Trends and Prospects of Bilateral Trading Relations between India and Australia

Radha Raghuramapatruni[1] and D. Srinivasa Chary[2]

[1] Associate Professor in Economics & International Business GITAM School of International Business GITAM University Visakhapatnam-45, Email: dr.radhapatnaik@gmail.com
[2] Research Scholar GITAM School of International Business GITAM University Visakhapatnam-45

Abstract: Today, India is the fastest growing major economy in the world and offers immense opportunities for business and economic partnership. Many countries are reformulating their economic and foreign policies to engage with India. Australia too has been taking steps to establish a comprehensive strategic partnership with India. The Australian market is one of the partners of strategic importance to India as it provides immense avenues to establish a foothold in the emerging East-Asian markets. Therefore this has become an important component of India's strategic economic priorities as a part of its Act East Policy. One of the most standout component of emerging Australia-India strategic partnership is the economic relationship which is noticeable mainly by the Australian resources and energy-driven export to India. However, the synergies and complementarities in other sectors provide huge opportunities for expansion and have yet to form a considerable chunk of Australia-India economic relationship. A feasibility study conducted on India and Australia potential for a bilateral FTA between India and Australia during 2010 also recommends that the two countries to go ahead with comprehensive bilateral FTA. Also the two-way goods and services trade between Australia and India totalled to $18 billion in 2014-15 and India has been the fifth largest export market for Australia. The total stock of Australian investment in India totalled to $9.8 billion at the end of 2014, with Indian investment in Australia equalling $11.0 billion. In this context the current paper would assess the bilateral trading relations between the both the countries and identify the potential sectors to enhance future trade relations between both the nations by using a novel framework of Revealed Comparative Advantage (RCA), Revealed Import Dependency Index (RID), Trade Intensity Indices (TII) and Gravity Coefficient (GC).

Keywords: India, Australia, Bilateral Trade, Act East Policy, Free Trade Area, Gravity Coefficient.

INTRODUCTION

The tremendous economic advancement of India in the recent past has resulted in expanding, global trade relations with the countries of the world. Australia is one of the markets of strategic importance to India as

it provides an avenue to establish a foothold in the emerging East-Asian markets. Therefore this has become an important component of India's strategic economic priorities as part of its Act East Policy. For Australia, India has often been identified as one of Australia's key new strategic partners in Asia. Australia's comprehensive strategic approach towards the Indo-Pacific region and a renewed interest in the Indian Ocean has served to rekindle its relationship with India. Australia's recently released 2016 Defence White Paper (DWP 2016) demonstrates that a growing convergence in strategic approaches can be discerned as Australia looks West and India begins to 'Act East'. India's rise and the changing balance of power in Asia have created a new dynamics in the relationship. The strategic interests of Australia and India are now aligned as never before, including shared concerns about the role of China and the security and stability of the region in general. The economic relationship between Australia and India has long been relatively weak, contributing to the lack of political alignment over the last 60 years. But India is now becoming one of Australia's largest customers for resources and energy. The two economies can be seen as complementary in both economic and strategic terms. From Australia's standpoint, India represents a huge and growing export market and an opportunity to provide greater balance to Australia's economic relationship with China. For India, Australia represents a politically stable and reliable source of energy and resource to help fuel its economic growth. India was Australia's tenth largest trading partner accounting for almost A$18 billion in two-way trade, or approaching three per cent of the total Australian trade flows. Similarly, for India, Australia ranks 36th for merchandise exports and 14th for merchandise imports. The services trade between the two countries is also relatively small with Australian exports of about A$2 billion and imports valued at A$1.4 billion. Investment between the two countries is also very small, with total foreign direct investments of a mere A$ 2 billion. Therefore there is a large untapped potential for Australian firms to expand the size and scope of their business engagements with India and similarly India can tap the untapped market potential in Australia. In this context the current paper would assess the bilateral trading relations between both the countries and identify the potential sectors to enhance future trade relations between both the nations.

OBJECTIVES OF THE STUDY

- To estimate the Intensity of trade between India and the Australia.

- To identify the potential sectors for enhancing trade between both the nations.

- To further explore the areas of emerging trade opportunities and to assess the future prospects of trade between the nations under study.

REVIEW OF THE EARLIER STUDIES:

Ashok Sharma (2016) examines the sectors which need to be synergised for a comprehensive Australia-India economic relationship, namely the resources and energy, agriculture and food, education and tourism, health and medical, manufacturing and infrastructure sectors. He finds that Australia's future lies in the Indo-Pacific region, Australia's engagement with India will be a key factor. The surging Indian economy has an immense appetite for the resources and infrastructure development, solutions and services, technical know-how and high-end expertise that Australia can provide in India's march towards progress.

Udai Bhanu Singh (2016) views that Australia's recently released 2016 Defence White Paper demonstrates that a growing convergence in strategic approaches can be discerned as Australia looks towards the West

and India begins to 'Act East'. He further views that the Asia-Pacific, or the Indo-Pacific, has once again come into the limelight with significant transformations in the economic and strategic spheres. This presents as much an opportunity as a challenge. Since India is keen on engaging its extended neighbourhood and protecting its maritime interests too, there is scope to partner with and it is important to work together with Australia.

David Brewster (2014) observes that the Australia-India relationship has come a long way over the last decade, but it will require a significant political will on both sides to give it more substance. Bilateral trade has blossomed in recent years, although the two-way investment is still relatively undeveloped. A free trade agreement is under negotiation that would provide major benefits to both countries. He further views that there have been important developments in the political-security relationship over the last decade. There has been a significant expansion in dialogues but concrete co-operation is still nascent and needs more substance.

Rupa Chanda (2013) analyses the trade between the India and Australia using a novel framework based on Revealed Comparative Advantage (RCA). He observes that Free Trade Agreement could possibly increase the trade imbalance in Australia's favour initially, but in the long term it would be beneficial to India not only to increase trade but also in gaining expertise in few key sectors and access to hitherto less explored eastern markets.

India & Australia Joint Free Trade Agreement (FTA) (2009) observes that India and Australia produce highly competitive and largely complementary goods for export to international markets. While economic activity in each country has led to substantial growth in bilateral goods trade, tariffs and non-tariff barriers continue to raise the cost of imports, imposing implicit taxes on businesses and consumers alike, thus a comprehensive FTA between Australia and India would cover substantially all goods trade allowing the two countries to take maximum advantage of the considerable complementarity between the two economies. Such liberalisation would provide impetus to economic activity and economic welfare in each economy.

RESEARCH METHODOLOGY

In this paper, the researchers have employed a combination of various statistical approaches viz. Intensity Indices, Gravity Coefficient to assess and examine the extent of trade relations between India and Australia further a combination of Revealed Comparative Advantage Index (RCA) is matched with Revealed Import Dependency Index (RID) to identify the commodities with trade potential between the nations. The study is based on secondary information collected from the research papers, books, periodicals and websites of Reserve bank of India, UNCTAD database, IMF, Ministry of Commerce and Industry, Australian Trade Database. Yearly data from 2005 to 2015 has been used to analyze the Intensity Indices and Gravity Coefficient values between India and Australia. Similarly, yearly data since 2008 till 2015 is collected to calculate the RCA and RID values and finally the average RCA and RID (2008-2015) is used for analysis.

Intensity Indices

Trade Intensity Index can be divided into Export- Intensity Index (EII) and Import- Intensity Index (III) for looking the pattern of exports and imports. Following A.J. Brown (1947) they can be defined as follows:

Export- intensity index

The ratio of export share of a country/region to the share of world exports going to a partner. Export - Intensity Index (EII) can be defined as,

$$XII_{ij} = \frac{x_{ij} / X_{iw}}{x_{wj} / X_{ww}}$$

Where x_{ij} is the dollar value of exports of country/region *i* to country/region *j*, X_{iw} is the dollar value of the exports of country/region *i* to the world, x_{wj} is the dollar value of world exports to country/region *j*, and X_{ww} is the dollar value of world exports. An index of more than one indicates that trade flow between countries/regions is larger than expected given their importance in world trade.

Import- Intensity index

The ratio of import share of a country/region to the share of world imports going to a partner Import - Intensity Index (III) can be defined as,

$$III_{ij} = M_{ij} / M_{iw} / M_{wj} / M_{ww}$$

Where M_{ij} is the dollar value of imports of country/region *i* to country/region *j*, M_{iw} is the dollar value of the imports of country/region *i* to the world, M_{wj} is the dollar value of world imports to country/region *j*, and M_{ww} is the dollar value of world imports. An index of more than one indicates higher import intensity between the nations.

Further to understand the extent of the trade shares that exist between the countries- India and the Australia the Gravity Coefficient is used which can be defined as follows.

The Export Intensity Index (EII) and Import- Intensity Index (III) values were calculated for India and Australia for the period 2005 to 2015 for the purpose of study.

Gravity Coefficient (GC)

This measure reflects those differences in trade shares of partner countries that cannot be attributed to the different sizes of partners. It is the share of a country's trade with a partner country relative to the partner country's share in world trade. A gravity coefficient tells us about the trade dependence, bias or trade intensity of a country with a partner country.

For intra regional trade intensity, the gravity coefficient can be measured as:

GC = (X + M)ij/(X + M)iw/ (X + M)jw/(X + M)w

(X + M)jw= Total trade(Export + Import) of country j with the world

(X + M)ij: Total trade (Export+ import of a country I with j)

(X + M)w: Total world trade (Export + import)

If the gravity coefficient exceeds one, it implies that the country I has high trade intensity with its partner. If the coefficient is below one, it implies a low trade dependence with its parter.

The Gravity Coefficient (GC) is calculated for India's trade with Australia for the period 2005 to 2015.

Revealed Comparative Advantage Index

The paper identifies the pattern of revealed comparative advantage using the Balassa (1965) index for export data. Measures of revealed comparative advantage (RCA) have been used to assess the country's export potential. The index has been calculated at the sector and commodity level using SITC-2 digit level classification. The RCA indicates whether a country is in the process of extending the products in which it has trade potential, as opposed to situations in which the number of products that can be competitively exported is static. It can also provide useful information about potential trade prospects with new partners. Countries with similar RCA profiles are unlikely to have high bilateral trade intensities unless intra industry trade is involved. RCA measures, if estimated at high levels of product disaggregation, can focus attention on the other nontraditional products that might be successfully exported. The RCA index of country 'i' for the product 'j' is often measured by the product's share in the country's exports in relation to its share in the world trade:

$$RCA_{ij} = (X_{ij}/X_{it}) / (X_{wj}/X_{wt}),$$

Where X_{ij} and X_{wj} are the values of country's exports of product j and world exports of product j and where X_{it} and X_{wt} refer to the country's total exports and world total exports. A value of less than unity implies that the country has a revealed comparative disadvantage in the product. Similarly, if the index exceeds unity, the country is said to have a revealed comparative advantage in the product.

Revealed Import Dependence Index

The index identifies the commodities, which have import dependence on the partner countries. The RID index also been called as Revealed Comparative Disadvantage index. The RID index will give us the commodity-wise structure of imports in the countries. The RID is defined as commodity 'i's' share in country's total imports vis-à-vis its share in total world imports. The RID index can be computed as follows:

$$RID\ i = (M_{ia}/M_{a}) / (M_{iw} / M_{w}),$$

Where Mia is equal to imports of commodity 'i' from a country 'a', Ma is equal to total imports of a country 'a', M_{iw} is equal to total value of the world imports of commodity i and M_{w} is equal to total world imports. As in the case of RCA index, an RID index exceeding one suggests a strong dependence of the country on the import of a specific item in a reference period and vice-versa.

While an RCA analysis explains about the comparative advantage that a country enjoys in the export of a certain commodities in general, its does not necessarily tell us about the specific import requirements of the countries being focused for exports. So, although India may have a comparative advantage in the export of certain commodities, it may not be necessary that Australia has a requirement for the same commodities. A comparison of the RCA of commodities in India with the RID of commodities in Australia will give a more reliable picture of the export potential of the Indian goods in Australia and Vice versa. If for a certain commodity India has a RCA index greater than one, and for the same commodity Australia

has a RID greater than one, than such a commodity is considered to have a strong export potential in that particular country. The RCA and RID for the period 2005 to 2015 were calculated and their respective average values were taken for the purpose of analysis.

AUSTRALIA-INDIA COMPREHENSIVE
ECONOMIC COOPERATION AGREEMENT (CECA)

Australia has placed India at the forefront of its international partnerships. Both the governments agree that there is significant potential for further cooperation across a broad range of areas. The two-way Prime Ministerial visits in 2014 built significant momentum in the relationship and affirmed the Strategic Partnership agreed to in the 2009. While Australia does not have a bilateral development cooperation program with India, it provides support through the global and regional aid investments and technical assistance activities.

The Australia-India Council (AIC) was established in 1992 by the Australian government to broaden the bilateral relationship through increasing levels of knowledge and understanding between the people and institutions of Australia and India. The annual Maritime Dialogue was agreed in November 2014 under the Framework for security co-operation. The other treaties and MoUs between India and Australia spans a range of areas. Notable areas of cooperation include Treaties and Memoranda of Understanding (MoUs) on Air Services; Civil Space Science, Technology and Education; combating International Terrorism; Customs; Defence Cooperation; Extradition and Mutual Legal Assistance in Criminal Matters; Intellectual Property; Civil Nuclear Cooperation; Skills Training Co-operation and Technical Vocational Education and Training(TVET); Social Security; Student Mobility and Welfare; Transfer of Sentenced persons; Arts and culture; Water Resource Management; Sports: Tourism and Wool and Woollen Products.

Negotiations to conclude a comprehensive Economic Cooperation Agreement (CECA) between Australia and India were launched in 2011. There have been nine rounds of negotiations, the most recent of which was held in September 2015. During the official visits the respective prime ministers of both the countries renewed their commitment to an early conclusion of an equitable, balanced, comprehensive and high quality agreement.

When concluded, the CECA is expected to encourage two-way investment and further strengthen Australia's bilateral economic relationship with India. Independent modelling conducted in 2008 for a preceding study indicated that an Australia-India CECA could result in a net increase in Australia's GDP by up to USD 32 billion and India's GDP by upto USD 34 billion over a period of 20 years.

Australia and India are also involved in the Regional Comprehensive Economic Partnership negotiations- an ASEAN centred proposal for a free trade areas which would initially include the ten ASEAN member states and those countries which have existing FTAs with ASEAN.

## BILATERAL TRADING REGIME BETWEEN INDIA AND AUSTRALIA:

The Australia-India economic relationship has grown significantly in recent years. Australia's strength in exporting primary products, particularly minerals and energy, as well as services such as education, positions us well to supply growing Indian industrial and consumer demand.

During the year 2005, India's exports to Australia were worth A$US 82 billion. India's exports to Australia grew by an annual average of 12.3%. India's main exports to Australia are gems and jewellery, machinery and textiles while India's major imports are non-monetary gold, coal, copper ores- the three products account for over 86 percent of India's imports from Australia, with coal being the dominant import. India tops Australia's export destination for gold and chickpeas and is the second largest export destination for the Australian coal and copper ores, the third largest export market for lead and wool, and a growing market for nickel exports.

The service trade between India and Australia amounted to US$ 3.5 billion in 2010-11 with Australian exports amounting to US$ 2.47 billion. India's main service exports to Australia are computer and information services and tourism.12 Australia's main service exports are education, education-related services and tourism. Australian merchandise exports grew by 17.3% in compound annual terms to India, though from a low base in the period 2000-13. However, there have been significant down trend in two-way trade in the year up to 2013, accounting a 22% decline.

The two-way goods and services trade between Australia and India totalled $ 18 billion in 2014-15(Appendix Table.1). Major Australian exports to India in 2014-15 included coal ($5.5 billion), education-related travel ($2.21 billion) and gold ($903 million). Major Australian imports from India in 2014-15 were refined petroleum ($910 million), personal travel services ($561 million), business services ($481 million), medicaments ($ 247 million); pearls and gems ($239 million) and passenger motor vehicles ($ 170 million)
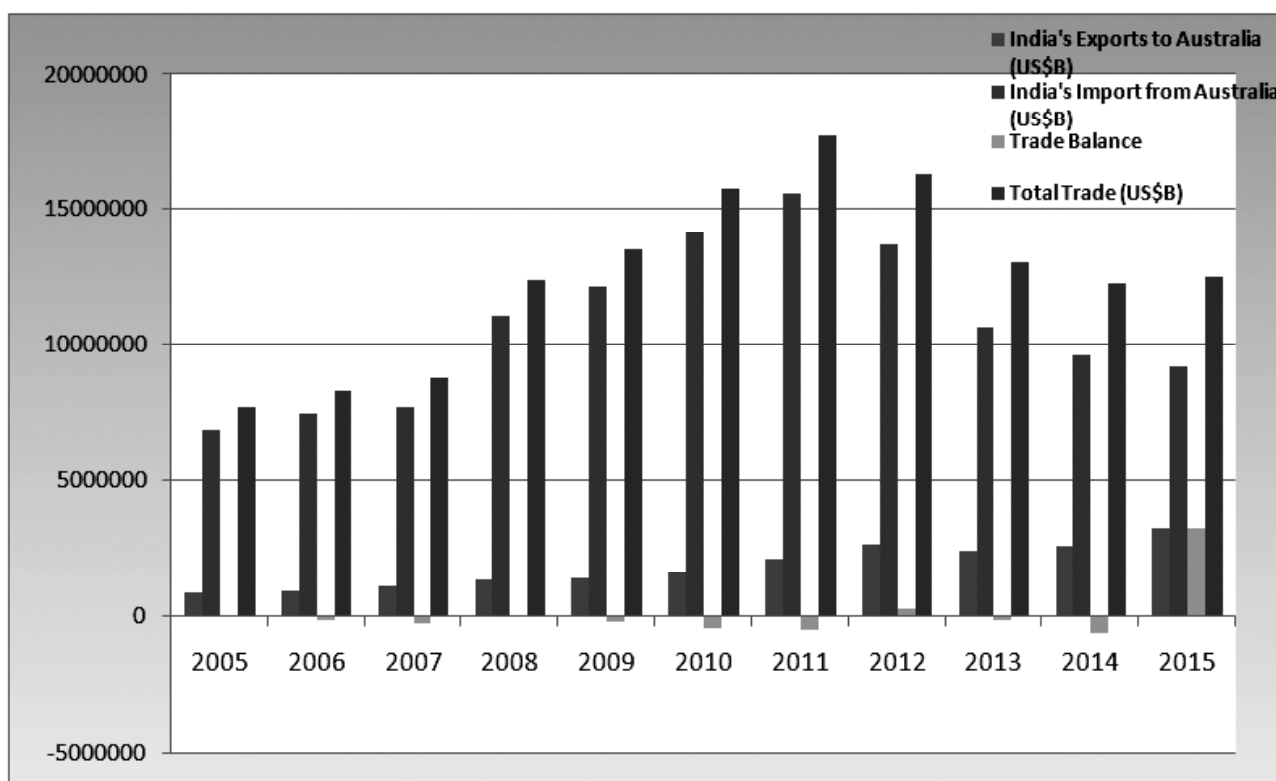
Figure 1: India's Trade with Australia

Source: Unctad database

Table 1
India's Trade with Australia (US$ B)

	India's Exports to Australia	*India's Import from Australia*	*Trade Balance*	*Total Trade*
2005	826594.105	6901691.989	-60036.817	7728286.094
2006	886630.922	7441467.898	-196393.91	8328098.82
2007	1083024.831	7725670.075	-264306.69	8808694.906
2008	1347331.524	11022449.4	-62865.4	12369780.92
2009	1410196.924	12112325.22	-240668.45	13522522.14
2010	1650865.377	14124046.96	-444907.12	15774912.34
2011	2095772.494	15613307.29	-537261.09	17709079.79
2012	2633033.585	13695146.62	235348.086	16328180.2
2013	2397685.499	10624022.81	-195842.27	13021708.31
2014	2593527.772	9630526.591	-659283.7	12224054.36
2015	3252811.47	9205426.992	3252811.47	12458238.46

Authors calculation from Unctad

In 2014-15 Australia's goods exports to India totalled $9.8 billion, or 3.8 percent of total goods exports, making India the fifth largest goods export market. Total goods imports equalled $3.8 billion. Australia exported $2.9 billion in services to India in 2014-15, primarily in education-related travel services and other personal travel. Australia imported $1.5 billion in Indian services.

The total stock of Australian investment in India totalled $9.8 billion at the end of 2014, with Indian investment in Australia equalling $11.0 billion. Australian investment in India covers a range of sectors, Including manufacturing, Telecommunications, hotels, minerals processing, food processing, oil and gas and the automotive sector. The top Indian software firms — Tata Consultancy Services, Satyam, Infosys, Pent soft and HCL — are represented in Australia and have a small but growing market presence. There is strong Indian interest in investing in the Australian energy and resources sector.

Education is an area of increasing importance to the bilateral relationship. Australia is a major destination for Indian students studying abroad, who recognize the high quality and cost competitiveness of Australian education services. 53,568 Indians studied in Australia in 2015 — an increase of 15.7 per cent from 2014 — and India was the second-largest source country for overseas students in Australia. Successive Australian Governments have taken action to ensure the safety of all international students studying in Australia and the Indian government has expressed appreciation for the steps Australia has taken.

Australia and India have instituted a program of closer cooperation on education matters. Since 2009, education ministers have met annually for the Australia-India Ministerial Dialogue on Education Cooperation. The Australia India Education Council builds partnerships between India's Sector Skills Councils and Australia's Industry Skills Councils in key industry areas.

In fact, Australia's trade relationship with India has been cautiously growing. A decade ago, India wasn't in the top ten destinations for Australian exports. But, at present, India is Australia's fourth largest export destination with a share of 5.3% of total Australian exports and the fifth largest trading partner in terms of goods and services.

AN ANALYSIS ON INTENSITY INDICES AND GRAVITY COEFFICIENT

Recent years have seen remarkable growth in the trading relationship between India and Australia, fuelled by the many complementarities between the two economies. Two-way trade in goods and services has grown in value from $8 billion during the year 2005 to $ 18 billion during the year 2011 and there by reduced to$ 12 billion in the year 2015. However, the growth in trade balance between the countries has been highly uneven in Australia's favour, which can be found from the Intensity Index values (Export Intensity Index (EII) and the Import Intensity Index (III) and the Gravity Coefficient (GC) values (chart. 2, Appendix Table.2). This also indicates that India's import from Australia is about 15 times its export to Australia.

The Export Intensity Index values (EII) between India and Australia presents a gradual rise of trade intensity between the nations. The Export Intensity index value during the year 2005 was 0.4510; this gradually moved to 0.423 during the year 2009. Bilateral trade cooperation has assumed new significance in the wake of the global economic crisis which has led to a dramatic deterioration in the world economic outlook and slower growth in both India and Australia as there was a gradual dip of the EII value between India and Australia to 0.3381 during the year 2011. But this again shot back to 0.417 during the year 2014 and thereafter reached a peak of 0.6065 during the year 2015.

The bilateral trade relationship between Australia and India is to a significant extent characterised by India's imports from Australia of raw materials and intermediate products which are used by India to produce final goods for exports, a part of which in turn is imported from India by Australia. This can be seen from the Import Intensity Index values which were greater than one for the entire period of study, presenting greater import intensity between the countries. Initially the Import Intensity Index value stood at 3.494 and this gradually reduced to 2.105 during 2009. By the year 2014, it is 1.257 and finally stood at 1.495. One significant observation has been a declining import intensity indices values since 2005 owing to indigenous strengthening of domestic goods, availability of raw materials with strengthening of manufacturing sector and evolution of China as the largest source of imports since the last decade. China

Table 2
Intensity Indices & Gravity Coefficient between India & Australia

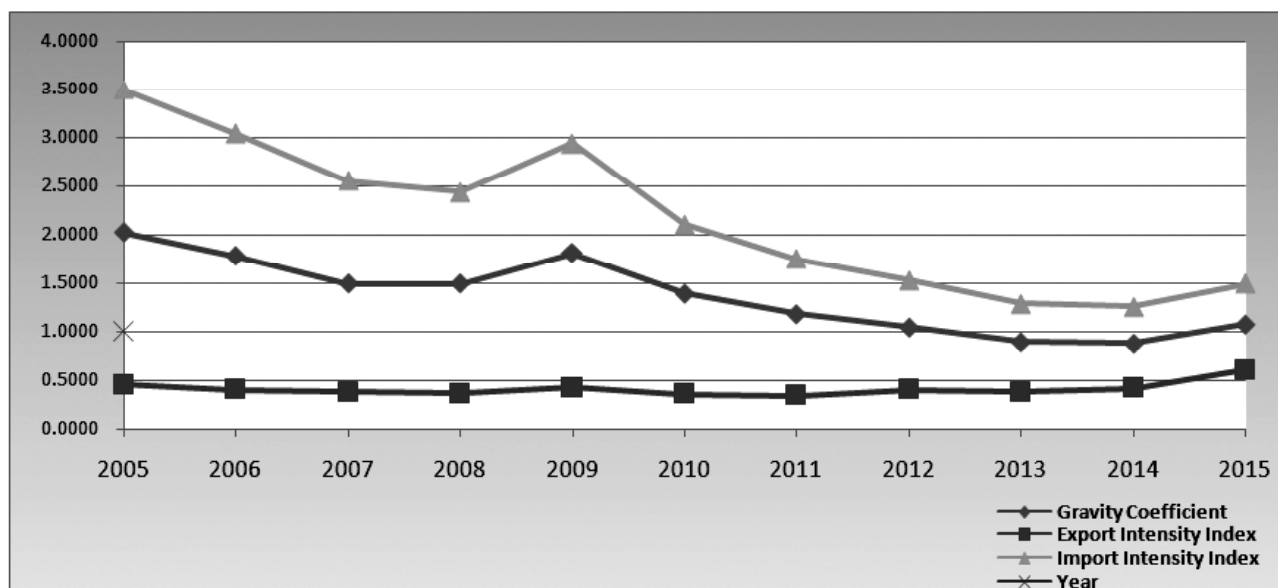| Year	Gravity Coefficient	Export Intensity Index	Import Intensity Index
2005	2.0216	0.4510	3.4942
2006	1.7772	0.3988	3.0353
2007	1.4909	0.3794	2.5493
2008	1.4927	0.3590	2.4398
2009	1.8122	0.4237	2.9352
2010	1.3910	0.3528	2.1055
2011	1.1776	0.3381	1.7508
2012	1.0463	0.3988	1.5321
2013	0.8912	0.3764	1.2894
2014	0.8807	0.4171	1.2571
2015	1.0763	0.6065	1.4952

Authors calculation from Unctad

Figure 2: Intensity Indices & Gravity Coefficient Values between India & Australia

Source: Unctad database

is able to replace many of its East Asian neighbours with its cheap exports. This can also be explained by the declining trend of the Gravity Coefficient values between India and Australia. For the initial year 2005 the Gravity Coefficient value stands at 2.0216 and this has gradually reduced to 2009 in 1.8122 and finally reduced to 1.0763 during the year 2015. Even though India has been one of the fastest growing major markets of Australia, the former's integration with the rest of the world has been greater when compared with Australia which is quite evident from the trade share of Gravity Coefficient.

India is the world's largest democracy and is a market of 1.2 billion people. Its youthful population diversified economy and growth trajectory present significant opportunity for Australian business, especially in the agriculture, energy, manufacturing, mining and services sectors. The following section presents the analysis on Intensity Indices calculated between India and Australia and the values of Gravity Coefficient.

COMPETITIVE ADVANTAGE INDEX BETWEEN INDIA AND AUSTRALIA;

The economic relationship between Australia and India has long been relatively weak, contributing to the lack of political alignment over the last 60 years. But India is now becoming one of Australia's largest customers for resource and energy. The two economies can be seen as complementary in both economic and strategic terms. From Australia's standpoint, India represents a huge and growing market and an opportunity to provide greater balance Australia's economic relationship with China. For India, Australia represents a politically stable and reliable source of energy and resources to help fuel its economic growth. There are considerable opportunities to further develop two-way trade and a far stronger investment relationship.

The Paper calculates the RCA analysis which explains about the comparative advantage that a country enjoys in the export of a certain commodities in general, it does not necessarily tell us about the specific import requirements of the countries being focused for exports. So, although India may have a comparative

advantage in the export of certain commodities, it may not be necessary that Australia has a requirement for the same commodities. A comparison of the RCA of commodities in India with the RID of commodities in Australia and vice-versa, will give a more reliable picture of the export potential of the Indian goods in Australia and Australian goods in India. If for a certain commodity India has a RCA index greater than one, and for the same commodity Australia has a RID greater than one and vice-versa, than such a commodity is considered to have a strong export potential in that particular country.

The RCA and RID for the period 2005 to 2015 were calculated and their respective average values were taken for the purpose of analysis (see Appendix Table. 3).

The following Table.3 presents the Comparative Advantage of India in 17 distinct commodity categories where India has competitive advantage. The comparative advantage of India could be seen in commodity categories such as Food & Live Animals, Beverages and Tobacco, Chemicals and Related Products, Manufactured Goods and Machinery and Transport Equipment.

Table 3

Commodities 's RCA>1 *Commodity Category*	*India* *RCA>1*
Food & Live Animals:	
(01)Meat and meat preparations	1.15217
[03] Fish, crustaceans, molluscs and preparations thereof	1.45774
[04] Cereals and cereal preparations	2.16058
[06] Sugar, sugar preparations and honey	1.57757
[07] Coffee, tea, cocoa, spices, and manufactures thereof	1.53096
[08] Feedstuff for animals (excluding unmilled cereals)	1.85023
Beverages and Tobacco:	
(12)Tobacco and tobacco Manufactures	3.10246
[33] Petroleum, petroleum products and related materials	1.05897
Chemicals and Related Products, n.e.s	
[51] Organic chemicals	1.33092
[52] Inorganic chemicals	1.41165
[53] Dyeing, tanning and colouring materials	1.46916
[54] Medicinal and pharmaceutical products	1.03928
Manufactured Goods:	
[61] Leather, leather manufactures and dressed furskins	2.12712
[65] Textile yarn and related products	2.6965
[67] Iron and steel	1.19421
Machinery and Transport Equipment:	
[79] Other transport equipment	1.04872
[83] Travel goods, handbags, etc.	1.03535

Source: Authors Calculation based data from Unctad.org

Similarly, Table. 4 presents the Revealed Comparative Advantage of Australia which could be observed in 12 commodities Australia's expertise and strength lies the resources, energy and mining sectors including the sectors and services such as agriculture and food; education and tourism; health and medical research; and infrastructure. Australia is at the top of many in these sectors. Australia's competitive advantage could be observed in the following product category taken for study viz. Food & Live Animals, Beverages and Tobacco, Manufactured Goods and Mineral Fuels and Lubricants. These provide a greater opportunity for Australia and India for a two –way bilateral trade relationship.

Table 4

Commodities 's RCA>1 Commodity Category	Australia RCA>1
Food & Live Animals:	
(OO)Live Animals other than animals of division 03	4.20757
(01)Meat and meat preparations	3.05912
[02] Dairy products and birds' eggs	1.13505
[05] Vegetables and fruits	1.98592
[08] Feedstuff for animals (excluding unmilled cereals)	1.15221
[09] Miscellaneous edible products and preparations	1.88148
Beverages and Tobacco:	
[11] Beverages	1.69844
Manufactured Goods:	
[61] Leather, leather manufactures and dressed furskins	1.03667
[78] Road vehicles	1.03725
[79] Other transport equipment	1.55809
Mineral Fuels and Lubricants:	
[34] Gas, natural and manufactured	3.126
[35] Electric current	1.018

Source: Authors Calculation based data from Unctad.org

REVEALED IMPORT DEPENDENCY INDEX
BETWEEN INDIA AND AUSTRALIA

While the comparative advantage index presents the competitive advantage of a country in terms of its exports, Revealed Import Dependency Index (RID) of a country presents the import dependency of a country for its imports. Table.5 presents the Import Dependency Index (RID) of India. A total of 17 commodities could be seen, which has potential for imports to India under the category of Food & Live Animals, Chemicals and Related Products, Manufactured Goods and Machinery and Transport Equipment. For many years India has been self-sufficient in the food sector. For example, it has been the largest producer of rice, milk and pulses and also one of the largest consumers of these products. But India's growing population and prosperity might have compromised India's food strength. This could be observed

in the long list of Commodities under Food & Live Animals categories where RID is greater than 1. Other sectors such as Chemicals and Related Products and Manufactured Goods also fall under the category where India's RID is greater than 1, owing to the expansion of its secondary sector. There is a considerable scope for the expansion of Australia-India trade lies in merchandise especially in the higher value and more knowledge-intensive skills based goods in the high-end manufacturing sector, drawing on mutual need and capability, as Revealed Import Dependency of India could be observed in Manufactured Goods, Machinery and Transport Equipment category too(Table. 5).

Table 5

Commodities where RID>1	India
Commodity Category	RID>1
Food & Live Animals:	
[02] Dairy products and birds' eggs	1.0454
[06] Sugar, sugar preparations and honey	1.2605
[05] Vegetables and fruits	1.0567
[32] Coal, coke and briquettes	3.9689
[33] Petroleum, petroleum products and related materials	1.8973
[09] Miscellaneous edible products and preparations	1.4263
[34] Gas, natural and manufactured	1.1067
[35] Electric current	1.2637
Chemicals and Related Products, n.e.s	
[51] Organic chemicals	1.2894
[52] Inorganic chemicals	1.5746
[56] Fertilizers other than group 272	4.4902
Manufactured Goods:	
[61] Leather, leather manufactures and dressed furskins	1.065
[65] Textile yarn and related products	1.615
[67] Iron and steel	1.0761
Machinery and Transport Equipment:	
[72] Specialised machinery	1.0059
[76] Telecommunication and sound recording apparatus	1.795
[79] Other transport equipment	1.0046

Source: Authors Calculation based data from Unctad.org

Australia's Revealed Import Dependency Index (RID) could be observed in 20 distinct commodity categories (Table. 6) under Food and Live Animals, Beverages and Tobacco, Chemicals and Related Products, Manufactured Goods and Machinery and Transport Equipment. Major Australian imports from were refined petroleum, personal travel services, business services, medicaments, pearls and gems and passenger motor vehicles. This provides a greater scope for two-way trade between India and Australia as India has a competitive advantage in majority of these commodities.

Table 6

| Commodities where RID>1 | Australia |
Commodity Category	RID>1
Food & Live Animals:	
[07] Coffee, tea, cocoa, spices, and manufactures thereof	1.042
[06] Sugar, sugar preparations and honey	1.2121
[09] Miscellaneous edible products and preparations	1.8222
Beverages and Tobacco:	
[11] Beverages	1.2602
(12)Tobacco and tobacco Manufactures	1.2356
[33] Petroleum, petroleum products and related materials	1.0292
Chemicals and Related Products, n.e.s	
[52] Inorganic chemicals	1.2569
[54] Medicinal and pharmaceutical products	1.3048
[55] Essential oils for perfume materials and cleaning preparations	1.0415
[56] Fertilizers other than group 272	1.5627
Manufactured Goods:	
[62] Rubber manufactures, n.e.s.	1.66
[65] Textile yarn and related products	1.2122
[79] Other transport equipment	1.056
[63] Cork and wood manufactures (excluding furniture)	0.9959
Machinery and Transport Equipment:	
[72] Specialised machinery	1.4251
[76] Telecommunication and sound recording apparatus	1.0491
[78] Road vehicles	1.5489
[82] Furniture and parts thereof	1.4467
[83] Travel goods, handbags, etc.	1.2425
[87] Professional and scientific instruments, n.e.s.	0.9921

Source: Authors Calculation based data from Unctad.org

COMMODITIES FEASIBLE FOR TRADE BETWEEN INDIA AND AUSTRALIA

Based on the above analysis, a total of 16 commodity categories have been identified for trade between both the economies. Table. 7 lists out the commodities identified for trade.

Based on the RCA and RID analysis, the following observations could be made,

- Even though India's top exports are highly complementary with Australia's top imports, relatively low competitiveness in these categories in Australia is contributing to trade imbalance for India. However, many Indian export categories are showing steady growth in RCA over the years analyzed (2008-2015) not only globally but also with respect to Australia.

- Many of Australia's top exports do not feature in India's top imports. However, there are key categories like mineral fuels, pearls, precious stones and metals where Australia is highly

Table 7
Commodities Feasible for Trade between India & Australia

India to Australia	Australia to India
[02] Dairy products and birds' eggs	[05] Vegetables and fruits
[06] Sugar, sugar preparations and honey	[09] Miscellaneous edible products and preparations
[07] Coffee, tea, cocoa, spices, and manufactures thereof	[61] Leather, leather manufactures and dressed furskins
(12)Tobacco and tobacco Manufactures	[79] Other transport equipment
[33] Petroleum, petroleum products and related materials	[33] Petroleum, petroleum products and related materials
[52] Inorganic chemicals	[34] Gas, natural and manufactured
[54] Medicinal and pharmaceutical products	
[65] Textile yarn and related products	
[79] Other transport equipment	
[83] Travel goods, handbags, etc.	

Source: Authors calculation based on Table. 3, 4, 5 & 6

competitive. As these categories are highly relevant globally, Australia is having high export volumes to India as well. However, for many of Australia's top exports, the RID of India is growing slowly compared to global RCA.

- A total of 10 commodities are feasible for trade between India and Australia and a total of 6 commodities are feasible for trade between Australia and India.

- There is a further scope for future expansion; an FTA between both the countries could increase the trade potential between both of them.

TARIFF AND NON TARIFF BARRIERS BETWEEN INDIA AND AUSTRALIA

Australia already employs one of the lowest import tariffs globally which stood at an average of 3.1 percentage in 2010. India currently employs relatively high tariff levels. Indian imports have high bound rates close to 50% which creates high uncertainty for importers, the trade barrier reporter database of UNCTAD identifies 25 non-tariff barriers faced by India from Australia of which 32% falls under Sanitary and Phyto-Sanitary (SPS) issues. These issues adversely affect agricultural produce, machinery and most importantly textile exports from India. On closer examination, most of the barriers arise due to mismatches in standards and also due to trivial issues like labelling requirements.

India also employs multiple SPS measures on Australia. A noteworthy case is that of dairy products where Australia is highly competitive and is keen to enter the Indian market. While India imports dairy products from European countries like Italy and Switzerland, it imposes quarantine restrictions on Australia. It is viewed that these restrictions are in place to counter the strict SPS norms Australia themselves follow.

Thus, an FTA can play a major role in reducing the non-tariff barriers by introducing Mutual Recognition Agreements (MRA) and thereby eliminating the issues due to mismatches in standards. This can increase Indian textile exports to Australia and Australian agricultural exports to India. As both countries are globally competitive in the respective categories, a MRA can do a world of good.

CONCLUSION

The Australia-India relationship has come a long way over the last decade, but it will require significant political will on both sides to give it more substance. Bilateral trade has blossomed in recent years, although two-way investment is still relatively underdeveloped. A free trade agreement is under negotiation that would provide major benefits to both countries. There have been important developments in the political-security relationship over the last decade. There has been a significant expansion in dialogues but concrete co-operation is still nascent and needs more substance. India's new government is creating ample of opportunities for nurturing the two way relationship between both the countries and a possible FTA between both the countries would be materialized which would drastically bring down the tariff levels accelerating the volume of trade between both the countries.

REFERENCES

Ashok Sharma (2016), *Australia-India Relations: Trends and the Prospects for a Comprehensive Economic Relationship*, ASARC Working Paper 2016/2, Australia-India Institute. Central Intelligence Agency website, 2011, The World Fact Book.

D. Muni (2011), *India's 'Look East' Policy: The Strategic Dimension*, ISAS Working Paper No. 121 – 1 F, Institute of South Asian Studies, National University of Singapore.

David Brewer (2014), *Australia-India Strategic Relations: The Odd Couple of the Indian Ocean?*, Associate Paper, Future Directions International, Independent Strategic Analysis of Australia's Global Interests.

Government of India, Ministry of Heavy Industries & Public Enterprises, "National Electric Mobility Mission Plan," *Press Information Bureau*, 10 March 2015, Available at http://pib.nic.in/newsite/PrintRelease.aspx?relid=116719

Ministry of Commerce & Industry, Government of India and Department of Foreign Affairs and Trade, Australian Government (2010), *India and Australia Joint Free Trade Agreement (FTA) Feasibility Study*.

N. Banik and J. Gilbert, "Trade Cost and Regional Integration in South Asia" in D. Brooks eds.).

Peter Varghese, "The Lessons of European Integration for the Indo Pacific," 2014.

(Rupa Chanda (2013), *India-Australia Trade: Prospects and Challenges*, www.tejas.iimb.ac.in.

The World Economic Forum "Global Competitiveness Report for 2014-2015".

UNCTAD Report 2014-15.

Udai Bhanu Singh (2016), *Australia's 2016 Defence White Paper An Indian Perspective*, Journal of Defence Studies, Vol. 10, No. 2, April-June 2016, pp 111-120.

World Trade Organization, 2011, "Trade Policy Review of Australia", Chapter 3, Trade policies and practices by measure, pp31.

World Trade Organization, 2015, "Trade Policy Review of India", Chapter 3, Trade policies and practices by measure, pp5.

ABBREVIATIONS

Acronymys

TII	:	Trade Intensity Index
RCA	:	Revealed Comparative Advantage Index
RID	:	Revealed Import Dependence
RoW	:	Rest of the World Trade

CI   : Competitive Indices

EII   : Export Intensity Index

III   : Import Intensity Index

MRA : Mutual Recognition Agreements (MRA)

SPS   : Sanitary and Phyto-Sanitary (SPS) issues

UNCTAD : United Nations Conference for Trade and Development

WTO : World Trade Organization

FTA   : Free Trade Agreement

APPENDIX

Table 1
RCA and RID for India and Australia

Commodity Category	India		Australia	
	RCA	RID	RCA	RID
Food & Live Animals:				
(OO)Live Animals other than animals of division 03	0.0317	0.02771	4.208	0.38078
(01)Meat and meat preparations	1.1522	0.00258	3.059	0.34026
[02] Dairy products and birds' eggs	0.1989	1.04545	1.135	0.844
[03] Fish, crustaceans, molluscs and preparations thereof	1.4577	0.02504	0.041	0.844
[04] Cereals and cereal preparations	2.1606	0.03941		0.38843
[05] Vegetables and fruits	0.7055	1.05661	1.986	0.61552
[06] Sugar, sugar preparations and honey	1.5776	1.26005	0.314	1.21218
[07] Coffee, tea, cocoa, spices, and manufactures thereof	1.531	0.2913	0.043	1.04196
[08] Feedstuff for animals (excluding unmilled cereals)	1.8502	0.12679	1.152	0.63555
[09] Miscellaneous edible products and preparations	0.2067	1.42669	1.881	1.82222
Beverages and Tobacco:				
[11] Beverages	0.0974	0.11097	1.698	1.26023
(12)Tobacco and tobacco Manufactures	3.1025	1.2356	0.568	1.23568
Mineral Fuels, Lubricants and Related Materials:				
[23] Crude rubber (including synthetic and reclaimed)	0.2337	0.03743	0.005	0.21064
[32]Coal, coke and briquettes	0.1075	3.96891	0.12	0.02336
[33] Petroleum, petroleum products and related materials	1.059	1.89728	0.408	1.02921
[34] Gas, natural and manufactured	0.0265	1.10666	3.126	0.33622
[35] Electric current	0.0098	1.26345	1.018	0.6451
Chemicals and Related Products, n.e.s				
[51] Organic chemicals	1.3309	1.28941	0.005	0.44659
[52] Inorganic chemicals	1.4117	1.57456	-	1.257
[53] Dyeing, tanning and colouring materials	1.4692	0.73201	-	0.65392
[54] Medicinal and pharmaceutical products	1.0393	0.23786	0.068	1.30477

(contd...Annex. 1)

Commodity Category	India		Australia	
	RCA	RID	RCA	RID
[55] Essential oils for perfume materials and cleaning preparations	0.5929	0.2304	0.051	1.04151
[56] Fertilizers other than group 272	0.0696	4.49022	0.401	1.56271
Manufactured Goods:				
[61]Leather, leather manufactures and dressed furskins	2.1271	1.06456	1.004	0.39653
[62] Rubber manufactures, n.e.s.	0.7953	0.33541	0.038	1.66001
[63] Cork and wood manufactures (excluding furniture)	0.1746	0.2557	0.063	0.95591
[65] Textile yarn and related products	2.6965	1.61498	0.005	1.21222
[64] Paper and paper manufactures	0.2626	0.50367	0.063	0.25698
[67] Iron and steel	1.1942	1.07608	0.018	0.6142
Machinery and Transport Equipment:				
[72] Specialised machinery	0.4132	1.00596	0.136	1.42514
[76] Telecommunication and sound recording apparatus	0.2414	1.79499	0.097	1.04906
[77] Electrical machinery, apparatus and appliances, n.e.s.	0.2211	0.37863	0.024	0.53505
[78] Road vehicles	0.4275	0.16508	1.037	1.5489
[79] Other transport equipment	1.0487	1.00456	1.558	0.74537
[82] Furniture and parts thereof	0.479	0.22432	0.562	1.44668
[83] Travel goods, handbags, etc.	1.0353	0.19666	0.051	1.24246
[85] Footwear	0.998	0.14401	0.034	0.90794
[87] Professional and scientific instruments, n.e.s.	0.1691	0.58853	0.567	0.99206

Authors calculation from Unctad