Equipment	IND, ARG, BRAZ, BOL, PRY, URY, VEN			
Telecommunications Equipment	IND, ARG, BRAZ, BOL, PRY, URY, VEN			
Integrated Circuits & Electronic Components	IND, ARG, BRAZ, BOL, PRY, URY, VEN			
Automotive Products	IND, BOL, PRY, URY, VEN	BRAZ	ARG	
Textiles	ARG, BOL, PRY, VEN	BRAZ, URY		IND
Clothing	ARG, BOL, BRAZ, PRY, VEN	URY		IND
Transport Equipment	IND, BOL, PRY, URY, VEN	ARG, BRAZ		

Data Source: Computed from WTO database

Taking into account the mean RCA, nations are classified into four classes viz., Weak, Low, High and Strong RCA. Weak and Low RCA nations can't exchange as they don't have comparative advantage. Nations that have a High or Strong RCA have

a comparative advantage and hence have a similar export pattern. However, specialization in production can lead intra-industry exchange among nations with strong comparative advantage. Trade is possible between complementary trade structures with Weak-Strong, Weak-High, Low-Strong and Low-High comparative advantage.

4.5. India's Comparative Advantage with MERCOSUR Countries – Sector Category

Table 4.18 gives comparison of RCA between India and MERCOSUR countries across sector categories for easy comparison. For Agrarian products India has a high RCA and can export to Venezuela which has a disadvantage in this classification. Food items are an integral part of agricultural products and follow a similar pattern. The comparative advantage of Bolivia, Venezuela and Paraguay in Fuel and Mining items can allow them to trade with India. India's RCA for fuel is low and can import petroleum items from Bolivia, Paraguay and Venezuela are the oil exporters of MERCOSUR and hence can export Petroleum items to India who has a low RCA in this sector.

India has a high RCA for Manufacture (Table 4.18) and hence leads to the possibility of trade with Brazil which has a low comparative advantage. A similar pattern can be established with Argentina, Bolivia, Paraguay, Uruguay and Venezuela who have a weak comparative advantage. India has vast store of Iron ore and is a major exporter of Iron and Steel to different nations. India has a high comparative advantage in Iron and Steel and can export to Venezuela, Bolivia, Paraguay and Uruguay which have a low or a weak comparative advantage. India's RCA is high for Chemical products, while it is weak for Bolivia, Paraguay and Venezuela and low for Argentina, Brazil and Uruguay. This complementarity provides a platform for India to export more

Chemical items to MERCOSUR nations. On the contrary, India has a low RCA and MERCOSUR nations have a weak comparative advantage in Pharmaceuticals items.

Table 4.18: India – MERCOSUR Trade Complementarity from Computed Mean RCA

INDIA- **Sector Categories**	**ARG**	**BOL**	**BRAZ**	**PRY**	**URY**	**VEN**
Agricultural Products	**H – S**	**H - S**	**H - S**	**H - S**	**H – S**	**H – W**
Food	**H – S**	**H - S**	**H - S**	**H - S**	**H – S**	**H – W**
Fuels and Mining Products	L – L	**L - S**	**L - H**	**L - H**	L – W	**L – S**
Fuels	L – L	**L - S**	L - W	**L - H**	L – W	**L – S**
Manufacture Products	**H – W**	**H - W**	**H - L**	**H - W**	**H – W**	**H – W**
Iron and Steel	H – H	**H - W**	**H - S**	**H - W**	**H – W**	**H – L**
Chemicals	**H – L**	**H - W**	**H - L**	**H - W**	**H – L**	**H – W**
Pharmaceutical Products	L – W	L - W	L - W	L - W	L – W	L – W
Machinery & Transport Equipment	W – W	W - W	W - L	W - W	W – W	W – W
Office & Telecom Equipment	W – W	W - W	W - W	W - W	W – W	W – W
Electronic Data Processing & Office Equipment	W – W	W - W	W - W	W - W	W – W	W – W
Telecommunications Equipment	W – W	W - W	W - W	W - W	W – W	W – W
Integrated Circuits & Electronic Components	W – W	W - W	W - W	W - W	W – W	W – W
Automotive Products	**W – H**	W - W	W - L	W - W	W – W	W – W
Textiles	**S – W**	**S - W**	**S - L**	**S - W**	**S – L**	**S – W**
Clothing	**S – W**	**S - W**	**S - W**	**S - W**	**S - L**	**S – W**
Transport Equipment	W – L	W - W	W - L	W - W	W - W	W – W

Data Source: Computed from WTO database

As far as Machinery and Transport equipment is concerned, India's and MERCOSUR countries RCA (except Brazil which has a low RCA) is weak and can import them from high RCA countries of the World. There is no competence between India and the MERCOSUR countries in Electronic data processing and office equipment, Office and telecom equipment, Integrated circuits and electronic components and Telecommunications equipment.

With regard to the Automotive sector, Argentina enjoys a comparative advantage and can trade with India and other MERCOSUR countries. The weak or low comparative advantage of most of the MERCOSUR countries in Clothing and Textiles offers India a favourable trading environment due to its high RCA. But with regard to Transport equipment none of the MERCOSUR countries enjoy a comparative advantage. The same is true with India and there is limited possibility of trade between India and MERCOSUR concerning the Transport sector.

4.6 Revealed Comparative Advantage of HS-3 Digits Categorization

Revealed Comparative Advantage is computed for India and the six MERCOSUR nations specifically Argentina, Bolivia, Brazil, Paraguay, Uruguay and Venezuela for the year 2013 to analyse the trade complementarity at the HS-3 digits commodity.

The commodity with the highest RCA for India in the HS-3 digits is Rice (RCA= 16.93) with an export share of 2.43 percent, ranking at the fifth position among the top five commodities with the highest export share (Table 4.19). The second highest commodity with a high RCA is Cotton with a strong RCA of 11.91 and an export share of 1.39 percent.

Pearls, precious and semi-precious stones rank at the third position with a strong RCA of 9.72 and ranking at the second position with an export share of 8.97 percent. Spices rank at the fourth position with an RCA of 8.50 and Synthetic organic colouring matter and colouring lakes rank at the fifth position with an RCA of 8.41 and an export share of 0.58 percent.

Table 4.19: India's Top Five Commodities as per HS-3 Digit Classification, 2013

Top five commodities with highest RCA				
Rank	**HS Code**	**Commodity Description**	**RCA**	**Share in India's Exports, %**
1	042	Rice	16.93	2.43
2	263	Cotton	11.91	1.39
3	667	Pearls, precious & semi-precious stones	9.72	8.97
4	075	Spices	8.50	0.38
5	531	Synth. organic colouring matter & colouring lakes	8.41	0.58
Top five commodities with highest export share				
Rank	**HS Code**	**Commodity Description**	**Share in India's Exports, %**	**RCA**
1	334	Petroleum	19.93	3.60
2	667	Pearls, precious & semi-precious stones	8.97	9.72
3	897	Jewellery & articles of precious material	3.28	4.42
4	542	Medicaments (incl. veterinary medicaments)	3.22	1.78
5	042	Rice	2.43	16.93

Data Source: UNCTAD database

The commodity with the highest export share of 19.93 percent is Petroleum has a RCA of 3.60. Followed by Jewellery which ranks at the third position with an export share of 3.28 percent (RCA=4.42). While, Medicaments (inclusive of veterinary medicaments) rank at the fourth place with an export share of 3.22 percent along with a high comparative advantage of 1.78.

The commodity with the highest RCA for Argentina in the HS-3 digits is Maize (not including sweetcorn), unmilled (RCA=40.42) with an export share of 7.63 percent, ranking at the second position among the top five commodities with the highest export share (Table 4.20).

Table 4.20: Argentina's Top Five Commodities as per HS-3 Digit Classification, 2013

Top five commodities with highest RCA				
Rank	**HS Code**	**Commodity Description**	**RCA**	**Share in Argentina's Exports, %**
1	044	Maize (excluding sweet corn)	40.42	7.63
2	081	Feeding material for animals	34.87	15.71
3	045	Cereals	33.76	0.69
4	421	Fixed vegetable fats & oils	30.14	6.26
5	043	Barley	25.58	1.19
Top five commodities with highest export share				
Rank	**HS Code**	**Commodity Description**	**Share in Argentina's Exports, %**	**RCA**
1	081	Feeding material for animals	15.71	34.87
2	044	Maize (excluding sweet corn)	7.63	40.42
3	421	Fixed vegetable fats & oils	6.26	30.14
4	222	Oleaginous fruits & oil seeds	5.92	13.88
5	782	Motor vehicle for transportation of goods	5.38	7.41

Data Source: UNCTAD database

Feeding material for animals (no unmilled cereals) ranks at the second place with an RCA of 34.87 and ranks at the first place with an export share of 15.71 percent of Argentine global exports. The commodity which ranks at the third position is Cereals that are unmilled which excludes rice, maize, wheat and barley with an RCA of 33.76 followed by Fixed vegetable fats and oils of a superior quality with an RCA of 30.14 and an export share of 6.26 percent which ranks at the third place in terms of export share. Barley (unmilled) takes the fifth position with an RCA of 25.58 and an export share of 1.19 percent. Oil seeds and oleaginous fruits (excluding flour) rank at the fourth position with an export share of 5.92 percent having a strong RCA of 13.88.

Followed by Motor vehicle for transportation of goods at the fifth place with an export share of 5.38 percent having a strong comparative advantage of 7.41.

Table 4.21: Bolivia's Top Five Commodities as per HS-3 Digit Classification, 2013

Top five commodities with highest RCA				
Rank	**HS Code**	**Commodity Description**	**RCA**	**Share in Bolivia's Exports, %**
1	687	Tin	86.27	3.21
2	045	Cereals	61.04	1.24
3	289	Ores of precious metals	56.64	4.68
4	287	Ores of base metals	55.19	8.74
5	223	Oleaginous fruits & oil seeds	33.69	0.78
Top five commodities with highest export share				
Rank	**HS Code**	**Commodity Description**	**Share in Bolivia's Exports, %**	**RCA**
1	343	Natural gas	50.19	23.74
2	287	Ores of base metals	8.74	55.19
3	081	Feeding material for animals	5.31	11.78
4	971	Gold	5.08	3.18
5	289	Ores of precious metals	4.68	56.64

Data Source: UNCTAD database

The commodity with the highest RCA for Bolivia in the HS-3 digits is Tin with a very strong comparative advantage of 86.27 and an export share of 3.21 percent (Table 4.21). Cereals, unmilled (excluding wheat, rice, barley and maize) rank at the second position with an RCA of 61.04 and an export share of 1.24 percent. Followed by Ores of precious metals ranking at the third place with an RCA of 56.64 and it ranks at the fifth place with an export share of 4.68 percent. The fourth highest commodity with a strong RCA is Ores and concentrates of base metals (RCA=55.19) with an export share of 8.74 percent which ranks at the second place in terms of the commodity with

the highest export share. While, Oil seeds and oleaginous fruits (inclusive of flour) ranks at the fifth position with an RCA of 33.69 and an export share of 0.78 percent.

Of the total Bolivian global exports, Natural gas, whether or not liquefied ranks at the first place with an export share of 50.19 percent and a strong RCA of 23.74. The third ranking commodity is Feeding stuff for animals (no unmilled cereals) with an export share of 5.31 percent and a high RCA of 11.78. Followed by Gold, (which excludes gold ores and concentrates) with an export share of 5.08 percent along with a high comparative advantage of 3.18 on the fourth rank.

The commodity with the highest RCA for Brazil in the HS-3 digits is Oil seeds and oleaginous fruits (excluding flour) (RCA=22.21) with an export share of 9.47 percent closely followed by sugar molasses and honey at the second place with an RCA of 22.01 along with an export share of 4.92 percent which ranks at the fourth place in the global export share (Table 4.22). Tobacco, unmanufactured ranks at the third position with an RCA of 18.31 and an export share of 1.32 percent. Iron ore and concentrates ranks at the fourth place with an RCA of 18.03 and ranks at the first place with an export share of 13.42 percent of Brazilian global exports.

Table 4.22: Brazil's Top Five Commodities as per HS-3 Digit Classification, 2013

Top five commodities with highest RCA				
Rank	**HS Code**	**Commodity Description**	**RCA**	**Share in Brazil's Exports, %**
1	222	Oleaginous fruits and oil seeds	22.21	9.47
2	061	Sugar, molasses and honey	22.01	4.92
3	121	Tobacco, unmanufactured	18.31	1.32
4	281	Iron ore and concentrates	18.03	13.42
5	044	Maize (not including sweet corn), unmilled	13.80	2.60
Top five commodities with highest export share				
Rank	**HS Code**	**Commodity Description**	**Share in Brazil's Exports, %**	**RCA**
1	281	Iron ore and concentrates	13.42	18.03
2	222	Oleaginous fruits and oil seeds	9.47	22.21
3	333	Petroleum oils	5.35	0.60
4	061	Sugar, molasses and honey	4.92	22.01
5	012	Other meat and edible meat	3.67	9,05

Data Source: UNCTAD database

The fifth ranking commodity with a strong RCA is (RCA=13.80) with a 2.60 percent export share. Petroleum oils rank at the third position with an export share of 5.35 percent and a low RCA of 0.60. Followed by, Other meat and edible meat offal at the fifth position with an export share of 3.67 percent and a strong comparative advantage of 9.05.

The commodity with the highest RCA for Paraguay in the HS-3digits is Electric current (RCA=84.52) along with an export share of 15.25 percent, ranking at the second position among the top five commodities with the highest export share (Table 4.23).

Table 4.23: Paraguay's Top Five Commodities as per HS-3 Digit Classification, 2013

Top five commodities with highest RCA				
Rank	**HS Code**	**Commodity Description**	**RCA**	**Share in Paraguay's Exports, %**
1	351	Electric current	84.52	15.25
2	222	Oleaginous fruits and oil seeds	71.33	30.40
3	245	Fuel wood	63.78	0.48
4	011	Meat of bovine animals	51.18	11.93
5	044	Maize	31.32	5.91
Top five commodities with highest export share				
Rank	**HS Code**	**Commodity Description**	**Share in Paraguay's Exports, %**	**RCA**
1	222	Oleaginous fruits and oil seeds	30.40	71.33
2	351	Electric current	15.25	84.52
3	011	Meat of bovine animals	11.93	51.18
4	081	Feeding material for animals	10.63	23.59
5	044	Maize	5.91	31.32

Data Source: UNCTAD database

The second highest commodity with a high RCA is Oleaginous fruits and oil seeds with a RCA of 71.33 and ranks at the first place with an export share of 30.40 percent of Paraguay's total global exports. Fuel wood rank at the third position with a strong RCA of 63.78 with an export share of 0.48 percent. Meat of bovine animals, either frozen or chilled or fresh ranks at the fourth place with a strong RCA of 31.32 and ranks at the third position with an export share of 11.93 percent. The commodity which ranks at the fourth position in terms of the highest export share is Feeding stuff for animals (no unmilled cereals) with an export share of 10.63 percent and an RCA of 23.59 followed by Maize (not including sweet corn), unmilled which ranks at the fifth position in both the cases with an RCA of 31.32 and an export share of 5.91 percent.

Table 4.24: Uruguay's Top Five Commodities as per HS-3 Digit Classification, 2013

Top five commodities with highest RCA				
Rank	**HS Code**	**Commodity Description**	**RCA**	**Share in Uruguay's Exports, %**
1	268	Wool and animal fur	78.11	2.81
2	011	Meat of bovine animals	61.58	14.35
3	222	Oleaginous fruits and oil seeds	48.52	20.68
4	042	Rice	39.09	5.60
5	247	Wood	36.41	3.29
Top five commodities with highest export share				
Rank	**HS Code**	**Commodity Description**	**Share in Uruguay's Exports, %**	**RCA**
1	222	Oleaginous fruits and oil seeds	20.68	48.52
2	011	Meat of bovine animals	14.35	61.58
3	022	Milk and milk products	5.72	21.79
4	042	Rice	5.60	39.09
5	247	Wood	3.29	36.41

Data Source: UNCTAD database

The commodity with the highest RCA for Uruguay in the HS-3 digits is Wool and other animal hair (inclusive of wool tops) with an RCA of 78.11 and an export share of 2.81 percent (Table 4.24). Meat of bovine animals ranks at the second place in both the cases with a strong RCA of 61.58 and an export share of 14.36 percent. Oil seeds and oleaginous fruits (excluding flour) ranks at the third position with an RCA of 48.52 and ranks at the first place with a highest export share of 20.68 percent. Ranking at the fourth place in both the cases (highest RCA and highest export share) is Rice with an RCA of 39.09 and an export share of 5.60 percent. Similarly followed by Wood in the rough or roughly squared in both the cases ranking at the fifth

position with a comparative advantage of 36.41 and an export share of 3.29 percent of the total Uruguay's global exports.

The commodity with the highest RCA for Venezuela in the HS-3 digits is Ships, boats and floating structures with a strong RCA of 7.72 and ranks at the third position with an export share of 5.96 percent (Table 4.25). Petroleum oils, oils from bituminous minerals, crude rank at the second position with an RCA of 6.93 and ranks at the first place with an export share of 61.43 percent. Pig iron rank at the third position with an RCA of 5.37 and an export share of one percent. The fourth ranking commodity is Dyeing and tanning extracts with an RCA of 5.25 along with an export share of 0.06 percent. Followed by, Insecticides and similar products ranks at the fifth position with an RCA of 4.50 and an export share of 0.82 percent.

Table 4.25: Venezuela's Top Five Commodities as per HS-3 Digit Classification, 2013

Top five commodities with highest RCA				
Rank	**HS Code**	**Commodity Description**	**RCA**	**Share in Venezuela's Exports, %**
1	793	Ships & boats	7.72	5.96
2	333	Petroleum oils	6.93	61.43
3	671	Pig iron	5.37	1.00
4	532	Dyeing & tanning extracts	5.25	0.06
5	591	Insectides & similar products	4.50	0.82
Top five commodities with highest export share				
Rank	**HS Code**	**Commodity Description**	**Share in Venezuela's Exports, %**	**RCA**
1	333	Petroleum oils	61.43	6.93
2	334	Petroleum	17.65	0.21
3	793	Ships& boats	5.96	7.72
4	281	Iron ore and concentrates	1.19	1.60
5	674	Flat-rolled iron & non-alloy steel products	1.18	3.97

Data Source: UNCTAD database

Of the total Venezuela's global exports, Petroleum ranks at the second place with an export share of 17.65 percent having a low comparative advantage of 0.21. Iron ore and concentrates rank at the fourth place with global exports of 1.19 percent and a high RCA of 1.60. Ranking at the fifth position is Flat-rolled iron & non-alloy steel products with a total global export share of 1.18 percent along with a strong comparative advantage of 3.97.

4.7 Major Findings

The results of the trade indices calculated between India and MERCOSUR reveal the presence of complementary sectors and products available for improving trade

cooperation between them. The analysis showed that India has comparative advantage with Venezuela in Manufacture Products, Agricultural Products, Iron and Steel, Food, Chemicals, Textiles and Clothing. For Argentina and Brazil the complementary sectors are Manufacture Products, Chemicals, Textiles and Clothing. The complementary sectors for Bolivia, Paraguay and Uruguay are Manufacture Products, Iron and Steel, Chemicals, Textiles and Clothing.

MERCOSUR countries are in varying stages of economic development and hence India can have trade with some of them. India exports Rice to MERCOSUR, whereas it can import agricultural commodities from them. India holds an advantage in minerals however they can import Petroleum oils from MERCOSUR. The advantage in Manufactured products, Chemicals, Iron and Steel sectors can allow India to export them to MERCOSUR countries. Similarly, MERCOSUR has a comparative advantage in Fuels and mining products and can export them to India. However, in the Textiles and Clothing sector there exists an intense competition between India and MERCOSUR to boost their market share. Indian exports will gain in the medium term through productivity gains and efficiency resulting from tariff reduction though this effect may not be seen in the short term.

CHAPTER – V

TRADE CREATION AND TRADE POTENTIAL BETWEEN INDIA AND MERCOSUR: A GRAVITY MODEL ANALYSIS

CHAPTER – V

TRADE CREATION AND TRADE POTENTIAL BETWEEN INDIA AND MERCOSUR: A GRAVITY MODEL ANALYSIS

The chapter forms the core analysis in which a systematic attempt is made to ascertain the trade impact of MERCOSUR and its implications on India. On 17th June, 2003 a Framework Agreement had been signed between MERCOSUR and India at Asuncion, Paraguay. As a subsequent follow up to the Framework Agreement, a Preferential Trade Agreement (PTA) was signed in New Delhi on January 25, 2004. The aim of this Preferential Trade Agreement is to expand and strengthen the existing relations between India and MERCOSUR with the ultimate objective of creating a free trade area between the countries.

This chapter aims to estimate trade potential for India using the gravity model approach. Gravity model is one of the most popular empirical tools for modelling bilateral trade flows. The first part deals with the application of Gravity Model in explaining trade flows between countries, its specifications, advantages and difficulties in using it. The second part deals with the estimation of panel data regression and how these can be extended to gravity Model framework. The third part deals with the empirical results arrived at from various models and its implications on India-MERCOSUR trade. This is followed by the major findings of the study.

5.1 The Gravity Model of Trade

The gravity model applied to international trade is based on the assumption that trade between any two countries is directly related to size (usually measured by the gross product and by the per capita product) and inversely related to transaction costs (distance, adjacency, language, others). It has been broadly used to evaluate the

integration trade agreements effects in terms of the advantages it shows concerning the possibility of separating such effects from other factors which are also relevant in international trade.

5.1.1 Gravity Model Specifications

The gravity model has been derived from Newton's 'Law of Universal Gravitation', which states that the attractive force between two objects is a function of the masses of the objects and the distance between the two objects. In 1962, Jan Tinbergen proposed to apply Newton's law to international trade flows to study the effect of economic factors on trade changes. Tinbergen (1962) uses economic forces of the origin and destination countries, and economic forces that affect trade flows between the two sets of countries to study the determinants of international trade flows. Thus the model predicts that bilateral trade between a pair of countries should increase as their economic sizes increase and decrease as the distance (transaction costs) increase. The model can be expressed as follows:

$$T_{ij} = G \cdot \frac{M_i \cdot M_j}{D_{ij}} \quad (1)$$

In equation (1), T_{ij} is trade flows from origin country i to destination country j, usually it is expressed as a country's exports, imports or total trade value. M_i and M_j are the economic forces of the two countries that have a positive effect on bilateral trade flows. D_{ij} is the economic force that negatively affects trade flows between the origin country and the destination country, it is usually represents changes in transaction costs. G is a constant.

5.1.2 The Basic Gravity Model

The Gravity Model enables the estimation of varied factors to measure the level of trade between the two countries. It takes into consideration factors like the size of the population, the land masses of the two countries and the distance between both the two together with the GDP. The Gravity Model has its origins with Tinbergen (1962) and as stated by Leamer & Levinsohn (1995), "Gravity Model provides some of the clearest and most robust findings in empirical economics".

The equation used for the study is a derivative from the gravity model equation as introduced by Tinbergen (1962) and Pöyhönen (1963). It is as follows:

$$\ln (T_{ij}) = \alpha + \beta_1 \ln (GDP_i) + \beta_2 \ln (GDP_j) + \beta_3 \ln (POPi) + \beta_4 \ln (POPj) - \beta_5 \ln (Dist_{ij}) + U_{ij} \quad (2)$$

Where, α, β_1 and β_2 are the coefficients to be estimated. T_{ij} is the value of the bilateral trade between country i and j, GDP_i and GDP_j are country i and j's respective national incomes. POP_i and POP_j are the populations of the respective countries. $Dist_{ij}$ is a measure of the bilateral distance between the two countries and α is a constant of proportionality. The error term U_{ij} captures any other shocks and chance events that may affect bilateral trade between the two countries. The explanatory variables in the gravity model are defined as follows:

GDP: The origin country's GDP and destination country's GDP are expected to be positively related to trade flows. The economic size of a trading country usually decides how much a country can trade with all its trading partners. Therefore, larger countries tend to trade more, while smaller countries tend to trade less. Earlier studies

done justify the role of GDP in the gravity model and GDP is found to positively affect a country's trade flows (Anderson 1979, Bergstrand 1985, Bergstrand 1989).

Population: Population is used to capture domestic market size of a country. A larger population means a larger domestic demand. The domestic manufacturers cannot produce a large volume of products to satisfy domestic demand. Therefore, a dependence on international specialization will increase. Thus a positive relationship will be expected between population and trade flows. Bhagavathi and Panagaria 1996, Schiff, 1996) have theoretically justified that population is positively related to trade flows.

Distance ($Dist_{ij}$): Physical distance between pairs of countries is considered an important linkage factor affecting trade flows. It is often used as a proxy for natural trade resistance. The gravity model assumes that bilateral trade is inversely proportional to the distance between trading partners. The reason is that long distances cause more transport time, higher transportation costs and communication expenses and will increase a product's price and reduce its competitiveness, thus having a negative impact on trade volume. Early studies have proved the role of distance in reducing bilateral trade flows (Anderson 1979, Bergstrand 1985, Bergstrand 1989).

5.1.3 Augmented Gravity Model

The most popular extension of the gravity model is by incorporating dummies in the basic equation (i.e. equation 1). The variables included in the model are Contig (Whether the two countries are contiguous) and Comlang (Whether the countries share a common official language). Countries which share common land border trade more because of close proximity and lower transportation costs than countries which

are located in faraway places. Many empirical studies done by Wannacott and Mark Lutz (1989), Summers (1991) and Krugman (1993) have proved the statement correct. Similarly, if countries share common language that will facilitate easier and quicker trade and reduce transaction costs. For this reason 'common language' has been included in most of the gravity model studies to find out its impact on trade flows. Contig and Comlang appear in the model as two dummy variables, taking the value of one if two countries share a common language or land border and zero otherwise. These are explained as follows:

Border/ Adjacency (Contig): Land adjacency is another factor used as a proxy of measuring transport costs besides the distance variable. Unlike physical distance between two countries, a common land border will enable two trading partners to reduce transportation costs, thus a positive relationship between land adjacency and trade flows is expected (Endoh 1999). In the studies of 1985 and 1989, Berstrand finds a positive relationship between trade flow changes and the fact that two trading partners share a common border.

Common Language (Comlang): Cultural similarity in two trading partners is considered capable of promoting trade between them, as it can reduce exchange costs in communication, understanding and marketing. Thus it positively affects bilateral trade flows. Sharing a common language is the usual proxy for representing cultural similarities. Evidence from early studies strongly supports this hypothesis (Endoh 1999).

$\mathbf{U_{ij}}$ is a log-normally distributed error term and represents the myriad other influences on bilateral trade. E (log U_{ij}) = 0.

5.1.4 Theoretical Basis of The Gravity Model

The formation and development of regional trade agreements has been found to have a crucial role on increasing trade, not only stimulating trade among member countries, but also stimulating trade between member countries with non-member countries. Rajapakse and Arunatilake (1997) find that by removing restrictive trade barriers a large amount of more bilateral trade would be expected within the South Asian Association for Regional Cooperation (SAARC). Endoh (1999) finds that the EEC and Council of Mutual Economic Assistance (CMEA) members increased regional trade during the 1960-1994 period. Peridy (2005) studies Mediterranean countries' regional cooperation with the EU and finds that by implementing preferential trade with the EU since the 1970s, Mediterranean countries have successfully increased their exports to the EU area, and the 1995 Barcelona conference saw a great achievement in finalizing a free trade area between the EU and other Mediterranean countries to further increase trade between these two regions.

Using trade data after the World War II, Plummer (2006) studies the benefits of membership in ASEAN to its members and finds that being members in ASEAN simultaneously, two trading partners increased their bilateral trade by about 140 percent more than would have been expected. Bergstrand (1985) and Bergstrand (1989) find positive coefficients for members in the EEC and European Free Trade Association (EFTA) in the years 1965, 1966, 1975 and 1976 and EEC-EFTA trade pact in the years 1975 and 1976, suggesting that participation in preferential trading arrangements has stimulated trade among member countries in the EEC, EFTA and EEC-EFTA trade pact.

Moreover, Rajapakse and Arunatilake (1997) find that SAARC members anticipate enlarging their trade share with non-member countries in the world market as well as in their regional market. Endoh (1999) finds that EEC members have traded more with outer-region countries over the period 1960-1994. Plummer (2006) also notes that ASEAN countries are found to have increased their trade with non-ASEAN countries.

5.1.5 Trade Creation and Trade Diversion Effect

As pointed out in previous sections, many researchers have found beneficial effects resulting from regional trade cooperation. Aitken (1973) focuses on the study of the impact of the European Economic Community (EEC) and European Free Trade Association (EFTA) on their members' trade during the period 1951-1967. Trade creation effect is found in both regional trade agreements in his study. Aitken and Lowry (1973) concentrate their studies on the trade effects from the Central American Common Market (CACM) and Latin American Free Trade Association (LAFTA) during 1955-1967, finding that a trade creation effect does exist within both CACM and LAFTA.

Braga, Sadafi et al. (1994) focus their study on five RTAs, including the European Community (EC), EFTA, Latin American Integration Association (LAIA) / LAFTA, ASEAN and CACM. They show that the new regionalism approach implemented by the end of the twentieth century in Latin America improves trade flows in RTA members. Clarete, Edmonds et al. (2003) study RTAs including the AFTA, Andean Community (Andean Pact), ASEAN, CER, Economic Cooperation Organization (ECO), EFTA, EU, MERCOSUR, NAFTA, South Asian Preferential Trade Arrangement (SAPTA), South Pacific Regional Trade and Economic Cooperation

Agreement (SPARTECA) over the period 1980-2000. They find that Andean Pact, ECO, EFTA, MERCOSUR, SAPTA and SPARTECA tend to increase trade with other members, however, at the expense of members' trade from non members. They find that membership in APEC, CER and EU does not reduce their trade with the world. AFTA and NAFTA are not found to change their trade among members, but reduce their trade with the world. Endoh (1999) studies the EEC, LAFTA, Council of Mutual Economic Assistance (CMEA) during 1960-1994. He finds that EEC members do not reduce their trade with non-members when they foster trade within the region. LAFTA members are found to reduce trade not only with non-member countries, but also with member countries. CMEA has both trade creation and trade diversion effects.

Sologa and Winters (2001) study the EU, EFTA, ASEAN, GULF Cooperation Council, NAFTA, CACM, LAIA, ANDEAN Pact and MERCOSUR during 1980-1996. In their study, a trade diversion effect was found for EU and EFTA, including an export diversion effect. Ghosh and Yamarik (2004) study the EU, EFTA, European Economic Area (EEA), CACM, Caribbean Community/ Cariftaa (CARICOM), NAFTA, LAIA, Andean Pact, MERCOSUR, ASEAN, CER and APEC. They find that the trade creation effect is not as that strong as reported by other researchers.

Few studies have focused on the impact of RTAs on trade flows of specific countries or areas. For example, Oguledo and Macphee (1994) study the USA and its trading partners and the EU and its trading partners. In their study, RTAs are found to have significant impact on trade flows. Plummer (2006) studies ASEAN for all international bilateral trade, trade without industrial countries and trade post 1970. He finds that ASEAN countries tend to trade more with each other. As a group, ASEAN

is an important determinant to international trade, especially the USA and EU bilateral trade.

5.2 Benefits and Limitations of Panel Data

Although early empirical studies used cross-section data to estimate gravity models (Aitken, 1973, Bergstand, 1985), most researchers now-a-days use panel data (Matyas, 1997, De Grauwe and Skudelny, 2000, Wall, 2000, Glick and Rose, 2001) one reason is that the extra time series observations result in more accurate estimates. Panel data analysis presents numerous advantages and efficient econometric estimates to the data analysis (Baltagi, 2003). These include controlling individual heterogeneity, more data points thus less collinearity and more degrees of freedom and efficient estimation, traces dynamic adjustment and more useful in studying more complicated behavioural models. Micro panel data measures data more accurately whereas macro panel data have longer times series and overcomes the problem of unit root tests in time-series analysis. The panel data however subjected some limitations. These include design and data collection problems, distortions of measurement errors, selectivity problems such as self selectivity, short time series dimension and cross section dependence.

5.2.1 Panel Data Models

Panel data models are of two types, i.e. Fixed Effects Model and Random Effects Model. Fixed Effect Model is when the dummies are considered as a part of the intercept as in the case of OLS regressions. While, the dummies act as an error term in the Randon Effects Model.

By contrast, a Random Effect Model checks the variance components for groups and error having assumed the same intercepts and slope. A core OLS assumption would be violated if U_i is a part of errors and if it is cor-related to any regressor. To select between the two effects the Hausman specification is used. The Hausman test estimates and compares between the Fixed and the Random Effects using the null hypothesis. The null hypothesis states that the individual effects are not correlated with the other regression in the model.

5.3 India – MERCOSUR Trade

In the year 2013, MERCOSUR's major commodities of exports to India are Petroleum oils and crude oil which account for 85.1 percent of the total export trade followed by Fixed vegetable fats & oils, crude, refined which sum up to 6.4 percent. The major imports of MERCOSUR from India are Petroleum oils or bituminous minerals of 43.6 percent, Organic/inorganic compounds of 6.3 percent and Textile yarn of 5.4 percent. The trade share of major commodities is listed in Table 3.4. The top ten commodity group accounts for 96.6 percent of exports and 71.1 percent of imports respectively.

5.4 Secondary Data Analysis and Discussion of Results

The study made use of Gravity model to ascertain the impact of MERCOSUR Regional Trade Agreement and its implications on India. Two variants of gravity model namely the Basic Gravity Model and the Augmented Gravity Model is used in the present study. The variables used in the Basic Gravity Model are GDP of country 'i' and country 'j', per capita GDP of country 'i' and 'j' and geographical distance between them. The dependent variable is the total merchandise trade (exports plus

imports in million US dollars), in log form, between pairs of countries. The Basic Gravity model is augmented by including variables such as continuous border and common language in the basic gravity equation.

5.4.1 Data Source and Country Classification

The data is collected from various sources. The trade data such as World's exports and imports, India's exports to Latin American Countries (LAC) and India's imports from LAC is extracted from Direction of Trade Statistics (DOTS), IMF database. The dependent variable in the analysis is the natural log measured in current international prices (million dollar value). The data pertaining to GDP, per capita GDP of the respective countries is collected from the World Trade Indicators database of the World Bank. Bilateral distance is measured, in kilometers, as the great circle distance between two capital cities of the trading partners. Bilateral distance, continuous border, common language, common colonizer is extracted from the data set developed by the CEPII, France.

Bilateral trade between India and 20 of the Latin American countries for a time period of 18 years is considered for the study. The countries for the study include India and Latin American Countries, namely, Panama, the full time members of MERCOSUR which include, Argentina, Brazil, Paraguay, Uruguay and the other countries which include Venezuela, Bolivia, Chile, Colombia, Peru, Mexico, Belize, Costa Rica, Eucador, El Salvador, Guatemala, Guyana, Honduras, Nicaragua and Suriname. Each country has got bilateral trade pair with other 20 countries for 18 years. The study used the data set of 7560 bilateral trade for 420 country pair (panel) for 18 years. The data is related to the period from 1995 to 2012. The Basic Gravity Model, the Augmented Gravity Model and the Extended Gravity Model with three variations

each are used in the study. The coefficients derived from the gravity model are used to study the bilateral trade flows between India and MERCOSUR.

5.4.2 The Gravity Models

In the estimation method used for the study, the equations to be estimated are as follows:

- **Basic Gravity Model:**

$$\ln (T_{ij}) = \alpha + \beta_1 \ln (GDP_i) + \beta_2 \ln (GDP_j) + \beta_3 \ln (POP_i) + \beta_4 \ln (POP_j) - \beta_5 \ln (Dist_{ij}) + \beta_6 \text{ MERCOSUR member} + U_{ij} \quad (3)$$

Where,

$\ln (T_{ij})$ = log of Total Trade (exports plus imports) between country i and j

$\ln GDP_i$ = log of GDP of country i

$\ln GDP_j$ = log of GDP of country j

$\ln POP_i$ = log of population of country i

$\ln POP_j$ = log of population of country j

$\ln Dist_{ij}$ = log of geographical distance between country i and j

MERCOSUR member =dummy representing common membership to MERCOSUR FTA

U_{ij} =Error term

- **Augmented Gravity Model:**

$$\ln (T_{ij}) = \alpha + \beta_1 \ln (GDP_i) + \beta_2 \ln (GDP_j) + \beta_3 \ln (POP_i) + \beta_4 \ln (POP_j) - \beta_5 \ln (Dist_{ij}) + \beta_6 \text{ MERCOSUR member} + \beta_7 \text{ Contig} + \beta_8 \text{ Comlang} + U_{ij} \quad (4)$$

Where,

$\ln (T_{ij})$ = log of Total Trade (exports plus imports) between country i and j

$\ln GDP_i$ = log of GDP of country i

$\ln GDP_j$ = log of GDP of country j

$\ln POP_i$ = log of population of country i

$\ln POP_j$ = log of population of country j

$\ln Dist_{ij}$ = log of geographical distance between country i and j

MERCOSUR member =dummy representing common membership to MERCOSUR FTA.

Contig = dummy if countries share common border

Comlang = dummy if countries share common official language

U_{ij} =Error term

- **Extended Gravity Model:**

$$\ln (T_{ij}) = \alpha + \beta_1 \ln (GDP_i) + \beta_2 \ln (GDP_j) + \beta_3 \ln (POP_i) + \beta_4 \ln (POP_j) - \beta_5 \ln (Dist_{ij}) + \beta_6 \text{ MERCOSUR member} + \beta_7 \text{ MERCOSUR}_{IMP} + \beta_8 \text{ MERCOSUR}_{EXP} + \beta_9 \text{ Contig} + \beta_{10} \text{ Comlang} + U_{ij} \quad (5)$$

Where,

$\ln (T_{ij})$ = log of Total Trade (exports plus imports) between country i and j

$\ln GDP_i$ = log of GDP of country i

$\ln GDP_j$ = log of GDP of country j

$\ln POP_i$ = log of population of country i

$\ln POP_j$ = log of population of country j

$\ln Dist_{ij}$ = log of geographical distance between country i and j

MERCOSUR member =dummy representing common membership to MERCOSUR FTA.

MERCOSUR_{EXP} = takes the value 1 if country i is a member of an agreement while country j is not, and 0 otherwise.

MERCOSUR_{IMP} = takes the value 1 if country i is a member of an agreement while country i is not, and 0 otherwise.

Contig = dummy if countries share common border

Comlang = dummy if countries share common official language

U_{ij} =Error term

5.4.3 Hypotheses

In complying with the literature of analysing trade effects, determinants of bilateral trade flows are studied by three sets of variables in the gravity model: variables measuring total demands of importing countries, variables measuring total supplies of exporting countries, variables stimulating or impeding trade between importing and exporting countries. These variables are selected as exporter and importer's economic size, distance between two countries, cultural difference and membership in a regional trade agreement. The hypotheses regarding these variables are stated as follows:

Hypothesis 1: Bilateral trade will increase as the GDP of trading partners increases.

The gravity model argues that bilateral trade is directly proportional to the economic sizes of the exporters and importers under consideration. As larger economies can trade more than smaller ones, trade flows should be larger between countries with higher or increased gross domestic product, as wealthier economies can produce and trade more than poorer ones. Hence GDP is a crucial factor in determining a country's bilateral trade flows. It is expected to be positively related to changes in trade flows.

Hypothesis 2: Bilateral trade will decrease when transportation costs between two trading partners increase.

Distance between pairs of countries is considered an important linkage factor affecting trade flows. The gravity model assumes that bilateral trade is inversely proportional to the distance between trading partners. The reason is that longer distances incur higher transportation costs and communication expenses, which will increase products' prices and reduce their competitiveness, thus having a negative impact on trade volume.

Hypothesis 3: Bilateral trade will increase if two trading partners share common cultural and common land border.

Hypothesis 4: Bilateral trade flows are positively affected if a country becomes a member of a regional trade agreement.

Member countries are expected to trade more within an RTA, therefore a positive coefficient is expected for MERCOSUR trade.

5.5 Hypothesis Testing and Model Selection

This section gives an explanation of the panel data econometric methods which are used in the study to estimate the possible specifications.

5.5.1 Pooled Ordinary Least Squares (POLS)

The class of models that can be estimated using a pooled ordinary least square estimator is written as follows:

$$y_{it} = \beta x_{it} + \alpha z_i + \varepsilon_{it} \qquad i=1, 2, \dots n \quad t=1, 2, \dots, t \qquad (6)$$

Where y_{it} is the dependent variable, x_{it} are repressors not including a constant term. The heterogeneity or individual effect is αz_i where zi contains a constant term, which may be observed or unobserved, all of which are constant over time t. Pooled Ordinary Least Squares (POLS) is often used to estimate the gravity model but does not permit to control the individual heterogeneity and hence may yield biased results due to a correlation between some explanatory variables and some unobservable characteristics. The LM test helps to decide between a random effects regression and a simple OLS regression. If the Breusch-Pagan test rejects the null hypothesis in favor of random effects, the POLS method is not adequate.

Table 5.1: Breusch and Pagan Lagrangian Multiplier Test

Breusch and Pagan Lagrangian multiplier test for random effects

lt[Country,t] = Xb + u[Country] + e[Country,t]

Estimated results:

	Var	sd = sqrt(Var)
lt	10.40853	3.226226
e	.5889562	.7674348
u	1.187182	1.089579

Test: Var (u) = 0

chibar2(01) = 26725.01

Prob > chibar2 = 0.0000

The null hypothesis in the LM test is that, the variance across countries is zero, which means that there is no significant difference across countries. The LR test analysis whether an estimated variance component (something that is always greater than zero) is different from zero. The p-value of the LR test is <0.05 (i.e. significant), so the null hypothesis of no evidence of significant differences across countries will be rejected and conclude that POLS model is not appropriate, and random effects model is better.

5.5.2 Testing for Heteroskedasticity

Wald test that is displayed below is testing whether this data sample has the problem of heteroskedasticity or variance is constant across the sample. The p-value of Wald test is <0.05 (i.e. significant), so the null hypothesis of homoskedasticity (or constant variance) will be rejected and conclude the presence of the problem of heteroskedasticity.

Table 5.2: Wald Test for Heteroskedasticity

Modified Wald test for group wise heteroskedasticity in Random effect regression model Wald chi2(5) = 2582.08 Prob > chi2 = 0.0000

The p-value of the Wald test is zero, which means that the null hypothesis is rejected and the alternative hypothesis is accepted. This means that, the data sample shows the presence of heteroskedasticity.

5.5.3 Testing for serial correlation

Serial correlation tests are applied to macro panels with long time series and it is not a problem in micro panels (with very few years). Serial correlation causes the standard errors of the coefficients to be smaller than they actually are and a higher R squared.

Table 5.3: Wooldridge Test for Serial Correlation

Wooldridge test for autocorrelation in panel data H0: no first-order autocorrelation F(1, 419) = 108.744 Prob > F = 0.0000

The Wooldridge test has been used to check for serial correlation, the null hypothesis is that there is no serial correlation. The p-value of Wooldridge test for autocorrelation is <0.05 (i.e. significant), so the null hypothesis of no serial correlation is rejected and conclude the presence of serial correlation.

The POLS method indicates statistical errors in estimation and in order to overcome this issue robust specification test has been used to control the effect of auto correlated disturbance and the heteroskedasticity (Cameron 2008).

Table 5.4: Robust Standard Error Test

Dependent Variable = Bilateral Trade (TTij)	
Independent Variables	**Coefficient**
Ln GDP_i	0.73*** (11.02)
Ln GDP_j	0.771*** (13.22)
Ln POP_i	0.406*** (5.11)
Ln POP_j	0.253*** (3.78)
Ln $Dist_{ij}$	-1.654*** (-17.67)
MERCOSUR	0.106 (0.29)
Contig	0.309 (1.84)
Comlang	0.444*** (3.13)
Constant	-23.917*** (-23.87)

***significant at 1% level

The coefficients GDP, POP, Contig and Comlang in the robust specification test are positive and highly significant and have the expected sign. Distance as expected is highly significant showing a negative sign as the traditional gravity equation. Yet the estimation coefficients are biased because robust standard error does not permit controlling the individual heterogeneity and hence may yield biased results. This impossibility of controlling the individual heterogeneity is due to a correlation between some explanatory variables and some unobservable characteristics. To deal with this issue in RE model, another alternative approach has been used, that is Feasible Generalized Least Square Method (FGLS). The benefit of this approach is that it allows estimation in the presence of AR(1) autocorrelation within panels and heteroskedasticity across panels (Costa, 2010).

5.6 Results Discussion

Different panel data estimation techniques such as Pooled Ordinary Least Square (POLS) method, Random Effect Generalised Least Square (RE GLS) method and Random Effect Feasible Generalised Least Square (RE FGLS) method are applied to the dataset to arrive at appropriate modelling method and desirable results. The following table explains the results of various estimation methods under different models.

5.6.1 The Basic Gravity Model Estimation

Table 5.5 presents the estimates of the Basic Gravity equation with three models. In the all the three models, GDP_i, GDP_j, POP_i and POP_j are positive and significant.

Table 5.5: Results of the Basic Gravity Model

Independent Variable	Dependent Variable = Bilateral Trade		
	POLS	**RE (GLS)**	**RE (FGLS)**
Ln GDP_i	0.894*** (44.28)	0.728*** (23.52)	0.894*** (44.30)
Ln GDP_j	1.072*** (75.89)	0.77*** (26.87)	1.072*** (75.92)
Ln POP_i	0.197*** (8.99)	0.425*** (9.39)	0.197*** (8.99)
Ln POP_j	-0.019 (-1.35)	0.268*** (7.09)	-0.019 (-1.35)
Ln Dist	-1.787*** (-96.34)	-1.811*** (-27.89)	-1.787*** (-96.38)
MERCOSUR	-0.149 (-1.53)	0.044 (0.13)	-0.149 (-1.53)
Constant	-25.977*** (-90.68)	-22.826*** (-33.21)	-25.977*** (-90.72)
R^2	0.83	-	-
Observations	7560	7560	7560

***significant at 1% level
Pooled OLS ‘t’ values are reported
RE GLS and RE FGLS ‘z’ values are reported

The POLS model and the RE (FGLS) model give similar results. Both the models show that the coefficient of population of the importing country is negative and insignificant, one reason could be that the country with a larger domestic market tends to fulfill its supply and demand internally instead of trading more with other countries. The MERCOSUR dummy is also negative and insignificant. Distance is negative as per the traditional gravity model. The Random Effect GLS model proves to be a better model in explaining trade as the coefficients have improved in this model. The coefficient of MERCOSUR dummy is insignificant in all the models. India- MERCOSUR PTA came into effect in 2009 and the panel includes data till 2012. The three years data used for estimating the model is not sufficient to capture the effect of MERCOSUR trade. The results of the RE GLS model shows that all the variables except MERCOSUR dummy are significant in explaining the trade flow.

5.6.2 The Augmented Gravity Model Estimation

The Basic Gravity Model is augmented by including some country specific variables to improve the estimation of bilateral trade flows. The variables included in the model include continuous border (contig) and common language (comlang). Countries which share common land border trade more because of close proximity and lower transportation costs than countries which are located in faraway places (natural trading partner hypothesis). This has been proved correct by many empirical studies (Wannacott and Lutz, 1989, Summers, 1991, Krugman, 1993). Similarly, if countries share common language, that will facilitate easier and quicker trade and reduce transaction costs. For this reason ‘common language’ has been included in most of the gravity model studies to find out its impact on trade flows.

Table 5.6: Results of the Augmented Gravity Model

Independent Variable	Dependent Variable = Bilateral Trade		
	POLS	**RE (GLS)**	**RE (FGLS)**
Ln GDP_i	0.873*** (43.33)	0.73*** (23.57)	0.873*** (43.36)
Ln GDP_j	1.055*** (74.80)	0.771*** (26.97)	1.055*** (74.84)
Ln POP_i	0.199*** (9.04)	0.406*** (8.80)	0.199*** (9.04)
Ln POP_j	-0.022 (-1.59)	0.253*** (6.60)	-0.022 (-1.59)
Ln Dist	-1.628*** (-67.74)	-1.654*** (-19.85)	-1.628*** (-67.78)
MERCOSUR	-0.104 (-1.05)	0.106 (0.3)	-0.104 (-1.05)
Contig	0.359*** (6.61)	0.309*** (1.62)	0.359*** (6.61)
Comlang	0.386*** (10.56)	0.444*** (3.47)	0.386*** (10.57)
Constant	-26.598*** (-91.96)	-23.917*** (-31.84)	-26.598*** (-92.02)
R^2	0.83	-	-
Observations	7560	7560	7560

***significant at 1% level
Pooled OLS 't' values are reported
RE GLS and RE FGLS 'z' values are reported

In all the above models, the coefficients of GDP_i, GDP_j and POP_i are positive and highly significant at one percent. While the coefficients of POP_j are insignificant and negative in the POLS model and RE (FGLS) model. In RE GLS method POP_j is positive and highly significant at one percent. This means that an increase in population is expected to increase trade due to a large domestic market demand. Thus population is positively related to bilateral trade flows. The coefficient of distance is negative and it is significant at one percent, which shows that higher the distance, lesser will be the trade and lesser the distance, higher will be the trade. This confirms the traditional notion that increase in distance between two countries increases the trade costs between them and reduces the trade volume. The coefficient of

MERCOSUR dummy in RE (GLS) model is insignificant and showing a positive sign. Contig and Comlang, both are highly significant and positive influencing the trade flows. This shows that the countries sharing common frontiers or speaking the same language on average show they trade more than those that do not meet this requirement.

5.6.3 Extended Gravity Model Estimation

From the 1970s, the basic gravity model has been extended three times to study trade effects on members of a regional trade agreement. Aitken (1973), Braga, Sadafi et al. (1994), Aitken and Lowry (1973) introduce a dummy variable to obtain the RTA impact on trade between members. The dummy variable takes the value of one if two trading countries are both members of one RTA, and zero when either of them is not a member of this RTA. When all the other variables remain unchanged, a positive coefficient indicates that an RTA member tends to trade more with other member countries as well as the rest of the world, while a negative coefficient means a member tends to reduce trade with non-member countries. Later studies also use this idea to identify the role of RTAs on trade flows, such as Plummer (2006) for studying member countries' intra-ASEAN trade.

Bayoumi and Eichengreen (1997) and Frankel (1997) introduce another dummy variable to measure trade effects between RTA members with non-members. It takes the value of one if the importer is an RTA member and the exporter is a non-member, and zero otherwise. It therefore, not only measures trade creation and trade diversion effects from the perspective of member countries but also extends the study of changes in trade volumes to those of an RTA member with its extra-regional trading partners. A negative coefficient suggests that RTA members import less from the rest

of the world than would be expected due to the formation and implementation of an RTA, when its other economic conditions are taken into account, thus, a trade diversion effect is created and will harm the member country by reducing its welfare. Plummer (2006) studies ASEAN members' trade with other non members using this variable.

The extended model is used with three variations to capture intra-regional trade and extra-regional trade and to analyse if there is trade creation or trade diversion effects.

Extended Gravity Model-1

$$\ln (T_{ij}) = \alpha + \beta_1 \ln (GDP_i) + \beta_2 \ln (GDP_j) + \beta_3 \ln (POP_i) + \beta_4 \ln (POP_j) - \beta_5 \ln (Dist_{ij}) + \beta_6 \text{ MERCOSUR member} + \beta_7 \text{ MERCOSUR}_{EXP} + \beta_8 \text{ MERCOSUR}_{IMP} + \beta_9 \text{ Contig} + \beta_{10} \text{ Comlang} + U_{ij} \quad (7)$$

Extended Gravity Model-2

$$\ln (E_{ij}) = \alpha + \beta_1 \ln (GDP_i) + \beta_2 \ln (GDP_j) + \beta_3 \ln (POP_i) + \beta_4 \ln (POP_j) - \beta_5 \ln (Dist_{ij}) + \beta_6 \text{ MERCOSUR member} + \beta_7 \text{ MERCOSUR}_{EXP} + \beta_8 \text{ MERCOSUR}_{IMP} + \beta_9 \text{ Contig} + \beta_{10} \text{ Comlang} + U_{ij} \quad (8)$$

Extended Gravity Model-3

$$\ln (I_{ij}) = \alpha + \beta_1 \ln (GDP_i) + \beta_2 \ln (GDP_j) + \beta_3 \ln (POP_i) + \beta_4 \ln (POP_j) - \beta_5 \ln (Dist_{ij}) + \beta_6 \text{ MERCOSUR member} + \beta_7 \text{ MERCOSUR}_{EXP} + \beta_8 \text{ MERCOSUR}_{IMP} + \beta_9 \text{ Contig} + \beta_{10} \text{ Comlang} + U_{ij} \quad (9)$$

By defining these variables, MERCOSUR member captures intra-regional trade between member countries, a positive coefficient stands for trade creation effect as a result of the formation of the regional trade agreement. MERCOSUR $_{EXP}$ and MERCOSUR $_{IMP}$ capture extra-regional trade between RTA members and its non-members, a negative coefficient means trade diversion effect occurs after an RTA member tends to trade more with other members with higher production costs. When

imports are estimated as dependent variables, the negative coefficient represents export diversion for country i, when exports are estimated as dependent variables, the negative coefficient means an import diversion effect for country i.

Table 5.7: Results of the Extended Gravity Model – Random Effects

Independent Variable	Dependent Variable		
	Model - 1	**Model - 2**	**Model - 3**
	Total Trade	**Exports**	**Imports**
Ln GDP_i	0.738*** (23.61)	0.359*** (8.58)	1.079*** (24.85)
Ln GDP_j	0.763*** (26.26)	1.113*** (28.78)	0.44*** (11.01)
Ln POP_i	0.404*** (8.76)	1.108*** (17.99)	-0.181*** (-2.91)
Ln POP_j	0.255*** (6.65)	-0.149*** (-2.92)	0.725*** (14.14)
Ln Dist	-1.65*** (-18.78)	-1.948*** (-16.62)	-1.51*** (-13.06)
MERCOSUR member	0.129 (0.34)	0.177 (0.35)	0.652 (1.3)
$MERCOSUR_{EXP}$	-0.172 (-1.3)	0.681*** (3.85)	-0.952*** (-5.47)
$MERCOSUR_{IMP}$	0.143 (1.08)	-0.649*** (-3.68)	0.832*** (4.78)
Contig	0.314 (1.61)	0.283 (1.09)	0.753*** (2.93)
Comlang	0.449*** (3.46)	0.602*** (3.47)	0.781*** (4.58)
Constant	-23.944*** (-31.08)	-27.123*** (-26.37)	-25.219*** (-24.73)

***significant at 1% level
RE GLS 'z' values are reported

The coefficients of country i and country j's GDP are all positive, as expected, and statistically significant at the one percent level in all the regressions for total trade, export and import estimations (Table 5.7). All countries under consideration tend to increase their imports and exports when their economic conditions improve. The expected negative coefficients are found in the estimations for distance. The coefficient of POP_i is negative and significant when imports are taken as the

dependent variable. Similarly, POP_j is negative and significant when exports are taken as the dependent variable. The coefficients of common border and common language are all positive and significant at one percent, when 'Imports' are taken as a dependent variable.

The estimations for Total Trade are as follows:

Bilateral trade increases as trading partners' economic sizes and population increase. Distance is found to have a negative impact on a country's trade. The variables of sharing common language and a common land border are not found to affect trade flows in this study. The formation and implementation of a regional trade agreement has a crucial impact on trade around the world. A negative coefficient for MERCOSUR $_{EXP}$ indicates that when an exporter is a member of MERCOSUR while an importer is not, the growth of MERCOSUR members' exports to non-members tends to decrease since MERCOSUR is insignificant, there is no impact of this variable on trade.

Intra-regional trade and Extra-regional trade:

The empirical results for intra-regional trade are reported in Table 5.7 for the export and the import estimations. In the Model-2, the coefficients of $MERCOSUR_{EXP}$ are positive and highly significant in the export estimations and negative in the import estimations, showing that when an exporter is a member of MERCOSUR while an importer is not, the growth of non-MERCOSUR members' exports to MERCOSUR members increases by 6.8 percent. The results indicate that MERCOSUR members do not tend to reduce their trade growth with non-member countries after the formation of the MERCOSUR agreement. The results indicate that there is trade creation.

In the extended model-3, when an importer is a member of MERCOSUR while an exporter is not, the growth of MERCOSUR members' exports to non-members tends to decrease by 9.5 percent. While, on the other hand, when an importer is a member of MERCOSUR, the growth of non-MERCOSUR members' imports to member countries tends to increase by 8.3 percent.

5.7 India's Trade Potential with MERCOSUR Countries

By using the gravity model for bilateral trade flows between India and MERCOSUR, we can estimate the trade potential for India. The estimated coefficients are substituted in the model and actual data of each explanatory variable is inserted to calculate India's trade potential. If the estimated trade potential is more than actual trade data, there is unmet trade potential between India and that particular MERCOSUR country. If estimated trade potential is lower than the actual trade data, then India already exploited the trade potential and there is limited scope to substantially improve trade through RTAs.

Different modelling techniques were employed in the study to identify the most appropriate model that fits the data well and confirms theoretical prescriptions. Augmented Gravity Model estimated under Random Effects Generalised Least Squares method provides best parameters and expected sign (except per capita GDP, negative and significant) and is selected to predict the trade potential between India and MERCOSUR countries. All the explanatory variables are significant along with the coefficient of MERCOSUR dummy. The models along with the estimated parameters are presented below. The study that is used to calculate the trade potential include India in the dataset.

$$\ln (T_{ij}) = -23.917 \text{ Constant} + 0.73 \ln GDP_i + 0.771 \ln GDP_j + 0.406 \ln POP_i + 0.253 \ln POP_j - 1.654 \ln Dist_{ij} + 0.106 \text{ MERCOSUR member} + 0.309 \text{ Contig} + 0.444 \text{ Comlang} \quad (10)$$

$$\ln (E_{ij}) = -27.192 \text{ Constant} + 0.386 \ln GDP_i + 1.083 \ln GDP_j + 1.11 \ln POP_i - 0.141 \ln POP_j - 1.948 \ln Dist_{ij} + 0.201 \text{ MERCOSUR member} + 0.277 \text{ Contig} + 0.611 \text{ Comlang} \quad (11)$$

$$\ln (I_{ij}) = - 25.078 \text{ Constant} + 1.043 \ln GDP_i + 0.474 \ln GDP_j - 0.18 \ln POP_i + 0.722 \ln POP_j - 1.526 \ln Dist_{ij} + 0.56 \text{ MERCOSUR member} + 0.737 \text{ Contig} + 0.759 \text{ Comlang} \quad (12)$$

Trade potential can also be represented as a percentage of actual trade. This can be calculated by using the following formula:

$$\text{Trade Potential} = [\{(\text{Potential Trade} / \text{Total Trade}) - 1\} \times 100] \quad (13)$$

A positive value represents unused trade potential and indicates future possibilities of trade expansion while a negative value represents over used trade potential whereby India has exceeded its trade potential with the particular partner. The trade potential between India and MERCOSUR members is calculated for the period 1995 to 2012. These results are presented in Table 5.8.

Table 5.8: India's Trade Potential with MERCOSUR Countries

(Trade potential as a percent of Actual Trade)

Year	Argentina	Bolivia	Brazil	Paraguay	Uruguay	Venezuela
1995	-27.20	35.50	8.42	4.42	3.46	19.16
1996	-26.77	44.00	11.13	10.25	3.15	12.35
1997	-26.31	46.22	11.47	9.58	-2.40	13.91
1998	-25.93	40.18	11.93	10.51	-1.94	15.46
1999	-26.20	43.04	5.90	9.27	1.33	19.20
2000	-26.65	6.80	7.63	6.90	-1.37	6.37
2001	-26.85	9.49	5.14	-8.02	-1.46	0.63
2002	-31.29	20.78	1.06	2.51	0.21	1.68
2003	-30.19	18.61	3.03	6.37	-2.50	19.33
2004	-29.75	17.91	1.92	3.28	-0.16	13.89
2005	-29.44	17.27	0.66	3.00	1.96	10.49
2006	-28.96	15.98	1.84	2.47	2.34	1.41
2007	-27.77	18.17	3.70	-0.96	1.15	-3.35
2008	-27.69	14.56	1.58	0.44	-0.14	-7.64
2009	-27.37	18.47	1.15	0.02	3.74	-3.14
2010	-26.58	16.02	1.45	1.34	2.64	-6.41
2011	-26.63	13.65	1.09	2.59	-0.11	-8.26
2012	-26.29	8.28	-1.10	2.88	-0.03	-12.59

India's trade potential with Argentina, Brazil, Uruguay and Venezuela is already exploited and the actual trade exceeds potential trade in the recent years. India has unmet trade potential with Bolivia and Paraguay. The trade potential is highest with Argentina and remained above 26 percent for the year 2012. Initially, till 2011 India had unmet its trade potential with Brazil, but in the year 2012 India has over used its trade potential with 1.10 percent. This could be the reason of the trade commissions that India has set up with Argentina and Brazil. This gave additional fillip to bilateral trade and the potential trade is gradually exploited. A Free Trade Agreement between India and MERCOSUR has helped in increasing bilateral trade and realizing the trade potential. Figure 5.1 gives a diagrammatic representation of India's trade potential with MERCOSUR countries.

Figure 5.1: India's Trade Potential with MERCOSUR Countries

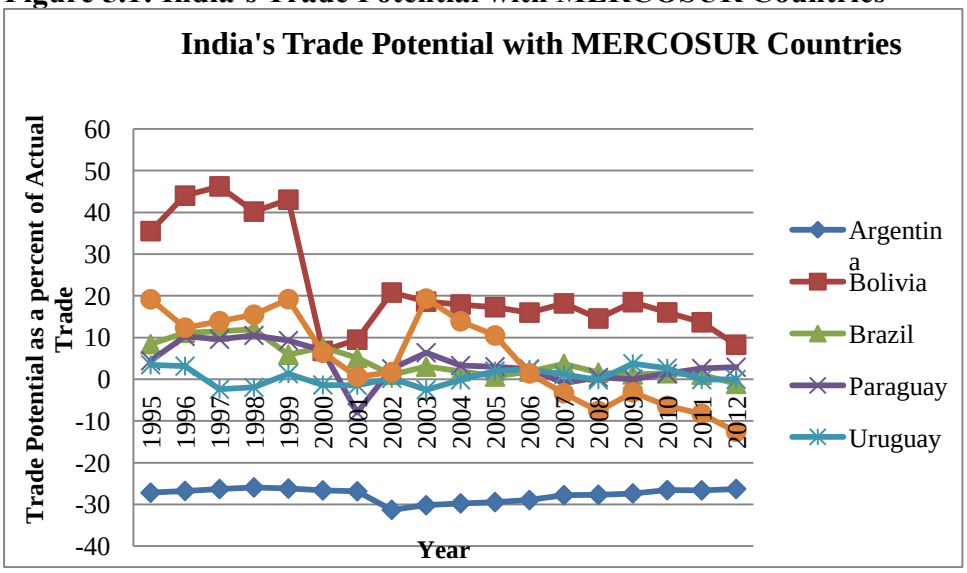


Table 5.9 clearly shows that India has over used its export potential with Argentina throughout the years from 1995-2012. India's export potential is positive with Bolivia, Brazil, Paraguay, Uruguay and Venezuela.

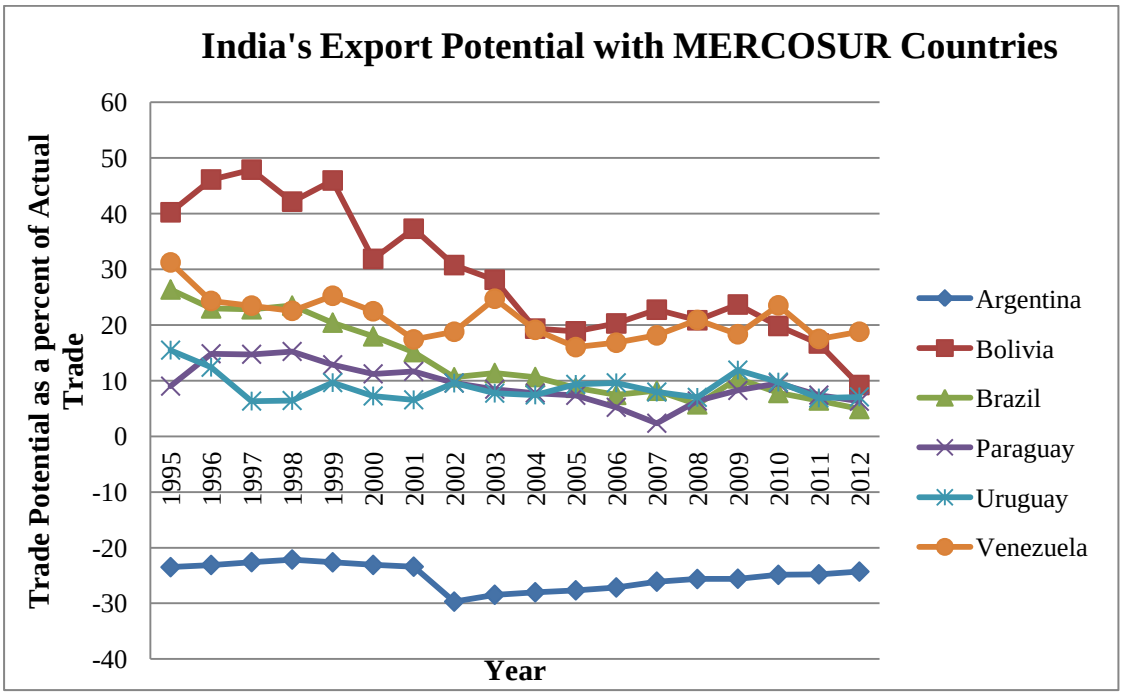
Table 5.9: India's Export Potential with MERCOSUR Countries

(Trade potential as a percent of Actual Trade)

Year	Argentina	Bolivia	Brazil	Paraguay	Uruguay	Venezuela
1995	-23.50	40.22	26.36	9.00	15.47	31.22
1996	-23.11	46.11	22.96	14.82	12.40	24.30
1997	-22.60	47.88	22.81	14.72	6.32	23.46
1998	-22.13	42.13	23.47	15.23	6.42	22.53
1999	-22.63	45.93	20.41	12.85	9.63	25.23
2000	-23.10	31.85	17.95	11.21	7.24	22.45
2001	-23.42	37.27	15.12	11.66	6.55	17.39
2002	-29.69	30.74	10.60	9.56	9.55	18.77
2003	-28.46	28.11	11.37	8.45	7.74	24.70
2004	-28.01	19.33	10.64	7.76	7.42	19.12
2005	-27.66	18.84	8.71	7.35	9.32	16.01
2006	-27.15	20.26	7.44	5.20	9.60	16.80
2007	-26.11	22.73	8.18	2.34	7.94	18.12
2008	-25.63	20.83	5.74	6.34	6.99	20.88
2009	-25.58	23.66	10.39	8.23	11.88	18.32
2010	-24.88	19.81	7.78	9.53	9.73	23.51
2011	-24.79	16.66	6.43	7.39	6.88	17.48
2012	-24.30	9.20	4.90	6.28	7.07	18.77

The highest export potential is with Venezuela followed by Bolivia, Uruguay, Paraguay and Brazil. In the year 2012, India's export potential with Venezuela was 18.77 percent, Bolivia was 9.20 percent, Uruguay it was 7.07 percent, Paraguay was 6.28 percent and with Brazil the export potential was 4.90 percent. This means that India has unmet its export potential to these countries.

Figure 5.2: India's Export Potential with MERCOSUR Countries



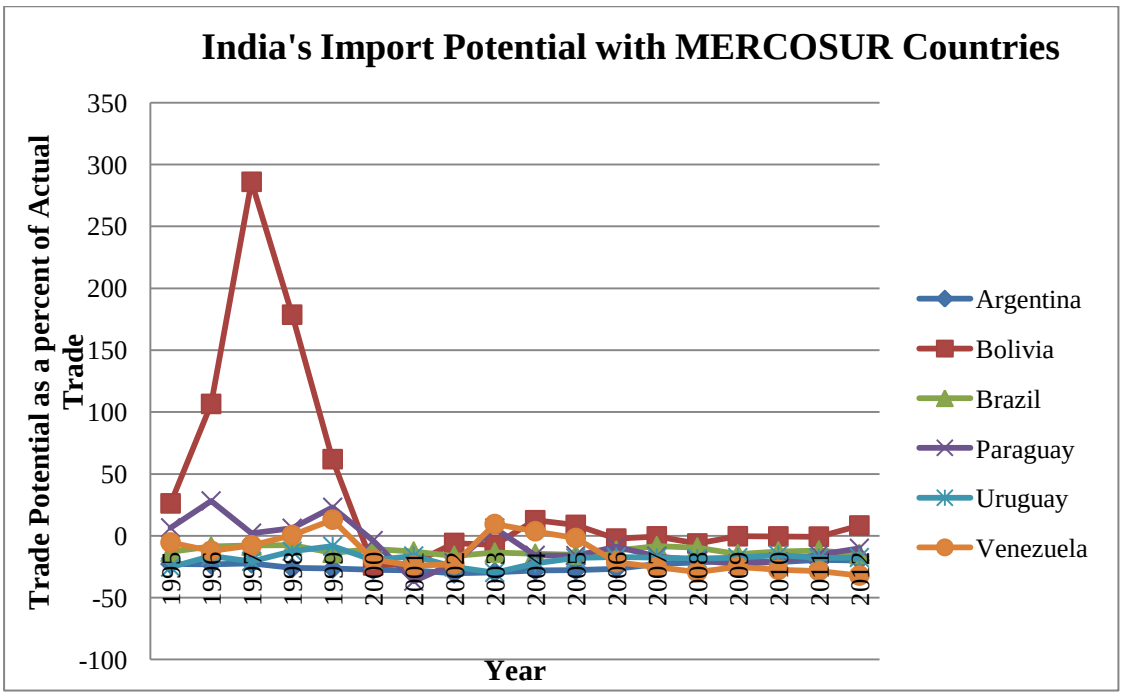
Over the years, India has increased its import share from all the MERCOSUR countries and exploited the import potential. India's import potential is negative with all the MERCOSUR countries except Bolivia (Table 5.10). After the MERCOSUR agreement signed on 1st June, 2006 and which came into effect from 2009, India's imports of petroleum increase to 85.1 percent of the total imports from MERCOSUR countries (Table 3.4). India-MERCOSUR PTA facilitated increased imports and exploitation of the import potential. Figure 5.3 gives a graphical representation of India's import potential with MERCOSUR countries.

Table 5.10: India's Import Potential with MERCOSUR Countries

(Trade potential as a percent of Actual Trade)

Year	Argentina	Bolivia	Brazil	Paraguay	Uruguay	Venezuela
1995	-22.83	26.11	-13.05	6.46	-25.37	-5.44
1996	-23.15	106.51	-8.60	28.18	-16.40	-12.10
1997	-22.25	286.00	-7.90	2.12	-20.68	-7.68
1998	-26.02	178.62	-7.53	6.09	-12.55	0.60
1999	-26.49	61.85	-13.73	23.02	-8.36	13.00
2000	-27.37	-24.04	-10.72	-3.86	-19.79	-19.16
2001	-27.95	-21.97	-12.79	-36.75	-16.34	-24.14
2002	-30.42	-5.86	-16.25	-21.99	-25.14	-22.96
2003	-29.58	-7.29	-13.57	6.14	-29.73	9.44
2004	-27.99	12.52	-14.61	-15.85	-22.23	3.63
2005	-27.77	8.75	-15.32	-15.98	-17.93	-1.87
2006	-26.58	-2.32	-12.06	-8.92	-17.09	-21.32
2007	-22.73	-0.52	-8.38	-16.64	-17.73	-25.39
2008	-21.58	-6.25	-9.51	-19.90	-18.35	-29.36
2009	-20.02	-0.42	-14.85	-22.83	-17.65	-25.17
2010	-21.18	-0.57	-12.65	-21.03	-15.48	-27.53
2011	-19.55	-0.73	-11.88	-15.17	-18.00	-28.45
2012	-19.84	8.24	-14.82	-10.14	-17.61	-32.14

Figure 5.3: India's Import Potential with MERCOSUR Countries



The ratio of trade potential as predicted by the model and actual trade reveals positive values for trade and export potential expansion of future trade for India. Bolivia and Paraguay reveal possibilities of expanding trade with India. India has unmet trade potential with Bolivia and Paraguay.

Trade possibilities between India and Latin America are further enhanced by access to an enlarged market owing to common membership of the MERCOSUR Agreement. The size of the market and proximity of the two economies are thus indicative of a huge potential for trade between India and Latin American Countries.

5.8 Major Findings

This chapter estimates the trade potential for India using the augmented gravity model. Panel data for the years 1995 – 2012 have been analyzed using RE (GLS) estimation technique. The gravity equation fits the data and delivers precise estimates. As per the estimation, the results of Pooled OLS Model show parameters with expected signs (except population of the importing country and MERCOSUR dummy) and highly significant coefficients. But it is not accounting the individual characteristics of countries which are very important in determining bilateral trade flows. The results of POLS method are similar to Random Effects (FGLS) method. In the POLS model and the RE (FGLS) model, the MERCOSUR dummy is negative and insignificant. In the RE (GLS) model, the MERCOSUR coefficients are positive as compared to the other two models, though insignificant. Hence, the RE (GLS) model is estimated to be a better model in explaining the trade between India and MERCOSUR.

GDP is a major factor that positively affects bilateral trade flows. A country tends to trade more with its trading partners if it has an increased GDP and an increased

population. Distance is expected to negatively impact bilateral trade flows theoretically, which is proved in the estimation. Variables, such as sharing a common language and common land border show a significant impact on bilateral trade flows. The inception (in 2006) and implementation (in 2009) of the India-MERCOSUR trade agreement do not show any impact on bilateral trade flow changes. MERCOSUR dummy shows no significant results because the data from 2009-2012 could not capture the trade effect.

When considering extra-regional trade, export diversion and import diversion effects are found for MERCOSUR. When considering the impact of RTAs on trade among non-members, MERCOSUR and non-MERCOSUR members tend to increase their export growth with each other in Model -2 (the $MERCOSUR_{EXP}$ estimations), while there is trade creation among the MERCOSUR members and they tend to increase their export growth with each other.

India's trade potential is calculated using Augmented RE (GLS) Model. India's trade potential with Argentina, Brazil, Uruguay and Venezuela is already exploited and the actual trade exceeds potential trade in the recent years. India's actual trade with Argentina, Brazil, Uruguay and Venezuela exceeded the potential trade for the year 2012. India's potential for expansion of trade is highest with countries like Bolivia and Paraguay. The trade potential is highest with Bolivia. The highest export potential is with Venezuela followed by Bolivia, Uruguay, Paraguay and Brazil. The estimates also indicate that India can potentially attain ten times or more the level of the actual trade with Bolivia and Paraguay. For the region as a whole, however, the estimates show that India has exploited its import potential with the MERCOSUR countries.

CHAPTER – VI

THE CHANGING TRADE BETWEEN INDIA AND LATIN AMERICA: CHINA'S ROLE

CHAPTER – VI

THE CHANGING TRADE BETWEEN INDIA AND LATIN AMERICA: CHINA'S ROLE

6.1 Introduction

With the commencement of the FOCUS LAC program, began India's elevated economic involvement with the Latin American countries. India's private sector trade as well as investment in the region was supported by this program. In spite of India focussing on strengthening its economic relationship with Latin America, China was able to surpass it in the financial, social and political fields. By seeking out new markets for commodities and services, India's trade with Latin American Countries increased to $13.13 billion from 2000-2013. However, in the same period, the trade of China with Latin America reached a mark of $128.67 billion (UNCTAD database).

According to R. Viswanathan (2014), Chinese and Indian presence will continue to grow with the strengthening of South-South cooperation. Latin America serves as a captivating export market as well as a source of raw materials and agrarian goods. The economic, social and political considerations determine its relationship with the two Asian nations. However, he observes a contrasting pattern in their investment policies as India displays a more cautious and well-informed approach.

6.2 The Interest of India and China in Latin America

Latin America's economic engagement is trade oriented as well as investment based. China holds a lion's share in the trade with Latin America as it deals about seven times more trade and investment than India. While China, focuses on the

agricultural, energy and infrastructure related trade and investment, India's focus revolves around pharmaceuticals, manufacturing and information technology, as well as agrochemicals, energy and mining. Both Asian nations import domestic energy production from Latin America. With modernisation the energy consumption of India and China is anticipated to increase. The assessment by the China Energy Group is that energy consumed by the household will be two-fold with urbanization. Keeping this view in mind, from 2005-10, China has made arrangements for investment in the oil originating from the Latin American countries especially from Venezuela. From 2006 to 2010, India dispatched eighteen projects in Latin America for oil exploration most of which were based in Brazil and Colombia. The first energy cooperation treaty between India and Venezuela was signed in April 2008 which procured each day a quantity of 200,000 barrels of crude oil (Chanda et.al, 2012).

In the article written by R. Viswanathan (2014) states the comparative advantage that China holds in the labour-intensive agrarian commodities like mushrooms, bamboo shoots an garlic and a disadvantage in land-intensive commodities. and hence benefits from the import of such products. India faces significant challenges in terms of irrigation infrastructure, market infrastructure and food distribution. Volatile weather throughout much of the country leads to alternate periods of flooding and drought. Expanding populations and emerging middle classes in China and India will require considerably more food in the near future. South America's major soy producers – Argentina, Brazil, and Paraguay, for example – have benefitted considerably over the past decade from growing Chinese and Indian demand for soya. The area under soya-bean cultivation in these three countries grew 19 percent from 2000 to 2013. China and India increasingly are looking to Latin America as a supplier not only of soya, but

of many other agricultural products. (R. Viswanath, 2014). In any case, both China and India are becoming progressively vital sources of development aid in Latin America. Since China and India are not just similar in size but also with respect to factor endowments, it is therefore important to explore the structure of comparative advantage of India and China and the degree to which the two economies compete with each other in the global market as well as in Latin America.

The organisation of the chapter is as follows. In section 6.3 an analysis has been undertaken for India and China by utilizing the Balassa (1965) index of Revealed Comparative Advantage. The inter-transient variation in Revealed Comparative Advantage (RCA) of the two economies is presented in section 6.4. Section 6.5 presents the Spearman's Rank Correlation analysis for India and China respectively. Section 6.6 deals with the comparative analysis of India and China together at the global level. In section 6.7 the commodities are analysed at the three digit classification in the Latin America according to the factor intensity. The degree of export competition is presented in section 6.8. While, section 6.9 presents the main findings of the entire chapter.

6.3 Revealed Comparative Advantage - The Analysis

In this segment, Revealed Comparative Advantage (RCA) analysis has been undertaken at both the sector and commodity level. The study is based on export and import data on 17 sectors and the entire data are sourced from International Trade Statistics and cover a period from 2007-2013. The Product level RCA indices have been calculated for 255 commodities/products using the data provided by UNCTAD using the statistical database of the Harmonised system (HS – 1996) classification for the years 2007 – 2013. The results that emerge from the analysis are as follows:

6.3.1 India

India holds a comparative advantage in nine sectors in the global market as the RCAI is greater than unity. At the disaggregated level RCAI is ascertained for each of the 255 commodities exported by India to the world in 2013. The calculated indices depict that India enjoys comparative advantage in 85 products. India's comparative advantage is concentrated in sectors like Textiles, Clothing, Iron & Steel, Agricultural products, Food, Pharmaceuticals, and so on. The commodity (along with its commodity code) with the most extreme comparative advantage is distinguished as [HS-042] Rice.

6.3.1.1 Sector- wise

The sectors for which RCA are calculated include Agricultural products, Food, Manufactures, Fuels , Fuels and mining products, Chemicals, Iron and steel, Pharmaceuticals, Office and telecom equipment, Machinery and transport equipment, Telecommunications equipment, Electronic data processing and office equipment, Automotive products, Integrated circuits and electronic components, Textiles, Transport equipment and Clothing.

India enjoys comparative advantage in nine sectors, maximum in Textiles. The estimation of the RCA index for Textiles is 3.71. This is followed by Clothing, Iron & Steel, Agricultural products and Food. Pharmaceuticals, Fuels, Fuels and mining products, Manufactures and Transport equipment are different sectors that appear in the top 10 sectors positioned by estimation of the RCA index.

Table 6.1: India's Top Ten Sectors based on the RCAI - 2013

Rank	Sector Description	RCAI
1	Textiles	3.71
2	Clothing	2.20
3	Iron and steel	1.68
4	Agricultural products	1.62
5	Food	1.54
6	Pharmaceuticals	1.52
7	Fuels	1.28
8	Fuels and mining products	1.20
9	Manufactures	0.94
10	Transport equipment	0.68

Data Source: Computed from WTO database

6.3.1.2 Commodity- wise

For the year 2013, regarding the estimation of the RCA index at the three digit level, Rice positions at the top with a RCA value of 16.93. This is followed by commodities like Cotton (RCAI=11.91), Pearls, precious & semi – precious stones (RCAI=9.72),

Table 6.2: India's Top Ten Commodities based on the RCAI - 2013

Rank	HS Code	Commodity Description	RCAI
1	042	Rice	16.93
2	263	Cotton	11.91
3	667	Pearls, precious & semi-precious stones	9.72
4	075	Spices	8.50
5	531	Synth. organic colouring matter & colouring lakes	8.41
6	883	Cinematograph films, exposed & developed	7.32
7	265	Vegetable textile fibres, not spun; waste of them	7.10
8	651	Textile yarn	6.55

9	277	Natural abrasives (incl. industrial diamonds)	5.89
10	659	Floor coverings, etc.	5.82

Data Source: Computed from UNCTAD database

Spices (RCAI=8.50), Synthetic organic colouring matter & colouring lakes (RCAI=8.41) and Cinematograph films, exposed & developed (RCAI=7.32) as the following five commodities positioned by RCAI value.

6.3.2 China

China enjoys its comparative advantage and exports in nine sectors out of 17 sectors and 104 commodities from a total of 255 commodities to the World. The commodities in which China has a comparative advantage are Silk, Pottery, Lighting fixtures and fittings, Women's clothing, of textile, knitted or crocheted, Men's or boy's clothing, of textile, knitted, crocheted and Automatic data processing machines.

6.3.2.1 Sector-wise

China holds a comparative advantage in nine sectors at the HS 3-digit level. Electronic data processing and office equipment and Clothing rank at the top with the highest index value of 3.51 and 3.28 respectively. These are followed by sectors like

Table 6.3: China's Top Ten Sectors based on the RCAI - 2013

Rank	Sector Description	RCAI
1	Electronic data processing and office equipment	3.51
2	Clothing	3.28
3	Telecommunications equipment	3.22
4	Textiles	2.97
5	Office and telecom equipment	2.89
6	Integrated circuits and electronic components	1.86
7	Manufactures	1.49
8	Machinery and transport equipment	1.49
9	Iron and steel	1.03

10	Chemicals	0.51

Data Source: Computed from WTO database

Telecommunications equipment, Textiles, Office and telecom equipment, Integrated circuits and electronic components, Manufactures, Machinery and transport equipment, Iron and steel and Chemicals are other sectors that figure in the top ten sectors ranked according to the value of the RCA index.

6.3.2.2 Commodity-wise

As far as individual commodities according to the HS-3 digit, [HS-261] Silk with a value of 6.38 positions at the top. It is followed by commodities like Pottery (RCAI =4.92), Lighting fixtures and fittings RCAI =4.58), Women's clothing, of textile, knitted or crocheted (RCAI =4.49), Men's or boy's clothing, of textile, knitted, crocheted (RCAI =4.18) and Automatic data processing machines (RCAI =4.03) as the following five commodities positioned according to their RCA value.

Table 6.4: China's Top Ten Commodities based on the RCAI - 2013

Rank	HS Code	Commodity Description	RCAI
1	261	Silk	6.38
2	666	Pottery	4.92
3	813	Lighting fixtures & fittings	4.58
4	844	Women's clothing, of textile, knitted or crocheted	4.49
5	843	Men's or boy's clothing, of textile, knitted, crocheted	4.18
6	752	Automatic data processing machines	4.03
7	658	Made-up articles, of textile materials	3.93
8	831	Travel goods, handbags & similar containers	3.80
9	697	Household equipment of base metal	3.79
10	652	Cotton fabrics, woven	3.75

Data Source: Computed from UNCTAD database

6.4 Inter-transient Variation in Revealed Comparative Advantage: 2007 - 2013

6.4.1 India

In both the years, 2007 and 2013, India enjoyed comparative advantage in nine sectors. While two out of the 17 sectors hold their comparative advantage in 2013, one sector loses its advantage. Six sectors demonstrative of an increased comparative advantage for India emerge in 2013. Prominent among these is the Pharmaceuticals sector with a rank of six (Table 6.5).

Table 6.5: Inter-transient Movement of India's RCA

Total Number of sectors for which India holds advantage: 2007: 9 2013: 9			
Number of sectors that have retained advantage: 2			
Rank	**Sectors**	**RCAI – 2007**	**RCAI - 2013**
1	Textiles	3.76	3.71
8	Fuels and mining products	1.22	1.20
Number of sectors that have gained advantage: 6			
Rank	**Sectors**	**RCAI – 2007**	**RCAI - 2013**
3	Iron and steel	1.60	1.68
4	Agricultural products	1.34	1.62
5	Food	1.36	1.54
6	Pharmaceuticals	1.12	1.52
7	Fuels	1.08	1.28
9	Chemicals	1.03	1.18
Number of sectors that have lost advantage : 1			
Rank	**Sectors**	**RCAI – 2007**	**RCAI - 2013**
2	Clothing	2.67	2.20

Data Source: Computed from WTO database

Of the nine most exported sectors for India in 2007, two hold their advantage in 2013. While sectors like Clothing show a reduction in the comparative advantage, sectors like Pharmaceuticals and Agricultural products make an entry as India's most competitive sectors in 2013. India has maximum comparative advantage in Textiles and Clothing, both in 2007 and 2013. Textiles, has been India's largest export earners since time-immemorial. The availability of a variety of raw materials has enabled the industry to produce a range of natural and artificial fibres. So also, the prevalence of cheap labour and domestic availability of fabrics have enhanced India's advantage vis-à-vis the rest of the World.

India is thus, one of the best candidates for a thriving textile industry since the sector requires only semi and unskilled labour to mass produce many of its items. Agricultural products are followed by sectors like Food, Pharmaceuticals, Fuels, Fuels and mining products. Iron and steel emerges as a sector with comparative advantage for India in 2013 being on the third rank. Manufactures and chemicals are the two sectors that India has a low comparative advantage. A more detailed analysis has been undertaken using the SRC coefficient in section 6.6.

6.4.2 China

As is the case of India, the sectors for which China enjoys comparative advantage more or less remains the same for 2007 and 2013. China enjoyed advantage in eight sectors in 2007 and nine sectors in 2013. A single sector out of the 17 sectors retains its comparative advantage in 2013, Iron and steel and Clothing loses their advantage. Six sectors – Textiles, Integrated circuits and electronic components, Manufactures,

Machinery and transport equipment, Telecommunications equipment and Office and telecom equipment have gained comparative advantage in 2013.

Table 6.6: Inter-transient Movement of China's RCA

Total Number of sectors for which India holds advantage: 2007: 8 2013: 9			
Number of sectors that have retained advantage: 1			
Rank	**Sectors**	**RCAI – 2007**	**RCAI - 2013**
1	Electronic data processing and office equipment	3.50	3.51
Number of sectors that have gained advantage: 6			
Rank	**Sectors**	**RCAI – 2007**	**RCAI - 2013**
3	Telecommunications equipment	3.03	3.22
4	Textiles	2.70	2.97
5	Office and telecom equipment	2.65	2.89
6	Integrated circuits and electronic components	**0.99**	**1.86**
7	Machinery and transport equipment	1.34	1.49
7	Manufactures	1.38	1.49
Number of sectors that have lost advantage : 2			
Rank	**Sectors**	**RCAI – 2007**	**RCAI - 2013**
2	Clothing	3.82	3.28
8	Iron and steel	1.24	1.03

Data Source: Computed from WTO database

Regarding the number of constituent sectors in the global market, China maintains its advantage in Electronic data processing and office equipment, Clothing, Telecommunications equipment followed by Textiles and Office and telecom equipment. Machinery and transport equipment gets replaced by Integrated circuits and electronic components. A more detail analysis using the constituent three-digit commodities has been undertaken using the SRC coefficient in section 6.6.

6.5 Spearman Rank Correlation based Analysis

In the commodity sector, an analysis is made of the dynamic transformations as far as structural changes in 2007 and 2013 are concerned. This analysis was done for India and China by utilizing the Spearman Rank Correlation (SRC). The SRC coefficient, a nonparametric test, is used to test for independence between two arbitrary variables. The Spearman Rank Correlation (SRC) coefficient is indicative of values ranging between +1 and -1. A strong positive rank is apparent if the value is close to +1 and it is a negative correlation rank if it is closer to -1. Further, a zero value indicates a complete lack of correlation. As regards for the study, a high rank correlation will be deciphered to mean the positioning of a nation's commodities by comparative advantage has changed minimal over time. A low coefficient will demonstrate the positioning has changed extensively, recommending consequently rapid change. This SRC method has been utilised to analyse drastic transformation in the structure during 2007 and 2013 in India’s and China’s individual sectors and commodities. The two stages help break down if there has been a structural shift in the economy as a whole as also within different commodities.

6.5.1 India

The SRC estimates for commodities like Optical goods, Cinematograph films exposed and developed and Cinematographic and photographic supplies is minimal, concluding that these commodities have experienced structural change. Maximum transformation is experienced by commodities like Watches and clocks, Arms and

ammunition and Printed matter for which the SRC is the most minimal (Appendix Table 6.A-1). For office and stationery supplies, works of art, collector's pieces and antiques Musical instruments, parts, records, tapes and similar, SRC is negative.

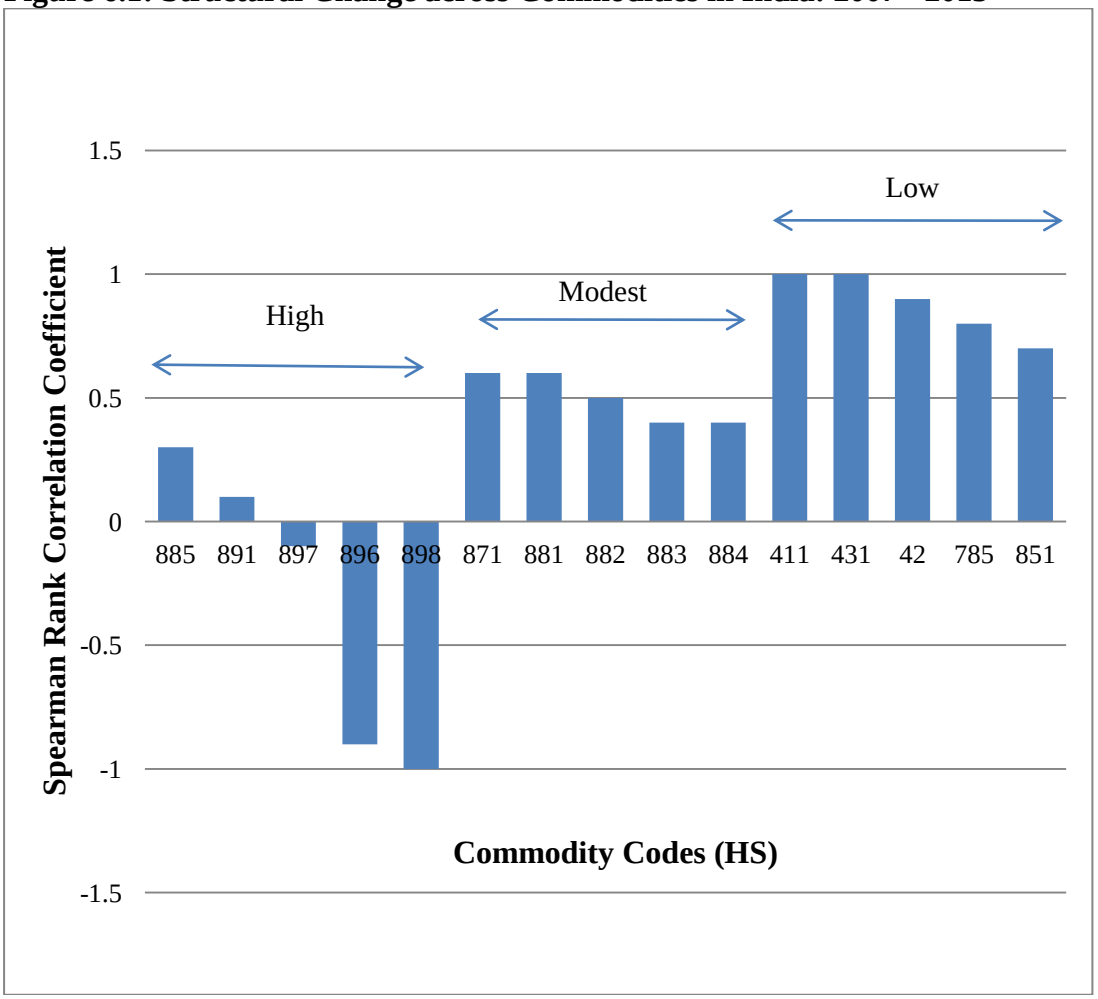
Table 6.7: Structural Change across Commodities in India: 2007 - 2013

Category	HS Code	Commodity Description	SRC
High Structural Change (10 Commodities)	885	Watches & clocks	0.3
	891	Arms & ammunition	0.1
	897	Jewellery & articles of precious materia., n.e.s.	-0.1
	896	Works of art, collectors' pieces & antiques	-0.9
	898	Musical instruments, parts; records, tapes & similar	-1.0
Modest Structural Change (8 Commodities)	871	Optical instruments & apparatus, n.e.s.	0.6
	881	Photographic apparatus & equipment, n.e.s.	0.6
	882	Cinematographic & photographic supplies	0.5
	883	Cinematograph films, exposed & developed	0.4
	884	Optical goods, n.e.s.	0.4
Low Structural Change (237 Commodities)	411	Animals oils and fats	1.0
	431	Animal or veg. oils & fats, processed, n.e.s.; mixt.	1.0
	042	Rice	0.9
	785	Motorcycles & cycles	0.8
	851	Footwear	0.7

Data Source: Computed from UNCTAD database

For India, 50 percent of the commodities have either moved from disadvantage to advantage in this period. Commodities that have seen a modest change are Optical instruments and apparatus, Instruments and appliances for medical, meters and counters and photographic apparatus and equipment, etc. Commodities which have remained structurally same are Animals oils and fats and Animals or vegetable oils and fats and oils and crude, refined. Figure 6.1 shows the structural change across commodities in India for the period 2007 and 2013.

Figure 6.1: Structural Change across Commodities in India: 2007 - 2013



Data Source: Computed from UNCTAD database

6.5.2 China

The SRC coefficient for China between 2007 and 2013 for lime, cement, construction material (excluding glass and clay) and Gold (excluding gold ores and concentrates) is minimal, demonstrating that these commodities have experienced structural change. Maximum structural change is experienced by sectors like Knitted or crocheted

fabrics and Articles of apparel of textile fabrics for which the SRC is the minimal (Appendix Table 6.A-2).

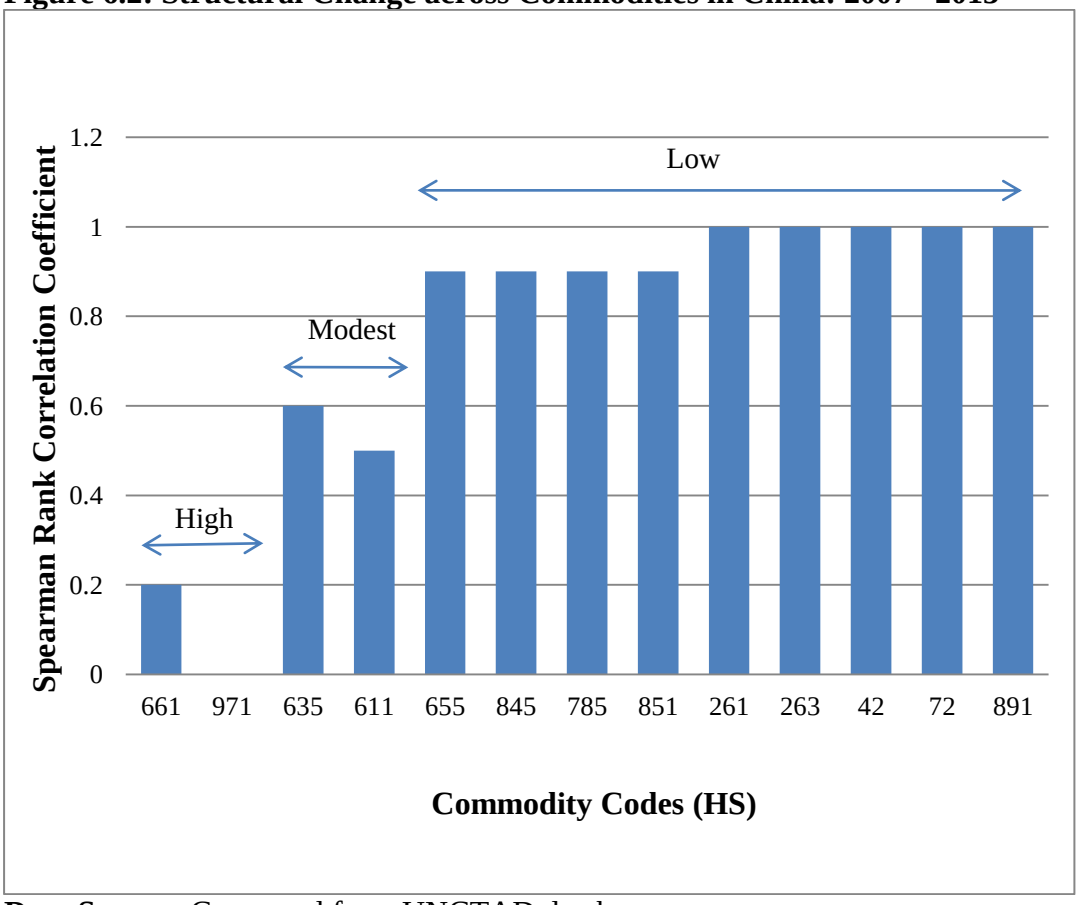
Modest change is observed for commodities like Wood manufacture and leather. Commodities which have remained structurally same are Silk, Rice, Spices, Cocoa, Arms and ammunition, etc. Figure 6.2 shows the structural change across commodities in India for the period 2007 and 2013.

Table 6.8: Structural Change across Commodities in China: 2007 - 2013

Category	HS Code	Commodity Description	SRC
High Structural Change (2 Commodities)	661	Lime, cement, fabrica. construction material (excluding glass, clay)	0.2
	971	Gold, non-monetary (excluding gold ores and concentrates)	0.0
Modest Structural Change (2 Commodities)	635	Wood manufacture, n.e.s.	0.6
	611	Leather	0.5
Low Structural Change (251 Commodities)	655	Knitted or crocheted fabrics, n.e.s.	0.9
	845	Articles of apparel, of textile fabrics, n.e.s.	0.9
	785	Motorcycles & cycles	0.9
	851	Footwear	0.9
	261	Silk	1.0
	263	Cotton	1.0
	042	Rice	1.0
	072	Cocoa	1.0
	891	Arms & ammunition	1.0

Data Source: Computed from UNCTAD database

Figure 6.2: Structural Change across Commodities in China: 2007 - 2013



Data Source: Computed from UNCTAD database

6.6 India-China: A Comparative Analysis at the Global Level

6.6.1 Sector-wise

There are nine sectors where India and China both appreciate comparative advantage in 2007 vis-à-vis nine in 2013. India has a higher comparative advantage in Chemicals

with respect to China in 2013. India and China are equally advantageously placed in Iron and steel, Textiles and Clothing in 2013. India is more advantageously placed in Agricultural products, Food, Fuels and mining products, Fuels and Pharmaceuticals than China in both 2007 and 2013.

Table 6.9: A Comparative Sector Analysis of RCA for India and China

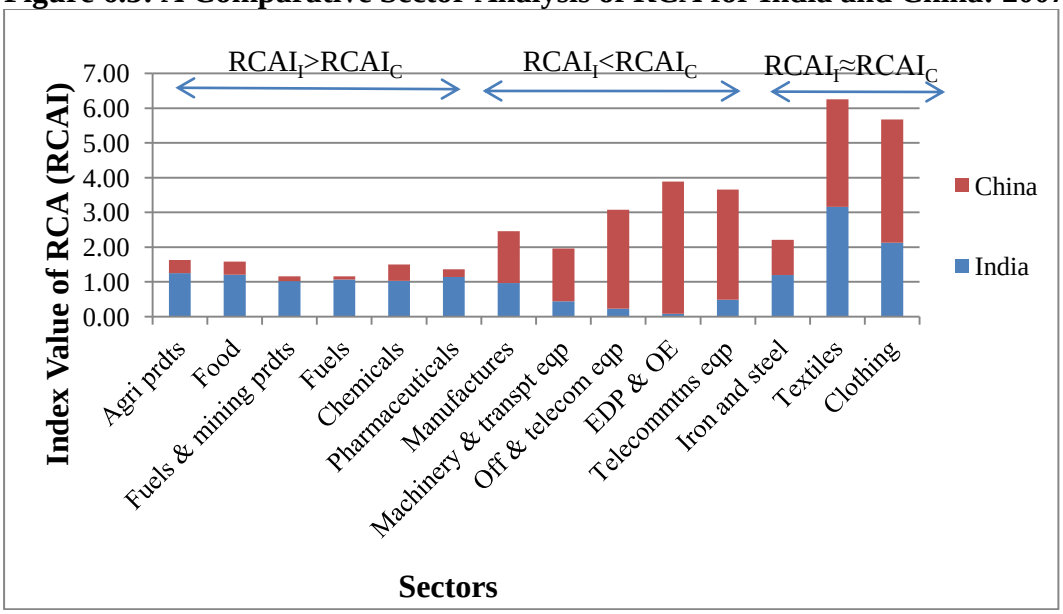
Category	Sector	2007		2013	
		IND	**CHN**	**IND**	**CHN**
India is more advantageously placed than China	Agricultural products	**1.34**	0.39	**1.62**	0.34
	Food	**1.36**	0.41	**1.54**	0.35
	Fuels and mining products	**1.22**	0.18	**1.20**	0.13
	Fuels	**1.08**	0.12	**1.28**	0.09
	Chemicals	**1.03**	0.47	**1.18**	0.51
	Pharmaceuticals	**1.12**	0.18	**1.52**	0.20
China is more advantageously placed than India	Manufactures	0.91	**1.38**	0.94	**1.49**
	Machinery and transport equipment	0.31	**1.34**	0.47	**1.49**
	Office and telecom equipment	0.08	**2.65**	0.18	**2.89**
	Electronic data processing and office equipment	0.08	**3.50**	0.07	**3.51**
	Telecommunications equipment	0.10	**3.03**	0.37	**3.22**
	Integrated circuits and electronic components	-	-	0.05	**1.86**
India and China are equally advantageously placed	Iron and steel	**1.60**	**1.24**	**1.68**	**1.03**
	Textiles	**3.76**	**2.70**	**3.71**	**2.97**
	Clothing	**2.67**	**3.82**	**2.20**	**3.28**

Data Source: Computed from WTO database

Figure 6.3 shows a graphical representation of the 2007 analysis of RCA for India and China. China has more advantage than India in the global market in sectors of Office

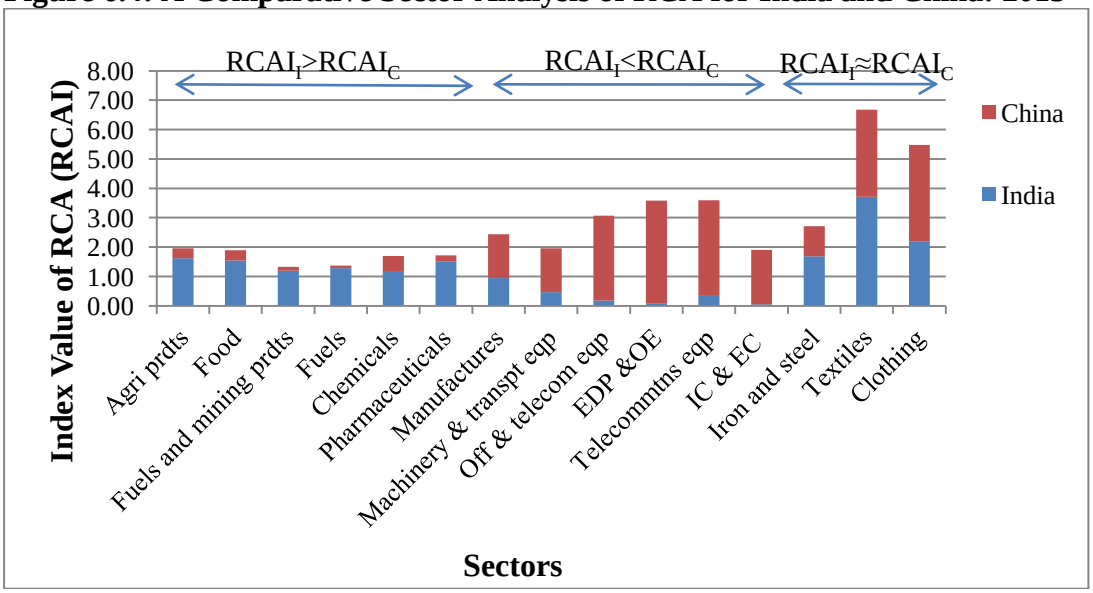
and telecom equipment, Manufactures, Machinery and transport equipment, Electronic data processing and office equipment, Integrated circuits and electronic components and Telecommunications equipment. For sectors where both India and China do not have comparative advantage in 2007 and 2013 is Transport equipment and Automotive products.

Figure 6.3: A Comparative Sector Analysis of RCA for India and China: 2007



Data Source: Computed from WTO database

Figure 6.4: A Comparative Sector Analysis of RCA for India and China: 2013



Data Source: Computed from WTO database

As can be seen in Figure 6.4, India's dominates in the Agricultural products and Food sector as compared to China in the year 2013. The other classification where India solidifies its comparative advantage versus China in the world market is Chemicals and Pharmaceuticals. Similarly, India and China equally enjoy their comparative advantage in sectors of Iron and steel, Textiles and Clothing.

6.6.2 Commodity-wise

There are 44 commodities where India and China both enjoy comparative advantage in 2007 vis-à-vis 40 commodities in 2013.

Table 6.10: A Comparative Commodity Analysis of RCA for India and China

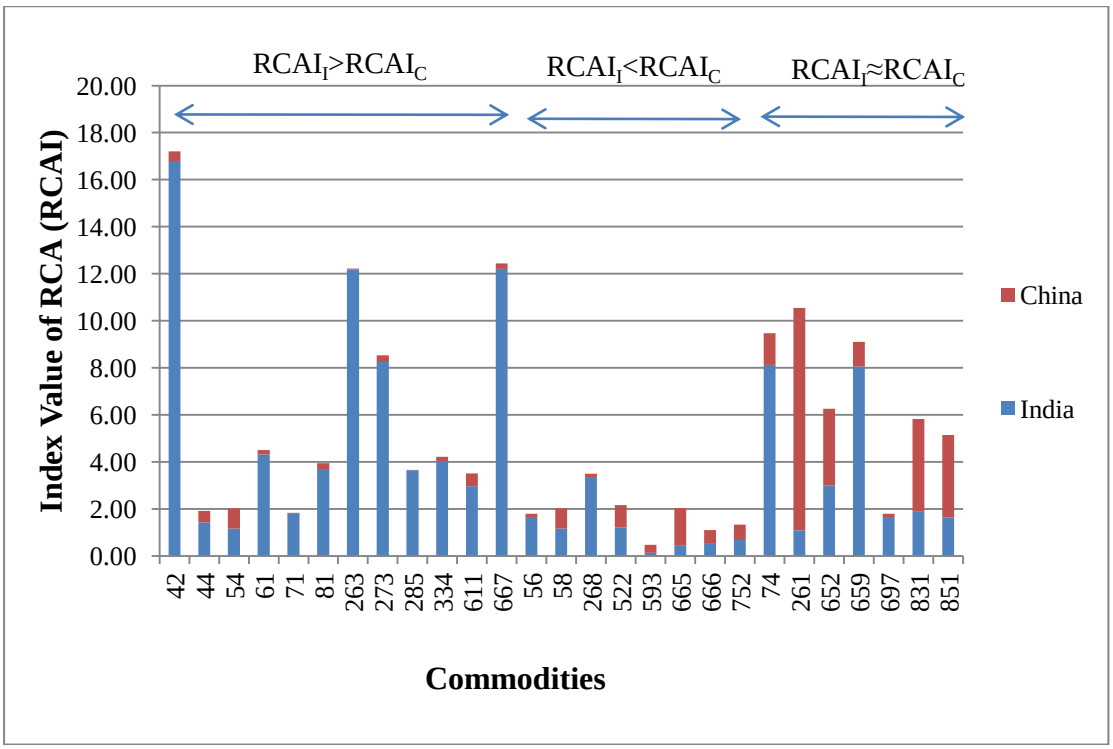
Category	HS Code	Commodity	2007		2013	
			IND	CHN	IND	CHN
India is more advantageously placed than China	042	Rice	**16.79**	0.41	**16.93**	0.13
	044	Maize (not including sweet corn), unmilled	**1.44**	0.48	**1.98**	0.01
	054	Vegetables	**1.18**	0.85	**1.08**	0.78
	061	Sugar, molasses and honey	**4.33**	0.18	**1.54**	0.19
	071	Coffee and coffee substitutes	**1.80**	0.04	**1.36**	0.07
	081	Feeding stuff for animals (no unmilled cereals)	**3.67**	0.28	**2.44**	0.28
	263	Cotton	**12.19**	0.03	**11.91**	0.01
	273	Stone, sand and gravel	**8.25**	0.28	**4.82**	0.27
	285	Aluminium ores and concentrates (incl. alumina)	**3.65**	0.02	**2.07**	0.05
	334	Petroleum oils or bituminous minerals > 70 % oil	**4.03**	0.19	**3.60**	0.20
	611	Leather	**2.97**	0.54	**2.83**	0.14
	667	Pearls, precious & semi-precious stones	**12.21**	0.23	**9.72**	0.18
China is more advantageously placed than India	056	Vegetables, roots, tubers, prepared, preserved, n.e.s.	0.92	**1.75**	0.71	**1.65**
	058	Fruit, preserved, and fruit preparations (no juice)	0.49	**1.50**	0.66	**1.29**
	268	Wool and other animal hair (incl. wool tops)	0.51	**1.31**	0.49	**1.21**
	522	Inorganic chemical elements, oxides & halogen salts	0.62	**1.42**	0.49	**1.08**
	593	Explosives and pyrotechnic products	0.49	**2.55**	0.56	**1.94**
	665	Glassware	0.80	**1.47**	0.88	**2.40**
	666	Pottery	0.19	**4.06**	0.12	**4.92**
	752	Automatic data processing machines, n.e.s.	0.07	**4.19**	0.05	**4.03**
India and	074	Tea and mate	**8.12**	**1.35**	**5.33**	**1.27**

China are equally advantageously placed	261	Silk	**1.09**	**9.47**	**2.06**	**6.38**
	652	Cotton fabrics, woven	**3.01**	**3.25**	**2.93**	**3.75**
	659	Floor coverings, etc.	**8.07**	**1.04**	**5.82**	**1.31**
	697	Household equipment of base metal, n.e.s.	**2.45**	**3.55**	**1.31**	**3.79**
	831	Travel goods, handbags & similar containers	**1.92**	**3.92**	**1.09**	**3.80**
	851	Footwear	**1.64**	**3.51**	**1.12**	**3.32**

Data Source: Computed from WTO database

India and China are equally advantageously placed in Tea and mate, Silk, Synthetic fibres suitable for spinning, Other crude minerals, Metallic salts and peroxysalts, of inorganic acids, Synthetic organic colouring matter and colouring lakes, manufactures of leather, saddler and harness, Rubber tyres, tyre treads or flaps and inner tubes, Textile yarn, Cotton fabrics, woven, Fabrics, woven, of man-made fabrics, Other textile fabrics, woven, Tulles, trimmings, lace, ribbons and other small wares, etc in both 2007 and 2013 (Appendix Table 6.A-3).

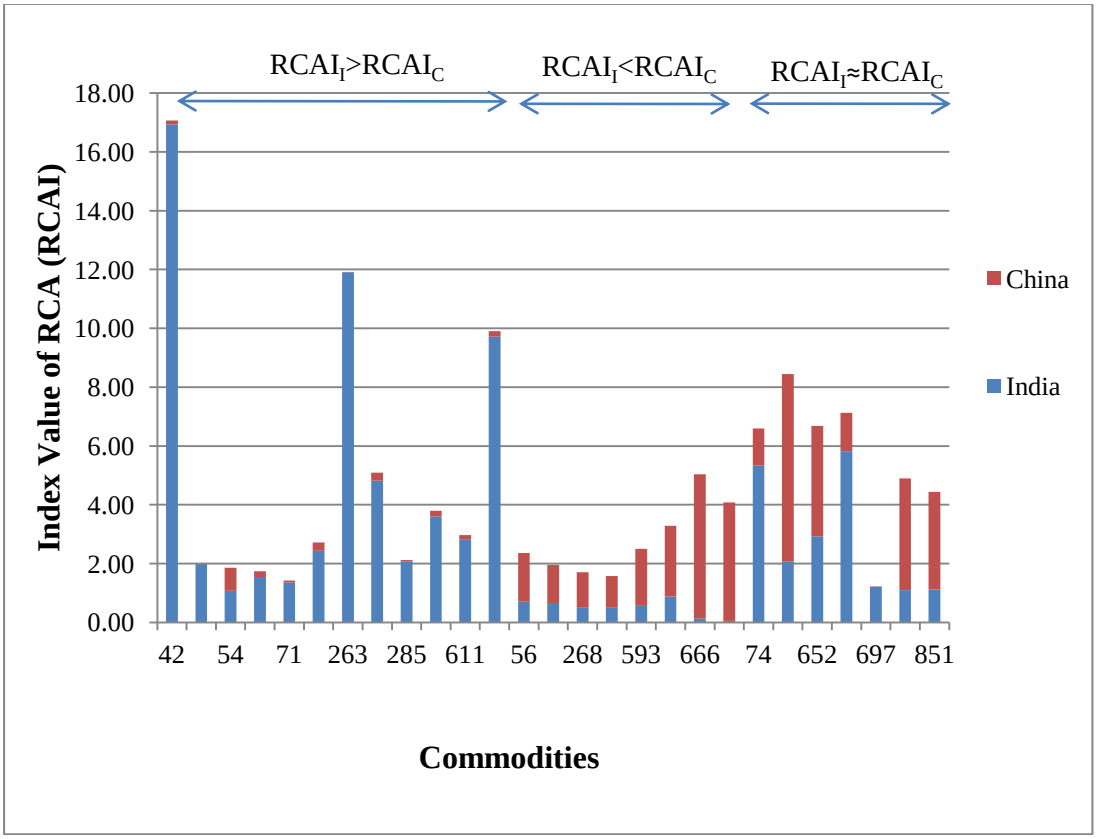
Figure 6.5: A Comparative Commodity Analysis of RCA for India and China: 2007



Data Source: Computed from WTO database

China, in 2013 has gained comparative advantage in commodities like Glass, Glassware and Pottery. China has also accomplished a comparative advantage in Explosives and pyrotechnic products. In the chemicals and plastics category India outscores China. As compared to India, China has a comparative advantage for explosives and pyrotechnics (fireworks) in 2013. The comparative advantage enjoyed by China in 2007 in Inorganic chemicals and Fertilizers is however lost in 2013 (Appendix Table 6.A-3). India on the other hand holds on to its advantage for Organic chemicals, Dyeing and tanning extracts, Synthetic tanning materials, Essential oils, perfume and flavour materials, etc. Figure 6.5 and Figure 6.6 depict a graphical representation of the 2007 and 2013 commodity analysis of RCA for India and China.

Figure 6.6: A Comparative Commodity Analysis of RCA for India and China: 2013



Data Source: Computed from WTO database

6.7 India-China: A Comparative Analysis in the Latin American

Market

Latin America has emerged as an important partner for India, both as an export destination and also an import source. Table 6.13 presents the top ten commodities of exports to and imports from Latin America for the year 2013. Petroleum, Motor vehicles for the transport of persons, Textile yarn and Motorcycles and cycles are the largest items in India's export basket to Latin America. Petroleum contributes 23.5 percent of the total exports. Similarly, Petroleum oils also hold a major portion of 75.58 percent of the total Indian imports from Latin America followed by Copper ores and concentrates, Fixed vegetable fats and oils, Sugar molasses and honey, etc.

Table 6.11: India's Top Ten Commodities Trade to Latin America: 2013

EXPORTS			IMPORTS		
Rank	**Commodity**	**Percent**	**Rank**	**Commodity**	**Percent**
1	Petroleum oils or bituminous minerals > 70 % oil	23.5	**1**	Petroleum oils, oils from bituminous. materials, crude	75.58
2	Motor vehicles for the transport of persons	7.7	**2**	Copper ores and concentrates; copper mattes, cement	10.16
3	Textile yarn	6.7	**3**	Fixed vegetable fats & oils, crude, refined	3.71
4	Motorcycles & cycles	4.2	**4**	Sugar, molasses and honey	1.29
5	Insecticides & similar products, for retail sale	3.8	**5**	Gold, non-monetary (excluding gold ores and concentrates)	1.01
6	Medicaments (incl. veterinary medicaments)	3.4	**6**	Telecommunication equipment & parts	0.53
7	Parts & accessories of vehicles of 722, 781, 782, 783	3.3	**7**	Wood in the rough or roughly squared	0.43
8	Aluminium	1.9	**8**	Parts, accessories for machines of groups 751, 752	0.38
9	Medicinal and pharmaceutical products, excluding 542	1.8	**9**	Crude fertilizers (excluding those of division 56)	0.34
10	Organo-inorganic, heterocycl. compounds,	1.7	**10**	Inorganic chemical elements, oxides &	0.30

	nuclear acids			halogen salts	
Total Top Ten Commodity Exports		**58%**	**Total Top Ten Commodity Imports**		**93.73%**
Others		**42%**	**Others**		**6.27%**
Total		**100%**	**Total**		**100%**

Data Source: UNCTAD database

A significant aspect is that India's top ten commodity imports from Latin America accounts to 93.73 percent as compared to India's top ten commodity exports which account to 58 percent of the total trade. This implies that, trade is initiated with the preferential trade agreements signed between India and the Latin American countries.

Table 6.12: China's Top Ten Commodities Trade to Latin America: 2013

EXPORTS			**IMPORTS**		
Rank	**Commodity**	**Percent**	**Rank**	**Commodity**	**Percent**
1	Telecommunication equipment, n.e.s.; & parts, n.e.s.	8.79	**1**	Iron ore and concentrates	20.75
2	Automatic data processing machines, n.e.s.	3.80	**2**	Oil seeds and oleaginous fruits (excluding flour)	19.29
3	Optical instruments & apparatus, n.e.s.	3.65	**3**	Petroleum oils, oils from bitumin. materials, crude	14.86
4	Electrical machinery & apparatus, n.e.s.	2.40	**4**	Copper ores and concentrates; copper mattes, cemen	9.20
5	Footwear	2.18	**5**	Copper	8.98
6	Petroleum oils or bituminous minerals > 70 % oil	2.12	**6**	Cathode valves & tubes	4.66
7	Ships, boats & floating structures	2.00	**7**	Pulp and waste paper	2.64
8	Furniture & parts	1.98	**8**	Petroleum oils or bituminous minerals > 70 % oil	1.92
9	Heating & cooling equipment & parts thereof, n.e.s.	1.95	**9**	Motor vehicles for the transport of persons	1.27
10	Motorcycles & cycles	1.92	**10**	Sugar, molasses and honey	1.27

Total Top Ten Commodity Exports		**30.79%**	**Total Top Ten Commodity Imports**		**84.84%**
Others		**69.21%**	**Others**		**15.16%**
Total		**100%**	**Total**		**100%**

Data Source: UNCTAD database

Commodity trade between China and Latin America comprises an important part in the two countries trade relationship. China exports a large amount of Telecommunication equipment, Automatic data processing machines and Optical instruments to Latin America. Compared to its exports China imports more of iron ores from Latin America, having a share of 20.75 percent of the total imports. Followed by, Oil seeds and oleaginous fruits and Petroleum oils comprising a share of 19.29 percent and 14.86 percent respectively. Similar to India, a significant aspect in China's top ten commodity imports from Latin America accounts to 84.84 percent as compared to its top ten commodity exports which account to 30.79 percent of the total Chinese-Latin American trade.

6.7.1 Factor Intensity Analysis at the Three Digit Level

In this section, the commodities have been analyzed according to the factor intensity. The factor intensity analysis has been undertaken for India and China with regards to their trade with the Latin American Countries using the HS-3 classification, which has been developed by the United Nations (UNCTAD) with the intention of classifying traded commodities not only on the basis of their material and physical properties, but also according to the stage of processing, and their economic functions in order to facilitate economic analysis. The categories are followed by categories I, II, III and IV of the UNCTAD classification.

The High skill and technology intensive manufactured commodities hold the dominant share in India and China's exports to the World and also to the Latin

American country. China exports commodities using High skill and technology worth 41.1 billion US dollars to Latin America while India exports commodities using High skill and technology worth 2.9 billion US dollars to Latin America.

Table 6.13: Manufactured Goods by Degree of Manufacturing: 2013

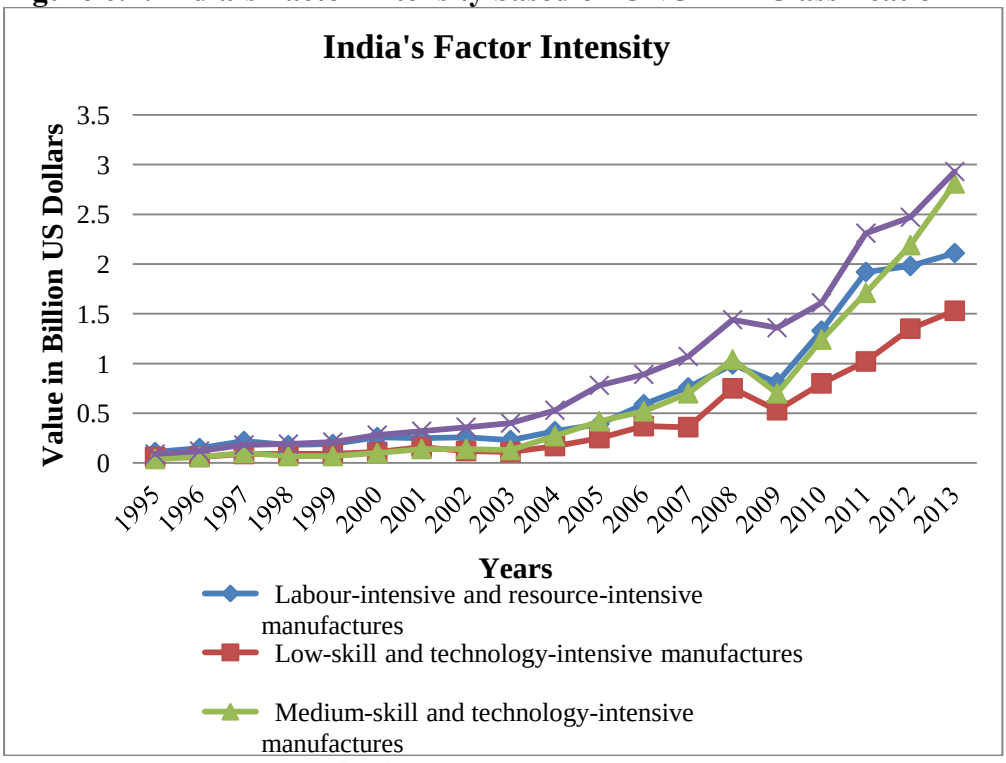
(Value in Billion US Dollars)

Summary of India's and China's Factor Intensity based on UNCTAD classification							
Category		**Exports to the World**		**Exports to Latin America**		**Ratio of World export to LA export**	
		IND	CHN	IND	CHN	IND	CHN
I	Labour intensive and resource intensive manufactures	46.4	496.0	2.1	27.7	22.10	17.91
II	Low skill and technology intensive manufactures	27.2	215.1	1.5	17.2	18.13	12.51
III	Medium skill and technology intensive manufactures	35.5	512.3	2.8	36.2	12.68	14.15
IV	High skill and technology intensive manufactures	63.0	850.2	2.9	41.1	21.72	20.69

Data Source: UNCTAD database

The second largest category according to the factor intensity is the Medium skill and technology intensive manufactures. Figure 6.7 graphically shows India's Factor Intensity based on UNCTAD classification.

Figure 6.7: India's Factor Intensity based on UNCTAD Classification



Data Source: UNCTAD database

Among the total 255 commodities, China exports commodities requiring medium skill and technology of worth 36.2 billion dollars to Latin America. While, India exports commodities requiring medium skill and technology of worth 2.8 billion dollars to Latin America. Followed by the Labour and resource intensive manufactures, China's share of Labour and resource intensive commodities to Latin America is worth 27.7 billion dollars. In contrast, India's share of the Labour and resource intensive commodities comprise of 2.1 billion US dollars. Similarly, China exports 17.2 billion dollars and India exports 1.5 billion dollar commodities which require low skill and technology to manufacture. Figure 6.8 diagrammatically shows China's Factor Intensity based on UNCTAD classification.

Figure 6.8: China's Factor Intensity based on UNCTAD Classification

Data Source: UNCTAD database

In the UNCTAD I – category of commodities with labour and resource intensive manufactures, India exports Textiles yarn, Women's clothing, of textile fabrics and Other plastics in primary forms to Latin America. While China exports commodities like Footwear, Furniture and parts and Baby carriages, toys, games and sporting

goods to Latin America. Both India and China exports the commodities of Articles of apparel, of textile fabrics and fabrics, woven, of man-made fabrics to Latin America.

Table 6.14: Top Labour and Resource Intensive Manufactures: 2013

(Value in Billion US Dollars)

Country	Rank	HS Code	Commodity Description	Exports to the World	Exports to Latin America
India	1	651	Textile yarn	7.1	**0.9**
	2	842	Women's clothing, of textile fabrics	4.2	**0.2**
	3	575	Other plastics, in primary forms	2.1	**0.2**
	4	845	Articles of apparel, of textile fabrics	5.2	**0.2**
	5	653	Fabrics, woven, of man-made fabrics	2.1	**0.1**
China		851	Footwear	50.8	**2.8**
	2	821	Furniture & parts	59.5	**2.5**
	3	894	Baby carriages, toys, games & sporting goods	38.5	**2.4**
	4	845	Articles of apparel, of textile fabrics	49.0	**2.4**
	5	653	Fabrics, woven, of man-made fabrics	19.4	**2.1**

Data Source: UNCTAD database

In the category of High demand of skill and technology (UNCTAD-IV) India manufactures and exports Insecticides and similar products, Medicaments and Medicinal and pharmaceutical products to Latin America. On the other hand, China clearly dominates in the manufactures of telecommunication equipment, Automatic data processing machines and Optical instruments and apparatus. India and China together export the manufactures of Organo-inorganic, heterocyclic compounds, nuclear acids to Latin America.

Table 6.15: Top Manufactures requiring High Demand of Skill and Technology: 2013

(Value in Billion US Dollars)

Country	Rank	HS Code	Commodity Description	Exports to the World	Exports to Latin America
India	1	591	Insectides & similar products, for retail sale	2.1	**0.5**
	2	542	Medicaments (incl. veterinary medicaments)	10.8	**0.5**
	3	541	Medicinal and pharmaceutical products, excluding 542	2.3	**0.2**
	4	515	Organo-inorganic, heterocyclic compounds, nuclear acids	2.6	**0.2**
	5	531	Synth. organic colouring matter & colouring lakes	2.0	**0.2**
China	1	764	Telecommunication equipment, n.e.s.; & parts, n.e.s.	204.46	**11.3**
	2	752	Automatic data processing machines, n.e.s.	166.59	**4.9**
	3	871	Optical instruments & apparatus, n.e.s.	39.13	**4.7**
	4	515	Organo-inorganic, heterocyclic compounds, nuclear acids	14.35	**2.2**
	5	761	Television receivers, whether or not combined	21.79	**1.8**

Data Source: UNCTAD database

In the category of manufactures requiring Medium demand of skill and technology (UNCTAD-III), both India and China export the manufacture of Rubber tyres, tyre treads or flaps and inner tubes and Electrical machinery and apparatus to Latin America.

Table 6.16: Top Manufactures requiring Medium Demand of Skill and Technology: 2013

(Value in Billion US Dollars)

Country	Rank	HS Code	Commodity Description	Exports to the World	Exports to Latin America
India	1	781	Motor vehicles for the transport of persons	5.6	**1.0**
	2	625	Rubber tyres, tyre treads or flaps & inner tubes	1.9	**0.2**
	3	722	Tractors (excluding those of 71414 & 74415)	0.9	**0.1**
	4	582	Plates, sheets, films, foil & strip, of plastics	1.2	**0.1**
	5	778	Electrical machinery & apparatus, n.e.s.	1.4	**0.1**
China	1	778	Electrical machinery & apparatus, n.e.s.	52.65	**3.1**
	2	741	Heating & cooling equipment & parts thereof, n.e.s.	20.83	**2.5**
	3	759	Parts, accessories for machines of groups 751, 752	37.55	**2.4**
	4	775	Household type equipment, electrical or not, n.e.s.	35.55	**2.4**
	5	625	Rubber tyres, tyre treads or flaps & inner tubes	17.01	**2.0**

Data Source: UNCTAD database

India dominates in the manufacture of Motor vehicles for the transport of persons, Tractors, Plates, sheets, films, foil and strip, of plastics. While, China exports commodities in the manufacture of Heating and cooling equipment and parts thereof, Parts, accessories for Machines of groups 751, 752 and Household type equipment (electrical or not) to Latin America.

6.8 Degree of Export Competition

The degree and nature of competition between India and China in the global market is assessed by computing the Spearman's Rank Correlation (SRC) coefficients. The aim is to distinguish, the commodities where India and China compete/complement in the world market.

Table 6.17: Commodities where India and China Compete for Global Market Share

Factor Intensity	HS Code	Commodities	SRC - 2007	SRC - 2013
IV	884	Optical goods, n.e.s.	0.53	0.18
IV	885	Watches & clocks	0.56	0.19
V	892	Printed matter	0.46	0.03
III	893	Articles, n.e.s., of plastics	0.46	0.02
II	895	Office & stationery supplies, n.e.s.	0.58	0.04
I	896	Works of art, collectors' pieces & antiques	0.62	0.04

I-Resource intensive manufactures, II-Low skill and technology intensive manufactures, III-Medium skill and technology intensive manufactures, IV-High skill and technology intensive manufactures, V-Unclassified products.
SRC- Spearman Rank Correlation Coefficient
Data Source: Computed from UNCTAD database

India and China have a competitive relationship in commodities like Printed matter, Articles of Plastics, Office and stationery supplies, Works of art, collector's pieces and antiques.

Table 6.18: Commodities where India and China are Complementary in the Global Market

Factor Intensity	HS Code	Commodities	SRC – 2007	SRC - 2013
I	894	Baby carriages, toys, games & sporting goods	0.41	-0.09
I	897	Jewellery & articles of precious materia., n.e.s.	0.84	-0.17
V	898	Musical instruments, parts; records, tapes & similar	0.99	-0.80
I	899	Miscellaneous manufactured articles, n.e.s.	1.00	-1.00

I-Resource intensive manufactures, V-Unclassified products.
SRC- Spearman Rank Correlation Coefficient
Data Source: Computed from UNCTAD database

In the category of Baby carriages, toys, games and sporting goods, Jewellery and articles of precious material and Musical instruments, parts, records, tapes and similar

India and China share a complementary relationship with each other in 2013, despite the fact that the two countries were competitive in the same commodities in the year 2007 (Appendix Table 6.A-4). A complementary relationship is evident in the miscellaneous manufactured articles, n.e.s, etc whereby, both the countries India and China complement each other in 2013 but did not do so in 2007.

6.9 Major Findings

In this chapter HS classification pertaining to India and China enabled the analyses of both the sector as well as the commodity level by using the Revealed Comparative Advantage Index (RCAI). The analysis revealed that at different levels, the pattern or the trend of comparative advantage varied among the commodities. The commodities that were ranking at the top ten as per their RCA value were not able to retain their position in the following years. For India, the top ten sectors based on RCAI are Textiles, Clothing, Iron and Steel, Agricultural products, Food, Pharmaceuticals, Fuels, Fuels and mining products, Chemicals and Manufactures in India. Whereas, the top ten sectors for China are Electronic data processing (EDP) and office equipment and Clothing rank at the top followed by sectors like Telecommunications equipment, Textiles, Office and telecom equipment and IC & EC (Integrated circuits and electronic components). Machinery and transport equipment both rank at the seventh position (RCAI=1.49) followed by Iron and steel, Chemicals and Transport equipment.

In 2007 as well as in 2013, India had an edge over China as far as Agricultural resource based manufacture and other miscellaneous manufacture categories were concerned. However, China had gained an advantage in machine equipments, glassware and pottery along with the resource based manufactures which formed a

major portion of the commodities in 2013. To be specific, in 2007 China was placed at an advantage in fertilizers, lead, inorganic chemicals, fruit and vegetable juices. India was always at an advantage as far as products like Rice, Maize, Cotton, Vegetables, Pearls, precious and semi-precious stones, etc.

It is evident from the analysis of the dynamic structural changes that there were no major structural changes in India and China in 2007 as well as in 2013. However, major structural change was experienced in commodities like Printed matter, Arms and ammunition, and for Watches and clocks in India. Whereas there was a maximum change in Construction materials, Gold, Cement, Lime, etc in China. The commodities which have retained the same structure are Essential oils, Organic chemicals, Synthetic tanning materials, Dyeing and tanning extracts, etc in India. While, in China, Explosives and pyrotechnic products have remained the same as far as structural change is concerned.

For commodities like Tea and mate, Silk, Cotton fabrics, Floor coverings, etc both, India and China are placed in a place of advantage as far as the analysis of comparative advantage is concerned. While India is advantageously placed than China in Rice, Maize, Sugar, molasses and honey, Coffee, etc. Similarly, China is more advantageously placed in Wool, Glassware, Pottery, Automatic data processing machines, etc. than India. Analysis based on the factor intensity reveals substantial dis-similarities in the commodities for both India and China in the Latin American market. Regarding both the countries, the largest category of Indian and Chinese exports to Latin America are commodities using high skill and technology. A demand for medium skill and technology form the second major category followed by labour intensive and resource intensive manufactures.

In the classification of exports of both the countries, it was apparent that the first category of exports was dealt with High skill and technology based manufactures. Commodity Organo-inorganic, heterocyclic compounds, nuclear acid dominate in the category-IV for India and China. In the second category, there was a demand for medium skill and technology. Rubber tyres and Electrical machinery occupy a predominant position in the exports to Latin America in this category. For the Labour and resource intensive manufactures, India and China, both the countries dominate in commodities like Articles of apparel and fabrics machine made as well as hand woven fabrics exports to Latin America.

India and China have a competitive relationship in Printed matter, Articles of Plastics, Office and stationery supplies, Works of art, collector's pieces and antiques. On the other hand, a complementary relationship is evident in the commodities of Baby carriages, toys, games and sporting goods, Jewellery and articles of precious material and Musical instruments, parts, records, tapes and similar.

Finally, it can be concluded that, China's presence in Latin America will not affect the Indo-Latin trade as India has a much more balanced relationship with Latin America. Indian businesses are lured by the fact that the immensity of the Latin American potential market whose growth and potentials are basically steady and forciable. On the other hand, India's IT capability and progressive growth along with major foreign acquisitions allure the Latin Americans.

CHAPTER – VII

SUMMARY OF FINDINGS,

CONCLUSION AND SUGGESTIONS

CHAPTER – VII

SUMMARY OF FINDINGS, CONCLUSIONS AND SUGGESTIONS

In 1997, the Government of India announced an Action Plan, the Focus LAC, with the express motive of revitalizing India-Latin America trade and economic relations. This venture enhanced the trade relationships between the two countries. Hundreds of companies from India invested approximately 12 billion US dollars in Latin America in various fields pertaining to agriculture, automobiles, cosmetics, energy, mining, etc. Latin American countries too invested of approximately one billion US dollars in automobile parts, electronics, multiplexes, steel, etc.

Preferential Trade Agreements (PTAs) have been signed between India and some of the larger countries of the Latin American region like Colombia, Chile, Brazil and Venezuela. Also, in the offing is the constitution of Joint Working Groups to further explore bilateral mechanisms for enhanced economic and trade linkages with Mexico, Brazil and Colombia. Various Indian banks intend to open up their branches in some of the major capital cities of the region.

This chapter presents the summary and conclusions for the whole thesis. Section 7.1 summarises the main findings of this thesis. Section 7.2 potrays the conclusions of the chapters. Section 7.3 gives the implications of the study. Section 7.4 gives the suggestions while Section 7.5 the presnts the limitations and scope for future research.

7.1 Summary of Findings

In the last 20 years, Latin America and India have seen a sea change which has led progressively in a stable and a forecastable measure of development and growth. Of late, both the governments of India and Latin America have stretched out their hands in bilateral trade and co-operation as there has been a change in their perception of each other. Both the countries face similar problems as far as development is concerned. Therefore, they can learn from each other's successful ventures. With the advent of India's entry into Latin America via information technology, pharmaceuticals together with their investment model has boosted the morale of the Latin Americans who were wary of the Chinese as well as the influx of their goods. On the other hand, it is beneficial or advantageous for India to open its door for the ever growing business market of Latin America.

The Major Findings of the Study are as follows:

(i) The review of the literature showed that there is no unanimity on the theoretical and empirical aspects of trade creation/diversion effect. There are many studies done on this aspect, though it is important to conduct more studies using different methodologies to analyse the impact of the Regional Trade Agreements.

(ii) It is observed from the literature survey that very few studies are done on the economic impact of India-MERCOSUR Preferential Trade Agreement and the sectors and products affected by it.

(iii) Survey of literature revealed that there are number of methodological and measurement problems encountered in the impact studies of Regional Trade Agreements. These include functional forms, heteroskedasticity, fixed effect model versus random effect model and use of log forms. More studies are required to

address these problems. The review of literature divulged that there is a research gap in the study area and it needs to be covered with substantive studies.

(iv) Numerous steps have been taken in recent years by both, the Government of India as well as the Government of Latin America in order to built up good trade relationships.

(v) Trade between India and Latin America has increased. In 2001 trade amounted to 2.6 billion US dollars and in 2013 it reached to US 42 billion dollars. It has a potential to increase to 100 billion US dollars within the next four years. A large portion of the items exported by India to Latin America are Textiles, Pharmaceuticals, Chemicals, Diesel and Vehicles. Whereas, India imports Crude oil from Latin America totaling to 75.58 percent (US 21.38 billion dollars). The next largest import is Minerals such as Copper (10.16 percent of the total trade) which is in abundance found in Chile. Vegetable oil basically consisting of sunflower and soya bean oil mostly from Argentina, which comprises of 3.71 percent of the total trade, becomes the third largest import of India.

(vi) MERCOSUR's major commodities of exports to India are Petroleum oils and crude oil which account for 81.4 percent of the total export trade followed by Fixed vegetable fats & oils (primarily soya bean) which sum up to 7.6 percent. The major imports of MERCOSUR from India are Petroleum oils or bituminous minerals of 33.6 percent, organic/inorganic compounds of 7.2 percent and textile yarn of 6.9 percent.

(vii) With regard to the India-MERCOSUR PTA, there are complementarity sectors for expanding trade ties. India has a competitive edge as far as Clothing and Textiles is concerned, while in Manufacture products and Chemicals it has a high comparative advantage. However, all the MERCOSUR countries have got a weak and a low

comparative advantage in Manufacture products and Chemicals. Similarly, India enjoys a high position of advantage in Iron and Steel and can trade with Bolivia, Paraguay, Uruguay and Venezuela. This complementarity in trade structure provides India with an opportunity and a favourable trading environment to export more to MERCOSUR countries.

(viii) India imports Petroleum products and Minerals from MERCOSUR, which is beneficial for India. On the other hand, India has an edge of Iron and Steel, Manufactured goods and Chemicals which are its export commodities to MERCOSUR. As far as Clothing and Textiles are concerned, there is competitiveness between the two countries to capture an increasing niche in the market.

(ix) As per the Trade Intensity Index (TII), India's export and import intensities with MERCOSUR had been under-represented. While the trade from 2012 onwards increased reflecting an over-representation as the trade intensity index is above one. This reveals that India has strengthened the trade relation with MERCOSUR.

(x) From the MERCOSUR country wise study of trade intensity, it is apparent that the value of export intensity of India is above one only for Brazil. India yields a high export potential for Argentina, Bolivia, Paraguay, Uruguay and Venezuela. Similarly, India's Import Intensity Index (III) estimates depict the values below unity for all the MERCOSUR countries which are indicative of India's potential to enhance the present trade level by atleast ten times or more.

(xi) The intra-MERCOSUR trade intensity index is high for the years undertaken in the study (i.e. from 1995-2013). An intra-regional intensity index more than one is indicative of a healthy flourishing trade. For the year 2013, the index stood at 7.49, which shows a healthy trade growth in the MERCOSUR countries.

(xii) The Revealed Comparative Advantage (RCA) constructed for India and MERCOSUR show that India has a high RCA for Agricultural products and can export to Venezuela which has a weak RCA. A similar pattern is seen in Food products as they belong to the same category.

(xiii) Bolivia, Venezuela, Brazil and Paraguay have a comparative advantage in Fuel and Mining products and can trade with India. India's RCA for fuel is low and can import petroleum products from Paraguay, Bolivia and Venezuela who are the oil exporters of MERCOSUR.

(xiv) The high RCA of India for Manufacture allows a possibility in trade with all the MERCOSUR countries, as they have a low and a weak RCA. This highlights the trade complementarity that exists between India and the MERCOSUR. India has large deposit of Iron ore and can export Iron and Steel to Bolivia, Paraguay, Uruguay and Venezuela having weak and low comparative advantage in Iron and Steel.

(xv) The increasing export of Chemical products reveals a high comparative advantage for India while the MERCOSUR countries have a weak RCA. The strong comparative advantage of India in Textiles and Clothing provides it with a favourable trading environment with all the MERCOSUR countries as they have a low or a weak comparative advantage. This complementarity can increase the export of Chemical products, Textiles and Clothing with the MERCOSUR countries.

(xvi) In the Gravity Model framework, the Random Effects Generalised Least Squares (RE GLS) model gives highly significant parameters holding expected signs. Gross Domestic Product (GDP) and Population of both the countries are positive and highly significant, distance as per the model is negative and highly significant along with a positive MERCOSUR dummy, Contingency and Common Language. Since the India-

MERCOSUR PTA is recent, it has not been possible for the model to capture any significant effects of the trade flows due to the PTA.

(xvii) The trade ratio calculated reveals that all the MERCOSUR countries have the potentials to increase trade with India. However, when the entire region was scrutinized, the predictions reveal that India has not yet fulfilled all the trade requirements/ potentials. India's trade potential is high with Bolivia and Paraguay. The highest export potential is with Venezuela followed by Bolivia, Uruguay, Paraguay and Brazil. The estimates also showed that India has exploited its import potential with the MERCOSUR countries.

(xviii) It is evident from the analysis of the dynamic structural changes that there were no major structural changes in India and China in 2007 as well as in 2013. However, major structural change was experienced in commodities like Printed matter, Arms and ammunition, and for Watches and clocks in India. Whereas there was a maximum change in Construction materials, Gold, Cement, Lime, etc in China. The commodities which have retained the same structure are Essential oils, Organic chemicals, Synthetic tanning materials, Dyeing and tanning extracts, etc in India. While, in China, Explosives and pyrotechnic products have remained the same as far as structural change is concerned.

(xix) For commodities like Tea and mate, Silk, Cotton fabrics, Floor coverings, etc both China and India have an advantage as far as the analysis of comparative advantage is concerned. India has an advantage over China in Rice, Maize, Sugar, molasses and honey, Coffee, etc. Similarly, China is advantageously placed in Wool, Glassware, Pottery, Automatic data processing machines, etc. than India.

(xx) Analysis based on the factor intensity reveals substantial dis-similarities in the commodities for both India and China in the Latin American market. Regarding both the countries, the largest category of Indian and Chinese exports to Latin America are commodities using high skill and technology. A demand for medium skill and technology form the second major category followed by labour intensive and resource intensive manufactures.

(xxi) The presence of China in Latin America will not affect the Indo-Latin trade as India has a much more balanced relationship with Latin America. Indian businesses are lured by the fact that the immensity of the Latin American potential market whose growth and potentials are basically steady and forciable. On the other hand, India's IT capability and progressive growth along with major foreign acquisitions allure the Latin Americans.

7.2 Conclusion

The study concludes that Regional Trade Agreements can create more trade among members and non-members and can be complementary process to the multilateral trade liberalization. The Conclusion of the Study is as follows:

Firstly, India has taken many initiatives in the direction of improving the strategic partnership between India and Latin America. The emergence of regional integration has become the most important trade development in the recent past with large number of regional, bilateral and trilateral agreements. India-MERCOSUR PTA is the foremost among them. India is expected to increase its trade with the MERCOSUR

countries. India accepts and visualizes Latin American country as a major provider of its food security and energy needs.

Secondly, the trade indices highlight that there are complementary sectors and products which could enhance trade between India and MERCOSUR. The study revealed that Chemicals, Textiles and Clothing are the complementary sectors between India and MERCOSUR and this provides opportunity for further trade co-operation. While India has advantage in Manufactured products and Iron and steel and can export them, it can import Fuels and Mining products from MERCOSUR countries. This leads us to conclude that there is substantial scope exists for MERCOSUR and India to explore complementarities and benefit from increased bilateral trade.

Thirdly, the results of the Gravity model lead us to conclude that India-MERCOSUR PTA has not been effective on improving trade. However, MERCOSUR stands to benefit from India's world class capabilities in software and pharmaceutical industries and export of agricultural products like Soya bean and Corn. India definitely has the potential to enhance its trade with Latin America by ten percent or more.

Fourthly, the study also brought about presence of trade potential between India and all MERCOSUR countries that can be exploited with increased co-operation. India has unmet export potential with Bolivia, Brazil, Paraguay, Uruguay and Venezuela. It is evident that India's import potentials are estimated to be minimum as far as MERCOSUR is concerned. There is indeed a tremendous scope for increase in trade potential with countries like Bolivia and Paraguay.

Lastly, in the global market, the degree of competition showed that the analysis of exports revealed a similar pattern of international specialization for both China and

India but not in the Latin American market. Analysing the structural change in the commodities for 2007-2013, a high structural change for ten commodities was shown in India, while China shows a high structural change for only two commodities. Analysis based on factor intensity depicts substantial dis-similarities in the commodities for both India and China in the Latin American market. It may be concluded from the above that the presence of China in Latin America will not adversely influence India-Latin trade.

7.3 Implications of the Study

Regional Trade Agreements are a reality in the post WTO trade regime as it provides certain advantages to the members. The results from the study showed that more trade was created after initiating the trade agreement between India and MERCOSUR. The study reveals that both India and MERCOSUR can gain from a RTA as there are complementarity sectors between them. India has lot of trade potential with MERCOSUR and India can gain in the medium and long run period with the service sector, labour intensive sector and high skilled engineering sector contributing more to the trade with increase in FDI flow and transfer of technology. So also, India can immulate the Chinese methods of trade.

7.4 Suggestions

(i) Indian companies can explore opportunities in the pharmaceuticals industry of MERCOSUR countries by investing in training centres for research and development activities.

(ii) India and MERCOSUR can make investments in the field of IT that could facilitate knowledge transfer and employment generation.

(iii) Indian banks should open more branches/representative offices in the region to enhance the bilateral trade.

(iv) There should be trade facilitation measures to reduce the transaction costs of Indian exporters.

(v) India should engage broader multilateral trade liberalisation along with Free Trade Agreements to minimise the adverse impacts of RTA.

(vi) India should take active leadership in regional affairs which is important for gainful outcomes at multilateral negotiations.

7.5 Limitations and Scope for Future Research

The study has its share of limitations which are beyond the control of the researcher. The study mainly relies on the panel data using the Gravity Model framework of analysis only for 18 years i.e. from 1995 - 2012 as per the data available from UNCTAD database. The study did not consider the new age provisions of RTA's which include imperfect market structure, scale economy and intra-industry trade. Non-linear regression models are not attempted in the study. The study considered the six members of MERCOSUR i.e. Argentina, Bolivia, Brazil, Paraguay, Uruguay and Venezuela. The new members who have joined at later periods are excluded from the analysis for lack of complete information.

There is scope for a more comprehensive study considering the 'new age provisions' of RTA. Secondly, the impact of RTA on FDI inflow/outflow between India and MERCOSUR PTA could be studied. Thirdly, the trade in services is an important factor apart from merchandise trade in a bilateral trade relationship. The impact of RTA's on trade in services could be undertaken. Fourthly, a comparison between the relationship of either India or MERCOSUR to a different RTA could be analysed. This comparison would show how close the relationship between India and MERCOSUR is as compared to their relationship with other regional agreements.

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APPENDIX – I

Table 3.A-1: GDP and Merchandise Trade by Region, 2011 – 2013
(Annual Percentage Change at Constant Prices)

Region	GDP			Exports			Imports		
	2011	**2012**	**2013**	**2011**	**2012**	**2013**	**2011**	**2012**	**2013**
World	2.8	2.3	2.2	5.5	2.4	2.5	5.3	2.1	1.9
North America	2.0	2.8	1.8	6.6	4.4	2.8	4.4	3.1	1.2
United States	1.8	2.8	1.9	7.3	3.8	2.6	3.8	2.8	0.8
South and Central America[a]	4.5	2.7	3.0	6.8	0.7	1.4	13.0	2.3	3.1
Europe	1.9	-0.1	0.3	5.6	0.8	1.5	3.2	-1.8	-0.5
European Union (28)	1.7	0.3	0.1	5.8	0.4	1.7	2.8	-1.9	-0.9
Commonwealth of Independent States (CIS)	4.9	3.5	2.0	1.6	0.9	0.8	17.3	6.8	-1.3
Africa[b]	1.1	5.7	3.8	-8.2	6.5	-2.4	5.1	12.9	4.1
Middle East	5.7	3.4	3.0	7.8	5.2	1.9	4.5	10.5	6.2
Asia	4.1	4.0	4.2	6.4	2.8	4.7	6.6	3.7	4.5
China	7.7	7.7	7.5	8.8	6.2	7.7	8.8	3.6	9.9
Japan	1.4	1.6	1.5	-0.6	-1.0	-1.9	4.3	3.8	0.5
India	3.2	4.4	5.4	15.0	0.2	7.4	9.7	6.8	-3.0
Newly Industrialized Economies[b]	4.1	1.8	2.7	7.7	1.4	3.5	2.7	1.4	3.4

[a] Includes the Caribbean.
[b] Hong Kong, China; Republic of Korea; Singapore; and Chinese Taipei.
Data Source: World Trade Report, 2014; WTO Secretariat.

Table 3.A-2: Latin American Countries Exports to the World

(Values in US $ millions)
(P) Provisional

Country	Apr – Sep 2013	Apr – Sep 2014 (P)	Percentage Share
Latin America	**4,711.98**	**6,913.92**	**4.28**
Argentina	318.12	240.17	0.15
Belize	14.12	11.74	0.01
Bolivia	28.92	40.78	0.03
Brazil	2,041.45	4,126.05	2.55
Chile	308.31	287	0.18
Colombia	468.91	537.6	0.33
Costa Rica	38.21	47.77	0.03
Eucador	118.8	118.11	0.07
El Salvador	32.09	31.13	0.02
Guatemala	109.96	110.28	0.07
Guyana	9.92	11.86	0.01
Honduras	52.05	86.1	0.05
Mexico	854.64	1,316.94	0.82
Nicaragua	29.83	33.34	0.02
Panama	103.25	145.44	0.09
Paraguay	39.24	43.3	0.03
Peru	312.06	368.48	0.23
Suriname	7.36	8.75	0.01
Uruguay	79.09	124.93	0.08
Venezuela	101.6	114.87	0.07

Data Source: Foreign Trade Performance Analysis (FTPA),
Department of Commerce, India.

Table 3.A-3: Latin American Countries Imports from the World

(Values in US $ million)
(P) Provisional

Country	Apr – Sep 2013	Apr – Sep 2014 (P)	Percentage Share
Latin America	**12,944.00**	**14,440.72**	**6.17**
Argentina	677.23	1,083.63	0.46
Belize	0.06	0.15	0
Bolivia	1.39	1.3	0
Brazil	1,414.00	2,795.34	1.19
Chile	933.74	1,660.14	0.71
Colombia	1,817.42	1,145.70	0.49
Costa Rica	124.08	111.14	0.05
Eucador	109.58	948.47	0.41
El Salvador	4.42	4.04	0
Guatemala	8.29	10.25	0
Guyana	3.95	5.02	0
Honduras	11.11	14.27	0.01
Mexico	1,812.07	1,741.27	0.74
Nicaragua	2.11	1.46	0
Panama	23.36	17.74	0.01
Paraguay	3.71	35.12	0.01
Peru	235.22	207.64	0.09
Suriname	7.81	18.9	0.01
Uruguay	10.78	10.21	0
Venezuela	7,540.86	6,346.95	2.71

Data Source: Foreign Trade Performance Analysis (FTPA), Department of Commerce, India.

Table 3.A-4: Leading Exporters and Importers in World Merchandise Trade, 2013

(Billion dollars and percentage)

Rank	Exporters	Percentage	Importers	Percentage

		Share		Share
1	China	11.7	United States	12.3
2	United States	8.4	China	10.3
3	Germany	7.7	Germany	6.3
4	Japan	3.8	Japan	4.4
5	Netherlands	3.6	France	3.6
6	France	3.1	UK	3.5
7	Korea	3.0	Hong Kong	3.3
8	UK	2.9	Netherlands	3.1
9	Hong Kong	2.8	Korea	2.7
10	Russian Federation	2.8	Italy	2.5
11	Italy	2.8	Canada	2.5
12	Belgium	2.5	India	2.5
13	Canada	2.4	Belgium	2.4
14	Singapore	2.2	Mexico	2.1
15	Mexico	2.0	Singapore	2.0
16	United Arab Emirates	2.0	Russian Federation	1.8
17	Saudi Arabia	2.0	Spain	1.8
18	Spain	1.7	Chinese Taipei	1.4
19	India	1.7	Turkey	1.3
20	Chinese Taipei	1.6	United Arab Emirates	1.3

Data Source: Ministry of Commerce, India.

Table 3.A-5: Export Concentration and Diversification Index for India and Latin America

EXPORTS						
Country	**2005**			**2013**		
	No. of Products Exported	**CI**	**DI**	**No. of Products Exported**	**CI**	**DI**
India	252	0.13	0.54	252	0.18	0.48
Latin America						

Argentina	243	0.14	0.56	245	0.15	0.60
Belize	77	0.32	0.81	120	0.31	0.73
Bolivia	150	0.39	0.77	159	0.48	0.80
Brazil	250	0.09	0.48	253	0.15	0.55
Chile	229	0.32	0.74	233	0.34	0.73
Colombia	231	0.21	0.58	236	0.46	0.64
Costa Rica	206	0.27	0.66	217	0.46	0.76
Eucador	170	0.53	0.75	203	0.53	0.75
El Salvador	185	0.26	0.73	201	0.20	0.70
Guatemala	216	0.16	0.68	222	0.14	0.67
Guyana	77	0.29	0.82	84	0.45	0.81
Honduras	181	0.29	0.80	212	0.22	0.75
Mexico	252	0.14	0.39	251	0.16	0.39
Nicaragua	115	0.19	0.77	167	0.21	0.81
Panama	218	0.23	0.60	239	0.15	0.56
Paraguay	144	0.35	0.80	155	0.34	0.80
Peru	215	0.24	0.79	237	0.23	0.71
Suriname	82	0.45	0.78	138	0.55	0.77
Uruguay	182	0.21	0.67	192	0.23	0.70
Venezuela	234	0.64	0.77	224	0.62	0.74

Data Source: UNCTAD database

Table 3.A-6: Import Concentration and Diversification Index for India and Latin America

IMPORTS						
Country	**2005**			**2013**		
	No. of Products Imported	**CI**	**DI**	**No. of Products Imported**	**CI**	**DI**
India	257	0.11	0.42	257	0.30	0.47
Latin America						
Argentina	244	0.07	0.32	247	0.10	0.32
Belize	197	0.19	0.49	197	0.23	0.52

Bolivia	222	0.08	0.42	238	0.07	0.39
Brazil	250	0.10	0.29	253	0.09	0.25
Chile	250	0.11	0.29	249	0.10	0.26
Colombia	240	0.07	0.34	244	0.10	0.33
Costa Rica	238	0.14	0.35	246	0.13	0.35
Eucador	232	0.08	0.39	240	0.12	0.39
El Salvador	237	0.08	0.41	237	0.12	0.44
Guatemala	235	0.11	0.43	240	0.13	0.41
Guyana	183	0.24	0.55	194	0.23	0.51
Honduras	234	0.12	0.49	235	0.17	0.49
Mexico	254	0.08	0.24	252	0.10	0.31
Nicaragua	208	0.10	0.39	220	0.10	0.39
Panama	231	0.34	0.55	242	0.27	0.55
Paraguay	208	0.15	0.46	228	0.13	0.44
Peru	242	0.11	0.34	248	0.09	0.31
Suriname	159	0.32	0.50	201	0.19	0.43
Uruguay	233	0.17	0.36	239	0.11	0.31
Venezuela	241	0.07	0.34	252	0.05	0.38

Data Source: UNCTAD database

APPENDIX – II

Table 6.A-1: SRC of Commodities between India and China

	COMMODITIES	SRC 2007	SRC 2013
[001]	Live animals other than animals of division 03	0.55	0.50
[011]	Meat of bovine animals, fresh, chilled or frozen	0.55	0.50
[012]	Other meat and edible meat offal	0.55	0.51
[016]	Meat, edible meat offal, salted, dried; flours, meals	0.55	0.51
[017]	Meat, edible meat offal, prepared, preserved, n.e.s.	0.55	0.51
[022]	Milk, cream and milk products (excluding butter, cheese)	0.55	0.51
[023]	Butter and other fats and oils derived from milk	0.55	0.51
[024]	Cheese and curd	0.55	0.51
[025]	Birds' eggs, and eggs' yolks; egg albumin	0.55	0.50
[034]	Fish, fresh (live or dead), chilled or frozen	0.55	0.50
[035]	Fish, dried, salted or in brine; smoked fish	0.54	0.50
[036]	Crustaceans, mollusks and aquatic invertebrates	0.54	0.50
[037]	Fish, aqua. invertebrates, prepared, preserved, n.e.s.	0.55	0.50

[041]	Wheat (including spelt) and meslin, unmilled	0.55	0.50
[042]	Rice	0.55	0.51
[043]	Barley, unmilled	0.55	0.52
[044]	Maize (not including sweet corn), unmilled	0.55	0.52
[045]	Cereals, unmilled (excluding wheat, rice, barley, maize)	0.56	0.53
[046]	Meal and flour of wheat and flour of meslin	0.55	0.53
[047]	Other cereal meals and flour	0.55	0.53
[048]	Cereal preparations, flour of fruits or vegetables	0.55	0.52
[054]	Vegetables	0.55	0.52
[056]	Vegetables, roots, tubers, prepared, preserved, n.e.s.	0.55	0.52
[057]	Fruits and nuts (excluding oil nuts), fresh or dried	0.55	0.52
[058]	Fruit, preserved, and fruit preparations (no juice)	0.55	0.52
[059]	Fruit and vegetable juices, unfermented, no spirit	0.55	0.52
[061]	Sugar, molasses and honey	0.55	0.52
[062]	Sugar confectionery	0.56	0.52
[071]	Coffee and coffee substitutes	0.56	0.52
[072]	Cocoa	0.56	0.53
[073]	Chocolate, food preparations with cocoa, n.e.s.	0.56	0.52
[074]	Tea and mate	0.56	0.52
[075]	Spices	0.56	0.52
[081]	Feeding stuff for animals (no unmilled cereals)	0.56	0.53
[091]	Margarine and shortening	0.57	0.53
[098]	Edible products and preparations, n.e.s.	0.56	0.53
[111]	Non-alcoholic beverages, n.e.s.	0.56	0.53
[112]	Alcoholic beverages	0.56	0.52
[121]	Tobacco, unmanufactured; tobacco refuse	0.56	0.52
[122]	Tobacco, manufactured	0.56	0.53
[211]	Hides and skins (except furskins), raw	0.57	0.53
[212]	Furskins, raw, other than hides & skins of group 211	0.56	0.52
[222]	Oil seeds and oleaginous fruits (excluding flour)	0.56	0.51
[223]	Oil seeds & oleaginous fruits (incl. flour, n.e.s.)	0.56	0.52
[231]	Natural rubber & similar gums, in primary forms	0.56	0.52
[232]	Synthetic rubber	0.56	0.52
[245]	Fuel wood (excluding wood waste) and wood charcoal	0.56	0.51
[246]	Wood in chips or particles and wood waste	0.55	0.51
[247]	Wood in the rough or roughly squared	0.54	0.50
[248]	Wood simply worked, and railway sleepers of wood	0.54	0.49
[251]	Pulp and waste paper	0.54	0.49
[261]	Silk	0.53	0.49
[263]	Cotton	0.53	0.48
[265]	Vegetable textile fibres, not spun; waste of them	0.55	0.50
[266]	Synthetic fibres suitable for spinning	0.54	0.50
[267]	Other man-made fibres suitable for spinning	0.54	0.50
[268]	Wool and other animal hair (incl. wool tops)	0.54	0.50
[269]	Worn clothing and other worn textile articles	0.54	0.50
[272]	Crude fertilizers (excluding those of division 56)	0.53	0.49
[273]	Stone, sand and gravel	0.53	0.49
[274]	Sulphur and unroasted iron pyrites	0.54	0.49
[277]	Natural abrasives, n.e.s. (incl. industri. diamonds)	0.53	0.49
[278]	Other crude minerals	0.53	0.49

[281]	Iron ore and concentrates	0.53	0.49
[282]	Ferrous waste, scrape; remelting ingots, iron, steel	0.55	0.51
[283]	Copper ores and concentrates; copper mattes, cemen	0.55	0.50
[284]	Nickel ores & concentrates; nickel mattes, etc.	0.55	0.49
[285]	Aluminium ores and concentrates (incl. alumina)	0.54	0.48
[286]	Ores and concentrates of uranium or thorium	0.55	0.48
[287]	Ores and concentrates of base metals, n.e.s.	0.55	0.51
[288]	Non-ferrous base metal waste and scrap, n.e.s.	0.55	0.51
[289]	Ores & concentrates of precious metals; waste, scrap	0.55	0.51
[291]	Crude animal materials, n.e.s.	0.56	0.51
[292]	Crude vegetable materials, n.e.s.	0.55	0.51
[321]	Coal, whether or not pulverized, not agglomerated	0.56	0.51
[322]	Briquettes, lignites and peat	0.56	0.51
[325]	Coke & semi-cokes of coal, lign., peat; retort carbon	0.55	0.50
[333]	Petroleum oils, oils from bitumin. materials, crude	0.56	0.50
[334]	Petroleum oils or bituminous minerals > 70 % oil	0.56	0.50
[335]	Residual petroleum products, n.e.s., related mater.	0.56	0.49
[342]	Liquefied propane and butane	0.56	0.50
[343]	Natural gas, whether or not liquefied	0.55	0.49
[344]	Petroleum gases, other gaseous hydrocarbons, n.e.s.	0.55	0.49
[351]	Electric current	0.55	0.49
[411]	Animals oils and fats	0.54	0.50
[421]	Fixed vegetable fats & oils, crude, refined, fractio.	0.54	0.50
[422]	Fixed vegetable fats & oils, crude, refined, fract.	0.53	0.49
[431]	Animal or veg. oils & fats, processed, n.e.s.; mixt.	0.54	0.50
[511]	Hydrocarbons, n.e.s., & halogenated, nitr. derivative	0.54	0.50
[512]	Alcohols, phenols, halogenat., sulfonat., nitrat. der.	0.55	0.50
[513]	Carboxylic acids, anhydrides, halides, per.; derivati.	0.55	0.51
[514]	Nitrogen-function compounds	0.55	0.51
[515]	Organo-inorganic, heterocycl. compounds, nucl. acids	0.55	0.51
[516]	Other organic chemicals	0.55	0.50
[522]	Inorganic chemical elements, oxides & halogen salts	0.56	0.51
[523]	Metallic salts & peroxysalts, of inorganic acids	0.56	0.51
[524]	Other inorganic chemicals	0.56	0.51
[525]	Radio-actives and associated materials	0.56	0.51
[531]	Synth. organic colouring matter & colouring lakes	0.55	0.50
[532]	Dyeing & tanning extracts, synth. tanning materials	0.55	0.50
[533]	Pigments, paints, varnishes and related materials	0.55	0.50
[541]	Medicinal and pharmaceutical products, excluding 542	0.55	0.50
[542]	Medicaments (incl. veterinary medicaments)	0.55	0.50
[551]	Essential oils, perfume & flavour materials	0.56	0.50
[553]	Perfumery, cosmetics or toilet prepar. (excluding soaps)	0.57	0.51
[554]	Soaps, cleansing and polishing preparations	0.57	0.51
[562]	Fertilizers (other than those of group 272)	0.57	0.52
[571]	Polymers of ethylene, in primary forms	0.58	0.52
[572]	Polymers of styrene, in primary forms	0.59	0.52
[573]	Polymers of vinyl chloride or halogenated olefins	0.59	0.52
[574]	Polyethers, epoxide resins; polycarbonat., polyesters	0.58	0.51
[575]	Other plastics, in primary forms	0.59	0.51
[579]	Waste, parings and scrap, of plastics	0.59	0.51

[581]	Tubes, pipes and hoses of plastics	0.58	0.50
[582]	Plates, sheets, films, foil & strip, of plastics	0.58	0.50
[583]	Monofilaments, of plastics, cross-section > 1mm	0.58	0.50
[591]	Insectides & similar products, for retail sale	0.57	0.49
[592]	Starche, wheat gluten; albuminoidal substances; glues	0.58	0.49
[593]	Explosives and pyrotechnic products	0.58	0.49
[597]	Prepared addit. for miner. oils; lubricat., de-icing	0.57	0.49
[598]	Miscellaneous chemical products, n.e.s.	0.57	0.48
[611]	Leather	0.57	0.48
[612]	Manufactures of leather, n.e.s.; saddlery & harness	0.58	0.50
[613]	Furskins, tanned or dressed, excluding those of 8483	0.58	0.50
[621]	Materials of rubber (pastes, plates, sheets, etc.)	0.57	0.48
[625]	Rubber tyres, tyre treads or flaps & inner tubes	0.56	0.48
[629]	Articles of rubber, n.e.s.	0.56	0.48
[633]	Cork manufactures	0.56	0.48
[634]	Veneers, plywood, and other wood, worked, n.e.s.	0.55	0.46
[635]	Wood manufacture, n.e.s.	0.55	0.46
[641]	Paper and paperboard	0.55	0.46
[642]	Paper & paperboard, cut to shape or size, articles	0.55	0.46
[651]	Textile yarn	0.55	0.46
[652]	Cotton fabrics, woven	0.55	0.46
[653]	Fabrics, woven, of man-made fabrics	0.55	0.46
[654]	Other textile fabrics, woven	0.55	0.46
[655]	Knitted or crocheted fabrics, n.e.s.	0.55	0.45
[656]	Tulles, trimmings, lace, ribbons & other small wares	0.55	0.46
[657]	Special yarn, special textile fabrics & related	0.55	0.46
[658]	Made-up articles, of textile materials, n.e.s.	0.55	0.46
[659]	Floor coverings, etc.	0.55	0.45
[661]	Lime, cement, fabrica. constr. mat. (excludingglass, clay)	0.56	0.46
[662]	Clay construction, refracto. construction materials	0.56	0.46
[663]	Mineral manufactures, n.e.s.	0.56	0.46
[664]	Glass	0.56	0.46
[665]	Glassware	0.56	0.46
[666]	Pottery	0.56	0.46
[667]	Pearls, precious & semi-precious stones	0.57	0.47
[671]	Pig iron & spiegeleisen, sponge iron, powder & granu	0.58	0.48
[672]	Ingots, primary forms, of iron or steel; semi-finis.	0.58	0.50
[673]	Flat-rolled prod., iron, non-alloy steel, not coated	0.58	0.52
[674]	Flat-rolled prod., iron, non-alloy steel, coated, clad	0.58	0.53
[675]	Flat-rolled products of alloy steel	0.58	0.53
[676]	Iron & steel bars, rods, angles, shapes & sections	0.58	0.53
[677]	Rails & railway track construction mat., iron, steel	0.57	0.53
[678]	Wire of iron or steel	0.56	0.52
[679]	Tubes, pipes & hollow profiles, fittings, iron, steel	0.57	0.52
[681]	Silver, platinum, other metals of the platinum group	0.56	0.51
[682]	Copper	0.56	0.50
[683]	Nickel	0.56	0.51
[684]	Aluminium	0.56	0.51
[685]	Lead	0.55	0.51
[686]	Zinc	0.55	0.51

[687]	Tin	0.55	0.53
[689]	Miscellaneous no-ferrous base metals for metallur.	0.54	0.52
[691]	Structures & parts, n.e.s., of iron, steel, aluminium	0.55	0.51
[692]	Metal containers for storage or transport	0.54	0.51
[693]	Wire products (excluding electrical) and fencing grills	0.54	0.51
[694]	Nails, screws, nuts, bolts, rivets & the like, of metal	0.54	0.51
[695]	Tools for use in the hand or in machine	0.54	0.51
[696]	Cutlery	0.54	0.51
[697]	Household equipment of base metal, n.e.s.	0.54	0.51
[699]	Manufactures of base metal, n.e.s.	0.54	0.51
[711]	Vapour generating boilers, auxiliary plant; parts	0.53	0.50
[712]	Steam turbines & other vapour turbin., parts, n.e.s.	0.53	0.50
[713]	Internal combustion piston engines, parts, n.e.s.	0.52	0.49
[714]	Engines & motors, non-electric; parts, n.e.s.	0.52	0.49
[716]	Rotating electric plant & parts thereof, n.e.s.	0.52	0.49
[718]	Other power generating machinery & parts, n.e.s.	0.52	0.49
[721]	Agricultural machinery (excluding tractors) & parts	0.51	0.48
[722]	Tractors (excluding those of 71414 & 74415)	0.50	0.48
[723]	Civil engineering & contractors' plant & equipment	0.52	0.50
[724]	Textile & leather machinery, & parts thereof, n.e.s.	0.52	0.50
[725]	Paper mill, pulp mill machinery; paper articles man.	0.52	0.50
[726]	Printing & bookbinding machinery, & parts thereof	0.51	0.49
[727]	Food-processing machines (excluding domestic)	0.51	0.47
[728]	Other machinery for particular industries, n.e.s.	0.51	0.47
[731]	Machine-tools working by removing material	0.50	0.47
[733]	Mach.-tools for working metal, excluding removing mate.	0.50	0.46
[735]	Parts, n.e.s., & accessories for machines of 731, 733	0.49	0.44
[737]	Metalworking machinery (excludingmachine-tools) & parts	0.49	0.43
[741]	Heating & cooling equipment & parts thereof, n.e.s.	0.49	0.42
[742]	Pumps for liquids	0.48	0.42
[743]	Pumps (excluding liquid), gas compressors & fans; centr.	0.49	0.42
[744]	Mechanical handling equipment, & parts, n.e.s.	0.48	0.42
[745]	Other non-electr. machinery, tools & mechan. appar.	0.49	0.42
[746]	Ball or roller bearings	0.49	0.42
[747]	Appliances for pipes, boiler shells, tanks, vats, etc.	0.49	0.42
[748]	Transmis. shafts	0.49	0.42
[749]	Non-electric parts & accessor. of machinery, n.e.s.	0.49	0.42
[751]	Office machines	0.49	0.42
[752]	Automatic data processing machines, n.e.s.	0.51	0.44
[759]	Parts, accessories for machines of groups 751, 752	0.51	0.45
[761]	Television receivers, whether or not combined	0.52	0.46
[762]	Radio-broadcast receivers, whether or not combined	0.54	0.47
[763]	Sound recorders or reproducers	0.56	0.47
[764]	Telecommunication equipment, n.e.s.; & parts, n.e.s.	0.62	0.50
[771]	Electric power machinery, and parts thereof	0.61	0.49
[772]	Apparatus for electrical circuits; board, panels	0.61	0.49
[773]	Equipment for distributing electricity, n.e.s.	0.60	0.48
[774]	Electro-diagnostic appa. for medical sciences, etc.	0.60	0.48
[775]	Household type equipment, electrical or not, n.e.s.	0.60	0.47
[776]	Cathode valves & tubes	0.62	0.49

[778]	Electrical machinery & apparatus, n.e.s.	0.62	0.50
[781]	Motor vehicles for the transport of persons	0.62	0.49
[782]	Motor vehic. for transport of goods, special purpo.	0.63	0.51
[783]	Road motor vehicles, n.e.s.	0.63	0.52
[784]	Parts & accessories of vehicles of 722, 781, 782, 783	0.64	0.51
[785]	Motorcycles & cycles	0.63	0.50
[786]	Trailers & semi-trailers	0.62	0.49
[791]	Railway vehicles & associated equipment	0.66	0.51
[792]	Aircraft & associated equipment; spacecraft, etc.	0.65	0.51
[793]	Ships, boats & floating structures	0.66	0.57
[811]	Prefabricated buildings	0.66	0.55
[812]	Sanitary, plumbing, heating fixtures, fittings, n.e.s.	0.65	0.54
[813]	Lighting fixtures & fittings, n.e.s.	0.64	0.52
[821]	Furniture & parts	0.68	0.56
[831]	Travel goods, handbags & similar containers	0.68	0.55
[841]	Men's clothing of textile fabrics, not knitted	0.67	0.55
[842]	Women's clothing, of textile fabrics	0.66	0.53
[843]	Men's or boy's clothing, of textile, knitted, croche.	0.64	0.51
[844]	Women's clothing, of textile, knitted or crocheted	0.63	0.50
[845]	Articles of apparel, of textile fabrics, n.e.s.	0.61	0.48
[846]	Clothing accessories, of textile fabrics	0.58	0.44
[848]	Articles of apparel, clothing access., excluding textile	0.57	0.42
[851]	Footwear	0.55	0.41
[871]	Optical instruments & apparatus, n.e.s.	0.50	0.34
[872]	Instruments & appliances, n.e.s., for medical, etc.	0.63	0.47
[873]	Meters & counters, n.e.s.	0.63	0.47
[874]	Measuring, analysing & controlling apparatus, n.e.s.	0.63	0.46
[881]	Photographic apparatus & equipment, n.e.s.	0.62	0.44
[882]	Cinematographic & photographic supplies	0.60	0.42
[883]	Cinematograph films, exposed & developed	0.60	0.39
[884]	Optical goods, n.e.s.	0.53	0.18
[885]	Watches & clocks	0.56	0.19
[891]	Arms & ammunition	0.59	0.23
[892]	Printed matter	0.46	0.03
[893]	Articles, n.e.s., of plastics	0.46	0.02
[894]	Baby carriages, toys, games & sporting goods	0.41	-0.09
[895]	Office & stationery supplies, n.e.s.	0.58	0.04
[896]	Works of art, collectors' pieces & antiques	0.62	0.04
[897]	Jewellery & articles of precious materia., n.e.s.	0.84	-0.17
[898]	Musical instruments, parts; records, tapes & similar	0.99	-0.80
[899]	Miscellaneous manufactured articles, n.e.s.	1.00	-1.00
[971]	Gold, non-monetary (excluding gold ores and concentrates)	0	0