HAS TRADE BECOME MORE INTEGRATED IN THE ASIA PACIFIC ECONOMIC COOPERATION REGION?

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ABSTRACT In this study the degree of integration members of APEC have achieved is assessed using trade intensity indices. Trade intensity indices summarise information on the geographical, social and historical links two trading nations have, along with the particular commodity composition of their trade, relative to how they trade with the rest of the world. Indices are calculated for the period 1995-97 and compared with the results of an earlier study on the region. It was found that the APEC nations have a high degree of trade intensity with one another, which is not due to the complementary nature of the goods they produce. Further, it was found that this trading pattern existed well before the establishment of the APEC agreement.

1. INTRODUCTION

The Asia and Pacific Economic Cooperation (hereafter APEC) grew in part, out of concern that the Uruguay Round of the General Agreement of Tariffs and Trade might fail. In response to this possibility, countries around the globe aligned themselves into regional trading blocs. The aim of APEC is to establish an open multilateral trading system or a free trade area between the member countries[1]. APEC not only includes the major economic powers in the region, but could also be viewed as an attempt to amalgamate a number of existing trading blocs and other non-aligned, yet major, regional economic powers. These include the Closer Economic Relations agreement between Australia and New Zealand, the North American Free Trade Area and the Association of South East Asian Nations. APEC was initiated by the Australian Government as a platform to promote regional trade in the Asian-Pacific basin and not as a protectionist trading bloc or customs union, like the European Union. However, a number of the existing trading blocs and individual member countries within APEC have quite restrictive policies (Adamson and Davidson, 1995).

The benefits of joining a regional open multicultural trading system are achieved by both increasing the access countries have to markets in other member countries and by specialising in the production and trade of a particular pattern of commodities desired by other member countries. Both these activities will increase what Drysdale (1988) calls the 'trade intensity' between countries. As the degree

[1] Seventeen countries are involved in APEC. They are Australia, Brunei Darrussalam (hereafter known as Brunei), Canada, Chile, China (which now includes Hong Kong), Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, the Philippines, Singapore, Taiwan, Thailand and the USA.

of trade intensity increases between nations, those countries become more integrated, fostering comparative advantages and hopefully growth. However, it should be noted that joining a regional trading bloc will change a country's trading relationship with all nations, not just those within the bloc, strengthening some and weakening others. Thus, the great fear a country has in joining a regional trading bloc is that any benefits gained from increased trade with member countries will be dissipated by lost opportunities with non-member countries.

In the case of the APEC region this is not a major concern, as that trading bloc is best described as Free Trade Area. With Free Trade Areas, member countries agree to reduce and even eliminate tariffs and other barriers to trade between members, yet allow each country to retain its own barriers with the rest of the world. With other forms of economic cooperation, such as Customer Union, Common Market or an Economic Union, member countries agree on a common external trade barrier with the rest of the world, while maintaining free trade within the bloc The common external trade barrier in a bloc like a Customs Union, is usually very high and encompasses a wide range of commodities, as individual countries make their existing trade protection regime a condition of their entry into the bloc. Conversely, in Free Trade Areas, external trade barriers are generally low as countries outside the bloc can import goods into the member country with the lowest barrier and then re-export it to other member countries. What this means for countries joining a Free Trade Area is that all should experience greater integration and trade intensity with other member countries and thus grow at a greater rate. If this is not the case then it must be asked *why bother joining?*

The purpose in this study is to assess whether greater economic integration has occurred amongst selected members of APEC, and to ascertain whether it has changed since the trading bloc was formed. The countries chosen for assessment are Australia, Brunei, Canada, China, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore, Taiwan, Thailand and the USA. It should be noted that due to their late inclusion Chile, Mexico and Papua New Guinea are not included in this analysis. Furthermore, given the recent incorporation of Hong Kong into China, these two regions are treated separately. If any country in APEC is to gain from the relationship, first and foremost trade intensity should have increased amongst member countries, as that is the aim of entering into the APEC arrangement. While it could be argued that the sizeable and tangible benefits from APEC will not be realised until trade and investment controls are fully liberated (in 2010 for industrialised members and 2020 for the other economies), significant reforms have already occurred since 1980, which provide enough evidence to suggest that the process of cooperation should continue.

In undertaking these tasks, first the changes brought about by the introduction of greater cooperation in the APEC region are presented. Then the method of calculating trade intensity indices is discussed. The results of the degree of trade intensity in 1995-97 are then presented. These results are compared with those derived by Drysdale (1988) to assess how trade intensity has changed since the late 1970s.

2. CHANGES IN THE WAY TRADE IS CONDUCTED IN THE APEC REGION

The formation of APEC is an act of economic integration. Integration is an attempt to strengthen the links between two or more countries. While there are many forms of integration (political, cultural, fiscal, monetary, etc.) economic integration essentially revolves around trade issues. With increased integration the trade links between member countries change, enabling the most efficient producer to supply goods to other members' markets and to encourage bilateral trade in complementary goods. Robson (1987) described the necessary conditions for economic integration's fullest attainment to include:

> *"...the freedom of the movement of goods and of factors of production....an absence of discrimination amongst the members of the group. In addition, where resources are allocated by the price mechanism, measures will be required to ensure that the market provides the right signals, and institutions will also be required to give effort to the integrating force of the market."* (Robson 1987, p.1)

The purpose in this section is to briefly outline the actions members of APEC have undertaken to promote greater economic integration. Much of this material is drawn from APEC (1997).

Significant advances have been made in the area of trade reform in the APEC region since the late 1980s. These reforms have occurred at a multilateral, unilateral and subregional level. The measures are best described in terms of reductions in tariff rates (see Table 1). APEC (1997) reports that the unweighted average tariff rate for the region fell from 15.4 per cent in 1988 to 9.1 per cent in 1996. Within APEC four nations have little or no tariff barriers, while only four had tariffs higher than 15 per cent by 1996. In Thailand tariffs on all products rose, while in the Philippines they first fell and then rose. However, a breakdown of tariff reductions according to sectors reveals a slightly different picture. In terms of primary products tariffs rose in Japan, Korea, Thailand and the United States, *albeit* by a minor amount. The tariff rates on manufactured goods fell in all reported regions, with the exception of Thailand. Finally, it would appear that in general the standard deviation of tariff rates appears to be declining significantly. This means that countries are tending to withdraw protection from selected products and take a more even approach to the problem (World Bank, 1998). In conjunction with a reduction in tariff rates APEC (1997) reports that non-tariff measures have also been liberalised.

Table 1. Levels of Protection in Selected APEC Countries (%)

Country	Year	All Products			Primary Products			Manufactured Products		
		Mean Tariff	Standard Deviation of Tariff Rates	Weighted Mean Tariff	Mean Tariff	Standard Deviation of Tariff Rates	Weighted Mean Tariff	Mean Tariff	Standard Deviation of Tariff Rates	Weighted Mean Tariff
Australia	1991	12.9	15.1	10.4	2.6	5.3	1.4	15.5	15.7	13.1
	1993	9.8	11.9	7.7	2.5	4.8	1.3	11.7	12.4	9.7
	1997	5.7	8.2	3.9	1.2	2.2	0.7	6.8	8.7	4.6
Canada	1989	8.8	7.2	7.0	5.0	5.9	2.9	9.9	7.1	8.2
	1993	8.7	7.0	6.8	4.7	5.8	2.7	9.7	6.9	8.0
	1997	6.0	8.1	5.2	4.0	12.4	3.0	6.5	6.4	5.9
China	1992	42.9	32.1	40.6	36.2	26.2	22.3	44.9	33.4	46.5
	1993	39.9	29.9	38.4	33.3	24.7	20.9	41.8	31.0	44.0
	1997	17.8	13.2	20.9	17.8	18.2	19.9	17.8	11.2	21.2
Indonesia	1993	19.4	16.1	21.7	16.7	12.3	10.0	20.3	17.0	25.4
	1996	13.2	17.0	17.6	12.3	19.4	8.5	13.5	16.1	20.9
Japan	1989	6.7	7.8	3.4	8.9	10.2	4.8	6.0	6.7	3.1
	1991	6.3	8.7	3.0	9.4	11.9	5.3	5.3	6.9	2.5
	1993	6.3	8.3	3.0	9.2	10.9	4.9	5.3	7.0	2.5
	1997	6.0	8.0	2.7	9.1	10.7	4.0	4.8	6.4	2.3

Table 1 (continued)

Country	Year	All Products			Primary Products			Manufactured Products		
		Mean Tariff	Standard Deviation of Tariff Rates	Weighted Mean Tariff	Mean Tariff	Standard Deviation of Tariff Rates	Weighted Mean Tariff	Mean Tariff	Standard Deviation of Tariff Rates	Weighted Mean Tariff
Korea	1990	13.3	6.7	12.3	15.7	13.0	11.0	12.7	2.9	12.6
	1992	11.6	6.5	10.7	14.6	12.6	10.3	10.8	2.2	10.8
	1996	11.3	27.0	10.1	21.2	48.4	16.7	8.2	14.0	7.8
Malaysia	1988	17.0	14.2	12.6	15.8	10.7	6.3	17.6	15.6	14.4
	1991	16.9	14.7	12.5	15.3	10.6	6.0	17.8	16.3	14.4
	1993	14.3	14.1	11.1	10.9	12.7	6.0	15.3	14.3	12.6
	1997	9.1	19.4	11.9	4.1	21.2	9.4	12.2	17.5	12.8
New Zealand	1992	8.7	1.1	8.1	4.4	6.3	2.3	9.9	11.3	9.9
	1993	8.5	10.3	7.7	4.3	6.0	2.1	9.7	11.0	9.4
	1997	5.4	7.1	5.2	2.5	3.7	1.2	6.3	7.6	6.7
Philippines	1988	28.2	15.1	27.2	28.9	16.2	22.0	28.0	14.7	28.8
	1990	19.7	9.2	18.3	20.4	9.8	15.7	19.4	9.0	19.2
	1993	22.5	14.1	20.2	23.9	15.3	17.9	22.1	13.7	21.0
	1995	27.6	4.9	27.0	28.9	4.5	22.7	27.2	5.0	27.9
Thailand	1989	39.8	23.0	38.7	32.7	19.1	25.5	41.7	23.6	42.4
	1991	39.9	23.0	38.8	32.8	19.1	25.5	41.8	23.6	42.4
	1993	45.6	25.0	41.5	40.3	19.4	33.9	47.2	26.2	43.7
United States	1989	6.3	6.1	4.4	4.5	6.4	2.4	6.7	5.9	4.8
	1991	6.3	6.1	4.4	4.6	6.5	2.4	6.7	5.9	4.8
	1993	6.4	6.1	4.4	4.6	6.5	2.4	6.7	5.9	4.8
	1996	6.0	12.4	4.2	6.9	25.7	3.4	5.8	5.8	4.4

Source: World Bank (1998) World Development Indicators, Washington.

Since the formation of APEC a number of ministerial meetings have been held to map out the future direction of the organisation. The most important outcomes of those meetings were encapsulated in the Bogor Declaration of 1994 and the Osaka Action Plan of 1995. In 1996 the Manila Action Plan for APEC was agreed to, in which individual nations' action plans and collective activities were agreed upon. These actions include free and open trade by the year 2010 for developed economies and 2020 for the rest, the expansion of trade facilitation programs and intensified development cooperation. It has been estimated that if these plans were implemented, the Gross Domestic Product of member states would increase by 0.4 per cent and global output would rise by 0.2 per cent (APEC, 1997). To gain some order of magnitude these gains represent nearly one quarter of those estimated to be derived from the Uruguay Round of GATT. Thus, it would appear that greater integration through APEC is an ideal worth pursuing.

3. TRADE INTENSITY INDICES - A MEASURE OF THE BIAS AND COMPLEMENTARITY OF BILATERAL TRADING PATTERNS

Robson (1987) and Jovanic (1992) suggest three methods of assessing the degree of economic integration between nations. These are:

- an analytical approach where empirical data are studied on either an *ex-post* or *ex-ante* evaluation;
- a residual method which can only be used on an *ex-post* basis as it depends on the results from amalgamation versus the hypothetical economic activity without integration; and
- a survey technique where expert opinion is analysed.

Since APEC is still in its infancy an *ex-ante* study has to be undertaken. Furthermore, an analytical approach is preferred over a survey technique as expert opinion is at times difficult to obtain and could be biased as APEC has entered the political agenda in many countries in light of the Asian Economic Crisis (Adamson and Davidson, 1995).

Drysdale (1988) outlined a method which enables the degree of integration to be tested. This method involves calculating the trade intensity and incorporates the degree of complementarity and the bias of a bilateral trading relationship. Drysdale argues that two countries trade:

> *"...more or less intensively with each other than they do with the rest of the world because of the particular commodity composition of their trade in relation to world trade – this many be called the degree of complementarity in bilateral trade – and because of their geographic proximity or special institutional or historic ties – this may be called the degree of country bias in trade. Both factors jointly determine the intensity of trade among pairs of countries ..."* (Drysdale, 1988, p. 85)

Hence, to assess the degree of trade intensity, which is a measure of the degree

of integration of two countries, it is necessary to measure the degree of complementarity and country bias between them.

Trade complementarity is a relative measure of the extent to which one country's commodity export pattern matches another country's commodity import pattern more closely than it matches the pattern of world imports. The complementary trade index between two trading countries can be specified as:

$$C_{ij} = \sum_{k}^{n} [(x_{ik} / x_i) * (T/T_k) * (m_{jk} / m_j)] , \qquad (1)$$

where:

C_{jj} is the complementarily in bilateral trade between country i (the exporter) and j (the importer);
x_{ik} is the total of country i's exports of commodity k;
x_i is the total exports from country i;
T is the total world imports;
T_k is the total world imports of commodity k;
m_{jk} is the country j's imports of commodity k; and
m_j is the country j's total imports.

An index of the country bias in a nation's trading position measures:

> *"...the extent to which, on average, i's exports have more or less favourable access to j's import markets than might be expected simply from both countries' share of world trade in each commodity."* (Drysdale, 1988, p.86)

The country bias index can be calculated by:

$$B_{ij} = x_{ij} / \sum_{k}^{n} \left(\frac{x_{ik} * m_{jk}}{T_k} \right) \qquad (2)$$

where:

Bij is the country bias index for exports from i to j;

x_{ij} is the exports from country i to country j;

x_{ik} is the total of i's exports of commodity k;

m_{jk} is the country j's imports of commodity k; and

T_k is the total world imports of commodity k.

Complementarity and country bias indices together determine trade intensity. A trade intensity index measures:

> *"...the extent to which country* j*'s share of* i*'s total export is large or small in relation to* j*'s share in world trade."* (Drysdale, 1988; p.86).

It can be calculated by multiplying the complementary and country bias indices together. Consequently, trade intensity for country i, which exports to country j, can be calculated by:

$$I_{ij} = C_{ij} B_{ij} \tag{3}$$

where:

I_{ij} is the trade intensity index; and all other variables are as defined above.

For the complementarity and country bias indices, a value equal to unity indicates that the relationship between the two trading nations is no different to that which exists between the exporting country and the rest of the world. Hence, a value greater than one indicates a favourable trading relationship or a relative trade share higher than that which the exporting country has with the rest of the world. A value less than one reflects an unfavourable trading relationship or a relative trade share that is less than that which exists between that country and the rest of the world. If the trade intensity index is greater than one, then this reflects a greater degree of economic integration exists between the two trading partners, than exists with the exporting country and the rest of the world. A value of less than one reflects less integration between the exporting country and the importing country than exists with that exporting country and the rest of the world. While trade intensity, complementary and country bias indices can be assessed for each bilateral flow, of interest in this study is the number of countries each exporter has either a favourable or unfavourable relationship and what the average index number each country has into the region.

To calculate the indices, and to make them comparable with Drysdale's (1987) results, exports and imports from 14 countries in the region were arranged over the period 1995-97. This process avoided any concerns associated with anomalies that can occur in an individual year. Data on imports and exports from individual countries and the level of world trade was obtained from the IMF (1998). The trade composition (x_{ik} and m_{jk}) was obtained from the World Bank (1992). This data was separated into four major categories of agriculture, machinery, manufacturing and fuels, minerals and metals. It should be noted that the World Bank has not updated the trade composition data since 1990. Thus, the implicit assumption in this analysis is that countries have not changed the composition of their trading patterns during the first half of the 1990s.[2]

[2] The algorithm used to compute the indices was developed by Adamson (1993) and used in Adamson and Davidson (1995) and is based on a Microsoft Excel Spreadsheet.

4. RESULTS

The purpose in this section is to comment on the results of estimating the trade intensity, complementarily and country bias indices for the period 1995-97 and the comparison of them with those derived by Drysdale (1988). Emphasis is placed on whether countries in the region are highly integrated or not, what this degree of integration might be due to and if a country's trade intensity to the region has increased in the past 20 years.

Indices of trade intensity, complementarity and country bias summarise a vast amount of statistical data on a country's bilateral trade. To understand the estimates of the trade intensity, complementarily and country bias indices reported in Tables 2, 3 and 4, it must be remembered that bilateral trade flows are assessed in this analysis. Consequently exports from each market to every other market will not be symmetrical. In other words the balance of trade between any two trading countries does not, and has never had to, balance. The way to read Tables 2, 3 and 4 is that the country in which exports originate from is specified in the first column. The country in which the exports are sent to is reported in the top row. For example, in Table 2 the trade intensity index for trade flows from Australia to Brunei equals 0.22, while the trade intensity index for trade flows from Brunei to Australia equals 1.08.

4.1 The Degree of Integration in 1995-97

It would appear that in 1995-97 the countries that form the APEC region trade intensively with one another (see Table 2). Assessing the flow of exports from each country to the region only Canada on average trades less intensively with countries within the region than with countries outside the region. In other words, imports from the APEC region constitute a smaller proportion of Canada's exports than it receives from the rest of the world. The average trade intensity ranges from 0.84 for Canada to 2.77 for New Zealand and 2.81 for Australia. The intensity of trade from Australia, China, Singapore, Malaysia, Japan, New Zealand and Brunei is on average at least twice that which each country has to the rest of the world. Ten of the 15 countries assessed have a more favourable trading relationship with more than nine other countries in the region compared to that each have with the rest of the world. Only New Zealand, Brunei and Canada have a relationship with at most only five other countries in the region. Even so, the average trade intensity index for New Zealand and Brunei is still greater than two.

4.2 Sources of the Current Degree of Integration

It can be concluded that the members of the APEC region trade intensively with one another and thus the economies of the region are highly integrated. Furthermore, it would appear that this intensity is due to the degree of country bias rather than complementarity in bilateral trade between nations.

Table 2. Trade Intensity Indices for the APEC Region 1995-97

From Country	To: Australia	Brunei	Canada	China	Hong Kong	Indonesia	Japan	Korea	Malaysia	New Zealand	Philippines	Singapore	Taiwan	Thailand	USA	Average
Australia	-	0.22	0.34	1.05	1.28	2.37	1.75	1.35	1.52	19.08	0.83	2.16	1.66	1.42	1.74	2.81
Brunei	1.08	-	0.03	0.29	0.19	0.90	0.43	0.00	5.06	0.81	0.18	16.36	0.25	1.60	0.52	2.13
Canada	0.47	0.00	-	0.32	0.44	0.24	0.41	0.35	0.23	0.46	0.42	0.11	0.60	0.33	6.55	0.84
China	1.81	0.00	0.38	-	13.28	1.62	1.99	3.39	0.95	1.01	0.49	1.07	5.49	1.20	0.75	2.57
Hong Kong	1.09	0.00	0.14	6.24	-	0.89	1.69	2.29	1.49	0.80	1.14	2.28	3.89	1.50	0.61	1.85
Indonesia	4.89	0.00	0.34	1.24	0.70	-	2.91	3.14	1.88	1.99	0.46	2.43	2.02	2.26	0.80	1.93
Japan	3.25	0.10	0.60	2.96	0.98	4.00	-	1.91	2.01	2.39	2.59	1.20	1.95	2.53	1.63	2.15
Korea	3.21	0.00	0.37	1.80	0.59	2.44	2.54	-	1.12	1.78	0.82	1.27	0.86	0.62	1.52	1.46
Malaysia	1.96	0.00	0.13	0.64	0.62	1.64	2.48	2.02	-	1.53	1.90	12.35	2.35	2.41	1.01	2.39
New Zealand	26.79	0.02	0.27	0.54	0.67	0.82	1.37	0.00	1.00	-	0.44	1.16	1.23	0.63	1.06	2.77
Philippines	2.11	0.00	0.16	1.03	1.74	1.99	2.81	2.27	1.77	1.86	-	2.88	2.47	1.51	1.47	1.85
Singapore	1.91	0.04	0.08	0.99	1.13	3.16	2.07	2.00	8.36	0.62	2.50	-	1.96	5.10	1.08	2.38
Taiwan	2.36	0.02	0.22	0.99	1.30	1.82	3.34	1.65	1.99	1.42	1.93	2.15	-	1.31	1.58	1.70
Thailand	1.64	0.07	0.14	0.71	0.75	1.20	3.15	1.43	2.95	1.00	2.39	4.08	2.11	-	0.85	1.72
USA	0.43	0.00	5.29	1.12	1.39	0.90	1.79	1.11	1.23	0.64	2.23	1.19	1.83	1.18	-	1.57

Table 3. Trade Complementarily Indices for the APEC Region 1995-97

From Country	To Australia	Brunei	Canada	China	Hong Kong	Indonesia	Japan	Korea	Malaysia	New Zealand	Philippines	Singapore	Taiwan	Thailand	USA	Average
Australia	-	0.53	0.93	1.02	1.13	0.70	1.19	1.14	0.81	0.68	0.90	1.00	0.91	0.93	1.04	0.95
Brunei	0.79	-	0.93	0.94	1.03	0.64	1.07	1.05	0.96	1.08	0.97	0.92	1.12	1.09	1.04	1.05
Canada	0.79	1.05	-	0.92	0.98	0.66	1.25	1.07	0.86	0.68	0.81	1.07	0.97	0.88	1.08	0.92
China	1.17	2.32	1.12	-	0.84	1.40	1.03	0.92	1.02	0.69	0.87	1.20	0.79	0.74	0.98	0.98
Hong Kong	0.87	1.27	0.97	1.07	-	0.97	1.11	1.11	0.81	0.60	0.93	1.04	0.79	0.87	0.99	0.93
Indonesia	1.34	2.91	1.20	0.95	0.69	-	0.98	0.81	1.13	0.76	0.86	1.28	0.79	0.68	0.96	0.96
Japan	1.54	3.50	1.12	0.98	0.75	1.64	-	0.75	1.34	1.55	1.18	0.99	1.10	1.08	0.88	1.15
Korea	1.35	2.83	1.19	1.01	0.77	1.70	0.95	-	1.07	0.68	0.88	1.27	0.71	0.67	0.94	1.01
Malaysia	0.74	1.26	1.06	0.79	0.86	0.79	1.35	1.02	-	0.53	0.70	1.21	0.93	0.75	1.12	0.91
New Zealand	0.82	1.26	0.97	0.97	1.07	0.82	1.15	1.09	0.88	-	0.92	1.03	0.94	0.94	1.04	0.97
Philippines	1.19	2.26	1.08	0.97	0.94	1.40	0.95	0.95	0.99	0.76	-	1.12	0.78	0.81	0.94	0.99
Singapore	0.83	1.50	1.09	0.79	0.82	0.94	1.32	0.99	0.92	0.51	0.70	-	0.88	0.71	1.10	0.89
Taiwan	1.19	2.35	1.14	0.90	0.84	1.45	1.04	0.92	1.00	0.63	0.86	1.23	-	0.70	0.97	0.99
Thailand	1.30	2.02	0.92	1.29	1.40	1.63	0.65	1.13	0.79	0.70	1.27	0.89	0.51	-	0.76	1.02
USA	0.94	1.64	1.02	0.94	0.98	1.00	1.09	1.02	0.94	0.78	0.91	1.07	0.91	0.89	-	0.96

Table 4. Country Bias Indices for the APEC Region 1995-97

From Country	To: Australia	Brunei	Canada	China	Hong Kong	Indonesia	Japan	Korea	Malaysia	New Zealand	Philippines	Singapore	Taiwan	Thailand	USA	Average
Australia	-	0.42	0.36	1.03	1.14	3.39	1.47	1.19	1.88	28.18	0.92	2.15	1.83	1.52	1.67	3.59
Brunei	1.37	-	0.03	0.31	0.19	1.41	0.40	0.00	5.25	0.76	0.18	17.78	0.22	1.47	0.50	2.30
Canada	0.60	0.00	-	0.35	0.45	0.37	0.32	0.33	0.26	0.68	0.52	0.10	0.62	0.37	6.06	0.85
China	1.55	0.00	0.34	-	15.83	1.15	1.93	3.70	0.93	1.46	0.56	0.89	6.94	1.62	0.77	2.90
Hong Kong	1.25	0.00	0.15	5.81	-	0.92	1.52	2.06	1.83	1.33	1.23	2.18	4.91	1.73	0.62	1.97
Indonesia	3.64	0.00	0.28	1.30	1.02	-	2.98	3.88	1.66	2.61	0.53	1.89	2.55	3.32	0.83	2.04
Japan	2.11	0.03	0.54	3.03	1.31	2.44	-	2.56	1.50	1.54	2.19	1.21	1.78	2.35	1.86	1.88
Korea	2.37	0.00	0.31	1.78	0.76	1.43	2.66	-	1.04	2.64	0.92	1.01	1.20	0.93	1.62	1.44
Malaysia	2.63	0.00	0.12	0.81	0.73	2.08	1.83	1.97	-	2.87	2.72	10.16	2.54	3.22	0.90	2.51
New Zealand	32.56	0.02	0.27	0.56	0.63	1.00	1.20	0.00	1.14	-	0.47	1.12	1.32	0.67	1.02	3.23
Philippines	1.78	0.00	0.15	1.06	1.85	1.42	2.95	2.38	1.79	2.45	-	2.56	3.17	1.87	1.57	1.92
Singapore	2.29	0.03	0.07	1.25	1.37	3.38	1.57	2.01	9.05	1.21	3.56	-	2.23	7.22	0.98	2.78
Taiwan	1.99	0.01	0.19	1.11	1.55	1.26	3.21	1.80	1.99	2.26	2.24	1.74	-	1.87	1.63	1.76
Thailand	1.26	0.03	0.15	0.56	0.53	0.74	4.82	1.26	3.75	1.42	1.89	4.60	4.10	-	1.12	2.01
USA	0.46	0.00	5.21	1.20	1.43	0.91	1.64	1.09	1.32	0.82	2.46	1.11	2.01	1.34	-	1.61

In 1995-97 only four countries (Brunei, Japan, Korea and Thailand) had an average complementary trade index which was greater than one. With the exception of Japan, where the index was 1.15, no other countries' complementary trade index was greater than 1.05. While the average complementary trade index for all countries assessed did not fall below 0.89 (for Singapore) no country other than Japan had a favourable relationship with more than half the other countries assessed.

Conversely, it would appear that the high degree of trade intensity amongst the APEC countries assessed is built upon either their geographic proximity and/or their institutional and historic ties. That is revealed when the indices of country bias are observed. All countries' exports, with the exception of Brunei and Canada, have an average country bias index that is greater than one into the region. This influence is extremely strong in Australia (3.59), New Zealand (3.23), Malaysia (2.51), Singapore (2.78), Brunei (2.30) and Indonesia (2.04). The only country with an index less than one is Canada. Two countries (Taiwan and the Philippines) have a country bias greater than one with 12 other countries in the region, while Australia and Singapore have a favourable country bias relationship with 11 countries. Only two countries, Canada and Korea, have an index which is less than 1.5.

4.3 Changes Over the Past 20 Years

The high levels of integration that exist between APEC countries, revealed in the trade intensity indices, would appear to be due not from differences in product complementarity, but due to country bias. Consequently, it must be asked whether this bias, i.e., close geographic proximity and cultural and historical ties, is due to anything related to the APEC agreement or not. This can be assessed by observing the change in trade intensities, complementarity and country bias that have occurred in the past 20 years. To do this, the results presented above are compared to those derived by Drysdale (1988) for the period 1979-81. It should be noted that as Drysdale did not calculate the indices for Brunei the changes could not be computed for that country

Drysdale (1988, p.88-9) found that:

> *"The intensity of trade among these East Asian and Pacific countries is by no means uniform, although it is commonly high. The mean trade intensity in ...(1979-81 was) 2.38. The data reveal ... only moderate complementarily for trade among these Pacific countries as a whole."*

The percentage change in the average trade intensity, complementarily and country bias indices from Drysdale's estimates over the period 1979-81 to the ones reported above are presented in Figure 1. The startling observation from Figure 1 is that the changes in average trade intensities have varied greatly across the countries assessed. Trade intensity only increased in six countries and fell in eight. Furthermore, that growth was only minor in comparison to the falls experienced.

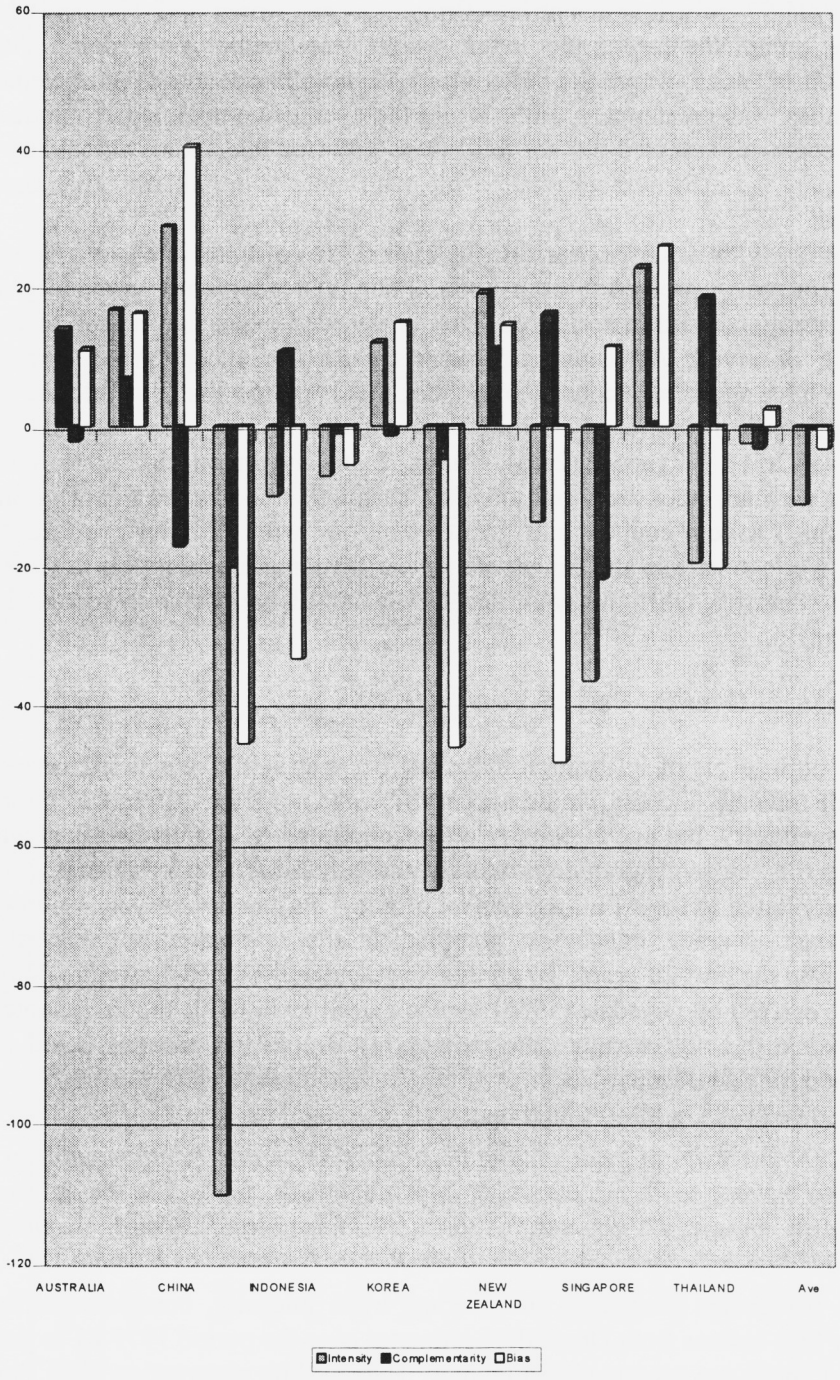

Figure 1. Percentage Change in Trade Intensity, Complementarity and Country Bias for Exports from Individual Countries into the APEC Region.

On average trade intensity appears to have fallen by nine per cent. The countries in which the trade intensity indices fell most in Hong Kong, Malaysia and Singapore, where the falls were greater than 30 per cent. Given the policies the Chinese have initiated to open their economy up over the period assessed one would expect their growth in trade intensity to be greater than any other country.

Disaggregating the trade intensity indices into their complementary and country bias components reveal that it is changes in bias that have caused most change. Only in Singapore did the average level of country bias move in an opposite direction to the movement in trade intensity. Complementarily has not, it would appear, a strong motivating force causing countries to become more integrated with one another.

5. DISCUSSION AND RESULTS

It would appear that the countries in the Asia Pacific region have had a long history of developing and integrating their economies, one that tends to precede the APEC agreement. The region is characterised by a number of cooperative agreements. Furthermore, while Asian Pacific global trade has grown rapidly since the 1950s, Drysdale (1988) points out that this has not been at the expense of inter-regional trade. A number of studies notably by Adamson (1993), Johansson and Spick (1981) and Ruthven (1998), support the view that the trade growth in the region is a product of its global trade growth. Thus, a close strong integrated trade network has existed amongst Asian Pacific nations which appears to have grown out of a need to sell more products outside the region.

However, it would also appear that the APEC agreement has not necessarily resulted in an increase in integration of these nations, as in some cases the changes in trade intensity has been either small or negative. Such a finding does not diminish the need to make further reforms to the factors which restrict trade within the region. Rather, it shows that the region can embrace greater levels of integration. The improvements that have been suggested for the future incorporation in the APEC agreement may well lead to an increase in the complementary aspects of trade. To date that has not occurred.

It is interesting to speculate why it is that the trade in complementary products is not great. Perhaps it is due to the fact that the region does not display the range of different economies which encourages complementarity trading patterns. The countries in the region can be split into two distinct groups (of developed and less-developed economies) which tend to be competitive, rather than complementary.

It would seem therefore, that countries in the APEC region can gain from moves towards greater integration. However, such a path is not easily followed in light of the Asian Economic Crisis. As Summers (1999) suggests the major reason restricting greater integration is the domestic political situation. The losers in each country know who they are and can become more organised than the winners. This could be most severe if issues which restrict the complementarity in trade are to be addressed. Once this is overcome, Summers believes that issues of national sovereignty and proper economic management still have to be reconciled with the

goal of greater economic integration.

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