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Asia Pacific School of Economics and Government  
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# **Closer economic relations between Australia and New Zealand: specialisation, competitiveness, complementarity<sup>†</sup>**

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## **Abstract**

The Australia-New Zealand Closer Economic Relations Trade Agreement (ANZCERTA) came into effect in 1983 and the objective of bilateral free trade in goods between the two countries was achieved in 1990. This study provides a quantitative analysis of the Agreement's impacts on specialisation, competitiveness and complementarity in trade between the two countries. It is shown that, compared with Australia, New Zealand was able to exploit its comparative advantage and increase its complementarity in trade with Australia to a greater extent in the first time period after free trade was reached (1991-1995). However, subsequent to 1995, the reverse has been true, reflecting the greater effectiveness of Australia's commercial policies and economic performance in the late 1990s relative to New Zealand.

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## 1. Introduction

The Australia-New Zealand Closer Economic Relations Trade Agreement (ANZCERTA), popularly known as the CER Agreement, came into effect on 1 January 1983 (Department of Foreign Affairs 1983). The initial objective to create a conventional free trade area, involving the removal of all border restrictions on trade in goods, was achieved ahead of schedule in 1990 (Lloyd 1999). This means that all products originating from Australia and New Zealand are free of tariffs, quantitative restrictions (e.g., import licensing), anti-dumping measures and safeguard measures. All export subsidies and incentives on trade between the two countries have been removed. Furthermore, ANZCERTA has, particularly, removed administrative and 'behind-the-border' impediments to trade and investment flows, such as liberalising and integrating government purchasing procedures. ANZCERTA has received international commendation for its speed and the broad nature of its liberalisation. The Australian and New Zealand governments have viewed ANZCERTA as a success story as the economies have become increasingly integrated, trans-Tasman exports have risen substantially and co-operation in areas such as business laws has been strengthened (Duncan *et al.*, 1999).

It was expected that ANZCERTA would bring benefits to both countries through taking advantage of geographical ties and production complementarities. A number of studies have considered the broad composition and size of trade flows and the Agreement's effect on foreign direct investment and migration (e.g., Ratnayake and Townsend (1999), Bollard and Thompson (1987), Nana and Poot (1996), Scollay (1996)). However, to the authors' knowledge, no study has considered the impact of the agreement on each country's competitiveness and specialisation. The latter can be measured through comparative advantage, the key determinant of international trade flows. While international trade theory has been enriched with the inclusion of technology, economies to scale of production, and imperfect competition in product markets as determinants of trade, the core trade theory of comparative advantage remains an important measure. The trade and economic policies of governments influence comparative advantage while taxes, subsidies and other trade barriers or incentives distort trade flows. The effects of a country's changing comparative advantage and the offsetting government policies are reflected in the country's competitiveness and specialisation in international trade (Hossian 1997).

The objective of this paper is to examine the impact of ANZCERTA on Australia and New Zealand's specialisation and competitiveness in international trade. They are measured through revealed comparative advantage and market shares, respectively. Changes in complementarity are also assessed to quantify the degree to which the two countries have exploited their comparative advantage in response to the Agreement. The structure of the paper is as follows. Section 2 presents a brief review of trade liberalisation theory. The section further leads to the development of the hypothesis for the two nation's trade specialization and competitiveness. Based on the assumption that small countries stand to benefit more than larger countries from free trade agreements, it is expected that New Zealand stands to benefit more than Australia from ANZCERTA. Section 3 presents a short history of trade liberalisation and economic performances of the two countries. It is argued that in the 1990s Australia's policy reforms have resulted in stronger economic activities and hence, may effectively counteract the relatively greater benefits of ANZCERTA to New Zealand. Section 4 presents a qualitative analysis of the impacts of ANZCERTA on competitiveness, specialisation and complementarity of bilateral trade between Australia and New Zealand. There is evidence that, overall, New Zealand increased its specialisation, competitiveness and complementarity in trade relative to Australia between 1985 and 1995, confirming our hypothesis. However, the trend is reversed subsequent to 1995 to Australia's advantage in all these three areas. This difference may be due to the effectiveness of each country's commercial policies in allowing the private sector to search out and exploit their country's comparative advantage, as well as productivity gains and export output.

## **2. A Brief Review of Trade Liberalisation Theory**

Cross-country experiences since World War II have many lessons to offer regarding the benefits of trade liberalisation. For example, the remarkable increases in affluence in East Asia through the 1980s and 1990s were characterised by openness in trade and high levels of investment not observed in many other economies (Bhagwati 1997). While it is generally, though not universally, accepted that unilateral free trade is always welfare improving, the welfare impacts of a discriminatory free trading area are ambiguous. The following review is confined to the welfare impacts of a free trade area (FTA). The FTA differs from the other form of discriminatory trade bloc, a customs union, in that FTA members are free to choose their external tariffs to third countries, whereas a customs union requires members to have common external tariffs.

It is generally accepted that the expansion of exports to partner countries as a result of the formation of a FTA is welfare improving (so long as there are no export or production subsidies) while the welfare effects of the expansion of imports from partner countries are ambiguous. Reductions in tariff rates of member countries without similar tariff reductions for third countries can lead to trade diversion. Trade diversion is the result of a switching of imports from the third countries to partner countries that are usually less-efficient producers. Trade creation, rather than trade diversion, can occur when imports from member countries replace less efficient domestic production, rather than replacing imports from third countries. As trade creation is generally perceived to be welfare-increasing, the welfare effects of a FTA depend on the relative sizes of trade creation and trade diversion.

These welfare effects can be thought of in terms of two impacts: the terms of trade impact (the change in the level of imports and exports by the liberalising country on the world prices of goods and services imported or exported), and the allocative efficiency impact (welfare gains from changes in the volumes of goods and services imported or exported as a result of the changes in the prices of imports and exports because of the liberalisation) (Duncan *et al.* 1999). Australia and New Zealand are too small in the global trading system to influence the world prices as a result of a change in their trade (with the possible exceptions of textile fibres). Hence, the terms of trade effect can be ignored. It is likely that any welfare gains from ANZCERTA would be due to greater allocation efficiency through cheaper imports, imported intermediate and consumer goods and services, and the reduction of costs for producers and consumers between these two countries. With this increased producer efficiency, and reductions in export taxes, exports are likely to increase.

While empirical analysis is required to determine the expected level of trade creation as compared with trade diversion, the Centre for International Economics (1998) lists five determinants of the welfare effects of a FTA: (1) the initial level of protection; (2) the intensity of trade with other countries forming the bloc; (3) the competitiveness of countries within the bloc as compared to those outside; (4) the number of partner countries; and (5) the size of the partner countries.

First, tariffs distort production decisions and potentially encourage inefficiencies in domestic firms. Import taxes raise production costs – of imports and machinery – and exports cannot

pass these costs to international markets. For every import, there must be an equivalent financial inflow in the form of either export revenue or a capital inflow. Reducing the volume of imports must reduce either exports or capital inflows. Resources – labour and capital – tend to be attracted to assisted or protected sectors. If import-substituting sectors are protected, then they will expand and exports must shrink. Hence, the allocation efficiency gains of a FTA will be greater in countries with greater initial levels of protection, although the extent to which productivity efficiency is improved also depends on the efficiency of other suppliers within the region. The greater the efficiency of import suppliers in the region, the greater the allocative efficiency gains.

Second, the welfare benefits of a FTA increase with the intensity of trade with the other countries forming the bloc as the potential for the switching of imports from countries outside the bloc to less-efficient partner countries in the bloc (i.e., trade diversion) are smaller. Australia is a more important trading partner for New Zealand than New Zealand is for Australia. Australia accounts for a much larger share of New Zealand’s imports and exports, while New Zealand accounts for approximately 5 percent of Australia’s imports and exports (see Table 1). Hence, the risk of trade diversion is lower for New Zealand than for Australia as there is less scope for diversion of trade from other countries to Australia. Thus, New Zealand stands to benefit more, or in other words, risks losing less from the ANZCERTA.

**Table 1** Bilateral Trade Shares, Selected years (percent)

Partner country	Australia				New Zealand			
	1985	1990	1995	1999	1985	1990	1995	1999
<i>Imports</i>								
Australia	n.a.	n.a.	n.a.	n.a.	4.09	4.26	4.35	3.91
New Zealand	17.0	20.3	21.5	24.0	n.a.	n.a.	n.a.	n.a.
<i>Exports</i>								
Australia	n.a.	n.a.	n.a.	n.a.	3.56	4.72	6.12	6.76
New Zealand	15.5	18.1	18.7	21.2	n.a.	n.a.	n.a.	n.a.

Notes: 1) Bilateral trade share is defined as a reporter country’s (*i*) trade (imports or exports) with a partner country (*j*) as a percentage of the reporter country’s trade with the world (*w*) (i.e.  $T_{ij}/T_{iw}$ ). The shares are calculated for all commodities.  
2) n.a. - not applicable.

Source: UN trade data, International Economic DataBank, Australian National University, Canberra – specified to the three digit level.

Note that New Zealand's exports to and imports from Australia as a share of its total exports and imports have increased substantially since trade liberalisation began in the mid-1980s. New Zealand's importance to Australia as an export market has not increased to the same extent while its share of imports from Australia has decreased, indicating that Australia's export growth has been directed outside the bloc.

Third, the cost of trade diversion will be lower with greater competitiveness of the countries within the bloc, as the cost of goods originating from within the bloc are closer to world levels. Fourth, the benefits of a FTA increase the larger the number of partner countries as opportunities for exports and the scope for lower-cost suppliers of goods being from within the bloc is higher. There is little to be said regarding the relative benefits to Australia and New Zealand from ANZCERTA in terms of welfare determinants (3) and (4) of the Centre for International Economics (1998). However, both countries would gain more from an FTA that encompasses a larger number of countries, and countries with high levels of competitiveness. Fifth, the welfare benefits of a FTA will increase with the size of the partner countries for similar reasons as for the fourth welfare determinant. Larger partner markets may yield efficiency benefits not only by the scope for exploiting economies of scale but also due to the scope for greater technological gains. Domestic firms become more competitive and gain the confidence to enter global competition. Australia is a larger economy than New Zealand, therefore New Zealand stands to gain more from the closer economic relations.

From the theoretical perspective of the above five welfare determinants of a FTA, generally, New Zealand stands to benefit more than Australia from ANZCERTA. It is expected that determinant (5) is the a crucial factor for New Zealand as it stands to benefit more than Australia through free access to a much larger market, allowing for allocative efficiency to increase through cheaper imports. The reduction in costs for New Zealand producers' should have allowed them to fully exploit their comparative advantage leading to a greater competitiveness and complementarities in trade.

### **3. Trade Liberalisation and Economic Performance**

While it is expected that bilateral trade liberalisation between Australia and New Zealand is likely to affect the degree of specialisation and competitiveness of the two countries, each country's trade policy with third countries and their commercial policies are also likely to



have an effect. Essentially, both countries have enthusiastically adopted trade liberalisation in the last two decades. However, Australia's commercial policies in the late 1990s have been more conducive to private-sector investment and have contributed to the strengthening of the economy. The section below presents a brief survey of Australia and New Zealand's general trade and commercial policies and their economic performance over the recent decades.<sup>1</sup>

## **Australia**

Australia undertook substantial trade liberalisation in 1973 with a 25 percent across-the-board tariff cut in manufacturing goods. However, following the downturn in economic activity in 1974, a global phenomenon in the wake of the first oil-price shock, quota assistance was increased. Further tariff reductions were made in 1977 followed by reductions in the duty rates in response to the devaluation of the Australian dollar and multilateral trade negotiations (Chand 1999). The new government of 1983 undertook substantial liberalisation by floating the Australian dollar, deregulating the financial sector, broadening the tax base, introducing tougher competition laws and privatising state-owned industries. All these changes boosted growth and job creation but also caused an increase in the current account deficit. Following the Reserve Bank's increase in interest rates the economy was tipped into recession.

Nevertheless, the Australian government continued to cut tariffs. The announcement in May 1988 of general tariff reductions set a target of an Effective Rate of Assistance (ERA) of 5 percent for most industries.<sup>2</sup> This goal was achieved by the late 1990s in all industries except for agriculture (the latest available estimate of the ERA for agriculture was in 1992-93 at 11 percent), textiles, clothing, footwear and leather (the ERA estimate for 1996-97 was 39 percent), and motor vehicles and parts (the ERA estimate for 1996-97 was 30 percent) (Industry Commission 1995; 1997). Chand (1999) notes that the variability amongst the manufacturing industries in respect of assistance provided has increased over time whereas the general level of assistance to the sector in aggregate has declined.

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<sup>1</sup> For a recent review of trade liberalisation policies and the economic performance of Australia and New Zealand see The Economist (2000, 2001) and The Economist Intelligence Unit (2001a, b, c, d).

<sup>2</sup> The effective rate of assistance is defined as the percentage change in returns per unit of output to an activity's value-adding factors due to the assistance structure. It measures net assistance to an activity's value-adding by taking into account not only output assistance and direct assistance to value-adding factors (e.g., subsidies, interest charges and income tax concessions), but also the penalties (e.g., from tariffs and excise taxes) and benefits (e.g., from input subsidies) of government intervention on inputs (Industry Commission 1995).

The Asian crisis of 1997-98 plunged two-thirds of Australia's export markets into recession, however this effect was temporary as exports were boosted by new markets, mainly in Europe. A steep drop in the Australian dollar, which the Reserve Bank did not resist, also boosted exports. The growth in Australia's economy continued unabated, growing steadily with a real GDP growth rate of 3.8 percent expected for 2002 (see Table 2). The Economist Intelligence Unit (2001b) states that Australia may be the fastest growing Organisation For Economic Co-operation and Development (OECD) economy of 2002 and is likely to be little affected by the weakening international economic environment.

**Table 2** Percentage Change in Gross Domestic Product Year on Year, (percent)

	1999 <sup>a</sup>	2000 <sup>b</sup>	2001 <sup>c</sup>	2002 <sup>c</sup>
Australia	4.7	3.8	2.7	3.8
New Zealand	3.5	3.1	1.9	3.1

Notes: <sup>a</sup> Actual, <sup>b,c</sup> Economic Intelligence Unit estimates and forecast, respectively.  
Source: The Economist Intelligence Unit (2001c,d).

### **New Zealand**

Before the market reforms of 1984, New Zealand was one of the most protected and regulated economies in the developing world. Subsidies, protection, price-controls, public-sector debt and inflationary pressures characterised the economy. To overcome the adverse effects on growth, the comprehensive "big bang" reforms of the Labour Government were introduced. Although the reforms began in 1984 most of the policies were not fully implemented until 1991, the implementation of the market reforms by New Zealand was at a faster rate than any other country, including Britain. In 1984 the exchange rate was floated, foreign-exchange controls were removed and the financial markets were deregulated. Import licenses were abolished and tariff rates were slashed (the nominal rate of protection of all industries was reduced from an average of 30 percent in 1984 to around 5 percent in 1999 (Dalziel and Lattimore 1999)). Subsidies of the farming and manufacturing sectors were eliminated and many state-owned enterprises were privatised. In 1989 the Reserve Bank of New Zealand was given full independence to set monetary policy.

The post-reform period indicated a stagnant economy for the period 1985 to 1991, as the policies were implemented. However, the gross domestic product grew by an average of 2.8 percent per year since 1991. The signs of recession were experienced by New Zealand's economy in 1998 as a result of two successive years of drought and the Asian crisis. In 1997

New Zealand's Reserve Bank adopted a 'monetary condition index' that combined interest rates and the exchange rate into a single measure of monetary tightness. As New Zealand's dollar fell in response to the Asian crisis, the Reserve Bank raised interest rates sharply at a time when demand was being squeezed by a slump in exports to Asia. In contrast, Australia left interest rates unchanged and did not largely experience recessionary effects.

New Zealand has followed free market principles, although due to the perceived poor performance from earlier reforms, the present government has chosen to reverse some of the reforms. The relatively slow economic growth rate of New Zealand's economy in the late 1990s has been attributed to poor productivity and slow real export growth. Moreover, the weakening of the international economy may result in a further contraction in New Zealand's economic growth. However, growth in GDP has been forecast to accelerate to 3.1 percent (Economist Intelligence Unit, 2000b). Further multilateral liberalization through the World Trade Organization will be beneficial for New Zealand.

#### **4. Specialisation, Competitiveness, Complementarity Impacts: ANZCERTA**

##### **4.1 Specialisation in Trade**

A country's specialisation in international trade is determined by its structure of comparative advantage. The theory of comparative advantage states that an economy will be most productive when it specializes in those goods and services that it produces relatively "best". While a country may have absolute advantage in the production of all goods and services (products it can make at an absolutely lower cost than other countries), no country has comparative advantage in all goods due to differences in the relative costs of production. Hence, even the smallest and poorest countries stand to benefit from specialisation and trade (Duncan et al. 1999). Theoretically, comparative advantage should be specified with respect to relative pre-trade prices, however, as these are unobservable, researchers must be satisfied with the 'revealed' comparative advantage (RCA) technique. The RCA technique assumes that a commodity's trade reflects costs and differences in non-price factors (Balassa 1965). To measure this effect, the specification takes the following form :

$$RCA = \frac{X_i^k}{X_w^k} \bigg/ \frac{X_i}{X_w} \quad (1)$$

where  $X$  = exports,  $k$  = commodity,  $i$  = country and  $w$  = world. This ratio exceeds unity when a country specialises more intensively in the export of a commodity than on average; it falls short of unity when a country specialises less intensively than on average. A value of unity indicates average export specialisation. Revealed comparative advantage through time can be measured as follows:

$$RCA_i^0 = \frac{X_{ik}^0}{X_{wk}^0} \bigg/ \frac{X_i^0}{X_w^0} \quad (2)$$

$$RCA_i^1 = \frac{X_{ik}^1}{X_{wk}^1} \bigg/ \frac{X_i^1}{X_w^1} \quad (3)$$

$$\frac{RCA_i^1}{RCA_i^0} \quad (4)$$

where 0 = first time period and 1 = second time period. Through these formulae we can calculate using equation (2) the relative share of country  $i$ 's exports of commodity  $k$  in the first time period; equation (3) the relative share of country  $i$ 's exports of commodity  $k$  in the second time period; and equation (4) the ratio of the share of country  $i$ 's exports of commodity  $k$  in the second period to that in the first period.

Changes in the revealed comparative advantage for Australia and New Zealand are presented in Tables 3 and 4, using a definition of the SITC (Rev.1) based product categories adopted by UNCTAD (1994). The ratios have been multiplied by 100 for the purpose of presentation. Hence, a value greater than 100 implies the presence of comparative advantage and a value less than 100 implies comparative disadvantage. Three time periods are compared: 1985-89, 1990-94, and 1995-99.

Australia and New Zealand follow a similar trend in comparative advantage of primary products, especially textile fibres (and except for crude fertilisers, mineral ores and mineral fuels in New Zealand's case). Both countries have comparative disadvantage in manufactured products other than leather, travel, and wood products in New Zealand, although Australia has developed comparative advantage in these goods in the late 1990s. Since the late 1980s, Australia has increased its comparative advantage in all products except agricultural raw

materials. Since the late 1980s, New Zealand has increased its comparative advantage in all products except textile fibres, non-ferrous metals and goods not classified.<sup>3</sup>

**Table 3** Changes in Australia's Revealed Comparative Advantage Over Three Time Periods

PRODUCT CATEGORY	1985-	1990-	1995-	y/x = a	z/x = b
	1989	1994	1999		
	x	y	z		
<b>Primary products</b>	264	271	313	1.02	1.18
Food	224	223	270	1.00	1.21
Agricultural Raw Materials	428	341	329	0.80	0.77
-Textile fibres	1469	1279	1315	0.87	0.90
Crude Fertilisers & Mineral Ores	603	716	890	1.19	1.48
Mineral Fuels	187	225	267	1.20	1.43
Non-ferrous Metals	349	351	367	1.01	1.05
<b>Manufactured products</b>	22	30	39	1.34	1.75
Chemicals	48	52	82	1.08	1.71
Iron and Steel	42	76	86	1.80	2.03
Machinery & Equipment	14	23	28	1.64	2.03
Other Manufactured Products	22	27	35	1.24	1.61
-Leather & travel goods	56	81	110	1.44	1.95
-Wood products	90	72	150	0.80	1.66
<b>Goods not classified</b>	475	548	124	1.15	0.26

Source: UN trade data, International Economic DataBank, Australian National University, Canberra – specified to the three digit level.

**Table 4** Changes in New Zealand's Revealed Comparative Advantage Over Three Time Periods

PRODUCT CATEGORY	1985-	1991-	1995-	y/x = c	z/x = d
	1989	1995	1999		
	x	y	z		
<b>Primary products</b>	271	298	320	1.10	1.18
Food	459	494	529	1.08	1.15
Agricultural Raw Materials	662	668	697	1.01	1.05
-Textile fibres	1472	998	970	0.68	0.66
Crude Fertilisers & Mineral Ores	33	41	40	1.24	1.21
Mineral Fuels	13	33	28	2.45	2.10
Non-ferrous Metals	234	214	221	0.91	0.94
<b>Manufactured products</b>	32	35	40	1.11	1.26
Chemicals	54	68	80	1.26	1.49
Iron and Steel	32	58	52	1.79	1.59
Machinery & Equipment	13	14	20	1.14	1.60
Other Manufactured Products	52	51	56	1.00	1.08
-Leather & travel goods	221	215	249	0.97	1.12
-Wood products	159	151	205	0.95	1.29
<b>Goods not classified</b>	62	61	41	0.99	0.66

<sup>3</sup> Includes zoo animals, pets, war firearms, ammunition, mail not classed by kind, and special transactions.

Source: UN trade data, International Economic DataBank, Australian National University, Canberra – specified to the three digit level.

Note the size of the changes in comparative advantage in the first two time periods since free trade was achieved between the two countries, see columns a and b for Australia, and c and d for New Zealand. In most commodity groups New Zealand's comparative advantage in primary products increased at a faster rate than Australia's between the two time periods 1985-89 and 1990-94 (comparing column a in Table 3 and column c in Table 4). This is consistent with the trade theory that suggests that the benefits of trade liberalisation will be greater for countries gaining free trade access to larger partner countries. However, Australia's comparative advantage increased in all products at a faster rate during the later time period than New Zealand (comparing column b in Table 3 and column d in Table 4). This may be due to the difference in commercial policies implemented in the late 1990s, as well as productivity growth and output of export commodities.

It is also noted that New Zealand did not improve its comparative advantage in the manufactured goods faster than Australia following ANZCERTA. Note that the revealed comparative advantage does not give a perfect measure of comparative advantage as it may be influenced by trade and other economic policies, the demand patterns of importing countries, and the productivity growth differences in the exporting countries. It is likely that these effects are working both for and against the improved comparative advantage, thus the comparative advantage improvement in New Zealand as a result of ANZCERTA is not greater across the board than that of Australia.

## **4.2 Competitiveness in Trade**

Michael E. Porter developed the concept of “competitive advantage” for the purpose of explaining the conditions for sustained economic success of the industrial economies (Porter 1990). Porter defines two basic types of competitive advantage: “lower costs than rivals, or the ability to differentiate and command a premium price that exceeds the extra costs of doing so. Any superior performing firm has achieved one type of advantage, the other, or both.” (Porter, 1991, p. 45). Competitiveness in trade reflects a country's comparative advantage, and can be defined in a broad sense as the capacity of an industry to increase its share in the international market at the cost of its competitors (Hossian 1997). Hossian's view

has been supported by Richardson (1971), who points out that growth in exports of a commodity also reflects the country's relative competitiveness in trade of that commodity.

Market share (MS) of a commodity is calculated as a country's exports to the world as a percentage of the world's total exports of that commodity:

$$MS_i = \frac{X_{iw}^k}{X_{ww}^k} \times 100 \quad (5)$$

Measuring the relative competitiveness in trade for various commodities for Australia and New Zealand is undertaken next. To measure the changes in the world market share of exports from Australia and New Zealand, the equations take the following specific forms:

$$MS_i^0 = \frac{X_{iw}^{k0}}{X_{ww}^{k0}} \times 100 \quad (6)$$

$$MS_i^1 = \frac{X_{iw}^{k1}}{X_{ww}^{k1}} \times 100 \quad (7)$$

$$\frac{MS_i^1}{MS_i^0} \quad (8)$$

Through these formulae we can calculate competitiveness for different time periods as shown below in Tables 5 and 6. Equation (6) estimates country  $i$ 's market share of commodity  $k$  in the first time period; equation (7) estimates country  $i$ 's market share of commodity  $k$  in the second time period; and equation (8) estimates the ratio of country  $i$ 's market share of commodity  $k$  in the second period to that in the first period.

Patterns in comparative advantage provided in the previous section determine the specialisation in international exports shown in Table 5 and 6. Australia and New Zealand's comparative advantage in primary goods, especially textile fibres, has driven their relatively high world market share of exports of these goods; and their comparative disadvantage in manufactures reflects their relatively low market share. Australia and New Zealand are insignificant in the world market, except for textile fibres and possibly fertilisers and mineral

ores in Australia's case. Australia has a much larger world market share in the 'all products' than New Zealand, hence New Zealand stands to realise greater allocative efficiency from ANZCERTA through increased scope for lower cost imports and opportunities for exports.

**Table 5** Changes in Australia's World Market Shares of Exports (percent)

PRODUCT CATEGORY	1985-	1990-	1995-		
	1989	1994	1999	y/x = a	z/x = b
	x	y	z		
<b>Primary products</b>	2.95	2.90	3.13	0.98	1.06
Food	2.53	2.37	2.71	0.94	1.07
Agricultural Raw Materials	4.68	3.66	3.30	0.78	0.70
- <i>Textile fibres</i>	15.98	13.72	13.24	0.86	0.83
Crude Fertilisers & Mineral Ores	6.93	7.70	8.94	1.11	1.29
Mineral Fuels	2.11	2.41	2.72	1.14	1.29
Non-ferrous Metals	3.83	3.77	3.69	0.99	0.96
<b>Manufactured products</b>	0.25	0.32	0.39	1.24	1.54
Chemicals	0.59	0.54	0.83	0.92	1.41
Iron and Steel	0.49	0.81	0.86	1.67	1.76
Machinery & Equipment	0.15	0.24	0.28	1.59	1.86
Other Manufactured Products	0.24	0.28	0.35	1.18	1.45
- <i>Leather &amp; travel goods</i>	0.62	0.85	1.10	1.38	1.79
- <i>Wood products</i>	1.17	0.70	1.50	0.60	1.29
<b>Goods not classified</b>	4.24	6.23	1.24	1.47	0.29
<b>All product categories</b>	1.12	1.07	1.00	0.96	0.90

Source: UN trade data, International Economic DataBank, Australian National University, Canberra – specified to the three digit level.

**Table 6** Changes in New Zealand's World Market Shares of Exports (percent)

PRODUCT CATEGORY	1985-	1990-	1995-		
	1989	1994	1999	y/x = c	z/x = d
	x	y	z		
<b>Primary products</b>	0.82	0.83	0.82	1.01	1.00
Food	1.39	1.37	1.35	0.99	0.98
Agricultural Raw Materials	2.00	1.85	1.77	0.93	0.89
- <i>Textile fibres</i>	4.47	2.76	2.45	0.62	0.55
Crude Fertilisers & Mineral Ores	0.10	0.11	0.10	1.13	1.02
Mineral Fuels	0.04	0.09	0.07	2.23	1.79
Non-ferrous Metals	0.70	0.59	0.57	0.84	0.80
<b>Manufactured products</b>	0.10	0.10	0.10	1.00	1.06
Chemicals	0.16	0.19	0.21	1.14	1.26
Iron and Steel	0.10	0.16	0.13	1.70	1.39
Machinery & Equipment	0.04	0.04	0.05	1.04	1.36
Other Manufactured Products	0.16	0.14	0.14	0.89	0.90
- <i>Leather &amp; travel goods</i>	0.67	0.60	0.64	0.89	0.95
- <i>Wood products</i>	0.51	0.41	0.52	0.82	1.04
<b>Goods not classified</b>	0.21	0.18	0.10	0.84	0.50
<b>All product categories</b>	0.30	0.28	0.26	0.92	0.85



Source: UN trade data, International Economic DataBank, Australian National University, Canberra – specified to the three digit level.

Considering all product categories, both Australia and New Zealand have been losing competitiveness, although Australia is gaining competitiveness in primary products such as crude fertilisers, mineral ores, non-ferrous metals, and some manufactured products such as leather goods. New Zealand competitiveness increased in mineral fuels, iron, steel, and machinery equipment. Surprisingly, there is little difference between the changes in competitiveness between Australia and New Zealand through time. New Zealand gained competitiveness in most primary products but lost competitiveness in most manufactured products relative to Australia for both time periods, i.e., 1985-89 and 1990-95. However, New Zealand lost its competitiveness relative to Australia in almost all products in both the times period, i.e., 1985-89 and 1995-99 (see row ‘all product’ category of Table 6). Once again this may be due to the differential impacts of the commercial policies and the overall economic performance of each country.

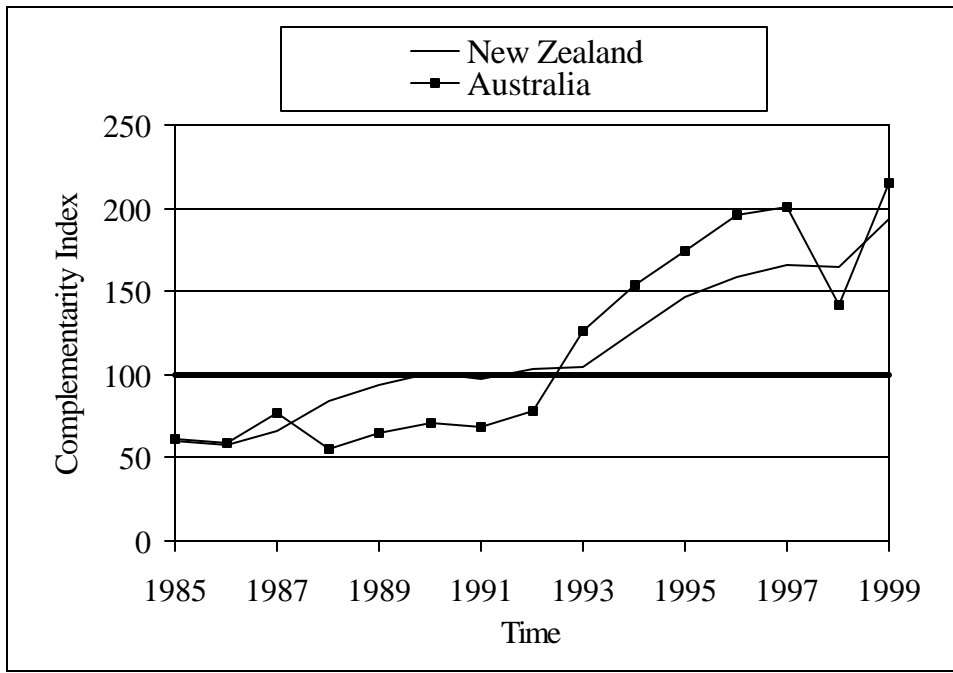
### 4.3 Complementarity in Trade

Australia and New Zealand have broad comparative advantage in primary products and comparative disadvantage in manufacturing products as seen in Tables 3 and 4. This may be expected given their relative factor endowments. It implies that these two countries are competitors in international trade. However, such broad sectoral analysis does not give any clear indication of industry-level complementarity. Complementarity is the degree of matching of one country’s exports with a partner’s imports as compared with the world’s imports. In other words, complementarity measures how well one country’s specialisation in exports complements another country’s import demands, and hence it measures the potential for cooperation rather than competition in trade. An index for assessing trade complementarity has been constructed by Drysdale (1967). It takes the following form:

$$C_{ij} = \sum_k \frac{X_{iw}^k}{X_{iw}^k} \cdot \frac{M_{ww} - M_{iw}}{M_{ww}^k - M_{iw}^k} \cdot \frac{M_{jw}^k}{M_{jw}^k} \quad (9)$$

where  $C$  = complementarity,  $M$  = imports and  $j$  = partner country. It lies in the interval  $(0, +\infty)$ . An index of more than unity indicates the presence of complementarity, and an index of less than unity indicates the absence of complementarity.

Complementarity indices for Australia and New Zealand for the period 1985-99 are presented in Figure 1. For the purpose of presentation, each index value has been multiplied by 100. The figure indicates an interesting story. Firstly, complementarity between Australia and New Zealand did not exist prior to ANZCERTA. Australia and New Zealand were directly competing in the commodities that they traded. However, since the signing of ANZCERTA to 1999, complementarity between the two countries has increased, becoming positive (or greater than 100 for our purposes) in 1993, three years after free trade in goods was achieved. It is likely that increased specialisation of Australia and New Zealand's resources along the lines of comparative advantage has led to an increase in the matching of Australia and New Zealand's imports and exports. New Zealand's complementarity has been higher relative to Australia up until 1993, probably as a result of ANZCERTA, which gives support to our hypothesis. However, from 1993 to 1999, Australia complementarity increased relative to New Zealand. This trend is a likely reflection of the differences in commercial policies and the productivity gains achieved during the late 1990s. Note the decline in Australia and New Zealand's complementarity index in 1998 as a result of the Asian crisis, where both these nations have a large trading share. The sharp decline in demand for exports due to the crisis resulted in decreased competitiveness of Australia and New Zealand's exports and hence, suppressed the ability for producers to exploit their complementarity in trade.



**Figure 1** Complementary indices for Australia and New Zealand

Source: UN trade data, International Economic DataBank, Australian National University, Canberra – specified to the three digit level.

## Conclusion

This paper presents a quantitative analysis of the impact of the Closer Economic Relations Agreement between Australia and New Zealand on revealed comparative advantage, competitiveness in trade and complementarity in trade between Australia and New Zealand. The Australia-New Zealand Closer Economic Relations Trade Agreement was signed in 1983 with the objective of bilateral free trade in goods between the two countries was achieved in 1990.

The results indicate that Australia and New Zealand have comparative advantage in primary products, especially textile fibres (and except for crude fertilisers, mineral ores and mineral fuels in New Zealand's case). Both countries have comparative disadvantage in the majority of manufactured products. In most commodity groups, New Zealand's comparative advantage in primary products increased at a faster rate than Australia's between the two time periods 1985-89 and 1990-94. This is consistent with trade theory that states that the benefits of trade liberalisation will be greater for countries gaining free trade access to a larger partner

country. On the other hand, Australia's comparative advantage increased in all products at a faster rate during the later time period, 1995-99, than New Zealand.

Measuring the competitiveness of all product categories, the results indicate that Australia gained competitiveness in some primary and some manufactured products while New Zealand gained competitiveness in most primary products but lost competitiveness in most manufactured products relative to Australia for both time periods, i.e., 1985-89 and 1990-95. In the final estimation, the results indicate that complementarity between the two countries increased after the initiation of the free trade agreement. It is likely that increased specialisation of Australia and New Zealand's resources along the lines of comparative advantage has led to an increase in the matching of Australia and New Zealand's imports and exports. New Zealand's complementarity has been higher relative to Australia up until 1993, providing support for the view of the small country effect. The period 1993-99 shows increased complementarity for Australia. The differences in comparative advantage, competitiveness and complementarity may be due to the difference in commercial policies implemented in the late 1990s, as well as productivity growth and output of export commodities of these two countries.

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