

INDIA-NEW ZEALAND TRADE AND TRADE POTENTIAL: RECENT EXPERIENCE AND FUTURE OPPORTUNITIES

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ABSTRACT

This paper explores the evolution of trade relation and trade potential between New Zealand and India. It includes an analysis of Kojima indices of trade intensities, revealed comparative advantage, intra-industry trade and trade potential indices. The study identifies the extent and significance of bilateral trade and future opportunities in the context of Free Trade (FTA) and Comprehensive Economic Cooperation Agreements between New Zealand and India. Overall, the study shows that bilateral trade has been increasing and economic integration is expected to have a positive impact on trade of integrated nations and so with New Zealand-India and with ongoing trade potential.

Keywords: India, New Zealand, Trade Policy, International Trade, Economic Integration

JEL Codes: F13, F14, F15

PAPER FOR THE

51ST NEW ZEALAND ASSOCIATION OF ECONOMISTS (NZAE)

ANNUAL CONFERENCE

UNIVERSITY OF AUCKLAND BUSINESS SCHOOL

ON 30 JUNE - 2 JULY 2010

1. INTRODUCTION

This paper explores the evolution of bilateral trade between New Zealand and India. It includes an historical background, statistical analysis of trade composition and diversity, inter industry and intra-industry trade intensities, trade reciprocity and trade potential. We use a combination of approaches and research methods to investigate these developments.

We consider, first, the strength of trade relation between New Zealand and India using export and import intensity indices developed by Kojima. Secondly, we present an index of trade reciprocity using Wadhwa's methodology to establish the overall balance of trade between New Zealand and India. Thirdly, the revealed comparative advantage methodology, developed by Balassa, is used to establish New Zealand and India's comparative advantage in selected manufactured and non-manufactured products. Fourthly, we examine the extent and movement of intra-industry trade, using the Grubel-Lloyd and Aquino indices. Finally, a trade potential methodology is used to identify the New Zealand's trade potential and for drawing conclusions for policy in the context of a Free Trade Agreement (FTA) or Comprehensive Economic Cooperation Agreement (CECA) between New Zealand and India.

As New Zealand is involved in negotiating a closer economic partnership with Asia-Pacific nations, this study is expected to add insights to the general consensus that comprehensive bilateral trade agreements are likely to produce more mutual benefits than may be forecast by traditional trade models. New Zealand has political, security, trade and economic interests in Asia.

Bilateral trade is currently below potential, despite strong growth in recent years. Notwithstanding the difference in size and the distance between India and New Zealand, these economies are essentially complementary. There is considerable potential to increase bilateral trade and economic relations, particularly if tariffs and other barriers are considered through CECA/FTA. It is expected that a comprehensive CECA/FTA would increase joint real GDP, welfare and bilateral merchandise exports. The results of the alternative trade models show that both countries' welfare would increase with trade led economic growth.

India offers immense investment opportunities in manufacturing, infrastructure and services. Development of the infrastructure, power, roads, ports, telecommunication and civil aviation, has been given priority by the Indian Government. India therefore has the potential to absorb high levels of FDI in the infrastructure sector in the next few years. Private sector participation in these programmes can generate more investment opportunities. New Zealand companies have a good record in the development of infrastructure. FDI up to 100 percent is already allowed in the development of power, roads, ports and airports. Manufacturing (particularly skill- intensive activities), and knowledge based industries are areas where India has strong competitive advantages.

2. BACKGROUND TO INDIA-NEW ZEALAND TRADE

New Zealand has a longstanding and friendly relationship with India, reinforced by common cultural links such as a common language, democratic traditions, and sporting relations. Historically however, this relationship has not resulted in trade expansion between them.

In 1986, a Trade Agreement between India and New Zealand was signed which provided for the establishment of a Joint Business Council and a Joint Trade Committee. The purpose of this was to establish an institutional framework to identify areas of potential and develop means to optimize trade turnover, and to create an environment conducive to trade expansion and to inject dynamism to trade relations (New Zealand High Commission to India).

In more recent years India has come into its own in terms of economic growth and influence in the Asia-Pacific region, and has become one of the powerhouses in the global economy. India's economic growth has been matched by an expansion in New Zealand's trade and economic relationship with India (MFAT, 2010). India has adopted a "Look East" policy, and has joined participation in regional institutions such as the East Asia Summit (EAS) and the ASEAN Regional Forum (MFAT, 2010). This has meant that India and New Zealand are interacting more regularly in the regional context. India's interest extends to the Pacific Island states and in 2003 India became a dialogue partner of the Pacific Forum.

The most recent development in New Zealand's trade relationship with India has been the progression in discussions with regard to a free trade agreement between the two countries. The process for the negotiating of a free trade agreement between the two countries was started in 2007. New Zealand then Trade Minister, Phil Goff and Indian counterpart, Kamal Nath agreed to explore the possibility of such an agreement after an economic analysis of its viability was undertaken. Over the course of 2008, a Joint Study Group of officials investigated the current state of the trade and economic relationship, where the impediments are to expanding trade, the shape of a free trade negotiation, and on other areas where increased cooperation would support increased trade (Goff, 2008). New Zealand current Trade

Minister, Tim Groser and Indian Commerce Minister Anand Sharma announced on 31 January 2010 that all approvals had been secured for Free Trade Agreement negotiations to commence between their two countries.

Although trade between New Zealand and India has increased over the last decade, the trade relationship between the two countries remains underdeveloped. The main reasons highlighted for the current state of limited exports from New Zealand to India are the prohibitive tariff and non-tariff barriers faced by our exporters into India (Goff, 2008). This is particularly of concern in the dairy and meat industries- our largest export industries- where India's standards are inconsistent with international practice (Goff, 2008). New Zealand seeks to establish a high quality free trade agreement with India to negotiate the removal of these barriers, and to advance our overall bilateral trade and economic relationship (Goff, 2008).

3. NEW ZEALAND AND INDIA COUNTRY PROFILES

New Zealand Overview

New Zealand is a developed country in the South Pacific Ocean, south-east of Australia of 268,021 sq km land. mass is accounted for by the two main islands, the North Island and the South Island. The coastline of New Zealand is approximately 15,134 km. New Zealand has a number of significant natural resources, including natural gas, iron ore, sand, coal, timber, hydropower, gold, and limestone (CIA, 2009).

Key Facts and Indicators for New Zealand	
Population (millions)	4.27
GDP current US \$ billions	129.94
GDP Growth at Factor Cost, 2009 – 2010	-0.3
Export of Goods and Services % of GDP	29
Import of Goods and Services % of GDP	30
FDI (net inflows) current US \$ billions	5.47
Time required to start a business (months)	1
Mobile subscriptions per 100 people	108
Internet users per 100 people	71
Source: The World Bank - World Development Indicators database 2009, the New Zealand Treasury.	

New Zealand's population as of 2010 is estimated at 4.27 million people. The population growth is around 1%. The North Island, with approximately 32.4% of the total population residing in Auckland, New Zealand's largest city. New Zealand is relatively urbanised, with approximately 87% of the population estimated to live in urban areas. The 2006 census indicates that approximately 64.8% of New Zealander's identify themselves as European, 14.0% as Maori, 8.8% as Asian, and 6.6% as Pacific Islander (Statistics New Zealand, 2009).

In terms of New Zealand's GDP, annual growth since the early 1990s has been higher than the OECD average. Real Gross Domestic Product (GDP) growth of 4.0 percent which was recorded in 2002 has been one of the best performances in the OECD. The average growth rate for the previous four years (1999 – 2002) was 3.3 percent, while the average growth rate for the subsequent four years (2003 – 2006) was 2.7 percent, rates which are respectable for a developed economy (OECD website). Growth rates have slowed however, with low growth in 2008 (0.2%), and slightly negative growth for 2009. Prior to the recession,

New Zealand is a member of the WTO, and is a country committed to liberalising trade, with one of the most open economies in the world. In recent years, New Zealand has become a party to a number of regional, bilateral and multilateral trade agreements. These include agreements with the ASEAN nations, China, Brunei, Chile, and with Australia. The agricultural, horticultural, forestry, mining, energy and fishing industries play an important role in New Zealand's economy, particularly in the export sector and in employment. Overall, the primary sector contributes over 50 percent of New Zealand's total export earnings. New Zealand tends to export goods such as dairy, meat, oil, and timber, while importing machinery, electronics, and textiles.

Changing Profile of India: Its Global Integration

India is the seventh largest country in world in terms of total land area and it is second most populous country with over 1 billion people. It is the largest economy of South Asia, has been making sustained progress in the last two decades in scale, size and pace which is unprecedented in its own history. There even developed a view that India could be 'the next China'. It may not turn out to be like that (Dicken, 2007), but its growth particularly the services sector is spectacularly integrated with global economy. India in manufacturing also has impressive figures; it remains the world's 13th largest manufacturing economy. The direction of growth in India remained in making it more and more integrated with the global economy and laying strong foundations for sustained growth.

Key Facts and Indicators for India	
Population (millions)	1,139.96
GDP current US \$ billions	1,217.49
GDP Growth at Factor Cost – 2009 – 2010	7.2
Export of Goods and Services % of GDP	24
Import of Goods and Services % of GDP	30
FDI (net inflows) current US \$	22,950
Time required to start a business	30 days
Mobile subscriptions per 100 people	30
Internet users per 100 people	7.2
Source: The World Bank - World Development Indicators database 2009.	

In the new Asian miracle, India is among the central characters. India has maintained an average real GDP growth rate of 7.3 percent in last eight years. It even surpassed growth rate of 9 percent in last three financial years. These are highest GDP growth rates seen in the history of modern India. Services sector has on average highest contribution in this growth rate, followed by manufacturing (RBI, 2009). The composition of exports of Indian economy is more tinted towards services than manufacturing exports; downturns in international demand thus do not seriously affect Indian growth performance. Till 1980's the inward economic strategies depended heavily on former U.S.S.R., with its disintegration, the economy for its sustainability needed rethinking of economic policies. A cautious reform process including reducing barriers to exports and limited de regulation of industries was started. The higher post reform growth in 1980's was associated with even more total factor productivity growth (Jha, 2007).

It was in the 1990's that reform process became more comprehensive, on one side it was liberalization of economy and on the other integration with the international economy (Thirlwell, 2004). (Luce, 2003) writes, "since reforms in India involve the painstaking building of consensus, they are likely to stick".

India is the largest recipient of worker's remittance in the world, but the growth in service exports is an IT story. It became a world leader in IT services exports in year 2003. What factors explain this Indian success, Thirlwell

(2004) explains that India had a telecommunication revolution, which enabled the delivery of services at long distances and it has consistent high quality supply of IT and engineering graduates which are approximately more than 100,000 every year. These young English speaking people study in around 250 universities of India, among them many have very high international standings. These high quality graduates are willing to work from one –tenth to one- half of US wages. Secondly about 20 million Indians are living overseas and about two and half million in North America. Among these about 200,000 are IT professionals, with favorable and accommodating government policies these professional have benefitted in the software industry. The outcomes are enormous; in 2004 more than half of the US Fortune 500 companies were estimated to be outsourcing work to India. A survey published in The Economist in 2001 writes that India offers “work done to global standard and often at faster pace, at Indian costs”.

From independence in 1947 and until the dawn of 1990s, the trade policy of India was heavily influenced by the “*Swadeshi*” i.e. self sufficiency mentality and the “*licence raj*” system of restrictions on production and imports. First generation of reforms took place between 1991 to 1996. It aimed at liberalising trade - led to a reduction of import tariffs, the elimination of quantitative restrictions, exchange rate reforms and deregulation of industries. It resulted in a yearly growth rates of around 7 per cent compared with 3 per cent before the reforms.

Box 1 : Summary of India's Trade Agreements at a Glance		
Existing	Ongoing	FTAs /PTAs under Study and Consideration
Bangkok Agreement; Global System of Trade Preferences (GSTP); SAARC Preferential Trading Agreement SAPTA); India-Sri Lanka FTA; India - Thailand FTA; India Singapore Comprehensive Economic Cooperation (CECA); Indo-Nepal Trade Treaty; India-Mauritius PTA; India-Chile PTA	Indo-ASEAN CECA; South Asian Free Trade Agreement (SAFTA); BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical & Economic Cooperation); India - MERCOSUR PTA	Gulf Cooperation Council (GCC); China; South Korea; Japan Malaysia; Pakistan; Southern African Customs Union (SACU); Egypt; Israel; Russia; Australia ; New Zealand

Like many other developing countries, India has been negotiating regional trade agreement (RTAs) with a number of developing countries and trading blocs. A broad overview of the various RTAs India has contracted or is in the process of contracting is given in **Boxes 1 and 2**. An inspection of boxes indicates that the operating RTAs cover most of India’s trading partners in South and South East Asia, Europe, Latin America and North America. However, as India has been a late starter in this regard, it is also clear that the only RTA actually in operation for some time is the bilateral agreement concluded with Sri Lanka.

Box 2 : RTAs Involving India and Major RTAs for which India is a Non-Member (as of 2008)	
A: RTAs involving India (as of 2008)	
Agreement	Status of Implementation
ASEAN-India Free Trade Agreement (AIFTA)	The ASEAN-India FTA (AI-FTA) is to commence from 1st January, 2009.
India-Singapore Comprehensive Economic Cooperation Agreement (CECA)	The CECA has become operational with effect from 1st August, 2005.
Framework Agreement for establishing Free Trade between India and Thailand	The tariff concessions on 82 items of EHS list began in 2004. The tariffs on these items would become zero for both sides on 1st September, 2006. FTA in goods would commence from March, 2005. However, due to difference of opinion on certain issues, this deadline could not be met.
Preferential Trade Agreement (PTA)	The PTA has been signed in 2006. The PTA has come into

between India and Chile.	force in India from November 2007.
The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) was launched in December 1997 and has membership of Bangladesh, India, Myanmar, Sri Lanka, Thailand, Bhutan, and Nepal.	The negotiations are at an advanced stage on FTA in goods which is scheduled to be implemented from 1st July, 2006. The negotiations on the Agreement on Services & Investment have also commenced.
Agreement on South Asia Free Trade Area (SAFTA). The members are India, Pakistan, Sri Lanka, Bangladesh, Nepal, Bhutan, and Maldives. Afghanistan is slated to join the SAFTA in January 2008.	SAFTA has come into force from 1st January, 2006. Tariff reductions will take place at different rates for the least developed members (LDMs) namely Bangladesh, Nepal, Bhutan and Maldives as against the non-least developed members (NLDMs) namely India, Pakistan and Sri Lanka.
India-Sri Lanka Free Trade Agreement	Bilateral trade between India and Sri Lanka is regulated by India-Sri Lanka Free Trade Agreement (ISFTA) signed in December 1998 and operational with effect from March 2000.
<i>B: Major RTAs for which India is a Non-Member</i>	
Association of South-East Asian Nations (ASEAN)	ASEAN initiated its free trade agreement called ASEAN Free Trade Area (AFTA) in 1992. It is now working as a free trade area among ten member countries.
Southern Common Market (MERCOSUR)	The CECA has become operational with effect from 1st August, 2005. On January 1, 1995, MERCOSUR designated itself as a customs union by establishing a common external tariff (CET).
North American Free Trade Agreement (NAFTA)	Implementation of the North American Free Trade Agreement (NAFTA) began on Jan. 1, 1994 and will complete in 2008.
European Union:	The PTA has been signed in 2006. The PTA has come into force in India from November 2007.

New Zealand's regional and bilateral Trade Agreements are with (a) Trans-Pacific Strategic Economic Partnership (Trans-Pacific SEP), Brunei/Chile/New Zealand/Singapore-2005; (b) New Zealand and Thailand Closer Economic Partnership (NZTCEP)-2005; (c) New Zealand and Singapore Closer Economic Partnership (NZSCEP)-2001 and (d) Australia and New Zealand Closer Economic Relations (CER)-1983. New Zealand's Trade Agreements under negotiation with (a) New Zealand and China Free Trade Agreement; (b) ASEAN-Australia/NZ Free Trade Agreement; (c) New Zealand and Malaysia Free Trade Agreement and (d) New Zealand and Hong Kong Closer Economic Partnership (MFAT, 2010).

In April 2007 Indian and New Zealand Ministers agreed to undertake a joint study into the feasibility of negotiating a Comprehensive Economic Cooperation Agreement (CECA) or Free Trade Agreement (FTA). This report has been completed and concluded that the analysis of the various dimensions of trade in goods between India and New Zealand suggests that there is ample potential for bilateral trade expansion in a mutually beneficial manner. Adequate institutional mechanisms would need to be put in place to support such expansion. Accordingly, there is a strong case for setting in place an FTA in goods under the proposed bilateral CECA/FTA (JSG 2009).

JSG also presented simulation-exercises using a multi-sector computable general equilibrium (CGE) model. Estimates resulting from the different methodologies suggest positive and substantive trade gains can result from trade liberalisation under the proposed CECA/FTA. The results show that both India and New Zealand experience welfare gains as a result of the CECA/FTA, and that real GDP rises in both economies. Bilateral merchandise exports increase as trade barriers are removed. The modelling shows that both countries' welfare would rise over and above business as usual levels. These welfare gains would be expected to continue to accrue as investment decisions impacted positively

on levels of trade. Due to rather well-known inherent limitations of the CGE modelling bilateral trade projections were also made with the help of time-series modelling. While India's exports to New Zealand are projected to increase in the range of US \$ 231 million (2015) to US \$ 345 million (2020), New Zealand's exports to India are projected to increase in the range of US \$ 298 million (2015) to US \$ 435 million (2020) in a dynamic setting (JSG 2009).

Presently, the bilateral trade flows between India and New Zealand are at very low levels compared to the global trade profiles of both countries. Bilateral trade is also confined to a narrow range of products. Despite the fact that there is considerable potential to both increase and diversify trade given the trade complementarities that exist between the two countries that so far remain relatively untapped.

India-New Zealand JSG (2009) also identified the potential sectors of export interest to both countries on the basis of dynamic revealed comparative advantage and suggested there are several highly dynamic comparative advantage sectors for both India and New Zealand. The sectors include: gold and other precious metals; ships; textiles and clothing; machinery; and electric machinery for India. For New Zealand the sectors include: agriculture; machinery; prepared foods; forestry and wood products; and medical machinery. There are also sectors which display strong static comparative advantage between both these countries. The RCA analysis also shows that India and New Zealand have markedly different export structures (as can be seen in **Tables 2 and 3**). This suggests that New Zealand and India do not compete in many areas of merchandise trade, and thus that there are potential economic benefits to be gained from specialisation following bilateral trade liberalisation.

The JSG also highlighted that the global trends in trade that suggest that goods are increasingly being traded on an intra-industry basis rather than inter-industry basis. The modality of intra-industry trade acts as an avenue through which two or more countries could trade with each other in the event of a lack of trade complementarity in a traditional sense. The products amenable to intra-industry trade at HS 6-digit level are listed in the study.

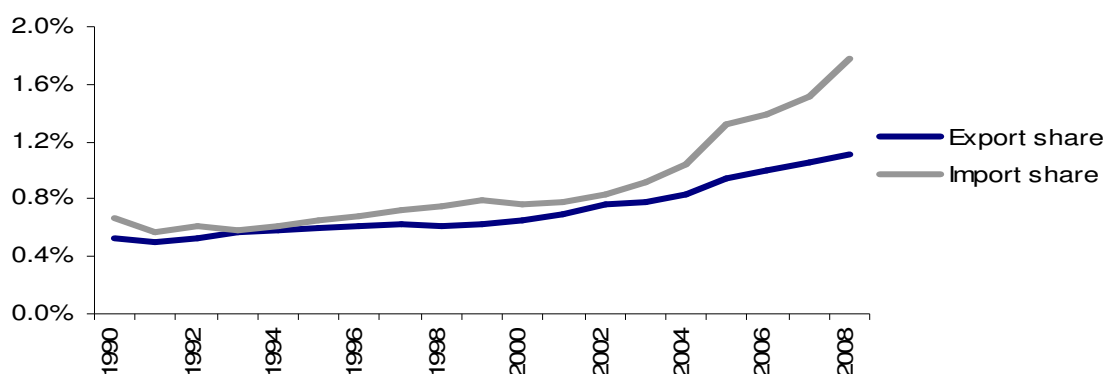
Our study has identified IIT between New Zealand and India at 3 digit and 1 digit SITC and result is presented in the **Tables 4 and 5**. These could be given due attention in the proposed negotiations on tariff liberalisation in order to step-up bilateral trade flows.

4. TRADE PROFILE OF INDIA AND NEW ZEALAND

India

Figure 1 demonstrates that India's share in world trade has increased, with the strongest growth occurring since 2000. India's share of total world trade in 2008 reached 1.45 per cent, share in total world exports reaching 1.11 percent, and a share in world imports of 1.78 percent. Throughout the 1980 to 2008 period, India's imports have maintained a higher share in world trade than exports.

Figure 1. India's Share in World Trade

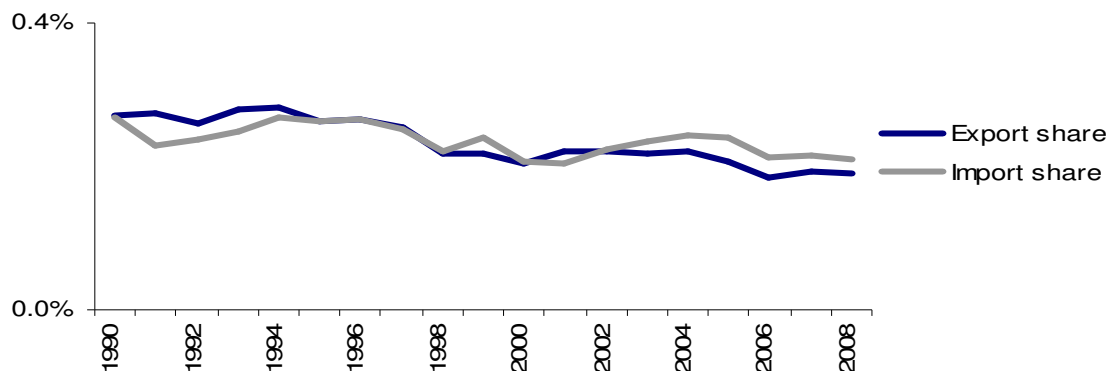


Source: UN Comtrade Database.

New Zealand

Despite considerable growth in exports and imports since the 1980's, New Zealand's share in world exports, imports, and total trade has actually declined. New Zealand's share of world trade peaked in the early 1980's, where New Zealand share of each were around 0.3 percent (Figure 2). The share in world exports, imports, and total trade has declined to around 0.2 percent of each factor in 2008. This can likely be attributed to the rapid growth in exports and imports experienced by nations such as China and India. New Zealand's share in world exports has remained at approximately the same level as New Zealand's share in world imports over time.

Figure 2. New Zealand's Share in World Trade

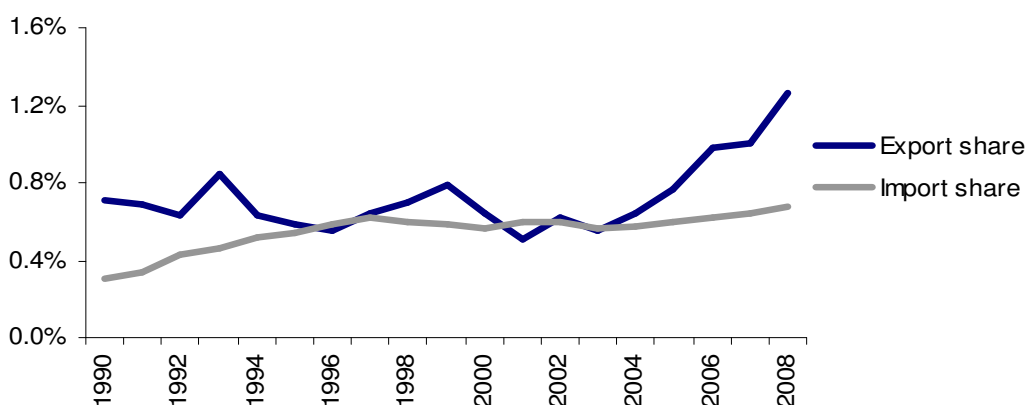


Source: UN Comtrade Database.

Currently bilateral trade flows between India and New Zealand are at below expected levels compared to the global trade profiles of both countries as revealed through trade flows. Bilateral trade is also confined to a narrow range of products. Despite the fact that there is considerable potential to both increase and diversify trade given the trade complementarities that exist between the two countries that so far remain relatively untapped.

India's imports from New Zealand have increased steadily between 1990 and 2008, and at a faster rate than the export growth (Figure 3). The value of imports increased from \$64.8 million USD in 1990 to approximately \$468.3 million USD in 2008. However the share of total India exports going to New Zealand declined over the time period. The highest share was in 1991, at 0.35, while the lowest share was in 2003/2004 at 0.1%. The share in 2008 was 0.15%.

Figure 3. India's Trade Shares in New Zealand's Exports and Imports

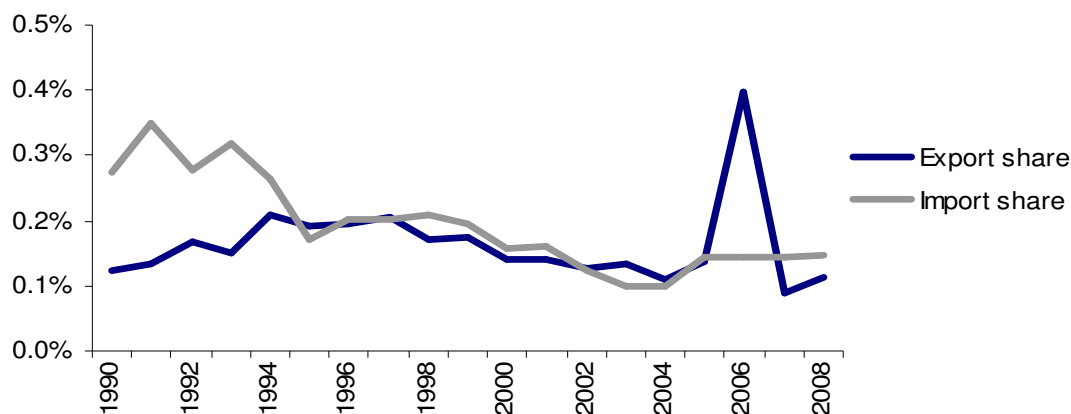


Source: UN Comtrade Database.

New Zealand's exports to India have also grown over the 1980 to 2008 period, and particularly rapidly since the early 2000's. The value of exports and imports has however remained surprisingly low, especially when compared with other trading partners such as the Philippines. The value of exports increased from around \$67.2 million USD in 1990 to over \$380 million USD in 2008, close to a six-fold increase. The percentage share of total New Zealand exports going to India increased from 0.71% in 1990, to 1.27% in 2008, although again it is not large in absolute terms.

New Zealand's imports from India have also shown considerable growth in both value and percentage share between 1990 and 2008, although it is much lower in value than its exports to the same country (see **Table 3**). The value of imports increased from around \$28.7 million USD in 1990 to over \$230 million USD in 2008. The share of total New Zealand exports going to India increased by approximately 0.4% from 0.3% to 0.68% during the same period (Figure 4).

Figure 4. New Zealand's Trade Shares in India's Exports and Imports



Source: UN Comtrade Database.

These values indicate that India's trade with New Zealand does not occupy a very significant share of India's total trade. India's major export destinations are the 25 member states of the EU (22.5 per cent of total exports), the United States (16.9 per cent), the United Arab Emirates (8.3 per cent), and China (6.6 per cent). In recent years, there has been a shift away from Europe and the United States, while the share of the UAE and Asia has increased. The same trend is witnessed with regard to the origin of imports; although the EU (17.2 per cent) and the United States (6.3 per cent) are major exporters to India, the share of Asia (27.4 per cent) and the Middle East (6.7 per cent) have been increasing.

Merchandise trade as a percentage of GDP increased from roughly 21 per cent in 2001-02 to approximately 33 per cent in 2005-06, reflecting the increasing openness of India's goods markets. Imports have grown at a faster pace than exports, leading to a widening trade deficit. Despite the rise in international oil prices, the share of fuel imports declined marginally; nonetheless, they remain a major import item accounting for 33.7 per cent of total imports. Whereas the share of manufactures in exports has declined, that of petroleum and iron ore has doubled in response to higher international commodity prices as well as increased domestic refining capacity. Among manufactures, driven by higher commodity prices, the share of iron and steel products has risen. The share of automobile exports has also risen as India strives to become a regional hub for the manufacture and export of small cars and motorcycles. On the other hand, the share of textiles and clothing (T&C) exports has fallen.

Approximately, 75 per cent of New Zealand's exports were sent to either APEC members or Pacific Island countries. These partners were also the source of 74 per cent of the imports entering New Zealand. New Zealand's merchandise trade profile is specialized, with the 15 largest product groups (at HS 2 level) accounting for 74 per cent of exports, and 72 per cent of imports. Agriculture and the other primary products are important to New Zealand's export profile. However, over recent years there has been strong growth in the production and export of specialised and electric machinery. New Zealand's most important imports are mineral fuels, including oil, machinery, and vehicles.

5. TRADE INTENSITY BETWEEN INDIA AND NEW ZEALAND

An implicit statistical indicator of the growing complementarities in trade between India and New Zealand is provided by the growing export and import intensities. This index provides additional insight into the secular changes in New Zealand's trade flows with India. In an attempt to explore the potential of New Zealand-India trade expansion, we have computed export and import intensities of both countries. This index was first used by K. Kojima (Kojima, 1964). It measures the share of one country's trade with other country as a proportion of the latter's share of world. The following formula is used to calculate the Trade Intensity Index (Kojima (1964), Wadhva et al (1987), Drysdale, P and Garnaut, R. (1994):

Formula 1.1

$$XII_{ij} = \frac{X_{ij}}{X_i} \bigg/ \frac{M_j}{M_w - M_i}$$

Where:

X_{ij} is country i 's export to country j ,

X_i is the total exports of country i

M_j is total imports of country " j "

M_i is country i 's total imports

M_w is total world import

I_{ij} is export intensity index

The average amount of this index is equal to one, if an index value is greater than one, which means there is a higher degree of trade intensity between two given countries. Opposite of that where the result of the computation is closer to zero, which means there is a lower trade relation or

And the formula of the Import Intensity Index (III):

Formula 1.2

$$III_{ij} = \frac{M_{ij}}{M_i} \bigg/ \frac{X_j}{X_w - X_i}$$

Where

M_{ij} is country i 's import to country j ,

M_i is the total imports of country " i "

X_j is total exports of country " j "

X_i is country ' i 's total exports

X_w is total world Exports

Similarly, it is defined for county i 's imports from country j as the share of i 's imports coming from j (M_{ij}/M_j) relative to the share of j 's exports (X_j) in world exports net of i 's exports ($X_w - X_i$). When these two terms are equal, this would imply that country i accounts for the proportion of country j 's exports identical to country j 's importance in total (net) world exports. If this index is numerically greater than unity this would imply over-representation of country j in the country i 's imports; on the other hand, if a value of less than unity of this index would imply under-representation.

New Zealand's export and import intensities with India have been computed using data from DOTS/IMF during the period between 1981 to 2008 and presented in **Table 1 and Figure 5**. It can be observed from **Table 1** that the index value of New Zealand's export and import intensity with India maintained less than unity value throughout the period baring 1981, 1990-94 and 1999 and hence it reflects that New Zealand has been under-represented in India's trade and trade relation seems to be weak. However potential exists to increase trade intensities and strengthen trade relation.

Table 1. New Zealand and India Trade Intensity and Trade Reciprocity over time (1981-2008)

Year	Export (in m US\$)	Import (in m US\$)	Trade Reciprocity	Export Intensity	Import Intensity
1981	54	29	0.70	1.26 (OR)	1.34 (OR)
1982	34	27	0.89	0.67 (UR)	0.83 (UR)
1983	25	22	0.92	0.50 (UR)	0.69 (UR)
1984	17	25	0.81	0.32 (UR)	0.68 (UR)
1985	31	23	0.84	0.59 (UR)	0.69 (UR)
1986	32	23	0.82	0.60 (UR)	0.72 (UR)
1987	45	30	0.80	0.90 (UR)	0.90 (UR)
1988	43	26	0.75	0.72 (UR)	0.74 (UR)
1989	46	32	0.82	0.79 (UR)	0.68 (UR)
1990	67	29	0.60	1.03 (OR)	0.58 (UR)
1991	67	29	0.60	1.29 (OR)	0.67 (UR)
1992	62	40	0.78	1.07 (OR)	0.78 (UR)
1993	89	45	0.67	1.50 (OR)	0.82 (UR)
1994	76	62	0.90	1.07 (OR)	0.90 (UR)
1995	80	75	0.97	0.87 (UR)	0.90 (UR)
1996	78	86	0.95	0.81 (UR)	0.95 (UR)
1997	80	90	0.97	0.86 (UR)	1.02 (OR)
1998	75	77	0.99	0.85 (UR)	0.90 (UR)
1999	94	85	0.95	1.00 (OR)	0.85 (UR)
2000	71	79	1.05	0.75 (UR)	0.81 (UR)
2001	65	80	0.90	0.65 (UR)	0.83 (UR)
2002	89	89	1.00	0.91 (UR)	0.69 (UR)
2003	90	105	0.92	0.73 (UR)	0.63 (UR)
2004	128	135	1.03	0.68 (UR)	0.58 (UR)
2005	166	157	0.97	0.60 (UR)	0.46 (UR)
2006	218	163	0.86	0.65 (UR)	0.43 (UR)
2007	270	198	0.85	0.59 (UR)	0.58 (UR)
2008	381	230	0.75	0.73 (UR)	0.61 (UR)

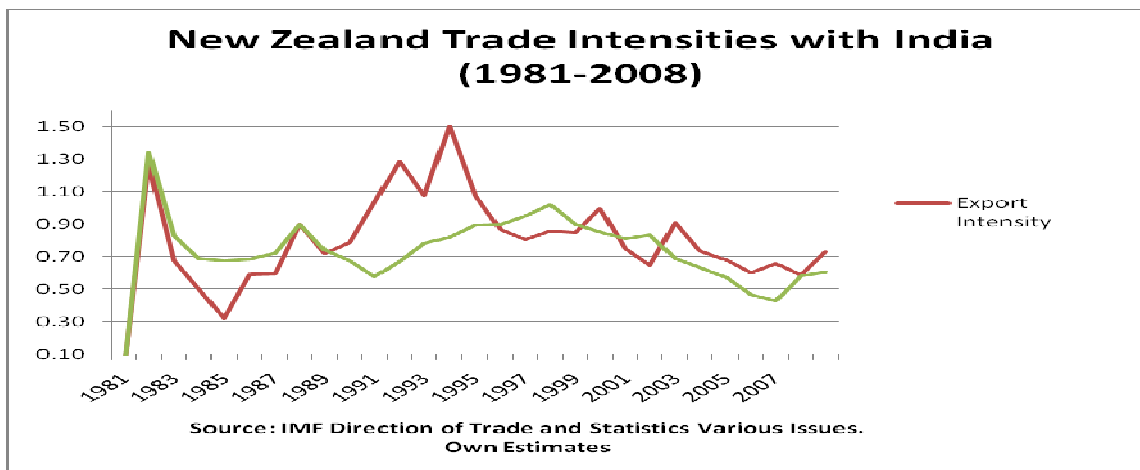
Year	Export (in m US\$)	Import (in m US\$)	Trade Reciprocity	Export Intensity	Import Intensity
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Note: OR denotes Over Representation and UR denotes Under Representation.

Source: IMF Direction of Trade and Statistics Various Issues. Own Estimates

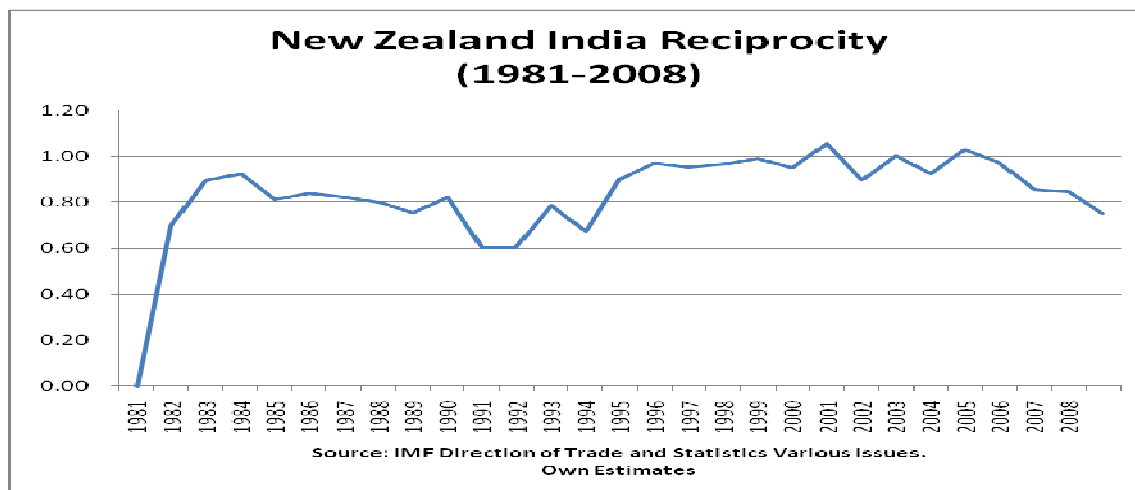
New Zealand's export and import intensities with India have been computed from DOTS/IMF during the period between 1981 to 2008 and presented in **Figure 5 and Table 1**. It can be observed that from **Table 1** that the index value of New Zealand's export intensity with India maintained less than unity value throughout the period baring 1981, 1990-94 and 1999. This implies that exports to India from New Zealand are lower than would be expected given India's share of world trade. This is even more apparent when examining the import intensity values, which only exceeded one in 1981 and 1997. This analysis shows that India, as a source of imports for New Zealand as well as an export market for New Zealand goods, is underrepresented in New Zealand's trade.

Figure 5: New Zealand Trade Intensities with India (1981 to 2008)



Similarly, New Zealand's import intensity index value revealed below unity which also reflects that New Zealand has under-represented in import from India throughout the period between 1981 to 2008 except 1981. This low value and level of trade intensities between New Zealand and India can also be supplemented with the computation of Trade Reciprocity between New Zealand-India Trade which is presented in **Figure 6**. It can be observed from this **Figure 6** that throughout the 1981-2008 (except 2001 And 2005) trade reciprocity between New Zealand-India has been steady but below unity reflecting NZ trade bilateral trade imbalance with India.

Figure 6: New Zealand-India Trade Reciprocity (1981-2009)



6. REVEALED COMPARATIVE ADVANTAGE

As the name suggests, revealed comparative advantage indices are intended to reveal which industries a country has a comparative advantage in producing goods from. The revealed comparative advantage index developed by Balassa (Balassa, 1967) assumes that a country's comparative advantage is revealed by its exports to the world. The static revealed comparative advantage of exports is represented by a country's commodity composition of exports vis-à-vis that of the world. The formula therefore is:

$$RCA_{ki} = (X_{ki}/X_{ii}) / (X_{kw}/X_{tw})$$

where: X_{ki} represents the value of country's i 's exports of commodity k

X_{ii} represents the value of country i 's total exports

X_{kw} represents the value of world exports of commodity k

X_{tw} represents the value of total world exports (of all commodities)

Balassa introduced the concept of revealed comparative advantage (RCA), several others have commented on theoretical conditions for the use of RCA index. For example, Bowen (Bowen, 1983) showed that an RCA above unity may not indicate that a country has a comparative advantage in exporting the product if the country does not export every commodity in the world at 3-digit SITC level. Developing South Asian countries in the 1990s comes quite close to fulfilling this condition in general and the AFPs in particular. Also Hillman (Hillman, 1980) noted that the RCA index's deviation from unity reflects comparative advantage if the country's exports of any product are neither overly prominent in the country's exports nor in total world in that product.

Comparative advantage depends on pre-trade relative prices. Principal determinants of these unobservable relative prices are resource and factor endowments, stages of industrialization (that is level of technology), and demand (Ariff, Mohamed and Tan Eu Chye, 1992). Difference in these determinants across countries lead to differences in autarky relative prices across countries. When countries trade, they export the goods in which they have comparative advantage and import those in which they have comparative disadvantage. Therefore the structure of trade should reflect a country's pattern of comparative advantage. However, it is possible that actual trade patterns, on which RCA calculations are based, may not reflect true comparative advantage/disadvantage. The divergence between RCA and true comparative advantage results primarily from market distortions caused by government intervention.

Since actual trade data is used to calculate indices of RCA, the results may reflect not only natural forces of comparative advantage but also the effects of markets distortions. These include tariff, quotas, export incentives, extraordinarily high transport costs, embargoes, labour market distortions and myriad other governmental distortionary activities. In fact, most RCA studies are limited to processed goods and manufactured items because the presence of government in the trade of agricultural products is often strong (Yeats, Alexander J. 1991). All this points to the fact that

the real comparative advantage of products might be distorted so much that RCA approach may be misleading and may obscure "real" pattern of comparative advantage.

As in the previous calculations, the export data used here is for each commodity classification and in millions of USD for the most recent year available for the given trading partner. Each commodity classification has been aggregated using SITC revision 3 to the 1 digit level i.e. 0 & 1. The index can be interpreted as follows. An RCA value of less than one indicates that the share of commodity k in i's exports is less than the corresponding world share of commodity k in total world exports. This indicates that country i does not have a revealed comparative advantage in the production of commodity k (World Bank, 2008). However if the value of the index is greater than one, this implies that the country does indeed have a revealed comparative advantage in the production of that product. The data used in these calculations is taken from the International Trade Statistics 2005 and 2006 Yearbooks. The results obtained for each country are presented below.

Table 2. Revealed Comparative Advantage Index Values for New Zealand, by Industry

Standard International Trade Classification (SITC) Product/Commodity Description	SITC Code (rev. 3)	RCA (2000)	RCA (2005)	RCA (2007)
Food and live animals; Beverages and tobacco	0 & 1	7.08	8.41	8.60
- Butter, other fat of milk	023	-	70.76	84.20
- Bovine meat	011	-	29.30	22.77
Crude materials, inedible; Animal, veg. oils, fats, wax	2 & 4	4.33	3.20	2.82
- Wool, other animal hair	268	-	44.40	41.66
Fuels, lubricants, etc.	3	0.25	0.11	0.28
Animal, veg. oils, fats, wax	4	1.69	0.80	0.83
- Animal oils and fats	411	-	9.97	13.10
Chemicals, reltd. pros. nes	5	0.77	0.51	0.50
- Starches, inulin etc.	592	-	18.41	20.52
Machines, transport equip.	7	0.25	0.30	0.28
Manufactured goods; Misc. manufactured articles	6 & 8	0.66	0.44	0.65

Source: UNCOMTRADE Database.

At a 1-digit level, **Table 4** above shows that for New Zealand, revealed comparative advantage at an aggregate level is concentrated primarily within SITC 0 & 1, and particularly in food and live animals. The index value for these categories ranges from 7 in 2000, through to 8.6 in 2007. This indicates a possible strengthening of New Zealand's revealed comparative advantage at this aggregated level. The only other 1-digit product aggregation with a revealed comparative advantage is SITC 2 & 4, crude materials, inedible, and animal, veg. oils, fats, wax. These categories have RCA values ranging from 4.33 in 2000, down to 2.8 in 2007. All other category aggregations at a 1-digit SITC level display no revealed comparative advantage.

Within 0 & 1, New Zealand possesses a strong revealed comparative advantage in the meat and dairy industries. For butter, the index ranged between 71 in 2005, and 84 in 2007. For Bovine meat, the index ranged from 29 in 2005, to 23 in 2007. An RCA value of greater than one was also found for milk and cream (SITC 022), and other meat, meat offal (SITC 012).

New Zealand also has RCA values of greater than one in several other industries at a 3 digit level. Standouts include wool, with an RCA value of greater than 40 for both 2005 and 2007, animal oils and fats, with an RCA value of 10 in 2005 and 13 in 2007, and starches, with values of 18 and 21 in 2005 and 2007 respectively. Other industries not

included in table 2 which display high RCA values include hides (SITC 211), wood (SITC 247), and agricultural machinery (SITC 721).

Table 3. Revealed Comparative Advantage Index Values for India, by Industry

Description	SITC Code (rev. 3)	RCA (2000)	RCA (2005)	RCA (2007)
Food and live animals; Beverages and tobacco	0 & 1	1.94	1.41	1.47
- Rice	042	-	14.28	17.30
Crude materials, inedible; Animal, veg. oils, fats, wax	2 & 4	1.26	2.12	1.97
- Iron ore, concentrates	281	-	9.33	6.65
Fuels, lubricants, etc.	3	0.42	0.83	1.14
- Petroleum products	334	-	3.35	4.36
Animal, veg. oils, fats, wax	4	1.74	0.80	0.69
Chemicals, reld. pros. nes	5	1.16	1.10	1.07
- Hydrocarbons, nes, derivts	511	-	2.10	2.23
Machines, transport equip.	7	0.19	0.29	0.31
Manufactured goods; Misc. manufactured articles	6 & 8	2.27	1.30	1.76
- Textile yarn	651	-	5.80	6.32
- Textile articles nes.	658	-	7.99	5.98
- Pig iron, spiegeleisn etc.	671	-	1.28	2.47
- Gold, silverware, jewl nes.	897	-	10.35	10.16

Source: UNCOMTRADE databse.

At a 1-digit level, **Table 5** above shows that India possesses a moderate revealed comparative advantage in several SITC categories at a 1-digit aggregate level. In fact India has possessed an advantage in all categories except for SITC 7 (Machines, transport equip.) at some point between 2000 and 2007. It should be noted however that none of the RCA indices greater than 1 calculated for India at the 1-digit aggregation exceed 3, indicating only a relatively weak comparative advantage, which is to be expected given India's large and diverse economy. In 2007, India had a revealed comparative advantage in all aggregated categories except for 7 (Machines, transport equip.), and 4 (Animal, veg. oils, fats, wax).

Within 0 & 1, an example of an important commodity for India is rice (042). India possesses a strong revealed comparative advantage in this commodity, with values in 2005 and 2007 of over 14. India also possesses a strong revealed comparative advantage in iron ore, concentrates (281), with values in 2005 and 2007 of 9.33 and 6.65 respectively.

SITC 6 & 8 (Manufactured goods; Misc. manufactured articles) is another important aggregation of goods for India. India posses a revealed comparative advantage in many industries within this commodity grouping, with strong RCA values. Gold, silverware, jewl nes. (897) is a good example, with static RCA values for 2005 and 2007 exceeding 10. Textile yarn (651), and textile articles nes. (658) also show relatively strong levels of revealed comparative advantage, with index values of above 5.8. Other industries where India has a revealed comparative advantage include petroleum products (334), and hydrocarbons, nes, derivatives (511).

In summary, there are several potential sectors of export interest to both countries on the basis of static revealed comparative advantage. The RCA analysis also shows that India and New Zealand have markedly different export structures and this suggests that New Zealand and India do not compete in many areas of merchandise trade, and thus that there are potential economic benefits to be gained from specialization following bilateral trade liberalization.

New Zealand seems to have revealed comparative advantage focused in only a few industries at an aggregated 1-digit level. This is expected given New Zealand's relatively small and specialised economy. The main areas of revealed comparative advantage lie in the food sector, and specifically meat and dairy, as well as the crude materials sector. At a 3-digit level, New Zealand has a revealed comparative advantage in other industries, such as wood, wool, animal oils, and starches.

In comparison, India possesses a revealed comparative advantage in most of the aggregations of commodities at the 1-digit level. These advantages are relatively weak however, with RCA values of less than 3. In individual industries at a 3-digit level however, a different image appears. India possesses a strong RCA in such industries as rice, and gold / silverware / jewellery.

The above estimation and discussion suggests that New Zealand trader has not fructified to a significant extent even though potential exists for commercial transactions based on comparative advantage/disadvantage and competitive advantage between these two countries.

Through this exercise, Indian exporters can easily identify their areas of global revealed comparative advantage (static as well as dynamic) in re-examine the feasibility of exporting such items which are not yet exported to New Zealand and (*vice-versa*) but can be exported to mutual advantage by closing the likely gap. And a similar exercise for New Zealand, which would help India's exporters in identifying products suitable for inclusion in the list of "new exportables" to India (if not already being exported).

7. INTRA-INDUSTRY TRADE (IIT) BETWEEN NEW ZEALAND AND INDIA

Intra-industry trade is defined as the simultaneous export and import of goods within the same industry. Inter-industry trade is the exchange of goods which belong to different industries. For example, New Zealand and Australia simultaneously export and import Steinlager and Fosters beer to each other (Bano, 2002).. The standard Heckscher-Ohlin trade theory explains inter-industry trade but cannot explain intra-industry trade (unless some of the underlying assumptions are relaxed)

The intra-industry trade index is defined as the proportion of total trade remaining after subtracting the absolute value of net exports or net imports. If exports and imports are equal then the IIT index is 100, i.e. whatever the level of trade it flows in both directions in about equal amounts. The index gets smaller if the net difference between imports and exports makes up a larger proportion of total trade, i.e. either as the net difference between imports and exports increases indicating a larger trade in one direction, or this net difference makes up a larger proportion of the total trade indicating that trade is only in one direction. In either case the trade is increasingly one-directional.

The intra-industry trade (IIT) index reflects the extent of both export orientation (EO) and import penetration (IP) within the given sector (or products). A high value indicates that there is both export and import trade within the sector (or products). A low level indicates that trade is mainly one way, i.e. the industry sector is either export oriented or mainly import focused. A value for IIT is indicative of the growing tendency of firms, or branches of multinational firms, to specialize in particular products within an industrial sector, possibly due to economies of scale, product differentiation or geographic product specialization. This results in growth in trade which can occur even when factors of production are similar between the countries, i.e. when conditions would normally result in low levels of trade.

It is generally believed that greater the level of intra-industry trade within a region, the more attractive is the prospect for effective intra-regional cooperation. The level (between 0 and 100) of the IIT indices and the trend in IIT over time in terms of these values provides a measure of the degree and changes in complementarity in production between two countries or region. The higher the index level, the greater is the complementarity and extent of IIT. Increasing the economic relations between India and New Zealand will require alliances and cooperation scheme at production and marketing levels among the companies of both countries. One way to approach the current state of entrepreneurial relations is through the analysis of IIT between India and New Zealand.

One measure of the level of IIT was proposed by Balassa in 1996 but the most widely used measure is the *Grubel-Lloyd* index. The problem with the Grubel-Lloyd index is associated with biases created by trade imbalances at the multilateral level (Grubel and Lloyd, 1975). Some economists have attempted to correct this, but a widely acceptable method of correction has yet to be found. As argued by Helpman (Helpman, E. 1987) attempts to modify the Grubel-Lloyd index to correct for trade imbalance bias are inappropriate since the nature of bias is not known. In particular, we do not know whether the imbalance is caused by homogeneous or differentiated products and whether the trade structure is in equilibrium or not. This explains why in general, bilateral IIT is more interesting than overall IIT.

Intra-industry trade creates closer links between two countries by providing more positive gains to each other. This is valid in the context of reform and internationalisation of manufacturing activities, which enhance assembly production

from imported parts and components in different countries (Dixit and Grossman, 1982). Under these circumstances, political opposition to such market-driven economic cooperation induced by trade liberalisation will be less disturbing if structural adjustment takes the form of intra-industry rather than inter-industry characteristics (Fukasaku, K., 1992). Thus, the prospects for closer economic cooperation can be examined by analysing the nature of IIT within the concerned group of countries.

It is hypothesised that the greater the level of IIT within a region, the more attractive is the prospects for effective bilateral cooperation. Examining this proposition necessitates the estimation of Grubel-Lloyd IIT index. The following methods are used for the estimation of IIT:

Global IIT in commodity k for country i at a chosen aggregate SITC level:

$$IIT_{iwk} = [(X_{iwk} + M_{iwk}) - |X_{iwk} - M_{iwk}| / (X_{iwk} + M_{iwk})] * 100$$

Where X_{iwk} denotes country i 's global export of commodity k and M_{iwk} denotes country i 's global import of commodity k . This index of IIT measures the amount of total trade within a commodity or industry. Usually it will be calculated for all or a group of commodities at 1, 2 or 3-Digit SITC level.

Bilateral IIT in commodity k of country i with country j at a given aggregate SITC level:

$$IIT_{ijk} = [\sum (X_{ijk} + M_{ijk}) - \sum |X_{ijk} - M_{ijk}| / \sum (X_{ijk} + M_{ijk})] * 100$$

This index of IIT measure gives the amount of total trade within an industry (commodity group). It is calculated by partner and summed (or aggregated of low segment products) over all level of disaggregation. But here, we only present the global IIT at 3 digit SITC for New Zealand IIT with India to examine the potential products which both countries have specialization. This Index of IIT also gives the amount of trade within a product in both countries.

Theoretical Explanations and some Empirical Studies of IIT

The first group of models that explains IIT incorporates competition between a large number of firms. There are several such models within the Heckscher-Ohlin framework. These models are based on differences in factor endowment and specify production as different combinations of basic factors such as capital and labour in a way that is consistent with constant returns to scale and perfect competition, demonstrating that the pattern of IIT is driven by relative endowments.

One such well-known model was developed by Falvey (Falvey R.E., 1981). Based on differences in factor endowments, this model reveals that IIT occurs along vertically differentiated products giving rise to reciprocal demand for both high and low qualities of a product between two countries. On the other hand, for models incorporating monopolistic competition, economies of scale in production and diverse consumer tastes, horizontally differentiated IIT has been explained by Spence M. (1976); Dixit and Stiglitz (1977); Krugman P.R. (1979); and Lancaster K.J. (1980). The main idea behind these models is that, if the number of varieties enter directly into consumers' utility function (desire for variety) and the economies of scale limit the number of varieties in production, then IIT indeed may take place and can have positive welfare effects by increasing the number of varieties.

The second group comprises oligopolistic models that focuses on the strategic interdependence between firms in an industry. A distinguishing feature of these models is the form of conjecture assumed to influence a firm's decision. Brander and Krugman (1983), using a *Cournot-type* conjecture, developed a model which explains IIT in an identical commodity which is often referred to as two-way trade or 'cross-hauling'. This two-way trade can occur as a consequence of price being above marginal cost in both markets. In this context both producers seek to maximise their profit by selling to both markets, taking the sales of the other producer as given so long as transportation costs are not high.

Several economists have estimated the degree of IIT. The results of a comparative study undertaken by Greenaway and Milner (1989) suggest three important findings. First, as expected, the level of IIT is lower when a more detailed level of industry classification is applied. Second, the level of IIT is higher for manufacturing than for other industries. Third, among different economies, IIT is dominant in developed market economies (DMEs), especially in trade between the DMEs. It is less important but still significant for the newly industrialising economies, but it is only of relatively minor importance for less developed countries (LDCs).

Greenaway and Milner (1989) surveyed the literature on IIT. Since then, other important studies have been published, such as those by Lee (1989), Lowe (1991), Fukasaku (1992) and Clark (1993). The hypotheses tested in these studies are either derived from various theories of IIT or suggested by more casual empiricism. According to Greenaway and Milner (1989), the hypotheses can be grouped under three headings: country-specific variations in IIT intensity for any given industry dependent on the characteristics of the trading partners; industry-specific variation in IIT intensity across industries dependent on commodity/industry-specific demand and supply characteristics; and policy-based variations in IIT intensity influenced by policy/institutional factors.

The major *country-specific* hypotheses are that the average levels of IIT will be high: (1) in DMEs compared with LDCs because of differences in income and in economic structure; (2) in 'large' economies compared with 'small' ones since the scope for product diversification and economies of scale may be expected to be higher in the former (large economies); (3) when there is taste overlap between trading partners, as this may increase the scope for the exchange of differentiated commodities; and (4) when trading partners are geographically close, either because proximity means lower transport costs or because of similarities of culture and taste. There are five *industry-specific* hypotheses, IIT will be higher: (1) if product differentiation is high; (2) in commodities where there is scope for economies scale; (3) when the market structure tends towards monopolistically competitive conditions; (4) when there is potential for product cycle trade and/or technological differentiation; and (5) when there are more multinational corporations (MNCs). The two *policy-based* hypotheses are that IIT will be greater (1) when tariffs and non-tariffs barriers are low; and (2) when economies are subject to some form of economic integration.

Existing econometric studies, which test some of these hypotheses generally, confirm the expected signs of the estimated coefficients. In some cases, the scale economy variables are less consistent; and tariff barriers are often an insignificant variable. A major difficulty in such studies is to obtain data, which are appropriate proxies for the explanatory variables, as economic theory suggests. This is especially so for two important industry-specific explanatory variables: product differentiation and scale economies. Given these difficulties, the explanatory power of the regressions in these studies is often low. Another feature of the econometric studies in this field is that there are very few studies on vertical product differentiation and the activities of multinational corporations as they affect IIT.

Greenaway, Hine and Milner (1994) use an intuitively plausible criterion to disentangle vertical and horizontal IIT in the bilateral trade of the United Kingdom, and show that in that country over two-thirds of all IIT is vertical. From this finding, it is worthwhile to distinguish between horizontal and vertical IIT and to work on their explanations separately. On the other hand, using the case of the automobile industry, Becuwe and Mathieu (1992) show that intra-firm trade is the major determinant of IIT in that industry.

Box 3 : Summary of Earlier Studies about IIT between Countries with Different Factor Endowments			
Author	Countries	Year	Main Conclusions
Tharakan (1984)	OECD and Lower Income Countries	1972	North-South IIT is only an statistical phenomenon
Tharakan (1986)	Benelux and Low Income Countries	1972-74	Product differentiation and scale economies explain IIT
Balassa (1986)	38 Low and High Incomes Countries	1971	Higher increase of IIT in the south-east Asiatic countries
Culem and Lundberg (1986)	11 High Income Countries and 7 Regions	1970 and 1980	Distance and differences in income per capita explain IIT
Manrique (1987)	USA and Asiatic Countries	1967-82	IIT grew since 15,7% to 34,9%
Balassa and Bauwens (1987)	38 Low and High incomes Countries	1979	Integration level influences IIT
Nolle (1990)	125 High Income Countries, 135 Low Income Countries	1975	North-South IIT can be explained through economic factors
Globerman (1992)	EE.UU, Canada and Mexico	1980-88	Trade liberalisation increased IIT in Mexico
Lee and Lee (1993)	Korea	1977-1986	IIT increased since 35% to 42%

Stone and Lee (1995)	68 Countries Low and High Incomes	1970 and 1987	IIT increased
Rajan (1996)	Singapore, Japan and USA	1994	Trade deficits mislead IIT
Hu and Ma (1999)	China	1979-1996	IIT is higher with Asian countries
Trigo (2002)	EU and 24 Lower Income Countries	1989-1997	IIT increased due to vertical integration of industries
Source: Compiled from Aurora Trigo (2002), Trade competition in the borders of European Union: An intra-industry trade approach Universidad Nacional de Educación a Distancia (Madrid), November 2002.			

In recent years, some literature of IIT on AFPs and processed food has emerged. The first paper on this was published by McCorriston and Sheldon (1991). In this paper, the authors examine trade in a sample of high-value products for the US and the EC using indices of IIT and intra-industry specialisation. The results indicate that for total trade in 1986, the EC exhibited more IIT across the sample than the US. Further, over the period 1977-86, the EC had a greater tendency towards intra-industry specialisation in its geographical pattern of trade than the US. Based on these results, Christodoulou (1992) tests formally a general and a restricted set of country and industry hypothesis for the EC meat market. Results from this study suggest that tastes overlap as reflected by countries' cultural and economic convergence, as well as the imperfectly competitive structure of the market, as supported by product differentiation. Based on Helpman and Krugman's model, Hirschberg, Sheldon and Dayton (1994) analyse determinants of IIT in processed food for a 30-country sample over the period 1964-85.

This study concludes that IIT is a positive function of a country's GDP per capita and the equality of GDP per capita between countries. Hirschberg and Dayton (1996) using the 30-country sample again tested the determinants of IIT on processed food at the detailed industry level. It is found that certain industries are significantly more prone to engage in IIT given the increasing similarity in the technology of the countries that trade than others. Panchmukhi (1992) also computed IIT indices for different pairs at 3-Digit level for the years 1981 and 1985. The results based on weighted average of these indices at the sub-regional level of SAARC and ASEAN indicate that IIT was more pronounced in technology-intensive products than in other categories. It is also observed that the next in importance were the groups of unskilled labour-intensive, natural resource, and agriculture and animal husbandry products and the lowest IIT found in the case of mineral products.

Bilateral IIT indices estimated for selected product groups by Rao and Das (1996) indicate that in vegetable oils, rubber products, marine products, diamond and precious stones, electronics and telecommunication equipment, chemical dyes and instrument for Japan and South Korea have higher IIT (at the 4-Digit SITC level) for the year 1989 and 1990. Paswan (2003) also computed India's IIT with South Asian countries at various level of disaggregation (i.e. 1-digit, 3-digit, 4-digit, 6-digit and 8-digit) and concluded that industrial restructuring is needed in order to realize full benefits of economies of scale and expansion of IIT between India and South Asian countries.

Empirical Results of New Zealand-India Intra-Industry Trade (IIT)

Table 4 presents the estimated values of Intra-Industry trade index between New Zealand and India at 3 digit SITC. These results help identify the industries where potential for investment exists. It may be observed that the firms involved in these industries, may benefit from joint ventures with firms which are major importer (India) of the particular products. Further it can be extended to foreign direct investment promotion between New Zealand and India.

The nature of New Zealand's IIT with India at bilateral level at 3 digit SITC points the possibility of India's setting up joint ventures in India in those products or sectors having higher IIT index value. These products include (i) 572 - Polymers of Styrene (97.11); (i) 081 - Animal Feed Stuff (96.35) ; (i) 541- Medicines, Etc. Exc. Grp542 (90.52) ; (i) 054 - Vegetables (87.46) ; (i) 743 - Pumps Nes, Centrifugs Etc (87.09); (i) 741- Heatng, Coolng Equip, Part (85.29); (i) 513-Carboxylic Acids, Derivts (82.68); (i) 511-Hydrocarbons, Nes, Derivts (81.64); (i) 684- Aluminium (81.32); (i) 725 - Paper, Pulp Mill Machines (80.63); (i) 759 - Parts, for Office Machins (79.99); (i) 723- Civil Engineering Equipt (78.82); (i) 749- Non-Elect Mach. Parts, Etc (76.58); (i) 721 -Agric.Machines, Ex. Tractr (72.48); and (i) 745 - Oth. Nonelec Mch, Tool, Nes (71.25). The detailed list of products of IIT between New Zealand and India is presented in this **Table 4**.

Table 4: New Zealand Intra-Industry Trade with the India at the 3-digit, SITC 2009.

SITC	Description	Grubel - Lloyd	Export (X)	Import (M)	Total Trade	Trade Balance
		Index (IITBi)	(000) US\$	(000) US\$	(Xi+Mi)	(Xi-Mi)
022	Milk and cream	8.61	1134.39	51.06	1185.45	1083.33
023	Butter,other fat of milk	0.27	41755.82	57.24	41813.05	41698.58
024	Cheese and curd	20.88	1.79	15.39	17.18	-13.60
036	Crustaceans,molluscs etc	29.03	152.34	897.12	1049.47	-744.78
048	Cereal preparations	5.64	42.01	1448.68	1490.69	-1406.67
054	Vegetables	87.46	766.69	986.56	1753.26	-219.87
056	Vegetables,prpd,prsvd,nes	0.60	7.56	2525.25	2532.81	-2517.69
057	Fruit,nuts excl.oil nuts	50.19	6173.41	2068.17	8241.57	4105.24
059	Fruit, vegetable juices	2.13	1.12	103.63	104.75	-102.51
061	Sugars,molasses,honey	5.52	1965.12	55.76	2020.87	1909.36
062	Sugar confectionery	3.88	20.17	1019.25	1039.42	-999.09
073	Chocolate,oth.cocoa prep	17.31	45.16	4.28	49.44	40.88
075	Spices	10.21	117.18	2179.13	2296.30	-2061.95
081	Animal feed stuff	96.35	80.84	75.14	155.97	5.70
098	Edible prod.preprtns,nes	15.83	155.51	1809.66	1965.17	-1654.16
	Av IITB and Totals	10.88	52419	13296	65715	39123
111	Non-alcohol.beverage,nes	27.32	15.15	95.76	110.91	-80.61
112	Alcoholic beverages	54.10	308.16	114.28	422.44	193.88
	Av IITB and Totals	48.53	323	210	533	113
232	Synthetic rubber, etc.	62.61	11.75	25.78	37.52	-14.03
248	Wood, simply worked	4.19	4069.19	87.06	4156.25	3982.13
268	Wool, other animal hair	0.03	24766.51	3.32	24769.83	24763.18
269	Worn clothing,textl.artl	15.29	237.88	19.69	257.57	218.19
273	Stone, sand and gravel	2.30	3.74	321.09	324.83	-317.36
278	Other crude minerals	36.61	134.69	601.13	735.82	-466.44
291	Crude animal materls,nes	32.26	125.89	654.58	780.47	-528.69
292	Crude veg.materials, nes	38.18	618.58	2621.55	3240.13	-2002.97
	Av IITB and Totals	5.86	29968	4334	34302	25634
335	Residual petrol.products	44.06	7.05	24.94	31.98	-17.89

SITC	Description	Grubel - Lloyd	Export (X)	Import (M)	Total Trade	Trade Balance
		Index (IITBi)	(000) US\$	(000) US\$	(Xi+Mi)	(Xi-Mi)
	Av IITB and Totals	44.06	7	25	32	-18
411	Animal oils and fats	7.70	1146.28	45.89	1192.17	1100.40
	Av IITB and Totals	7.70	1146	46	1192	1100
511	Hydrocarbons,nes,derivts	81.64	335.26	231.25	566.51	104.00
513	Carboxylic acids,derivts	82.68	612.32	431.54	1043.86	180.78
514	Nitrogen-funct.compounds	7.33	21.51	565.68	587.19	-544.17
515	Organo-inorganic compnds	1.25	3.64	577.65	581.29	-574.02
516	Other organic chemicals	11.64	22.14	358.34	380.48	-336.20
523	Metal.salts,inorgan.acid	0.95	3.41	717.10	720.51	-713.70
533	Pigments, paints, etc.	2.39	32.20	2661.78	2693.99	-2629.58
541	Medicines,etc.exc.grp542	90.52	317.47	383.94	701.41	-66.47
542	Medicaments	1.68	223.75	26467.95	26691.70	-26244.20
551	Essntl.oil,perfume,flavr	0.42	1.14	545.47	546.60	-544.33
553	Perfumery,cosmetics,etc.	0.20	1.17	1153.80	1154.97	-1152.64
554	Soap,cleaders,polish,etc	0.02	0.06	614.47	614.53	-614.40
562	Fertilizer,except grp272	2.57	1.57	120.66	122.23	-119.09
571	Polymers of ethylene	0.48	400.46	0.96	401.42	399.50
572	Polymers of styrene	97.11	6.38	6.02	12.40	0.36
574	Polyacetal,polycarbonate	62.83	55.74	121.68	177.42	-65.95
575	Oth.plastic,primary form	4.46	9.13	400.57	409.70	-391.45
581	Plastic tube,pipe,hose	11.74	19.14	306.99	326.13	-287.85
582	Plastic plate,sheets,etc	7.25	99.06	2632.73	2731.79	-2533.67
583	Monofilament of plastics	65.03	4.07	8.45	12.52	-4.38
592	Starches,inulin,etc.	55.52	671.07	257.87	928.94	413.20
598	Misc.chemical prodts.nes	20.61	31.44	273.63	305.07	-242.19
	Av IITB and Totals	8.51	2872	38839	41711	-35966
611	Leather	2.83	13268.46	190.44	13458.90	13078.02
621	Materials of rubber	0.40	1.01	505.30	506.31	-504.29
629	Articles of rubber, nes	2.37	13.96	1164.87	1178.83	-1150.92
634	Veneers, plywood, etc.	10.08	1428.03	75.79	1503.82	1352.24

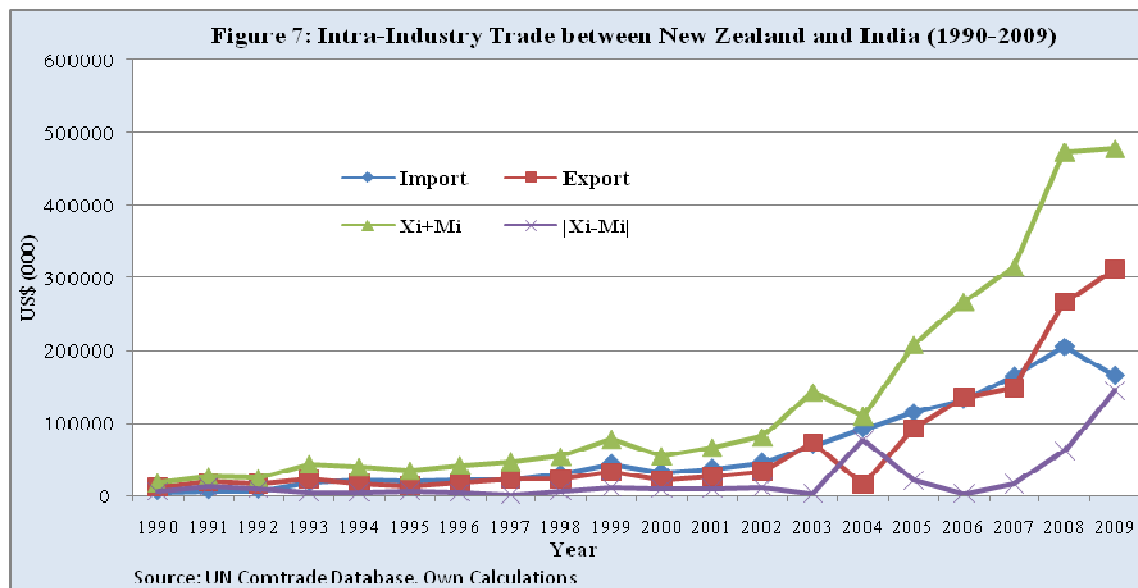
SITC	Description	Grubel -	Export (X)	Import	Total	Trade
		Lloyd	(X)	(M)	Trade	Balance
		Index (IITBi)	(000) US\$	(000) US\$	(Xi+Mi)	(Xi-Mi)
635	Wood manufactures, nes	0.39	0.64	331.42	332.06	-330.77
641	Paper and paperboard	18.92	2706.76	282.81	2989.56	2423.95
642	Paper,paperboard,cut etc	0.62	1.78	571.10	572.89	-569.32
651	Textile yarn	39.27	521.15	2133.36	2654.51	-1612.21
653	Fabrics,man-made fibres	0.38	5.87	3079.96	3085.82	-3074.09
654	Oth.textile fabric,woven	0.47	4.59	1954.61	1959.20	-1950.02
655	Knit.crochet.fabric nes	4.11	2.53	120.35	122.88	-117.82
656	Tulle,lace,embroidry.etc	0.18	0.65	700.37	701.01	-699.72
657	Special yarn,txtl.fabric	6.80	25.27	717.63	742.90	-692.36
658	Textile articles nes	0.43	20.54	9424.67	9445.21	-9404.12
659	Floor coverings, etc.	3.17	50.84	3160.21	3211.05	-3109.36
663	Mineral manufactures,nes	19.41	25.28	235.26	260.54	-209.98
665	Glassware	7.83	9.82	241.11	250.93	-231.28
666	Pottery	2.18	0.40	36.71	37.11	-36.30
667	Pearls,precious stones	0.79	33.92	8500.99	8534.91	-8467.06
674	Flat-rolled plated iron	62.77	181.20	396.18	577.38	-214.98
678	Wire of iron or steel	0.72	2.99	823.61	826.60	-820.62
679	Tubes,pipes,etc.iron,stl	6.39	7.91	239.75	247.67	-231.84
682	Copper	4.94	4.26	167.95	172.20	-163.69
684	Aluminium	81.32	260.10	379.58	639.68	-119.48
686	Zinc	11.82	82.36	1310.99	1393.34	-1228.63
691	Metallic structures nes	3.29	1.82	108.94	110.76	-107.12
694	Nails,screws,nuts,etc.	0.59	0.94	315.23	316.17	-314.29
695	Tools	11.08	88.17	1502.97	1591.14	-1414.80
697	Household equipment,nes	1.31	10.47	1586.46	1596.92	-1575.99
699	Manufacts.base metal,nes	5.93	129.49	4235.90	4365.39	-4106.41
	Av IITB and Totals	6.43	18891	44494	63386	-25603
713	Intrnl combus pstrn engin	27.68	26.42	164.44	190.85	-138.02
716	Rotating electric plant	0.42	1.83	864.55	866.38	-862.72
718	Oth.powr.genrtng.machnry	10.02	3877.27	204.54	4081.81	3672.73

SITC	Description	Grubel -	Export (X)	Import	Total	Trade
		Lloyd	(X)	(M)	Trade	Balance
		Index (IITBi)	(000) US\$	(000) US\$	(Xi+Mi)	(Xi-Mi)
721	Agric.machines,ex.tractr	72.48	328.20	186.55	514.75	141.65
723	Civil engineering equipt	78.82	96.72	148.72	245.44	-52.00
724	Textile,leather machines	36.96	305.93	69.34	375.27	236.59
725	Paper,pulp mill machines	80.63	75.44	111.69	187.13	-36.25
726	Printng,bookbindng machs	8.81	656.69	30.25	686.94	626.44
727	Food-process.mch.non dom	31.03	2.29	12.45	14.74	-10.17
728	Oth.mach,pts,spcl indust	42.52	1227.28	331.36	1558.65	895.92
733	Mach-tools,metal-working	4.28	390.89	8.54	399.42	382.35
735	Parts,nes,for mach-tools	28.94	14.23	84.12	98.36	-69.89
737	Metalworking machnry nes	9.45	1.69	34.05	35.74	-32.37
741	Heatng,coolng equip,part	85.29	599.21	805.83	1405.04	-206.62
742	Pumps for liquids,parts	15.44	2783.34	232.79	3016.12	2550.55
743	Pumps nes,centrifugs etc	87.09	1220.48	1582.43	2802.91	-361.95
744	Mechanical handlng equip	23.65	1237.48	165.93	1403.41	1071.55
745	Oth.nonelec mch,tool,nes	71.25	259.85	143.81	403.65	116.04
746	Ball or roller bearings	1.92	1.52	156.78	158.30	-155.26
747	Taps,cocks,valves,etc.	28.20	174.75	1064.51	1239.25	-889.76
748	Transmissions shafts etc	48.35	65.82	206.41	272.23	-140.60
749	Non-elect mach,parts,etc	76.58	36.01	22.35	58.36	13.67
751	Office machines	44.56	73.39	256.03	329.42	-182.64
752	Automatc.data proc.equip	9.85	709.55	36.75	746.30	672.81
759	Parts,for office machins	79.99	358.95	239.26	598.21	119.68
762	Radio-broadcast receiver	5.74	723.67	21.37	745.04	702.30
764	Telecomm.equip.parts nes	43.93	1078.33	303.55	1381.88	774.77
771	Elect power machny.parts	28.15	344.06	2100.21	2444.27	-1756.15
772	Elec.switch.relay.circuit	20.80	582.82	5021.03	5603.85	-4438.21
773	Electr distribt.eqpt nes	5.74	23.78	804.21	827.98	-780.43
774	Electro-medcl,xray equip	58.25	46.46	113.05	159.51	-66.59
775	Dom.elec,non-elec.equipt	12.00	89.03	1395.37	1484.40	-1306.34
776	Transistors,valves,etc.	12.12	633.31	40.84	674.15	592.47

SITC	Description	Grubel -	Export (X)	Import	Total	Trade
		Lloyd	(X)	(M)	Trade	Balance
		Index (IITBi)	(000) US\$	(000) US\$	(Xi+Mi)	(Xi-Mi)
778	Electric.mach.appart.nes	55.99	301.79	776.21	1078.00	-474.42
781	Pass.motor vehcls.ex.bus	15.31	84.03	1013.98	1098.01	-929.95
784	Parts,tractors,motor veh	1.26	4.69	737.26	741.95	-732.57
792	Aircraft,assoctd.equipnt	61.35	5.25	2.32	7.58	2.93
	Av IITB and Totals	30.95	18442	19493	37935	-1050
811	Prefabricated buildings	0.29	303.43	0.44	303.87	302.99
813	Lightng fixtures etc.nes	46.00	97.14	325.25	422.39	-228.11
821	Furniture,cushions,etc.	0.90	9.01	1985.01	1994.02	-1976.00
831	Trunk,suit-cases,bag,etc	3.64	53.98	2915.77	2969.75	-2861.79
842	Women,girl clothng,xknit	0.19	5.04	5255.41	5260.45	-5250.37
843	Mens,boys clothing,knit	0.51	0.77	298.24	299.01	-297.47
845	Othr.textile apparel,nes	0.11	1.88	3574.52	3576.40	-3572.64
848	Clothng,nontxtl;headgear	2.51	19.43	1527.92	1547.35	-1508.49
871	Optical instruments,nes	1.56	0.22	27.83	28.05	-27.62
872	Medical instruments nes	18.80	2041.43	211.80	2253.22	1829.63
873	Meters,counters,nes	56.49	62.70	24.68	87.38	38.02
874	Measure,control instrmnt	69.42	1123.92	597.49	1721.41	526.43
882	Photo.cinematogrph.suppl	60.10	4.28	1.84	6.11	2.44
884	Optical goods nes	6.72	3.41	98.08	101.49	-94.67
885	Watches and clocks	4.05	1.01	48.67	49.68	-47.66
892	Printed matter	13.75	49.52	670.55	720.07	-621.03
893	Articles,nes,of plastics	21.71	203.57	1671.57	1875.14	-1468.01
894	Baby carriage,toys,games	1.48	26.42	3532.42	3558.84	-3506.00
895	Office,stationery suppl	14.05	12.01	158.96	170.97	-146.95
897	Gold,silverware,jewl nes	2.42	146.04	11935.90	12081.94	-11789.86
898	Musical instruments,etc.	50.28	128.72	383.30	512.02	-254.58
899	Misc manufactrd goods nes	1.82	12.57	1371.57	1384.14	-1359.00
	Av IITB and Totals	7.85	4306	36617	40924	-32311
931	Spec.transact.not classd	9.38	183389.56	9025.66	192415.22	174363.89
	Av IITB and Totals	9.38	183390	9026	192415	174364

SITC	Description	Grubel - Lloyd Index (IITBi)	Export (X) (000) US\$	Import (M) (000) US\$	Total Trade (Xi+Mi)	Trade Balance (Xi-Mi)
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Source: UNCOMTRADE Database.



The export and import of the same broad product group among the countries is called Intra-Industry Trade (IIT). The growth of IIT has been of the most striking feature in the post-world war period. The general perception is that economic integration and IIT are somehow linked (Tharakan, 1983). One possible link runs through the impact of market integration on producer horizon: as integration proceeds, producers of differential products subject to scale economies widen their horizons and invade each others' markets. The availability of differentiated products support the existence of a number of producers, and intra-industry emerges (Figure 7).

Trade value at different indices Intra-Industry between New Zealand and India in three points of time 1990, 2000 and 2009 at 1 digit SITC and presented in Figure 7 and Table 7. This exercise will identify the industries where potential for investment between New Zealand and India exists. It may be observed that the firms involved in these industries, may benefit from joint ventures with firms in that are major importer (India) of the particular products. Further it can be extended to foreign direct investment promotion between New Zealand and India.

Table 5 : India-New Zealand Intra-Industry Trade (IIT) by Industry

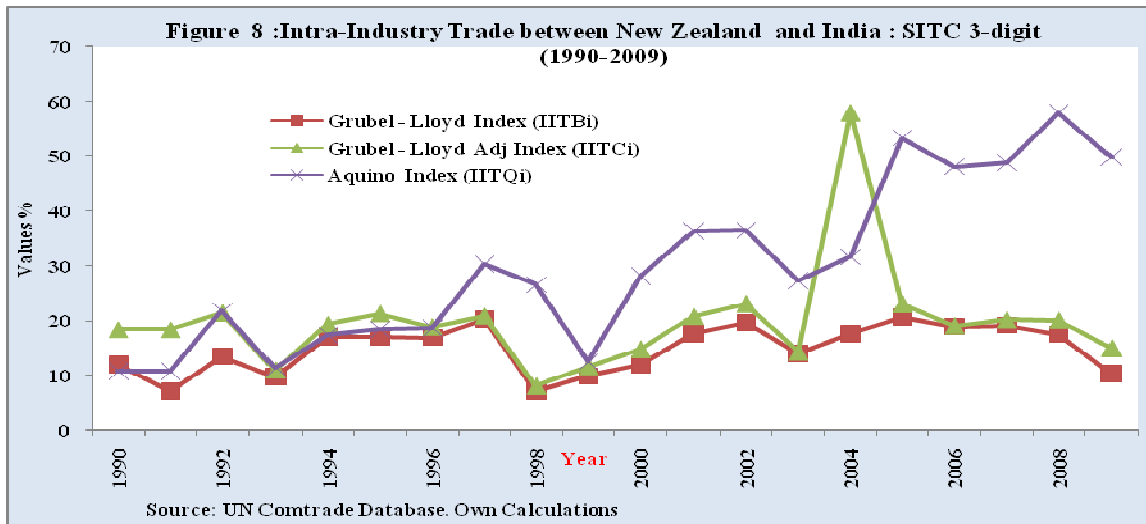
Industry	2009			2000			1990		
	GLAv- IITBi	GLAv- ITCi	AQAv- IITQi	GLAv IITBi	GLAv IITCi	AQAv IITQi	GLAv IITBi	GLAv IITCi	AQAv IITQi
0	10.88	26.89	15.61	38.12	56.53	48.39	11.21	31.61	16.94
1	48.53	61.62	59.09	6.12	100	100	100	100	100
2	5.86	23.18	5.52	3.3	100	92.9	5.71	100	100
3	44.06	100	100	n/a	n/a	n/a	n/a	n/a	n/a
4	7.7	100	100	4.62	100	100	42.86	100	100
5	8.51	61.78	19.66	6.6	22.48	12.19	71.82	100	71.1
6	6.43	10.78	8.52	13.59	15.42	14.48	10.1	17.41	7.35
7	30.95	31.83	31.23	20.82	24.51	20.88	9.32	9.57	9.41
8	7.85	37.32	16.71	6.86	44.6	12.37	14.24	34.22	16.96
9	9.38	100	100	1.05	100	100	n/a	n/a	n/a

Note : 3-digit summary value description : (0) Food & Live Animals ; (1) Beverage & Tobacco;
(2) Crude materials inedible except fuels; (3) Mineral Fuels Lubricants & related materials; (4) Animal & Vegetable Oils and fats; (5) Chemicals ; (6) Manufactured Goods Classified chiefly by materials;
(7) Machinery & Transport equipment; (8) Miscellaneous Manufactured Articles; (9) Commodities & Transactions not classified.
Source: UNCOMTRADE Statistical Head Office Database.

The character of world trade has undergone significant structural changes in recent years. International trade is no longer a simple exchange of standardised products, such as wine for cloth or wheat for cloth. With rapid structural transformation taking place, both in the industrial as well as developing countries, there is emerging some sort of broad structural convergence in many of the economies. However, product diversification, process-wide decomposition of the final product into components and intermediate goods, product-differentiation with slight change in designs, packaging, growing awareness of brands, etc. have all changed the profile of structural characteristics of the products that enter into trade.

Four indices are used for Intra-industry Trade calculations:

- IIT_{Bi} = Grubel and Lloyd Intra-Industry trade Index for each industry
- IIT_B = Grubel- and loyd weighted average Intra-Industry trade Index
- IIT_C = Grubel and Lloyd adjusted Intra-Industry trade Index
- IIT_Q = Aquino adjusted Intra-Industry trade Index



It can be observed from the **Table 4** that there are 139 matched products (at 3 digit SITC Category) in New Zealand's and India's trade basket. Trading basket revealed that 115 products falls under the category of more than unity IIT index value but only 29 products represents the perfect basket of IIT for fast liberalization and possible joint ventures. Therefore, New Zealand has potential to establish trade generating joint ventures in all these identified products (having high IIT Index Values) with India and scope for IIT specialization in several products. Thus, both countries (New Zealand and India) could setup or forge a *joint marketing strategy* (*vice-versa*) in those matched products which have the *potential of joint ventures* which intern, enhance the New Zealand-India trade. The products negotiated for fast track liberalization and concessions under preferential trade should relate to high potential/intra-industry trade.

8. TRADE POTENTIAL BETWEEN INDIA AND NEW ZEALAND

Free trade between two countries or regions would provide maximum mutual gains from trade for participating countries. if these countries exhibit significant trade potential with each other. Therefore, it seems necessary to examine whether there is considerable trade potential between New Zealand and India. Maximum one-way potential trade between two trading partners can be examined in a simple way by matching the export supply for a given commodity of a country with the import demand for that commodity of a trading partner. By matching the import demand with export supply for a given commodity, an estimate can be gained of the possibility of trade expansion under the most favourable competitive conditions after subtracting existing trade (World Bank, 2008). Paswan (2003) definition of potential trade in any product between two countries (a supplier and its market) as the minimum of the supplier's global exports (i.e. exports to all its trading partners) and the importer's global imports is rather mechanical, since it does not take into consideration of cost, quality and product heterogeneity (Paswan, 2003). Potential trade of a given commodity can therefore be calculated using the following formula:

$$\text{Trade Potential} = [(\min, SE, MI) - ET]$$

Where:

SE is New Zealand's Global (Total) Exports

MI is India's Global (Total) Imports

ET is the Existing Bilateral Exports from New Zealand to India

This formula in effect creates a 'trade possibility frontier', demonstrating the maximum levels of trade possible within each SITC product category. As in the previous calculations, the import/export and potential trade data used here is for each commodity classification is in millions of USD. Trade data is obtained from the UN Nations Statistical Head Office, New York and from Comtrade database. Each commodity classification has been aggregated using SITC revision 3 to 1 digit level SITC. The results obtained are then presented in the table below.

Table 6. Potential Trade between New Zealand and India by Commodity Classification, 2007

UN-SITC Code (1 digit)	SITC Code Description	Trade Potential (USD millions)
0	Food and live animals	3,975
1	Beverages and tobacco	127
2	Crude materials, inedible	2,767
3	Fuels, lubricants, etc.	1,076
4	Animal, veg. oils, fats, wax	97
5	Chemicals, reld. pros. nes	1,410
6	Manufactured goods	3,116
7	Machines, transport equip.	2,729
8	Misc. manufactured articles	1,246

Source: UNCOMTRADE Database.

Table 6 demonstrates significant opportunities for New Zealand trade expansion with India, given the relatively low trading base that currently exists. The main categories in which there are potential for New Zealand to expand trade are food and live animals (0), crude materials (2), manufacturing (6), as well as the machinery and transport equipment sector (7). Food and live animals provides the greatest opportunities, as this is obviously where New Zealand's revealed comparative advantage lies. Dairy in particular is a key export industry for New Zealand, and India is one of the largest dairy consumers in the world.

9. INDIA AND NEW ZEALAND TRADE POTENTIAL AND OPPORTUNITIES

The remarkable economic performance of China and India since 1990s has significant impact on trade. These economies large markets with remarkable growth and related opportunities provide the companies and businesses not only dynamic business opportunities but have given superior investment returns. The small size of the New Zealand market makes for it more compulsory, to find and explore exporting and international investment opportunities. Recently, there has been active pursuit by both New Zealand and India to conclude a free trade agreements between them.

New Zealand trade Ministry considers that a Free Trade Agreement (FTA) would create opportunities and increased trading and economic opportunities for two countries. In this background the talks between two countries for an FTA have already been initiated which are expected to complete soon. India currently is New Zealand's 13th largest export market, the volume and value of exports has increased in recent years but a tremendous potential is still unexplored in many areas. Currently the exports are in a few primary products. The future relationship can go much beyond the trade, India remains an ideal destination for FDI in South Asia, with a rising and dynamic middle class who is not only well educated buy fluently speaks English. It has infrastructure problems which its government is prioritizing in development; New Zealand companies have investment opportunities in India's expanding communication and physical infrastructure. These could include road, ports, airports, power sector, mining, oil and natural gas including LNG. India needs expertise in water management, soil conservation, waste disposal, food processing and agribusiness.

Pharmaceutical industry with low costs in India is becoming a major destination of FDI inflows especially from Australian entrepreneurs. India has the biggest film and television industry in Asia, 2nd only to Hollywood in the world. There is lot of potential of mutual cooperation for both countries in this ever growing industry. Sports remain a craze for Indians particularly cricket and hockey, much alike the spirits of Kiwis which are ardent fans of different sports. Food industry particularly wine and beer in India is a potential attractive area for New Zealand companies.

Huge potential exist in services sector like education and health. New Zealand educational institutions if focus on Indian potential can have second biggest market for exporting education after China. For these there require many fundamental key policy measures which include friendly immigration procedures and laws for South Asian citizens. Health services and sophisticated medical equipments are need of Indian government which is concerned about human development in its country. Last but not the least tourism and hospitality sectors have great potential to grow between two countries.

It can be optimistically hoped with current indicators and economic facts that India has all the required potential for any dynamic economy or a business enterprise to invest and reap the adequate benefits. The forward looking economic outlook of India focusing on domestic growth and international integration offers tremendous trade and economic opportunities for New Zealand.

10. CONCLUSION

India has achieved remarkable growth. Indian market provides immense opportunities to New Zealand Exporters. One of the significant initiatives coming out of India is the New Zealand-India on going FTA negotiations. Both New Zealand and India have signed a number of Bilateral and regional FTAs and CEPs.

New Zealand's trade relations have historically been with UK, European countries and the USA. This has changed, and continues to change, with Asian countries, now becoming New Zealand's major trading partners.

Despite significant growth in the value of bilateral trade between New Zealand and India, the trade relationship remains underdeveloped. Bilateral trade flows between India and New Zealand are at low levels compared to the global trade profiles of both countries as revealed through trade flows and trade intensity estimates.

Trade potential analysis shows significant trade potential for New Zealand- India trade growth. There are several potential sectors of export interest to both countries on the basis of static revealed comparative advantage. The RCA analysis also shows that India and New Zealand have markedly different export structures and this suggests that New Zealand and India do not compete in many areas of merchandise trade, and thus that there are potential economic benefits to be gained from specialization following bilateral trade liberalization.

New Zealand Intra-industry trade intensity has been increasing. Many products show a high degree of IIT at the 3-digit SITC level in the food, chemicals, manufactured goods and machinery industries. The products showing high values of intra-industry trade between New Zealand and India at 3-digit SITC values of IIT estimates should be given due attention by policy makers in the ongoing NZ-India FTA negotiations.

New Zealand has potential to establish trade generating joint ventures in all these identified products (having high IIT Index Values) with India and scope for IIT specialization in several products. Thus, New Zealand and India (*vice-versa*) could setup a *joint marketing strategy* in those matched products which have the *potential of joint ventures* which intern, enhance the New Zealand-India trade. The products negotiated for fast track liberalization and concessions under preferential trade should relate to high potential/intra-industry trade.

The high level of IIT between the two countries may be considered as a mechanism to offer concession and trade liberalization. Overall, the study concludes that economic integration tends to have a positive impact on FTA/CEP integrated nations and so with New Zealand and with ongoing trade Potential.

Some priority areas for realising untapped trade and investment potential between both countries are: (a) abolish or reduce the existing information gap; (b) reduce or remove existing high tariff and non-tariff barriers at least on selected products of export interest to both countries; (c) improve infrastructure as the prevailing logistical infrastructure for serving the needs of the expansion bilateral trade and investment is highly inadequate; and (d) improve business-to-business (B2B) contact between both countries as they are currently at low and erratic level; (e) identify causative factors for fostering international trade. Future research will attempt to test empirically selected hypotheses derived from traditional and modern trade theories to identify determinants of New Zealand trade to draw policy conclusions.

Acknowledgments

Thanks and appreciations are due to Tony Marshall for his excellent research assistance. Sincere thanks to Department of Economics, The University of Waikato. Our thanks are also due to Brian Silverstone and Suhail Farhad. Any errors and omissions are own.

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**Appendix 1. New Zealand-India Intra Industry Trade (IIT) by industry: 3-digit SITC,
(High & Low Values of IIT)**

2000			2009		
SITC	Description	IITBi	SITC	Description	IITBi
081	High IITBi ANIMAL FEED STUFF	92.47	081	High IITBi ANIMAL FEED STUFF	96.35
054	VEGETABLES	66.32	054	VEGETABLES	87.46
056	VEGTABLES,PRPD,PRSVD,NES	53.67	057	FRUIT,NUTS EXCL.OIL NUTS	50.19
057	Low IITBi FRUIT,NUTS EXCL.OIL NUTS	35.53	036	Low IITBi CRUSTACEANS,MOLLUSCS ETC	29.03
098	EDIBLE PROD.PREPRTNS,NES	18.78	024	CHEESE AND CURD	20.88
034	FISH,FRESH,CHILLED,FROZN	6.59	073	CHOCOLATE,OTH.COCOA PREP	17.31
061	SUGARS,MOLASSES,HONEY	2.33	098	EDIBLE PROD.PREPRTNS,NES	15.83
			075	SPICES	10.21
			022	MILK AND CREAM	8.61
			048	CEREAL PREPARATIONS	5.64
			061	SUGARS,MOLASSES,HONEY	5.52
			062	SUGAR CONFECTIONERY	3.88
			059	FRUIT, VEGETABLE JUICES	2.13
			056	VEGTABLES,PRPD,PRSVD,NES	0.60
			023	BUTTER,OTHER FAT OF MILK	0.27
			112	High IITBi ALCOHOLIC BEVERAGES	54.10
112	Low IITBi ALCOHOLIC BEVERAGES	6.12	111	Low IITBi NON-ALCOHOL.BEVERAGE,NES	27.32
			232	High IITBi SYNTHETIC RUBBER, ETC.	62.61
278	Low IITBi OTHER CRUDE MINERALS	4.58	292	Low IITBi CRUDE VEG.MATERIALS, NES	38.18
292	CRUDE VEG.MATERIALS, NES	3.02	278	OTHER CRUDE MINERALS	36.61
			291	CRUDE ANIMAL MATERLS.NES	32.26
			269	WORN CLOTHING,TEXTL.ARTL	15.29
			248	WOOD, SIMPLY WORKED	4.19
			273	STONE, SAND AND GRAVEL	2.30
			268	WOOL, OTHER ANIMAL HAIR	0.03
			335	Low IITBi RESIDUAL PETROL.PRODUCTS	44.06
431	Low IITBi ANIMAL,VEG.FATS,OILS,NES	4.62	411	Low IITBi ANIMAL OILS AND FATS	7.70
575	High IITBi OTH.PLASTIC,PRIMARY FORM	78.79	572	High IITBi POLYMERS OF STYRENE	97.11
582	PLASTIC PLATE,SHEETS,ETC	63.27	541	MEDICINES,ETC.EXC.GRP542	90.52
581	PLASTIC TUBE,PIPE,HOSE	50.00	513	CARBOXYLIC ACIDS,DERIVTS	82.68
			511	HYDROCARBONS,NES,DERIVTS	81.64
			583	MONOFILAMENT OF PLASTICS	65.03
			574	POLYACETAL,POLYCARBONATE	62.83
			592	STARCHES,INULIN,ETC.	55.52

2000			2009		
SITC	Description	IITBi	SITC	Description	IITBi
	Low IITBi			Low IITBi	
541	MEDICINES,ETC.EXC.GRP542	19.61	598	MISC.CHEMICAL PRODTS.NES	20.61
598	MISC.CHEMICAL PRODTS.NES	12.85	581	PLASTIC TUBE,PIPE,HOSE	11.74
512	ALCOHOL,PHENOL,ETC.DERIV	9.50	516	OTHER ORGANIC CHEMICALS	11.64
533	PIGMENTS, PAINTS, ETC.	5.62	514	NITROGEN-FUNCT.COMPOUNDS	7.33
591	INSECTICIDES, ETC.	3.86	582	PLASTIC PLATE,SHEETS,ETC	7.25
542	MEDICAMENTS	0.38	575	OTH.PLASTIC,PRIMARY FORM	4.46
			562	FERTILIZER,EXCEPT GRP272	2.57
			533	PIGMENTS, PAINTS, ETC.	2.39
			542	MEDICAMENTS	1.68
			515	ORGANO-INORGANIC COMPNDNS	1.25
			523	METAL.SALTS,INORGAN.ACID	0.95
			571	POLYMERS OF ETHYLENE	0.48
			551	ESSNTL.OIL,PERFUME,FLAVR	0.42
			553	PERFUMERY,COSMETICS,ETC.	0.20
			554	SOAP,CLEANERS,POLISH,ETC	0.02
	High IITBi			High IITBi	
691	METALLIC STRUCTURES NES	90.84	684	ALUMINIUM	81.32
			674	FLAT-ROLLED PLATED IRON	62.77
	Low IITBi			Low IITBi	
641	PAPER AND PAPERBOARD	30.72	651	TEXTILE YARN	39.27
663	MINERAL MANUFACTURES,NES	17.52	663	MINERAL MANUFACTURES,NES	19.41
611	LEATHER	14.41	641	PAPER AND PAPERBOARD	18.92
695	TOOLS	12.58	686	ZINC	11.82
642	PAPER,PAPERBOARD,CUT ETC	10.87	695	TOOLS	11.08
684	ALUMINIUM	5.74	634	VENEERS, PLYWOOD, ETC.	10.08
662	CLAY,REFRCT.CONSTR.MATRL	3.08	665	GLASSWARE	7.83
699	MANUFACTS.BASE METAL,NES	2.51	657	SPECIAL YARN,TXTL.FABRIC	6.80
635	WOOD MANUFACTURES, NES	1.92	679	TUBES,PIPES,ETC.IRON,STL	6.39
625	RUBBER TYRES,TUBES,ETC.	0.68	699	MANUFACTS.BASE METAL,NES	5.93
656	TULLE,LACE,EMBROIDRY.ETC	0.58	682	COPPER	4.94
659	FLOOR COVERINGS, ETC.	0.12	655	KNIT.CROCHET.FABRIC NES	4.11
			691	METALLIC STRUCTURES NES	3.29
			659	FLOOR COVERINGS, ETC.	3.17
			611	LEATHER	2.83
			629	ARTICLES OF RUBBER, NES	2.37
			666	POTTERY	2.18
			697	HOUSEHOLD EQUIPMENT,NES	1.31
			667	PEARLS,PRECIOUS STONES	0.79
			678	WIRE OF IRON OR STEEL	0.72
			642	PAPER,PAPERBOARD,CUT ETC	0.62
			694	NAILS,SCREWS,NUTS,ETC.	0.59
			654	OTH.TEXTILE FABRIC,WOVEN	0.47
			658	TEXTILE ARTICLES NES	0.43
			621	MATERIALS OF RUBBER	0.40
			635	WOOD MANUFACTURES, NES	0.39
			653	FABRICS,MAN-MADE FIBRES	0.38
			656	TULLE,LACE,EMBROIDRY.ETC	0.18
	High IITBi			High IITBi	
778	ELECTRIC.MACH.APPART.NES	86.09	743	PUMPS NES,CENTRIFUGS ETC	87.09
775	DOM.ELEC,NON-ELEC.EQUIPT	85.71	741	HEATNG,COOLNG EQUIP,PART	85.29
745	OTH.NONELEC MCH,TOOL,NES	83.87	725	PAPER,PULP MILL MACHINES	80.63

2000			2009		
SITC	Description	IITBi	SITC	Description	IITBi
726	PRINTNG,BOOKBINDNG MACHS	75.00	759	PARTS,FOR OFFICE MACHINS	79.99
792	AIRCRAFT,ASSOCTD.EQUIPNT	73.33	723	CIVIL ENGINEERING EQUIPT	78.82
764	TELECOMM.EQUIP.PARTS NES	61.00	749	NON-ELECT MACH.PARTS,ETC	76.58
724	TEXTILE,LEATHER MACHINES	56.00	721	AGRIC.MACHINES,EX.TRACTR	72.48
747	TAPS,COCKS,VALVES,ETC.	54.02	745	OTH.NONELEC MCH,TOOL,NES	71.25
776	TRANSISTORS,VALVES,ETC.	50.00	792	AIRCRAFT,ASSOCTD.EQUIPNT	61.35
			774	ELECTRO-MEDCL,XRAY EQUIP	58.25
			778	ELECTRIC.MACH.APPART.NES	55.99
	Low IITBi			Low IITBi	
723	CIVIL ENGINEERING EQUIPT	48.00	748	TRANSMISSIONS SHAFTS ETC	48.35
718	OTH.POWR.GENRTNG.MACHNRY	29.63	751	OFFICE MACHINES	44.56
749	NON-ELECT MACH.PARTS,ETC	29.27	764	TELECOMM.EQUIP.PARTS NES	43.93
786	TRAILERS,SEMI-TRAILR,ETC	25.53	728	OTH.MACH,PTS,SPCL INDUST	42.52
771	ELECT POWER MACHNY.PARTS	14.06	724	TEXTILE,LEATHER MACHINES	36.96
752	AUTOMATC.DATA PROC.EQUIP	11.11	727	FOOD-PROCESS.MCH.NON DOM	31.03
773	ELECTR DISTRIBT.EQPT NES	11.11	735	PARTS,NES,FOR MACH-TOOLS	28.94
728	OTH.MACH,PTS,SPCL INDUST	10.98	747	TAPS,COCKS,VALVES,ETC.	28.20
713	INTRNL COMBUS PSTN ENGIN	9.73	771	ELECT POWER MACHNY.PARTS	28.15
742	PUMPS FOR LIQUIDS,PARTS	7.89	713	INTRNL COMBUS PSTN ENGIN	27.68
784	PARTS,TRACTORS,MOTOR VEH	4.68	744	MECHANICAL HANDLNG EQUIP	23.65
748	TRANSMISSIONS SHAFTS ETC	4.49	772	ELEC.SWITCH.RELAY.CIRCUIT	20.80
772	ELEC.SWITCH.RELAY.CIRCUIT	1.43	742	PUMPS FOR LIQUIDS,PARTS	15.44
744	MECHANICAL HANDLNG EQUIP	1.17	781	PASS.MOTOR VEHCLS.EX.BUS	15.31
759	PARTS,FOR OFFICE MACHINS	0.66	776	TRANSISTORS,VALVES,ETC.	12.12
			775	DOM.ELEC,NON-ELEC.EQUIPT	12.00
			718	OTH.POWR.GENRTNG.MACHNRY	10.02
			752	AUTOMATC.DATA PROC.EQUIP	9.85
			737	METALWORKING MACHNRY NES	9.45
			726	PRINTNG,BOOKBINDNG MACHS	8.81
			773	ELECTR DISTRIBT.EQPT NES	5.74
			762	RADIO-BROADCAST RECEIVER	5.74
			733	MACH-TOOLS,METAL-WORKING	4.28
			746	BALL OR ROLLER BEARINGS	1.92
			784	PARTS,TRACTORS,MOTOR VEH	1.26
			716	ROTATING ELECTRIC PLANT	0.42
	High IITBi			High IITBi	
874	MEASURE,CONTROL INSTRMNT	70.09	874	MEASURE,CONTROL INSTRMNT	69.42
884	OPTICAL GOODS NES	66.67	882	PHOTO.CINEMATOGRPH.SUPPL	60.10
898	MUSICAL INSTRUMENTS,ETC.	64.81	873	METERS,COUNTERS,NES	56.49
893	ARTICLES,NES,OF PLASTICS	56.07	<u>898</u>	<u>MUSICAL INSTRUMENTS,ETC.</u>	<u>50.28</u>
	Low IITBi			Low IITBi	
872	MEDICAL INSTRUMENTS NES	26.82	813	LIGHTNG FIXTURES ETC.NES	46.00
821	FURNITURE,CUSHIONS,ETC.	20.84	893	ARTICLES,NES,OF PLASTICS	21.71
812	PLUMBNG,SANITRY,EQPT.ETC	9.30	872	MEDICAL INSTRUMENTS NES	18.80
892	PRINTED MATTER	5.58	895	OFFICE,STATIONERY SUPPLS	14.05
813	LIGHTNG FIXTURES ETC.NES	2.48	892	PRINTED MATTER	13.75
894	BABY CARRIAGE,TOYS,GAMES	2.12	884	OPTICAL GOODS NES	6.72
899	MISC MANUFCTRD GOODS NES	0.60	885	WATCHES AND CLOCKS	4.05
845	OTHR.TEXTILE APPAREL,NES	0.37	831	TRUNK,SUIT-CASES,BAG,ETC	3.64
843	MENS,BOYS CLOTHING,KNIT	0.35	848	CLOTHNG,NONTXTL;HEADGEAR	2.51
842	WOMEN,GIRL CLOTHNG,XKNIT	0.04	897	GOLD,SILVERWARE,JEWL NES	2.42
			899	MISC MANUFCTRD GOODS NES	1.82
			871	OPTICAL INSTRUMENTS,NES	1.56

2000			2009		
SITC	Description	IITBi	SITC	Description	IITBi
			894	BABY CARRIAGE, TOYS, GAMES	1.48
			821	FURNITURE, CUSHIONS, ETC.	0.90
			843	MENS, BOYS CLOTHING, KNIT	0.51
			811	PREFABRICATED BUILDINGS	0.29
			842	WOMEN, GIRL CLOTHING, XKNIT	0.19
			845	OTHR. TEXTILE APPAREL, NES	0.11
931	Low IITBi SPEC. TRANSACT. NOT CLASSD	1.05	931	Low IITBi SPEC. TRANSACT. NOT CLASSD	9.38
Source: UN COMTRADE Database. (Author's Estimations.)					

Four indices are used for Intra-industry Trade calculations; These are

IIT_{Bi}	=	Grubel and Lloyd Intra-Industry trade Index for each industry
IIT_B	=	Grubel- and Lloyd weighted average Intra-Industry trade Index
IIT_C	=	Grubel and Lloyd adjusted Intra-Industry trade Index
$IITQ$	=	Aquino adjusted Intra-Industry trade Index

Detail methodology of Intra-industry trade, trade intensities and trade reciprocity are available on request from corresponding/first Author.