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TRADING ARRANGEMENTS AND THEIR INFLUENCE ON NEW ZEALAND'S WELFARE, WITH PARTICULAR REFERENCE TO NAFTA.

A thesis
submitted in partial fulfilment
of the requirements for the Degree
of
Master of Agricultural Commerce
in the
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by
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Lincoln College

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Abstract of a thesis submitted in partial fulfilment of the requirements for the Degree of M. Agr. Com.

TRADING ARRANGEMENTS AND THEIR INFLUENCE ON NEW ZEALAND'S WELFARE, WITH PARTICULAR REFERENCE TO NAFTA.

by M.W. Cocks

This thesis looks at the estimation of trade creation and trade diversion resulting from a trade agreement, as a means of determining the net gains from bilateral trading agreements.

In particular this study looks at the actual and potential influence of the New Zealand Australia Free Trade Agreement (NAFTA) on New Zealand imports in terms of trade creation and trade diversion effects. A separate study was made and a set of estimates derived for ten different import commodity groups.

A partial equilibrium approach was used which involved deriving a New Zealand excess demand function for each of ten broad import commodity groups. From this trade creation and trade diversion resulting from tariff induced price changes was calculated. Estimates of trade creation and trade diversion were found for: tariff changes over the 1950-1972 period and the 1966-1972 period, for a 25 percent cut in the 1950-1972 average tariff, and a complete movement to free trade with Australia.

A movement to free trade was found to be necessary before values for trade creation became significant. However trade diversion was found to remain negligible even on a move to free trade. Welfare gains in general outweighed the welfare losses. This was particularly apparent for those commodity groups of most importance in New Zealand's import trade with Australia.

It would seem New Zealand has nothing to lose from granting an across the board tariff concession to Australia and may expect the benefits of reciprocal action by Australia towards New Zealand's exports.

CHAPTER I

INTRODUCTION

New Zealand has turned towards Australia for an ever increasing portion of its imports (see Table I.1), particularly as Australia has increased its exports of raw materials and industrial products. Although New Zealand has steadily increased its (initially small) percentage of exports destined for Australia, the magnitude of the imbalance of trans-Tasman trade has been growing. This continued imbalance in trans-Tasman trade has worried New Zealand politicians and trade policy makers considerably. Recently some have attempted to blame the maintained imbalance upon a supposed inequitable distribution of preferences under NAFTA, however work by Burtt (4) and Lloyd (10) have shown such criticism to be invalid.

Thus to achieve any close form of bilateral balance in trans-Tasman trade (a situation apparently thought necessary by some of New Zealand's leaders), it would seem considerable discouragement of Australian imports into New Zealand and or encouragement of New Zealand exports to Australia would be needed. Such an attempt at bilateral balancing in trade would involve the forgoing of welfare gains from trade available in a multilateral trading situation.

With recent pressures to revitalize NAFTA New Zealand must consider the possibilities of fully living up to the original 'free trade area' concept of the agreement. This study takes one side of such a move (i.e. the freeing of

TABLE I.1 New Zealand's Trade with Australia.

Year Ending	$000 CDV Imports From Australia	$000 CDV % of Total N.Z. Imports	$000 FOB Exports to Australia	$000 FOB % of Total N.Z. Exports	Ratio* N.Z. Imports to Exports
Dec. 1940	14,214	16.0	4,318	2.9	3.3 : 1
1945	26,895	15.1	7,372	5.2	3.6 : 1
1950	34,592	12.1	9,559	2.6	3.6 : 1
1955	60,956	12.2	13,384	2.6	4.6 : 1
1960	91,168	18.0	26,901	4.4	3.4 : 1
June 1965	127,968	19.3	34,568	4.7	3.7 : 1
1970	197,827	21.0	87,311	8.1	2.3 : 1
1972	267,288	23.2	112,812	8.3	2.4 : 1
1974	449,313	24.4	171,789	9.8	2.6 : 1
1976	514,464	19.1	288,360	12.2	1.8 : 1

Source: External Trade publications, New Zealand Department of Statistics.

*Ratio New Zealand imports from Australia (CDV) to New Zealand exports (FOB) to Australia.

tariffs on New Zealand imports of Australian goods) and looks at the welfare effects of past attempts at tariff liberalisation and potential tariff changes (in particular a movement to free trade).

Thus the primary objective of this study is to estimate the welfare effects of a further freeing of tariffs on imports from Australia. This involves the estimation of gains when switching from a high cost domestic producer to a cheaper imported source following a tariff removal (i.e. trade creation). This is then compared with the costs involved in switching from a cheaper to a relatively more expensive import source (trade diversion), brought about by the granting of tariff preferences to the more expensive source.

A secondary objective of the thesis is to show how the gains and losses from trade agreements in terms of trade creation and trade diversion can be analysed and a brief summary of methods used in the literature is made. A brief study of the 1961 New Zealand Malaysia Trade Agreement is made using one of these methods; it is included as an Appendix.

A further effort is made to emphasize the importance of trading arrangements in New Zealand's trading links and place NAFTA in the context of overall efforts towards integration of trans-Tasman trade.

A brief chapter outline is as follows:

Chapter II discusses the history and structure of New Zealand trading arrangements with special emphasis being placed on trans-Tasman trade history and the structure of NAFTA. A further mention is made of New Zealand's participation in

GATT and its relevance to the development of New Zealand's policy towards formal trading relations.

Chapter III covers a review of past attempts in the literature of estimations of trade creation and trade diversion and the derivation and estimation procedures of the model used in this study.

Chapter IV displays the estimates of trade creation and trade diversion and their interpretation.

Finally Chapter V presents the conclusions to the study.

CHAPTER II

HISTORY AND STRUCTURE OF NEW ZEALAND'S TRADING ARRANGEMENTS

1. A BRIEF HISTORY OF NEW ZEALAND TRADING ARRANGEMENTS

In 1840 New Zealand became a Colony and certain matters were handed over to the control of colonial legislatures but control over external relations (including the negotiation of treaties) was reserved for the Imperial Parliament. Commercial treaties concluded by the United Kingdom continued to automatically bind the Colonies.

However the last instance in which the Colonies were included without their consent in a commercial treaty was a treaty between the United Kingdom and Servia in 1880. Colonial governments secured a measure of independance and representation in treaty negotiations on a gradual basis but it was not until the Imperial Conference of 1923 that bilateral treaties imposing obligations on one part of the Empire only should not require the sanction of the Imperial Government. In 1928 New Zealand negotiated for the first time independantly, an Exchange of Notes establishing a commercial agreement (subject to further negotiation) between New Zealand and Japan.

As a result of a special clause included in trade agreements negotiated by the United Kingdom, the Commonwealth countries automatically received most-favoured-nation treatment with the United Kingdom's agreement partner. In 1945 New Zealand requested to be excluded from such clauses on the pretext that if such an agreement was desirable it would negotiate a separate agreement.

New Zealand was still party to a large number of bilateral agreements by 'inheritance',[1] however New Zealand had the right of renewal or withdrawal of such treaties. Generally these agreements were of little significance to trade (mostly being with respect to most-favoured-nation treatment).

Following a disagreement over the introduction of tariffs, New Zealand and Australia formed a trade agreement in 1922 under which both parties granted the other substantial tariff concessions.

With the establishment of a trade arrangement with Belgium in 1933 New Zealand started in earnest a true Most Favoured Nation Tariff, a forerunner of the General Agreement on Trade and Tariffs (GATT) Provisions of 1947.

The Ottawa Conference of 1932 resulted in the New Zealand Canadian Trade Agreement which in an amended form is still currently operative. The 1922 and 1933 trade agreements with Australia provided a basis for the 1965 New Zealand Australia Free Trade Agreement (NAFTA).

The most significant agreement in recent years affecting New Zealand trade has without a doubt, been the NAFTA agreement. However trading agreements with Japan (1958), West Germany (1959), Malaysia (1961) and Iran (1974), all included schedules of goods which were to be subject to trading preferences. The proliferation of agreements granting most-favoured-nation treatment was aimed at providing non-members

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[1] By 'inheritance' is meant agreements binding on New Zealand which were negotiated and signed by the United Kingdom on behalf of the Colonies.

of GATT the same trading rights as granted to GATT members.

More recently bilateral agreements have been used to grant credit to trading partners for the purchase of New Zealand products, for example India (1963), Peru (1969, 1974, 1975) and Indonesia (1970-1973, 1975).

Agreements are also continually being negotiated with respect to trade quotas and the amendment of existing agreements (usually involving a change in tariff preferences).

For a comprehensive list of bilateral trading arrangements New Zealand has entered between 1932 and 1975 see the following section.

2. NEW ZEALAND'S FORMAL BILATERAL TRADING ARRANGEMENTS[1]

This section contains a list of bilateral trading arrangements which New Zealand has entered in a formal manner since 1932. In addition New Zealand retained membership rights and obligations to a host of agreements[2] entered into by the United Kingdom on behalf of the Commonwealth.

In addition to these trading arrangements, New Zealand has entered a large number of bilateral agreements relating to a number of purposes such as navigation rights, transport, communications, foreign aid and the treatment of foreign travellers.

Trading Agreement list:-

1932 Canada - N.Z. Trade Agreement.
Signed 23rd April 1932, effective 24th May 1932.

1932 Brazil - N.Z. Exchange of Notes, according most-favoured-nation treatment to imports.
Signed 19th March 1932.
Reaffirmed in 1937.

1932 United Kingdom - N.Z. Trade Agreement, regarding quantitative restrictions of meat imports.

1933 Belgium - N.Z. Exchange of Notes, regarding commerce and navigation. Signed 5th December 1933, effective 16th December 1933.
Reaffirmed and expanded in 1936.

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[1] Sources:

New Zealand Treaty List, 31st March 1948.
New Zealand Department of External Affairs, Wellington.
New Zealand Treaty List, 1948-1960.
New Zealand Department of External Affairs, Wellington.
Annual Report of the Ministry of Foreign Affairs.
Ministry of Foreign Affairs, Wellington.

[2] For a detailed list of these agreements see the New Zealand Treaty List, 31st March 1948.

1933 Norway - N.Z. Exchange of Notes, regarding commerce and navigation.
Signed 20th October 1933, effective 27th October 1933.

1933 Australia - N.Z. Trade Agreement.
Signed September 1933, effective 1st December 1933.

1937 France - N.Z. Exchange of Notes, regarding the import of New Zealand kauri gum into France.
Signed 23rd July 1937, effective 20th August 1937.

1937 Germany - N.Z. Trade Agreement.
Signed 30th September 1937, effective 12th October 1937.

1935 Sweden - N.Z. Exchange of Notes, regarding commerce and navigation.
Signed 24th May 1935.

1938 Colombia - N.Z. Reaffirming 1866 Treaty, regarding commerce and navigation.
Signed 30th December 1938.

1938 Switzerland - N.Z. Exchange of Notes, regarding commercial relations.
Signed 5th May 1938.
This agreement was modified by an Exchange of Notes dated:
3rd June 1955
21st December 1955
6th March 1957.

1938 Netherland - N.Z. Exchange of Notes, constituting a trade agreement.
Signed 22nd December 1937, effective 14th January 1938.

1944 Australia - N.Z. Trade Agreement.
Signed 21st January 1944, effective 1st February 1944.

1948 Czechoslavakia - N.Z. Agreement regarding the granting of credits for the purchase of New Zealand wool.
Signed 22nd January 1948.

1957 United Kingdom - N.Z. Agreement modifying and supplementing the trade agreement of 1932.
Signed 28th May 1957.

1958 Japan - N.Z. Agreement on Commerce.
Signed 9th September 1958.

1959 Federal Republic of Germany - N.Z. Trade Agreement.
Signed 20th April 1959, effective 1st April 1959.

1959 United Kingdom - N.Z. Trade Agreement.
Replaced most of the 1932 and 1957 agreements.
Signed 12th August 1959, effective 25th November 1958.

1960 Federal Republic of Germany - N.Z. Amendment to the 1959 Agreement.
Signed 24th March 1960.

1960 Yugoslavia - N.Z. Exchange of Notes, constituting a trade agreement.
Signed 24th August 1961, effective 9th September 1961.
This agreement was extended by an Exchange of Notes signed on 21st September 1962.

1961 Federation of Malaya - N.Z. Trade Agreement.
Signed 3rd February 1961, effective 8th June 1961.

1962 U.S.A. - N.Z. An Interim Agreement Concerning Tariff Concessions.
Signed 5th March 1962.
MFN treatment was granted to a schedule of goods until the GATT Protocol embodying this was ratified.

1963 India - N.Z. Agreement regarding the granting of a credit for the purpose of financing purchases of wool in New Zealand.
Signed 22 February 1963.

1963 United Kingdom - N.Z. Exchange of Notes, constituting an agreement, relating to the import of butter into the U.K.
Signed 15th May 1963.

1963 USSR - N.Z. Trade Agreement.
Signed 1st August 1963.
Each member accorded the other reciprocal MFN treatment.

1964 U.S.A. - N.Z. Exchange of Notes, constituting an agreement, concerning exports of beef and veal from N.Z. to U.S.A.
Signed 17th February 1964.
(This agreement provided quota limits for the entry of N.Z. beef to the U.S.A.)

1965 Poland - N.Z. Trade Agreement.
Signed July 1965.
Each member granted the other reciprocal MFN treatment.

1965 Australia - N.Z. Trade Agreement.
Signed 31st August 1965, effective 1st January 1966.
The establishment of the New Zealand Australia Free Trade Agreement.

1966 United Kingdom - N.Z. Trade Agreement.
Signed 24th November 1966, effective 1st January 1967.
(A modification of the 1959 Agreement.)

1966 United Kingdom - N.Z. An Exchange of Letters, constituting an agreement regarding the import of butter, apples and pears into the U.K.
Signed 24th November 1966.

1967 Republic of Korea - N.Z. Trade Agreement.
Signed 31st January 1967.
Contracting parties accorded each other unconditional MFN treatment.

1968 Peoples Republic of Bulgaria - N.Z. Trade Agreement.
Signed 3rd November 1967.
Contracting parties accorded each other unconditional MFN treatment.

1968 Republic of Philipines - N.Z. Trade Agreement.
Signed 19th July 1968.
Contracting parties accorded each other unconditional MFN treatment.

1969 Republic of Romania - N.Z. Trade Agreement.
Signed 14th March 1969.
Contracting parties accorded each other unconditional MFN treatment.

1969 Peru - N.Z. Agreement Concerning Credit, for the purchase of N.Z. dairy products.
Signed 3rd December 1969.

1970 Republic of Indonesia - N.Z. Agreement Concerning Credit, for the purchase of New Zealand goods.
Signed 30th April 1970, a further extension of this was signed 5th May 1971.

1970 Peoples Republic of Hungary - N.Z. Trade Agreement.
Signed 22nd December 1970.
Contracting parties accorded each other unconditional MFN treatment.

1970 U.S.A. - N.Z. Exchange of Notes, constituting an Agreement relating to the importation into U.S.A. of sheep and cattle meats during 1970.
Signed 29th January 1970.
Reaffirmed and amended on 30th March 1971 and 14th April 1972.

1970 Australia - N.Z. Exchange of Letters, amending the Agreement of 5th September 1933.
Signed 27th April 1970.

1970 Republic of Indonesia - N.Z. Exchange of Notes, concerning provision by N.Z. of a loan to Indonesia for the purchase of N.Z. goods.
Signed 30th April 1970.
Further extended by an Exchange of Letters on:
5th May 1971,
12th July 1972,
22nd June 1973,
29th January 1975.

1973 Australia - N.Z. Exchange of Letters, constituting an agreement concerning rates and margins of preference.
Signed 7th May 1973.

1973 Canada - N.Z. Exchange of Letters, concerning rates and margins of preference.
Signed 26th July 1973, effective 1st February 1973.

1973 Peoples Republic of China - N.Z. Trade Agreement.
Signed 9th October 1973.
Provided for most-favoured-nation treatment with respect to import and export licencing. Also included a schedule of goods to be subject to future consultation.

1974 Peru - N.Z. Trade Agreement, concerning credit of $5 million for the purchase of N.Z. meat products.
Signed 23rd March 1974, effective 1st March 1974.
An additional credit of $4 million for the purchase of N.Z. dairy products was signed on the 1st March 1974, effective from 1st January 1975.

1974 Iran - N.Z. Trade Agreement.
Signed 13th September 1974, effective 1st January 1975.
It was aimed at developing and extending trade by providing a schedule of goods for each country to grant special attention to.

1974 Australia - N.Z. Exchange of Letters, constituting an agreement extending the agreement of 7th May 1973.
Signed 26th September 1974.
Further extended on 27th March 1975.

1975 Malaysia - N.Z. Exchange of Letters, to amend and ratify the 1961 Trade Agreement.
Signed 14th February 1975, effective 14th February 1975.

1975 Yugoslavia - N.Z. Trade Agreement.
Signed 28th February 1975.

1975 Australia - N.Z. Exchange of Letters, concerning rates and margins of preference.
Signed 11th April 1975, effective 1st October 1975, and on 31st March 1976.

1975 U.S.A. - N.Z. Exchange of Letters, constituting an agreement concerning restraint upon the importation of certain meats into the U.S.A. during 1975.
Signed 9th June 1975.

3. NEW ZEALAND TRADE POLICY AND THE GENERAL AGREEMENT ON TRADE AND TARIFFS (GATT)

As New Zealand was one of the original Contracting Parties[1] to GATT it is interesting to briefly view the influencing factors on New Zealand trade policy of the obligations under GATT.

The GATT was a multilateral contract which resulted from negotiations in 1947 intended as a step to the establishment of an International Trade Organisation (ITO). With attempts to establish the ITO abandoned in 1950, GATT stood alone as the only international instrument which lays down a set of rules for conduct of trade.

(1) The Main Principles of GATT.

GATT is a multilateral trade treaty embodying reciprocal rights and obligations, with essentially four fundamental principles.[2]

(a) Trade should be conducted on a multilateral basis of non-discrimination, all contracting parties being bound by the Most-Favoured-Nation Clause.

(b) Protection should be given to domestic industries exclusively through a customs tariff and not via other commercial measures. The use of import quotas is prohibited except under very strict circumstances (e.g. to redress a serious balance of payments problem).

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[1] New Zealand was an original negotiating party at the conference that drafted GATT and signed the protocol to the Agreement on 7th March 1948.

[2] For a detailed discussion of the principles and operation of GATT see Jackson, J.H. (6).

(c) The maximum use of consultation should be made with the aim of avoiding damage to the trading interests of contracting parties.

(d) GATT provides a formal framework for the negotiated reduction of tariffs and other barriers and a structure for embodying the results of negotiation in a legal format.

(2) GATT and Bilateralism in Trade.

The encouragement of multilateralism in world trade is paramount in GATT's operations. GATT is firmly against bilateral agreements which restrict trade preferences and reduce the opportunity for other countries to compete.

The most difficult area facing GATT is that of non-tariff barriers to trade. GATT is firmly against such measures except in cases of serious trade imbalance. Until 1973 New Zealand justified its import licencing scheme to GATT under this exception. However the degree to which New Zealand suffers from quantitative restrictions in trying to sell its exports to other major GATT members (in particular the U.S.A., EEC countries and Japan), then New Zealand's quantitative restrictions seem a much lesser crime.

(3) The Most-Favoured-Nation Principle.[1]

As a member of GATT New Zealand is required by Article I of the Agreement to grant all advantages and privileges immediately and unconditionally in its trade with other GATT members. There is however, a complex web of exceptions and escape clauses to this rule. The principle exception is that this rule does not apply to those preferences which were in

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[1] See Espiell, H.G. (5) for a discussion of this clause.

force before 10th April 1947. Under Article I Paragraph 2 trading preferences are allowed subject to restrictions on their magnitude and aims (this clause is wide open to conflict of interpretation). Further major exceptions to most-favoured-nation obligations are found under Article XIV which allows quantitative restrictions in the case of balance of payments difficulties and Article XXIV which allows free trade areas and customs unions.

A substantial number of waivers have been granted from Article I obligations of original and new clauses along with some varied interpretations of the Agreement.

(4) GATT and the Free Trade Agreement.

Article XXIV states that the most-favoured-nation principle shall not prevent contracting parties from forming a customs union or free trade area. Clause 8 of the Article defines a free trade area as a group of two or more customs areas in which "the duties and other restrictive regulation of commerce .... are eliminated on substantially all the trade between the constituent territories in products originating in such territories."

Any member of GATT entering a free trade area is required to notify the Contracting Parties and make available information regarding the proposed union. Following a study of the free trade area proposal the Contracting Parties shall make recommendations to the parties of the agreement. Article XXIV Clause 7 states that "The parties shall not maintain or put into force, such an agreement if they are not prepared to modify it in accordance with these recommendations."

Following a study of the NAFTA proposals the Contracting Parties of GATT recommended the formal establishment of a 'plan and schedule' for the movement to a free trade area, as defined by GATT. It would appear that the parties to NAFTA have disregarded these recommendations and thus ignored Article XXIV Clause 7 of GATT as mentioned above.

4. A BRIEF HISTORY OF AUSTRALIA NEW ZEALAND TRADE RELATIONS

From about 1920 onwards every few years saw the development of some major problem of trade disagreement between New Zealand and Australia. In particular the imbalance of trade in Australia's favour was a constant annoyance to New Zealand.

The first formal trade agreement was negotiated in 1922. It provided for a mutual exchange of preferential tariff treatment for 129 items entering Australia-New Zealand trade at rates in the British Preferential Tariff.

In 1933 a new trade agreement was signed by New Zealand and Australia. Each country accorded the British Preferential Tariff treatment to the other's goods but with numerous exceptions (a number of which caused the Australian rate to be higher than the appropriate rate in the British Preferential Tariff).

In 1938 New Zealand sought greater protection for its domestic industry by increasing duties on a number of Australian manufactures. New Zealand also introduced import licencing which was to become a major irritant of trans-Tasman relations.

In 1944 the Australian-New Zealand Agreement (ANZAC Pact) laid the foundations for post-war mutual co-operation in broad terms. Article 35(c) of this agreement stated that 'The development of commerce between Australia and New Zealand and their industrial development should be pursued by consultation and in agreed cases by joint planning.'

In 1947 both countries became members of the General Agreement of Tariffs and Trade (GATT). GATT had little

significance with respect to the bilateral relations between the two countries. But with respect to rules laid down by GATT regarding free trade areas it was to become of greater importance.

In March 1956 a Trade Understanding was reached involving the bilateral granting of import licencing concessions. This followed a major expansion of import licencing restrictions in the mid 1950's by both countries to protect their balance of payments.

In February of 1960 Australian import controls were removed, for New Zealand this nullified preferences gained in the 1956 Trade Understanding.

1961 saw the establishment of the Australia-New Zealand Consultative Committee on Trade, it's task being to investigate the development of trans-Tasman trade (in particular the future of New Zealand exports of forest products). At this stage New Zealand was becoming concerned at the diminished value of preferences gained under the 1933 Trade Agreement. Moreover, GATT obligations prevented Australia from granting New Zealand further preferences.

In 1963 New Zealand formally suggested a free trade area in forest products, however Australia could see little benefit in such an arrangement for itself.[1] It is also doubtful whether GATT would have approved such a limited free trade area. In April of 1963 a Joint Standing Committee was established to study trans-Tasman trade and to submit

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[1] In 1963 while 60 percent of New Zealand's exports to Australia comprised of forest products only a small proportion of Australian exports to New Zealand were represented by forest products.

proposals for a free trade area. Following the Committee's report it was agreed that sufficient basis existed for negotiations and Ministerial negotiations took place in August 1965.

The New Zealand Australia Free Trade Agreement was signed on 31st August 1965. It became operative on the 1st January 1966, initially for ten years.

GATT was notified of the Agreement. Following examination of the Agreement it was suggested by the Contracting Parties of GATT that serious consideration should be given to the formation of a 'plan and schedule' for the inclusion of a 'substantial portion' of trans-Tasman trade in the Free Trade Agreement. These suggestions are requirements of Article XXIV before GATT will recognise a free trade area.

The Australian and New Zealand Governments agreed to report further to GATT on this point. A general report on the formation of the Free Trade Area has been made to GATT each year since the initial examination by the Contracting Parties.

In general the NAFTA agreement:

(a) confirmed the preferential tariffs and access arrangements provided for in the 1933 Agreement,

(b) defined the area of free trade between the two countries, which has subsequently been expanded by additions to Schedule A,

(c) via the provisions of Article 3:7, encouraged the establishment of a mechanism in which more tentative approaches to complete free trade could be attempted, and

(d) set up a machinery for consultation in which difficulties could be resolved and also allowed the constructive work of establishing a free trade area to proceed continuously.

5. THE NEW ZEALAND AUSTRALIA FREE TRADE AGREEMENT (NAFTA)[1]

The main features of the Agreement are as follows:

(1) Objectives:

Article 2 states the objectives as follows:-

(a) to further the development of the Area and the use of the resources of the Area by promoting a sustained and mutually beneficial expansion of trade;

(b) to ensure as far as possible that trade within the Area takes place under conditions of fair competition; and

(c) to contribute to the harmonious development and expansion of world trade and to the progressive removal of barriers thereto.

Although NAFTA formally established (Article 1) a Free Trade Area, complete free trade has never been achieved, instead NAFTA provided a framework to allow progressive development of free trade in selected items.

(2) Schedule A:

This lists all the items to which free trade provisions apply. In accordance with Article 3:3, regular reviews of items not listed in Schedule A (with the view to their inclusion in Schedule A) are made.

When a commodity is added to Schedule A each member

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[1] The text of the NAFTA agreement and the Exchange of Letters attached to it can be found in:
The Appendix to the Journals of the New Zealand House of Representatives. Vol 1, A 17. Wellington 1965.

is required to reduce the import duty rate on the commodity to free within eight years. In accordance with Article 4 if the initial rate is:

(a) already free, then no further action is required,

(b) 5 percent or less, then it should become free immediately,

(c) 5 - 10 percent, then it should be halved and made free in two years,

(d) greater than 10 percent, then it should be reduced to 80 percent of its initial rate and then every two years be reduced by 20 percent of the initial rate, becoming free after eight years.

(3) Article 3:7 :

Article 3:7 contains provisions for goods not listed in Schedule A. It states that 'Member States may agree on and implement special measures beneficial to the trade and development of each Member State and designed to further the objectives of this Agreement. Such measures may include the remission or reduction of duties on agreed goods or classes of goods.'

This was intended to facilitate schemes to encourage trade in items that if immediately added to Schedule A would create difficulties for domestic industries in the importing country. It was supposed that if controlled trade was allowed to take place in such items proper evaluation of the effects on domestic industry could be made before inclusion in Schedule A.

Trade arrangements under Article 3:7 have mainly involved the granting (by New Zealand) of special import licences to

Australia, in return for duty free entry into Australia of 'approved commodities'.[1]

(4) Margin Elimination:

In 1965 Australia was at a tariff disadvantage in the New Zealand Tariff on a number of items, compared with other Commonwealth countries receiving British Preferential Tariff treatment. By an Exchange of Letters (at the same time of signing NAFTA) New Zealand agreed to remove this disadvantage completely by 1974. New Zealand fulfilled this commitment by 1974 (though at a rather slow pace, 26 percent of the items affected between 1966 - 1974 were not acted on until 1974). Prior to NAFTA Australia had eliminated similar differences existing in the Australian Tariff with respect to New Zealand.

(5) Import Restrictions:

Australia undertook unilaterally not to impose restrictions against imports from New Zealand should it need to apply import restrictions at some future date for balance of payment reasons. Under Article 5 of the Agreement, New Zealand has undertaken to reduce and eliminate import restrictions on goods in Schedule A at the earliest practicable date, allowing for its balance of payments situation.

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[1] These are commodities in which it has been shown that trade would not take place without such duty rate concessions.

(6) Incorporation of the 1933 Trade Agreement:

Except to the extent that NAFTA supersedes or modifies them, the contractual rights of both countries under the 1933 Trade Agreement have been maintained and incorporated in the NAFTA agreement.

(7) Safeguard Provisions:

(a) Deflection of Trade. Article 7 established procedures to deal with the situation, where extreme injury is caused or threatened by deflection of trade arising through one member having access to inputs at significantly lower prices, than producers in the second country. This Article permits the second country to seek remedy through consultation, or suspension of a relevant part of the agreement.

(b) Development of Industry. For the purpose of protecting domestic industry to allow establishment or expansion, items may be withdrawn temporarily from Schedule A (duties introduced in such a way must be progressively removed over 12 years).

(c) Suspension of Obligations. Where imports from one country are entering in such increased quantities and under such conditions as to cause or threaten serious injury to producers in the other country, the latter may after consultation and written notice suspend temporarily its obligations under the Agreement relevant to the problem.

(d) Dumping. Article 10 provides for a dumping levy to be applied (following consultation), where dumped or subsidised imports into one country from the other is causing or threatening to cause injury to producers in the importing country.

(8) Consultations:

Article 16 provides for consultations between the two countries to deal with matters arising from the Agreement. It also makes mandatory the holding of annual consultations for reviewing the operation of the agreement.

CHAPTER III

THEORY AND ESTIMATION PROCEDURES

1. A REVIEW OF EMPIRICAL STUDIES OF TRADE CREATION AND TRADE DIVERSION IN THE LITERATURE

Generally the number of comprehensive attempts to assess the static effects of trading arrangements by deriving estimates for trade creation and trade diversion have been small. However there has for some time, been a well developed theory in the area of welfare gains and losses resulting from trade liberalisation in terms of trade creation and trade diversion. This has largely been the result of work by Meade (11) and Viner (15) in the early 1950's.

Much of the analysis in this area has been directed at assessing the economic effects of the European Economic Community. A significant attempt at deriving the trade creation and trade diversion effects of the EEC was carried out by Balassa (2) in 1967. Balassa further extended his analysis of trade creation and trade diversion due to the EEC in 1974 (3). In 1969 Truman (14) analysed the trade creation and trade diversion in the trade of manufactured products resulting from the establishment of the EEC. A further study of the effects of the EEC on imports of manufactures was carried out by Kreinin (8) in 1972.

The only trading arrangement that New Zealand has entered that covers a significant portion of its trade in a free trade context and thus has the potential for

significant trade creation and trade diversion, is the New Zealand Australia Free Trade Agreement (NAFTA). To date the only attempt at measuring trade creation and trade diversion resulting from NAFTA was carried out by Burtt (4) in 1977.

The five[1] studies mentioned provide a body of empirical approaches to the problem of estimating the trade creation and trade diversion effects, of a trade agreement involving a substantial movement towards a free trade area. A brief coverage of the methods used to isolate the trade creation and trade diversion effects in the above mentioned studies will now be made.

(1) Comparing Income Elasticities of Import Demand.

Balassa (2) uses a comparison of ex-post income elasticities of import demand[2] in trade between the EEC countries and with EEC trade (as a whole) with the rest of the world, for periods preceding and following the signing of the Treaty of Rome. Under the assumption that income elasticities of import demand would have remained unchanged in the absence of integration. A rise in the income elasticity of demand for imports from countries within the EEC was taken to represent gross trade creation[3], while an increase in the income elasticity of demand for imports from all sources of

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[1] This is not an exhaustive list of studies of trade creation and trade diversion but it certainly represents the most comprehensive studies in this area and those authors most active in this area of research.

[2] This was the primary approach in Balassa's 1967 study, he first suggested the method in 1963.

[3] This refers to the growth in trade within the agreement area, i.e. trade creation plus trade diversion.

supply (i.e. both within and outside the EEC) would show trade creation proper[1]. A fall in the income elasticity of demand for imports from outside the EEC region was assumed to provide evidence of trade diversion.

It is assumed that the formation of the EEC was the single largest influence affecting trade flows of the EEC countries and that other influences would not have significantly altered the relationship between imports and G.N.P.

(2) The Import Share Approach.

This method links imports to the total consumption of commodities in question. This approach was used by Truman (14) (1969), Balassa (3) (1974) and Kreinin (8) (1972).

Increases in the share of imports from partner countries in domestic consumption represents gross trade creation, decreases in the share of imports from outside the area of integration represents trade diversion and an increase in the share of total imports represents trade creation proper.

(3) Import Growth Rate Comparisons of Preferentially Traded[2] and Non-preferentially Traded Items.

This approach compares the import growth rates of those items, receiving preferential trading conditions (as a

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[1] See definition of trade creation (page 32).

[2] Preferentially traded items refer to those import items receiving preferential tariff rates as a result of the bilateral trade agreement under study.

result of the agreement) with the import growth rate of those items not covered under the agreement.

Trade diversion is indicated where the import growth rate of preferentially traded items from all sources is similar to that of the growth rate for non-preferentially traded items from all sources. But where also the import growth rate of preferentially traded items from the agreement partner country is growing significantly faster than that of other items not influenced by the trade agreement with this country.

Trade creation is indicated where the growth of total imports of preferentially traded items (from all sources) is faster than for other items. By applying the import growth rate of non-preferentially traded items to the import of preferentially traded items a hypothetical level of imports (assuming the non-existence of the tariff preferences) is found. By comparing this hypothetical (non-agreement) level of preferentially traded import items with the actual level of imports for the total (i.e. from all sources) preferentially traded imports, the excess of the actual over the hypothetical level is assumed to be trade created due to the trade agreement.

This method was used by Burtt, D.J. (4) in his analysis of NAFTA.

For a further explanation of the application of this method and a brief study attempting to estimate trade created and trade diverted as a result of the 1961 New Zealand Malaysia Trade Agreement see Appendix 1.

(4) The Value of Empirical Studies on Trade Creation and Trade Diversion.

Sellekaerts (13) suggests that trade creation and trade diversion estimates as presented in the empirical literature are so much affected, by simplifying assumptions, by the choice of pre- and post-integration periods, by the methods of computing income elasticities, by changes in trade shares and by structural changes not attributable to integration (such as trade liberalisation in general and autonomous changes in relative prices), that the magnitude of no single estimate should be taken too seriously.

But useful general conclusions can usually be drawn and approximations made of welfare consequences of significant moves towards integration in trade.

2. TRADE CREATION AND TRADE DIVERSION DEFINED

The earliest customs-union theory followed the lines that:

> "free trade maximises world welfare; a customs union reduces tariffs and is therefore a movement towards free trade; a customs union will, therefore, increase world welfare even if it does not lead to a world-welfare maximum." [1]

However Viner showed this concept to be not necessarily correct with the introduction of the concepts of trade creation and trade diversion.

(1) Trade Creation.[2]

This results from the removal of a tariff protecting a high cost (relative to the trading partner receiving the tariff preference) domestic industry.

Following the introduction of a trade agreement giving a trading partner tariff preferences, a high cost domestic source of production is replaced by a lower cost source of supply within the new trading agreement area.

Using Figure III.1 the gains from trade creation and trade diversion are described in terms of production and consumption effects following a removal of the tariff on product j from Australia.[3]

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[1] From Lipsey (9), 1960 page 497.

[2] Much of the theoretical description of trade creation and trade diversion here is based on a coverage of this area by Scammell, W.M. (12).

[3] This approach assumes constant overseas costs of production and that the pattern of consumption remains constant over the period of study.

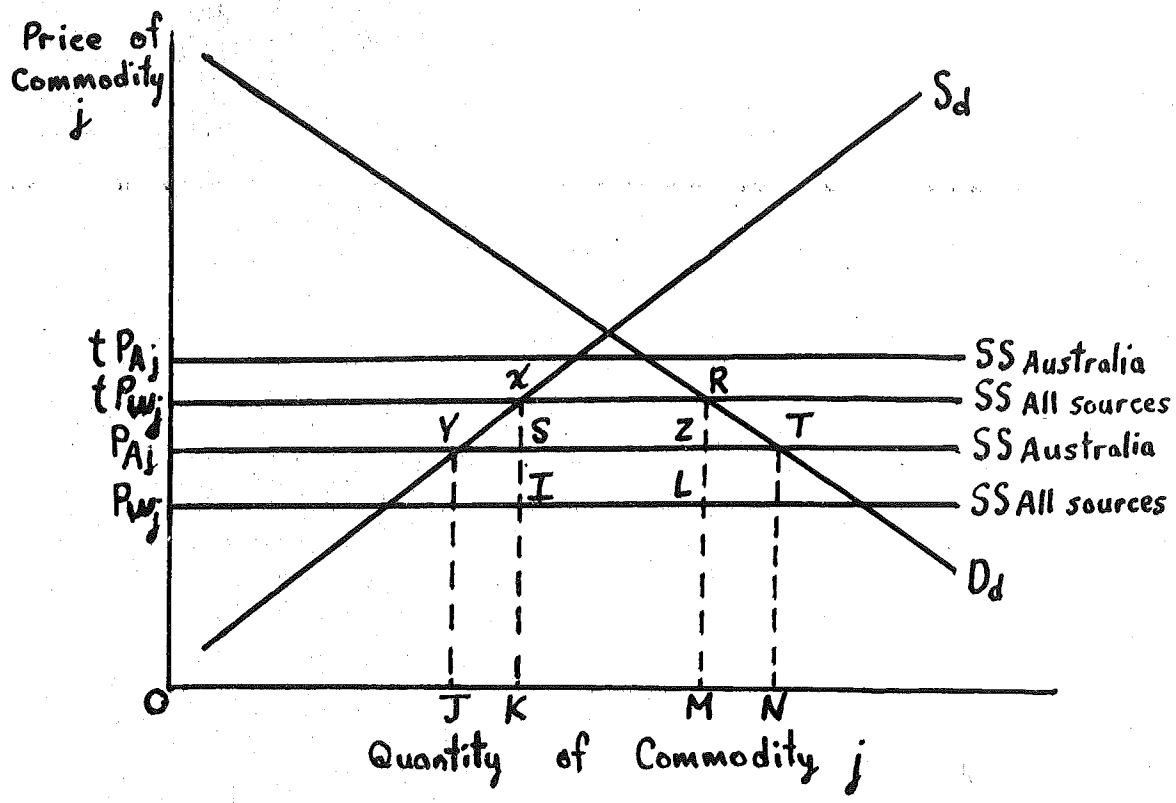

FIGURE III.1 Potential Trade Creation and Trade Diversion in NAFTA.

Where;

SS is the import supply curve, assumed to be infinitely elastic.

S_d is the New Zealand domestic supply curve of commodity group j.

D_d is the New Zealand domestic demand curve of commodity group j.

tP_{Aj} is the price of j from Australia including tariffs.

tP_{wj} is the price of j from all import sources including tariffs.

P_{Aj} is the price of j from Australia with free trade.

P_{wj} is the price of j from all import sources with free trade.

(a) Production Effect: With the fall in import price, JK (Figure III.1) of domestic production will be replaced by imports. To produce this domestically it would have cost New Zealand JYXK but to import from Australia it costs JYSK, the triangle YXS being a net welfare gain to New Zealand.

(b) Consumption Effect: With the removal of the tariff the New Zealand price will fall resulting in consumption increasing by MN. The value placed on this additional consumption by New Zealand consumers is MRTN (i.e. the area under the demand curve), but this additional consumption only costs consumers MZTN, the triangle ZRT being a welfare gain from trade.

The total trade creation resulting from the assumed freeing in trade of commodity j (in Figure III.1) with Australia is the sum of the production and consumption effects (i.e. the sum of the triangles YXS and ZRT).

(2) Trade Diversion.

This results from a movement from a lower to a higher real cost source of supply, i.e. it represents a movement from a more to a less efficient allocation of resources. The high cost producer is made competitive by the tariff preference it receives over other suppliers. Trade diversion is shown in Figure III.1 where following the removal of tariffs on Australian supplies of commodity j, Australia becomes the cheapest supplier to the New Zealand market.

Using Figure III.1 trade diversion can be described in the following manner. Prior to the freeing of tariffs the domestic cost of imports KM equalled KILM (in overseas funds paid to suppliers) plus IXRL (paid as tariff revenue to the government). Following the removal of tariffs on imports from Australia the cost in overseas funds paid to suppliers for the original quantity of imports is equal to KSZM[1], with there being no tariff revenue. This results in a net[2] welfare loss to the country as a whole of ISZL.

(3) The Net Welfare Effect of Trade Creation and Trade Diversion.

This is simply found by subtracting the trade diversion effects from the trade creation, i.e. YXS + ZRT - ISZL (for the above example). Given a positive result, then the granting of tariff preferences to Australia for commodity j will have increased New Zealand's welfare.

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[1] It is assumed that all imports are switched to the most price competitive supplier (i.e. following the granting of the tariff preferences Australia becomes the most price competitive supplier to the New Zealand market).

[2] It is assumed all tariff revenue is redistributed increasing all consumers welfare.

3. THE ANALYTICAL MODEL

(1) The Problem.

The problem was to establish an analytical model from which the welfare gains or losses due to the trade creation and trade diversion effects of NAFTA could be estimated for selected commodity groups.

Thus to derive an estimate for trade creation, an expression to find the area of the triangles YXS and ZRT (shown in Figure III.1[1]) was necessary.[2] Likewise to find trade diversion an expression for the area of the rectangle ISZL was necessary.

(2) Method of Approach.

The trade creation triangles and the trade diversion rectangle were estimated via their relationship to the excess (import) demand function.

Because JK+MN (in Figure III.2(a)) equals BC in Figure III.2(b)), (i.e. the change in imports of j following a price change) and XS and RZ equal FG, then the sum of the areas of the triangles YXS and ZRT (Figure III.2(a)) equals the area of GFH (Figure III.2(b)).

Similarly because KM equals OB (both being the quantity of imports before the price change) and SI and ZL equal GA, then the areas of the rectangles ISZL and $P_{Aj}GA\ P_{wj}$ are equal.

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[1] Where commodity j refers to the group of commodities under study.

[2] Finding trade creation by the measurement of triangles YXS and ZRT (Figure III.2(a)) was suggested by H.G.Johnson (7) in 1960, however he did not further express it in terms of the excess demand function.

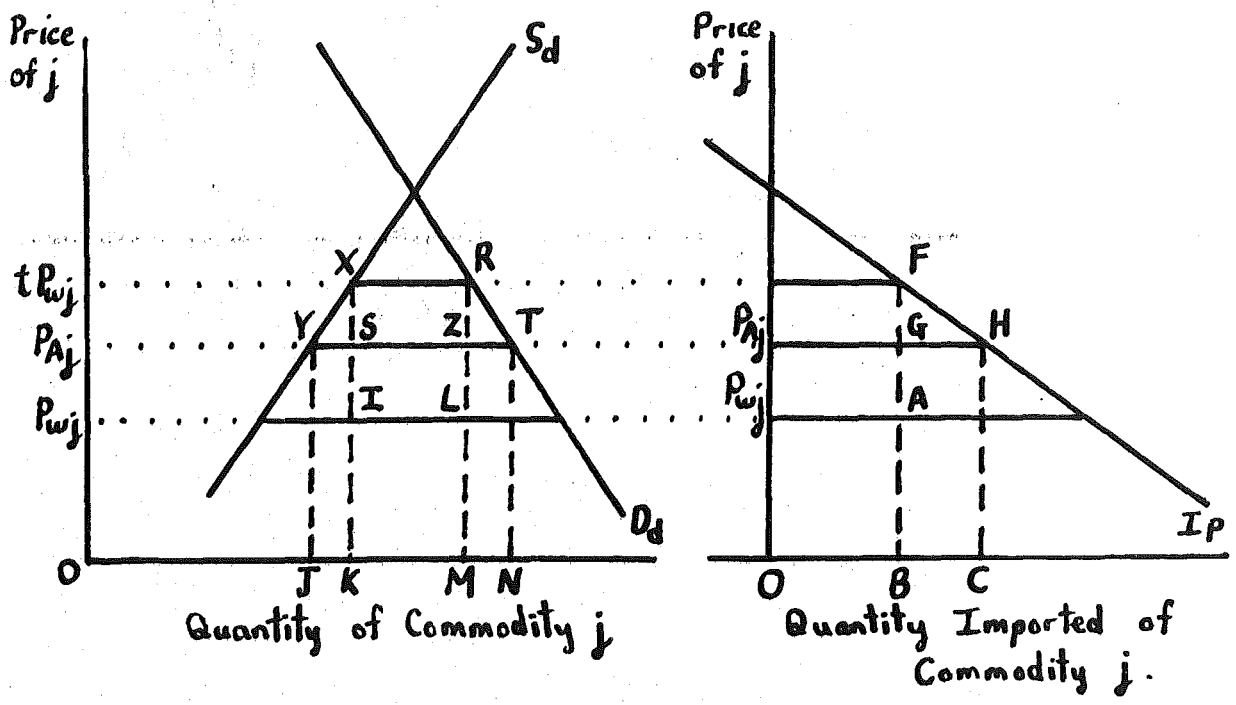

FIGURE III.2

(a) Domestic Demand and Supply Curves for Commodity Group j.

(b) The Excess Demand Function.

Where;

I_p is the New Zealand import (excess) demand for commodity group j as a function of price.

S_d is the New Zealand domestic supply curve for commodity group j.

D_d is the New Zealand domestic demand curve for commodity group j.

tP_{wj} is the price of j from all import sources including tariffs.

P_{Aj} is the price of j from Australia with free trade.

P_{wj} is the price of j from all import sources with free trade.

An expression for the area of GFH will provide an estimate of trade creation and likewise an expression for the area of $P_{Aj}GAP_{wj}$ will provide an estimate of trade diversion.

(3) Deriving an Expression for Welfare Gains Due to Trade Creation.

Define E_j = Price elasticity of import demand of commodity j

$$E_j = \frac{\Delta I_j}{I_j} \cdot \frac{P_j}{\Delta P_j} \quad \text{- - - - - - - - - - -} \quad 1$$

where; I_j is the quantity of imports of commodity group j

P_j is the price per unit of commodity j

The estimation of the import function is described by the following equation:

$$I_j = \hat{a}_{oj} + \hat{a}_{1j}P_{1j} + \ldots + \hat{a}_{nj}P_{nj} \quad \text{- - - - - - -} \quad 2$$

where; $P_{1j} \ldots P_{nj}$ are the independant variables

$\hat{a}_{1j} \ldots \hat{a}_{nj}$ are the coefficients of the independant variable

I_j is the dependant variable, quantity imported of commodity j

Thus: $\frac{dI_j}{dP_{1j}} = \hat{a}_{1j}$ (from the estimated import function where P_{1j} is the price variable)

and; $$E_j = \frac{\Delta I_j}{\Delta P_{1j}} \cdot \frac{P_{1j}}{I_j}$$

$$= \hat{a}_{1j} \cdot \frac{P_{1j}}{I_j} \quad \text{- - - - - - - - - - - - - -} \quad 3$$

where $P_{1j}I_j$ rule at point F in Figure III.2(b) and

$\hat{a}_{1j}$ is the price coefficient in the import function

Prior to any change in tariffs we are at point F in Figure III.2(b).

The change in imports of commodity j (ΔI_j) as the

result of a tariff change (causing a change in price) must now be estimated.

From Equation 1; $\Delta I_j = E_j \cdot I_j \cdot \frac{\Delta P_{1j}}{P_{1j}}$ - - - - - - - - - 4

By substituting in Equation 4 for E_j from Equation 3 then

$$\Delta I_j = \hat{a}_{1j} \cdot \frac{P_{1j}}{I_j} \cdot I_j \cdot \frac{\Delta P_{1j}}{P_{1j}}$$

$$= \hat{a}_{1j} \cdot \Delta P_{1j} \quad \text{- - - - - - - - - - - - - - - - - 5}$$

To fulfil the objective of finding a means of establishing trade creation as the result of a tariff change an expression must now be found for the area of GFH (Figure III.2(b)).

The area of GFH = $\frac{1}{2} \Delta P_{1j} \cdot GH$ (See Figure III.2(b)) - - 6

Following a change in price of the magnitude tP_{wj} minus P_{Aj} in Figure III.2(b) and GH equalling ΔI_j.

By assumption the change in price equals the price effect of the change in tariff.

If ΔT_j equals the price effect of the change in tariff and ΔT_j equals P_{wj} times Δt_j

where; P_{wj} is the tariff assessment import price

Δt_j is the absolute change in the percent ad valorem tariff converted to a decimal fraction representation.

Then by assumption;

$$\Delta P_{1j} = \Delta T_j$$

Now an expression of the welfare gains from trade creation due to tariff changes is obtained by substituting Equation 5 in Equation 6

$$\tfrac{1}{2} \Delta P_{1j} \cdot GH = \tfrac{1}{2} \Delta P_{1j}^{2} \cdot \hat{a}_{1j}$$

Thus the estimate of the welfare gain from trade creation (W) is shown by the following expression

$$\Delta \hat{W} = \frac{\Delta P_{1j}^{2}}{2} \cdot \hat{a}_{1j}$$

(4) Deriving an Expression for Welfare Losses Due to Trade Diversion.

Following a tariff removal on imports from Australia the price of imports in New Zealand drops to P_{Aj} but the loss of tariff revenue per unit of import is equal to tP_{wj} minus P_{wj}. The net loss to New Zealand in terms of price being P_{Aj} minus P_{wj} (Figure III.2(a)). The quantity affected by the trade diversion is OB in Figure III.2(b) (the initial quantity imported subject to the tariff removal).

The data provides values for OB and P_{wj}. P_{Aj} was found by substituting into the previously estimated import function (Equation 2). Where imports equal that level imported following the change in tariffs and P_{Aj} is the unknown.

i.e. : $I_j + \Delta I_j = \hat{a}_{oj} + \hat{a}_{2j}P_{2j} + --- \hat{a}_{nj}P_{nj} + \hat{a}\, P_{Aj}$ [1]

where : $\hat{a}\, P_{Aj} = \hat{a}_1 P_{1j}$ is the import price of commodity j after tariff changes, i.e. the price needed to induce imports of $I_j + \Delta I_j$

I_j represents the quantity imported before tariff changes

ΔI_j represents the change in quantity imported (from Equation 5) following the tariff change (and resultant price change).

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[1] For ease of description the independant variable P_{Aj} (price of commodity j) which is assumed to be P_{1j} in Equation 2, is shown separately.

The welfare loss due to trade diversion (TD) is given by the following expression:

$$TD = (P_{Aj} - P_{wj}) \times I_j$$

where: P_{wj} is the nontariff price of imports from the whole world.

(5) Perverse Supply and Demand Curves.

In the analysis so far, normal supply and demand have been assumed to exist. However the possibility of perverse supply and demand curves (resulting in a positively sloped excess demand curve) must not be ignored, particularly as a number of positive price coefficients did occur in this study. Though these may well have resulted from poor estimates of the import function.

For a detailed description of the affect of perverse supply and demand curves on the excess demand curve and the trade creation and trade diversion interpretations of such cases, see the Appendix at the end of this chapter, page 51.

(6) Summary.

Throughout this study care must be taken not to forget assumptions involved in a static partial equilibrium study of this nature and assumptions involved in the estimation technique and data collection.

An excess demand function was established for each of the ten commodity groups. These provided estimates of price coefficients for the estimation of price elasticities and for the direct estimation of the change in import quantities following a given tariff change. These estimates along with relevant data were inserted into the expressions derived for trade creation and trade diversion in this section.

4. CLASSIFICATION OF IMPORT DATA

(1) Import Commodity Groups Chosen.

Import commodities were grouped under the Standard International Trade Classification.[1] Though in two cases a chosen commodity group had to be further divided on the basis of the units of quantity.

There were ten commodity groups for which separate studies of the trade creation and trade division effects of tariff changes for the respective commodity groups were made.

The ten groups are as follows:

(a) Group 1 : The SITC is Section 2 Division 26 which includes textile fibres (not manufactured into yarn, thread or fabrics) and waste.

(b) Group 2 : The SITC is Section 2 Divisions 27-29, which includes crude fertilisers and crude materials excluding coal and petroleum, metalliferous ores and scrap and animal and vegetable crude materials.

(c) Group 3 : The SITC is Section 3 which includes mineral fuels, lubricants and related materials.

(d) Group 4 : The SITC is Section 5 which includes chemical elements and compounds, chemicals from coal, dyeing chemicals, pharmaceutical products, perfume materials, manufactured fertilisers, explosives and miscellaneous chemical products.

(e) Group 5 : The SITC is Section 6 Divisions 61-64

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[1] The SITC is used to the two digit division level.

which includes leather and leather products, rubber manufactures, wood and cork manufactures and paper and paperboard manufactures.

(f) Group 6 : The SITC is Section 6 Division 65. This group includes those imports under this SITC whose import quantity is measured in square yards. It is predominantly made up of textile fabrics, made up articles of textile materials and floor coverings.

(g) Group 7 : The SITC is Section 6 Division 65. This group includes those imports under this SITC whose import quantity is measured in hundredweight. It is predominantly made up of textile yarn and thread.

(h) Group 8 : The SITC is Section 6 Divisions 66-69. This group includes nonmetalic mineral manufactures, iron and steel, nonferrous metals and manufactures of metals.

(i) Group 9 : The SITC is Section 7. This group includes those imports classified under Section 7 whose import quantity is measured by the number of items imported. This group includes machinery (not included in Group 10) and transport equipment.

(j) Group 10 : The SITC is Section 7. This group includes those imports classified under Section 7 whose import quantity is measured by weight. This is a small group including metalworking machinery, textile machinery and specialised industrial machinery.

(2) The Selection of Import Commodity Groups.

The first step was to select commodity groups that were of relative importance in New Zealand import trade, under this criteria Sections 1, 4 and 9 were omitted.

Furthermore the import commodity group, it was judged, should have a significant portion being imported from Australia, Section 2 Divisions 21-25 was omitted because of this criteria.

Because a weighted average price (on the quantity of imports) for each import group was needed, a common unit of import quantity had to be established for each group. On this basis Section 8 was omitted and Section 6 Division 65 and Section 7 were divided because units were either not given or too diverse to be aggregated.

Section 0 (food) was omitted because wheat and sugar imports make up a very large proportion of the value of imports in this section, both of which were tariff free prior to NAFTA (and still are). Wheat imports are strictly quantitatively controlled, imports depending on the size of the domestic wheat crop.

5. ESTIMATION OF THE IMPORT FUNCTIONS

For each import commodity group an import function was estimated by regression analysis. The quantity of imports being the only dependant variable, was regressed for 23 observations (i.e. data for 23 years) against the gross domestic product, the exchange rate, net overseas assets (to approximate the effect of quotas) and the New Zealand price of imports (i.e. the CIF import price plus the tariff). For the data matrix used in estimating the import function and associated notes see Appendix 2.

(1) Form and Source of Data.

(a) Gross Domestic Product. All data for this variable was taken from the New Zealand Official Yearbook. This was deflated using the Consumer Price Index (for all groups), the base year being 1974. In all cases the data was for the year ending the 31st March.

(b) Net Overseas Assets. This represents the total net overseas assets of the New Zealand banking system as at the 31st December from 1950-1961 and at the 30th June from 1962-1972. The data source was the Reserve Bank of New Zealand Bulletin.

All figures were deflated using the Consumer Price Index (for all groups), the base year being 1974.

(c) Exchange Rates. The New Zealand exchange rate was defined as the amount of New Zealand currency required to purchase one unit of foreign currency. The values used represent a simple average of the New Zealand exchange rate with Australia, United Kingdom and U.S.A. The

individual exchange rates with these countries are an average of the four quarterly rates (as at the last day of each quarter), ending with the December quarter between 1950-1961 and the June quarter between 1962-1972. All data was taken from the Reserve Bank of New Zealand Bulletin.

(d) Tariff Rates. The tariff rate used for any tariff item represents a simple average of the rates given for the Normal Tariff, the British Preferential Tariff, the Canadian Tariff, the Australian Tariff and the Less Developed Countries Tariff.

The tariff rate derived for each group represents a simple average of all tariff items at the four digit level of classification, for each commodity group. Where there is further subdivision to a lower level of classification (i.e. fifth, sixth or seventh digit), a tariff value is found by averaging the subdivisions of that tariff number at the next lowest level of classification.

Where the basic system of classification of tariff items changed from the classification of commodity groupings in this study (i.e. SITC), as it did twice over the span of the study, then the tariff items were regrouped before the data was collected to approximate the SITC system as closely as possible.

All tariff rates were calculated from The New Zealand Customs Tariff of New Zealand, Customs Department (N.Z.).

Tariffs were estimated for the years 1949, 1956, 1962, 1967 and 1972. They were assumed to remain unchanged between these years.

(e) Price and Quantity Data. For each commodity group a unit representing quantity was selected. All import quantities were converted to this unit. Because quantity data was not available for all imports (or it was not possible to convert it to the common unit) the quantity totals do not represent all New Zealand imports under that import classification (on average this unknown quantity represents less than 20 percent by value).

An average c.i.f. price was found for the group by dividing the total value of imports (of those commodities for which quantities were available) by the total quantity of imports as derived for the common unit.

The price used in estimating the import function represents the c.i.f. price plus the average tariff[1] for the commodity group. This provides an estimate of the price of the imported commodity in New Zealand.

From 1950-1961 quantity and price data refers to the calendar year, following 1961 due to a change in the publication of import statistics, data refers to the year ending 30th June. All quantity and c.i.f. value data was taken from New Zealand External Trade publications of the Department of Statistics. All import values were deflated using the Import Price Index, the base year being 1974.

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[1] Strictly the tariff cost should be calculated on the c.d.v. price valuation, the resultant error is however negligible.

(2) Import Function Equations.

The following equations were estimated for each of the import commodity groups.

Where; I_j equals the quantity of imports of the jth group

G equals the gross domestic expenditure

E equals the exchange rate

A equals the net overseas assets

P_j is the average New Zealand price of the jth group.

(a) Group 1 (Textile fibres, not manufactured etc.)

$I_1 = 3122.5+711.9G-2128.6E+2.7A+173.8\ P_1$

$R^2 = 0.87$

T values:	(7.397)	(-1.239)	(0.276)	(0.306)
Significance of Estimates:[1]	***			

(b) Group 2 (Crude fertilisers, metalliferous ores and crude materials etc)

$I_2 = -7953426.2+50898.1G-148720.6E+1278.6A+5528776.6\ P_2$

$R^2 = 0.89$

T values:	(8.224)	(1.313)	(2.464)	(2.058)
	***		**	*

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1 * Indicates the estimate is statistically significant at the confidence level of 0.9.

** Indicates the estimate is statistically significant at the confidence level of 0.95.

*** Indicates the estimate is statistically significant at the confidence level of 0.99.

An absence of an asterisk indicates the estimate is statistically non-significant at the 0.9 confidence level.

(c) Group 3 (Mineral fuels and related materials)

$I_3 = 74655104.9+46981.8G-75781.7E+954.9A-16534153\ P_3$

$R^2 = 0.95$

T values: (1.673) (-0.338) (0.83) (-3.767)
***

(d) Group 4 (Chemicals)

$I_4 = -1720506.4+18439.4G+18572.2E+82A-473954.5\ P_4$

$R^2 = 0.9$

T values: (7.655) (0.436) (0.357) (-5.415)
*** ***

(e) Group 5 (Manufactures of leather, rubber, wood and paper pulp)

$I_5 = 1354931.9-2176.6G+11386.4E+174.2A-24458.3\ P_5$

$R^2 = 0.7$

T values: (-2.653) (0.785) (2.304) (-1.416)
** **

(f) Group 6 (Textile fabrics, made up articles and floor coverings)

$I_6 = 29789605.3+264901.6G-773195.8E+4070.3A+218587272\ P_6$

$R^2 = 0.88$

T values: (6.454) (-1.485) (1.286) (0.987)
***

(g) Group 7 (Textile yarn and thread)

$I_7 = 337039+256.6G-2164.3E-0.1A-278.6\ P_6$

$R_2 = 0.72$

T values: (2.997) (-1.626) (-0.016) (-1.755)
*** *

(h) Group 8 (Manufactures of nonmetalic minerals, iron and steel and nonferrous metals)

$I_8 = -1442484.4+13785G-72264.4E-373.3A+534317\ P_8$

$R^2 = 0.78$

T values:	(3.296)	(-1.012)	(-0.997)	(2.635)
	***			**

(i) Group 9 (Machinery and transport equipment)

$I_9 = 6695016+9222.7G-57941.7E+386.1A-34535.3\ P_9$

$R_2 = 0.89$

T values:	(3.972)	(-1.553)	(1.87)	(-6.133)
	***		*	***

(j) Group 10 (Metalworking, textile and special industrial machinery)

$I_{10} = 1591447.6+1930.4G-21590.4E-28.8A+1656.8\ P_{10}$

$R^2 = 0.82$

T values	(6.063)	(-3.568)	(-0.787)	(2.564)
	***	***		**

APPENDIX TO CHAPTER III

A Positive Sloping Excess Demand Curve

A problem that occurred for half the estimates of the excess demand function was that of the price coefficient having a positive sign (i.e. the excess demand function being positively sloped).

A positively sloped excess demand curve could have been caused by two factors.

(1) A statistically non-significant estimate for the price coefficient (i.e. poor t values).

(2) Perverse slopes in the supply and demand functions.

A study of the t values for the price estimates with positive price coefficients show them to be non-significant on three occasions, thus indicating that poor estimates for price were likely culprits for these three positive price coefficients.

However the second factor must not be ignored and a study of the welfare gains and losses under such conditions will be made. A positively sloping excess demand curve may result from three different cases involving perverse slopes of the demand and or supply curves.

1. CASE 1 : Perverse slopes for both the supply and demand curves.

Following a tariff reduction the import level drops from AB to DC, the area $MBCP_{Aj}$ must be accounted for. A

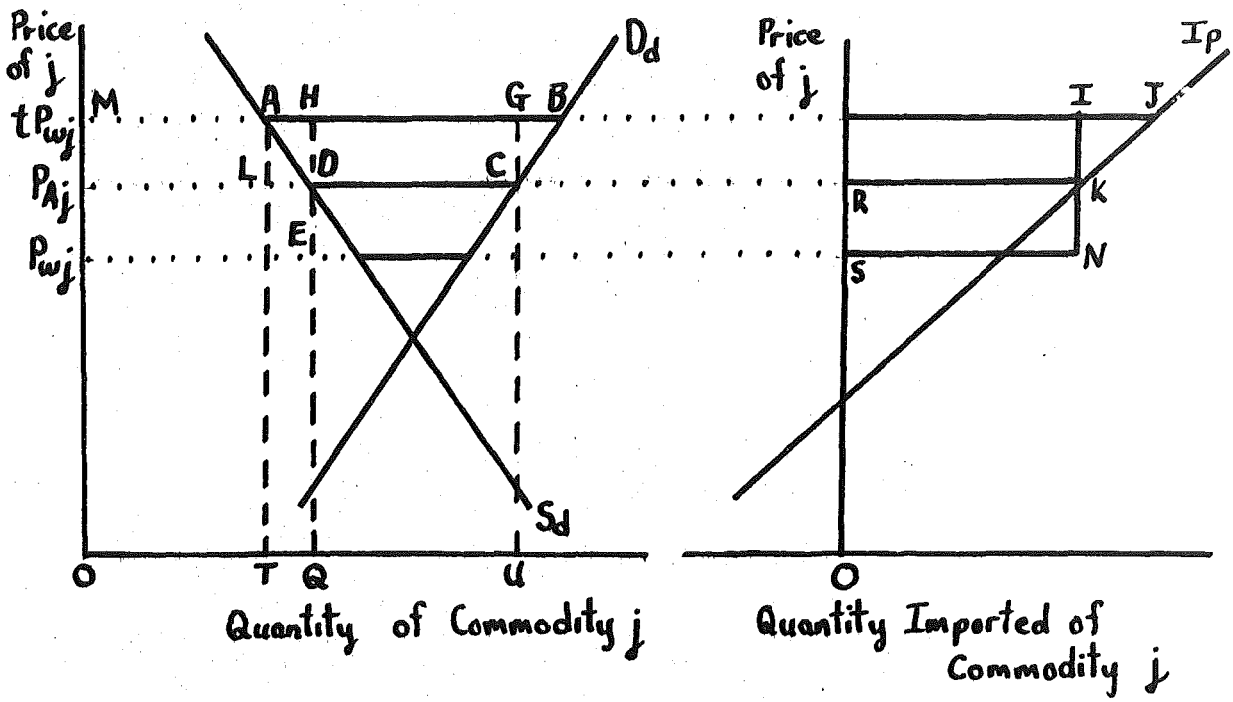

FIGURE AIII.1

(a) A Perverse Supply and Demand Curve.

(b) The Positively Sloped Excess Demand Curve.

Where;

I_p is the New Zealand import (excess) demand for commodity group j as a function of price.

D_d is the New Zealand domestic demand curve for commodity group j.

S_d is the New Zealand domestic supply curve for commodity group j.

tP_{wj} is the price of j from all import sources including the tariff ($t = 1 + T$, T being the tariff rate).

P_{Aj} is the price of j from Australia with free trade.

P_{wj} is the price of j from all import sources with free trade.

consideration of the marginal unit at point U suggests that the marginal valuation of that unit is UC while the consumer pays UG for it and thus incurs a marginal loss in consumer surplus of GC. A tariff preference implies that point C is the demand point so OU units involve a reduction in the consumer loss of rectangle $CGMP_{Aj}$. Triangle GBC is considered below.

The rectangle AGCL represents a reduction in tariff income to Government but is netted out against the reduction in consumer loss mentioned above.

$MADP_{Aj}$ represents a negative producer surplus. Unit number T has a marginal cost of AT yet the firm is paid LT for it so there is a social loss of AL involved in the production of the T'th unit. $MALP_{Aj}$ nets out, against the reduction in the consumer loss mentioned above, thus ALD represents a negative producer surplus that is not compensated for after a tariff change.

GBC represents a negative consumer surplus (as dealt with for $CGMP_{Aj}$), the reduction in this being a gain to consumers' welfare.

Triangle IJK in Table AIII.1(b) equals the sum of ALD and GBC but will overstate welfare gains via trade creation by ALD.

Trade diversion is measured by RS times SN (i.e. the quantity shifted from a less to a more expensive import source).

2. CASE 2 : A perverse slope for the demand curve.

The slopes of the supply and demand curves in Figure AIII.2(a) also yield an excess demand function with a positive slope. This situation is not treated further for the reasons to be given on page 56.

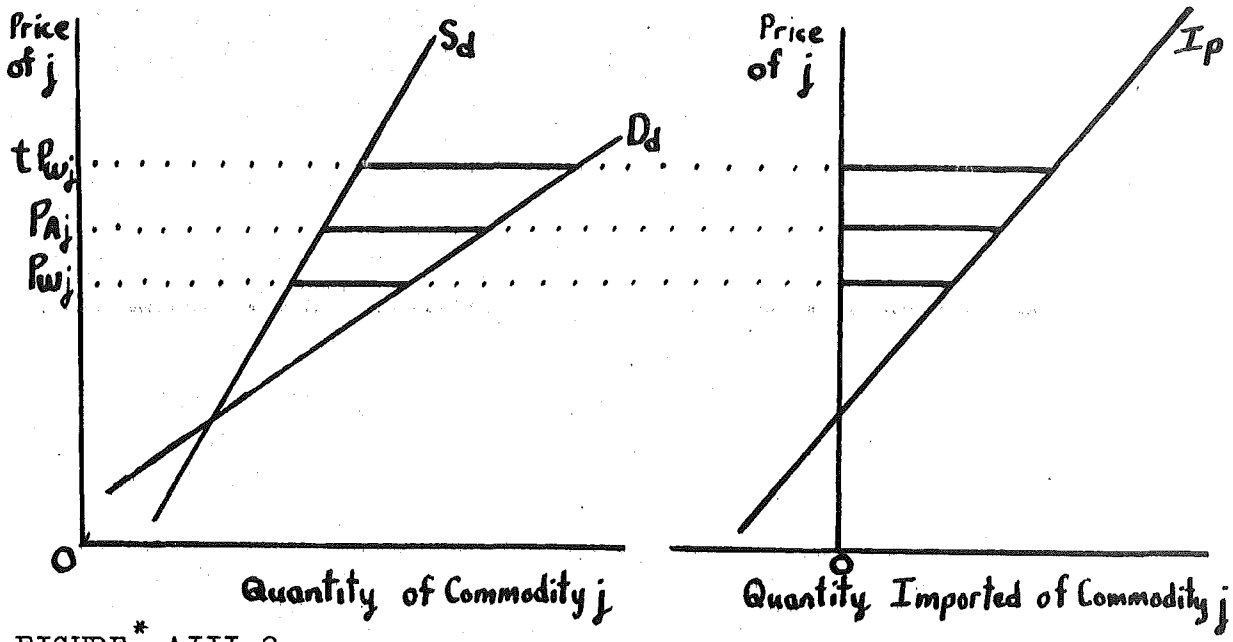

FIGURE* AIII.2

(a) A Perverse Demand Curve.

(b) The Positively Sloped Excess Demand Curve.

* For a description of the notation see Figure AIII.1.

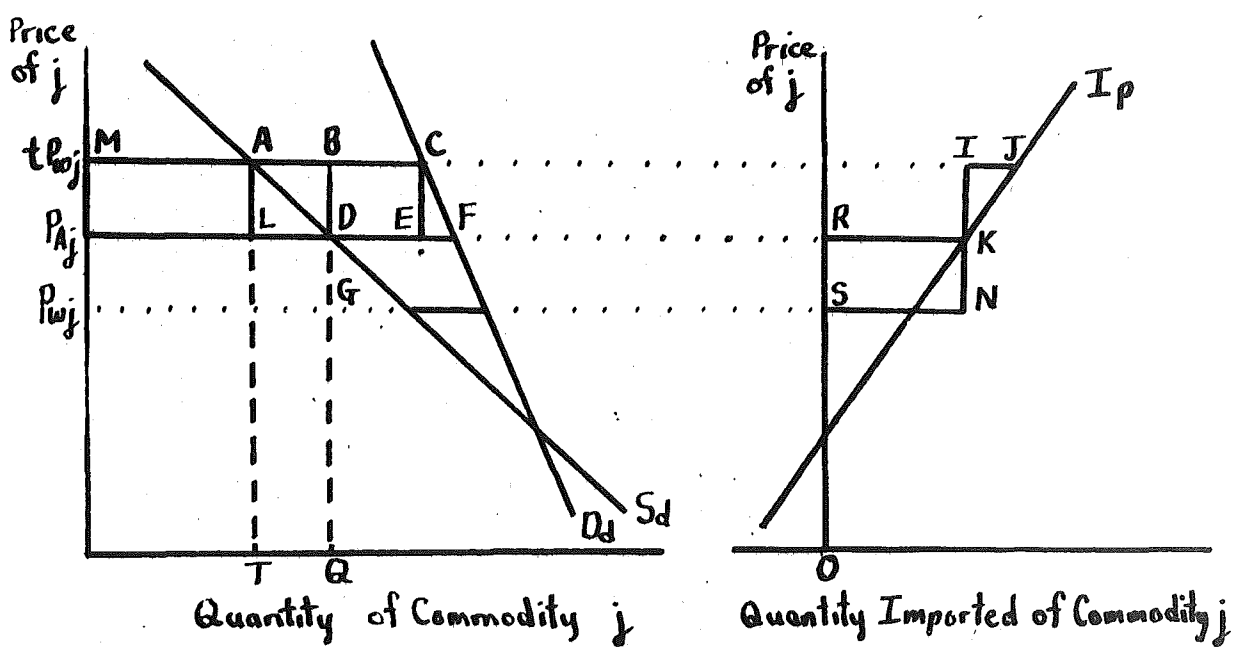

FIGURE* AIII.3

(a) A Perverse Supply Curve.

(b) The Positively Sloped Excess Demand Curve.

* For a description of the notation see Figure AIII.1.

3. CASE 3 : A perverse slope for the supply curve.

Following a tariff reduction, there is a gain in the consumer surplus of $MCFP_{Aj}$ (Figure AIII.3(a)). From this must be subtracted ACEL which was initially tariff revenue and is not now received by the Government.

$MADP_{Aj}$ represents[1] a negative producer surplus, of which $MALP_{Aj}$ nets out with the consumer surplus gain the remainder ALD being a welfare loss to the country(as in Case 1).

There remains the consumer surplus CEF as a welfare gain.

Thus the triangle IJK (which equals the area of ADL minus the area of CFE) represents a welfare loss[2], following a tariff change causing a price shift from tP_{wj} to P_{Aj}. IJK necessarily represents a welfare loss because the area ALD is a loss which exceeds the gain shown by area CEF.

Trade diversion can not be precisely measured on the excess demand diagram. In Figure AIII.3(a) it is represented by DE times DG. The closest approximation from the excess demand function is RK (overstated by EF) times RS.

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[1] The same explanation applies for $MADP_{Aj}$ in Figure AIII.3(a) as for $MADP_{Aj}$ in Figure AIII.1(a).

[2] Because the slope of D_d is greater than that of S_d the triangle ALD can be assumed to be larger than CFE, thus IJK represents a net loss.

4. Application of the perverse case.

If Cases 1 and 2 in fact describe the New Zealand situation, then the estimates presented (where a positively sloped excess demand curve existed) in the later sections for welfare changes described as trade creation, are either over estimates of welfare gains (if Case 1 prevailed) or under estimates of welfare gains (if Case 2 prevailed).

However, as Case 3 relates to a situation of the decreasing cost industry with a normally sloped demand curve, it is here taken to be more plausible than; (a) perverse slopes for both the supply and the demand functions (Case 1) and (b) the positive demand curve (Case 2).

Case 3, if it applies, gives areas in the excess demand diagram which are equal to the sums of areas in its underlying supply and demand diagram, at least as far as trade creation effects are concerned. As long as Case 3 does apply the estimates[1] of welfare effects in the perverse case are accurate and are not approximations as would be the results if calculations were based on Cases 1 or 2. Thus, it has been assumed that where the estimated import functions have perverse slopes the positive price coefficient arises because Case 3 applies, and calculations have been made on that basis. Trade creation has a negative effect on welfare in the perverse case, as has been shown above.

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[1] With the exception of the small overestimate for trade diversion.

CHAPTER IV

ESTIMATION AND INTERPRETATION

1. ESTIMATES OF TRADE CREATION AND TRADE DIVERSION

This section provides a table of results for each group of imports indicating the trade creation and trade diversion effects of actual and potential tariff changes on imports. The following paragraphs outline some notes relevant to the general presentation of the results.

The trade creation estimates have been given a sign which indicates their influence on welfare. Under conditions of normal supply and demand curves the welfare changes represented by trade creation estimates (as discussed in the explanation of the theory) are a positive gain in welfare. In this study however, a positively sloping excess demand curve was found on five occasions (though the lack of statistical significance of the price estimates must not be forgotten as a possible cause). Of the possible perverse supply and demand curves causing a positively sloped excess demand curve, the case of a normal demand curve and a perverse supply curve has been assumed (see Appendix to Chapter III, Case 3). Assuming Case 3 where a positively sloped excess demand curve prevails the estimates for trade creation indicate negative welfare effects following a tariff reduction (see pages 55-56).

Negative estimates for trade diversion have been omitted from the results tables as they lack any real significance in this study. A negative value for trade

diversion occurs when the derived Australian price is lower than the world price thus there being no potential for trade diversion.

The estimates for P_{Aj} include remaining tariffs where the change in tariff does not represent a movement to free trade. This will cause an overstatement of trade diversion.[1] The treatment of trade diversion as a welfare loss is unchanged throughout the study.

In measuring tariff changes between 1950 and 1972 and 1966 and 1972, tariff rates were found to increase on some groups. The tables have been arranged to show such increases and also to estimate the welfare effects of eliminating the increases.

The remainder of this section contains, for each commodity group analysed, the average annual quantity imported for that group, the coefficient on the price variable in the excess demand function and the price elasticity for the group. The tables indicate the trade creating and trade diverting effects and the net welfare result, of two actual tariff changes and of two hypothetical changes.

(1) Group 1 Results (Section 2 Division 26).

The Standard International Trade Classification (SITC) for this group includes textile fibres (not manufactured into yarn, thread or fabrics) and waste.

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[1] Though this approach is ideally only suited to analysing trade diversion following a move to free trade. The approximations of P_{Aj} following other tariff movements was thought to be worthwhile to give a rough approximation of the trade diversion. It would appear (by comparison with the free trade situation) that the error is very significant.

Table IV.1 Results of the Analysis for Group 1

	Units	Change in Tariffs			
		Tariff Change Between 1950-72	Tariff Change Between 1966-72	25% Cut in the Average Tariff Rate	Movement to Free Trade
The change in Tariff[1] (Δt_1)	%	-2.117[3]	-0.464[4]	-0.342[5]	-1.367[6]
Change in Price (2) (ΔP_1)	$	-1.107	-0.243	-0.179	-0.715
Change in Quantity (ΔI_1) after ΔP_1	Cwt	-192.4	-42.233	-31.11	-124.27
Trade creation due to Δt_1	$	-106.5[7]	-5.1[7]	-2.8[7]	-44.4[7]
World Price P_{w1}	$	52.289	52.289	52.289	52.289
Australian Price (P_{A1}) after Δt_1	$	51.847	52.712	52.937	52.240
Trade Diversion	$	(8)	80196.9	122853.7	(8)
Net Welfare effect of Δt_1	$	-106.5[9]	-80202.0[9]	-122856.5[9]	-44.4[9]

1 This represents the change in the percent ad valorem duty on imports.

2 The change in price is calculated by assessing the change in tariff duty per unit. The tariff change is applied to the world import price (P_W). For the method of deriving ΔP_j from Δt_j see page 39.

3 The change in the N.Z. tariff from the 1950 rate to the 1972 rate for this commodity group.

4 The change in the N.Z. tariff from the 1966 rate (first year of NAFTA) to the 1972 rate for this commodity group.

(continued)

Footnotes to Table IV.1 continued:

[5] This change in tariff represents a 25 percent across the board cut in the average 1950-1972 tariff rate for this commodity group (as was done by Australia in 1973).

[6] This represents the change necessary to bring about free trade from the average of the N.Z. tariff rate for the years 1950-1972.

[7] The apparent small magnitude of these estimates is due to the lack of scope for tariff reductions and the relatively small quantity of imports involved.

[8] Negative trade diversion (see introductory paragraphs, page 57).

[9] The introductory notes relating to the estimation of trade creation and trade diversion with a positively sloped excess demand curve and the Appendix to Chapter III (Case 3) should be read in conjunction with viewing these estimates.

Average annual quantity imported 1950-72 (I_1) = 189,589 cwt

Price coefficient ($\hat{a}_{P1}$) = 173.8

Price elasticity import demand (E_1) = 0.049

The N.Z. 1950-72 average price of imported goods (t_1P_1) = $53.0

(2) Group 2 Results (Section 2 Divisions 27-29).

See Table IV.2.

The SITC includes crude fertilisers and crude materials excluding coal and petroleum, metalliferous ores and scrap, and animal and vegetable crude materials.

Average annual quantity imported 1950-72 (I_2) = 20538890 cwt

Price coefficient ($\hat{a}_{P2}$) = 5528776.6

Price elasticity import demand (E_2) = 0.553

The N.Z. 1950-72 average price of imported goods (t_2P_2) = $2.095

(3) Group 3 Results (Section 3).

See Table IV.3.

The SITC includes mineral fuels, lubricants and related materials.

Average annual quantity imported 1950-72 (I_3) = 51123595 cwt

Price coefficient ($\hat{a}_{P3}$) = -16534153

Price elasticity import demand (E_3) = -0.896

The N.Z. 1950-72 average price of imported goods (t_3P_3) = $2.77

Table IV.2 Results of the Analysis for Group 2

	Units	Change in Tariffs			
		Tariff Change Between 1950-72	Tariff Change Between 1966-72	25% cut in the Average Tariff Rate	Movement to Free Trade
The change in Tariff (1) (Δt_2)	%	-3.318(3)	0.439(4)	-0.854(5)	-3.416(6)
Change in price (2) (ΔP_2)	$	-0.067	0.0089	-0.0173	-0.069
Change in quantity (ΔI_2) after ΔP_2	Cwt	-370428	49206.11	-95647.84	-381485.58
Trade Creation due to Δt_2	$	-12409.3	-219.0	-827.1	-13161.3
World Price (P_{w2})	$	2.023	2.023	2.023	2.023
Australian Price (P_{A2}) after Δt_2	$	2.028	2.104	2.078	2.026
Trade Diversion	$	102682.6	1663458.8	1129509	61609.6
Net Welfare effect of Δt_2	$	-115092.0(7)	-1663677.8(7)	-1130336.1(7)	-74770.8(7)

Notes (1) - (6) see Table IV.1

(7) See introductory notes on trade creation and trade diversion estimates with a positively sloped excess demand function, page 57 and Appendix to Chapter III (Case 3).

Table IV. 3 Results of the Analysis for Group 3

	Unit	Change in Tariffs			
		Tariff Change Between 1950-72	Tariff Change Between 1966-72	25% Cut in The Average Tariff Rate	Movement to Free Trade
The Change in Tariff (1) (Δt_3)	%	-9.947(3)	-5.284(4)	-2.501(5)	-10.003(6)
Change in price (2) (ΔP_3)	$	-0.248	-0.1317	-0.062	-0.249
Change in quantity (ΔI_3) after ΔP_3	Cwt	4100469.9	2177547.9	1025117	4117004
Trade Creation due to Δt_3	$	508458.3	143390.8	31778.6	512567
World Price (P_{w3})	$	2.492	2.492	2.492	2.492
Australian Price (P_{A3}) after Δt_3	$	2.116	2.233	2.302	2.115
Trade Diversion	$	(7)	(7)	(7)	(7)
Net Welfare effect of Δt_3	$	508458.3	143390.8	31778.6	512567

Notes: (1) - (6) see Table IV.1

(7) Negative trade diversion (see page 57).

(4) Group 4 Results (Section 5).

See Table IV.4.

The SITC includes chemical elements and compounds, chemicals from coal, dyeing chemicals, pharmaceutical products, perfume materials, manufactured fertilisers, explosives and miscellaneous chemical products.

Average annual quantity imported 1950-72 (I_4) = 6150977 cwt

Price coefficient ($\hat{a}_{P4}$) = -473954.5

Price elasticity import demand (E_4) = -0.901

N.Z. 1950-72 average price imported goods (t_4P_4) = $12.019

(5) Group 5 Results (Section 6 Divisions 61-64).

See Table IV.5.

The SITC includes leather and leather products, rubber manufactures, wood and cork manufactures and paper and paperboard manufactures.

Average annual quantity imported 1950-72 (I_5) = 1203634.3 cwt

Price coefficient ($\hat{a}_{P5}$) = -24458.3

Price elasticity import demand (E_5) = -0.697

The N.Z. average price of imported goods (t_5P_5) = $34.407

(6) Group 6 Results (Section 6 Division 65, imports by quantity in square yards).

See Table IV.6.

This group is predominantly made up of textile fabrics, made up articles of textile materials and floor coverings.

Average annual quantity imported 1950-72 (I_6) = 130581100 sq yd

Price coefficient ($\hat{a}_{P6}$) = 21858727

Price elasticity import demand (E_6) = 0.1667

The N.Z. average price of imported goods (t_6P_6) = $0.996

Table IV.4 Results of the Analysis for Group 4

	Units	Change in Tariff			
		Tariff Change Between 1950-72	Tariff Change Between 1966-72	25% Cut in The Average Tariff Rate	Movement to Free Trade
The change in Tariff(1) (Δt_4)	%	-4.396(3)	-2.813(4)	-2.431(5)	-9.724(6)
Change in Price (2) (ΔP_4)	$	-0.481	-0.308	-0.266	-1.065
Change in quantity (ΔI_4) after ΔP_4	Cwt	227972.0	145977.98	126071.9	504761.4
Trade creation due to Δt_4	$	54827.3	22480.6	16767.56	268785.5
World Price (P_{w4})	$	10.95	10.95	10.95	10.95
Australian Price (P_{A4}) after Δt_4	$	11.538	11.711	11.753	10.954
Trade Diversion	$	3616774	4680893	4939234.5	24603.9
Net welfare effect of Δt_4	$	-3388802	-4534915.1	-4813162.6	480157.5

Notes: (1) - (6) See Table IV. 1.

Table IV. 5 Results of the Analysis for Group 5

	Units	Change in Tariff			
		Tariff Change Between 1950-72	Tariff Change Between 1966-72	25% Cut in the Average Tariff Rate	Movement to Free Trade
The change in Tariff (1) (Δt_5)	%	3.626(3)	-1.899(4)	-4.798(5)	-19.192(6)
Change in price (2) (ΔP_5)	$	1.047	-0.548	-1.385	-5.541
Change in quantity (ΔI_5) after ΔP_5	Cwt	-25607.8	13403.2	33874.8	135523.4
Trade creation due to Δt_5	$	13405.7	3672.5	23458.3	375467.7
World Price (P_{w5})	$	28.873	28.873	28.873	28.873
Australian Price (P_{A5}) after Δt_5	$	35.453	33.858	33.021	28.865
Trade Diversion	$	7919913.6	6000116.9	4992675	(7)
Net welfare effect of Δt_5	$	-7906507.9	-5996444.4	-4969216.8	375467.7

Notes: (1) - (6) See Table IV.1.

(7) Negative trade diversion.

Table IV.6 Results of the Analysis for Group 6

	Units	Change in Tariff			
		Tariff Change Between 1950-72	Tariff Change Between 1966-72	25% Cut in The Average Tariff Rate	Movement to Free Trade
The change in Tariff (1) (Δt_6)	%	1.95	-2.339	-3.852	-15.408
Change in Price (2) (ΔP_6)	$	0.017	-0.0203	-0.0334	-0.133
Change in quantity (ΔI_6) after ΔP_6	Sq yd	371598.4	-443732.2	-730081.5	-2907210.6
Trade creation due to Δt_6	$	-3158.6	-4503.9	-12190.6	-193329.5
World Price (P_{w6})	$	0.866	0.866	0.866	0.866
Australian Price (P_{A6}) Δt_6	$	1.01	0.976	0.963	0.863
Trade Diversion	$	18803678	14363921	12666366	(7)
Net welfare effect of Δt_6	$	-18806836(8)	-14368424(8)	-12678556(8)	-193329.5(8)

Notes: (1) - (6) See Table IV.1.

(7) Negative trade diversion.

(8) See introductory notes on trade creation and trade diversion estimates with a positively sloped excess demand function (page 57) and Appendix to Chapter III (Case 3).

(7) Group 7 Results (Section 6 Division 65, imports by quantity in cwt).

See Table IV.7.

This group is very predominantly textile yarn and thread.

Average annual quantity imported 1950-72 (I_7) = 158539 cwt

Price coefficient ($\hat{a}_{P7}$) = -278.6

Price elasticity of import demand (E_7) = -0.436

The N.Z. average price of imported goods (t_7P_7) = $248.34

(8) Group 8 Results (Section 6 Divisions 66-69).

See Table IV.8.

The SITC includes non-metalic mineral manufactures, iron and steel, non-ferrous metals and manufactures of metals.

Average annual quantity imported 1950-72 (I_8) = 8301823 cwt

Price coefficient ($\hat{a}_{P8}$) = 534317

Price elasticity import demand (E_8) = 1.393

The N.Z. average price of imported goods (t_8P_8) = $21.654

Table IV. 7 Results of the Analysis for Group 7

	Units	Change in Tariffs			
		Tariff Change Between 1950-72	Tariff Change Between 1966-72	25% Cut in the Average Tariff Rate	Movement to Free Trade
The change in Tariff (1) (Δt_7)	%	1.95(3)	-2.339(4)	-3.852(5)	-15.408(6)
Change in price (2) (ΔP_7)	$	4.207	-5.046	-8.31	-33.241
Change in quantity (ΔI_7) after ΔP_7	Cwt	-1172.1	1405.8	2315.17	9260.9
Trade creation due to Δt_7	$	2465.5	3546.9	9619.5	153921.5
World Price (P_{w7})	$	215.74	215.74	215.74	215.74
Australian Price (P_{A7}) after Δt_7	$	252.89	243.637	240.373	215.44
Trade Diversion	$	5889723.8	4422762.4	3905291.1	(7)
Net welfare effect of Δt_7	$	-5887258.3	-4419215.5	-3895674.6	153921.5

Notes (1) - (6) See Table IV.1.

(7) Negative trade diversion.

Table IV. 8 Results of the Analysis Group 8

	Units	Change in Tariffs			
		Tariff Change Between 1950-72	Tariff Change Between 1966-72	25% Cut in the Average Tariff Rate	Movement to Free Trade
The change in Tariff (1) (Δt_8)	%	2.763(3)	2.608(4)	-3.665(5)	-14.658(6)
Change in price (2) (ΔP_8)	$	0.522	0.493	-0.693	-2.77
Change in quantity (ΔI_8) after ΔP_8)	Cwt	278913	263418.3	370281.7	-1480058
Trade creation due to Δt_8	$	-72796.4	-64932.6	-128302.6	-2049880
World Price (P_{w8})	%	18.9	18.9	18.9	18.9
Australian Price (P_{A8}) after Δt_8	$	22.176	22.147	22.347	18.884
Trade Diversion	$	27196772	26956019	28616383	(7)
Net welfare effect of Δt_8	$	-27269568(8)	-27020951(8)	-28744685(8)	-2049880(8)

Notes: (1) - (6) See Table IV.1.

(7) Negative trade diversion.

(8) See introductory notes on trade creation and trade diversion estimates with a positively sloped excess demand function (page 57) and Appendix to Chapter III (Case 3).

(9) Group 9 Results (Section 7, import quantity measured in number of items).

See Table IV.9.

This group includes machinery (not included in Group 10) and transport equipment.

Average annual quantity imported 1950-72 (I_9) = 2997337

Price coefficient ($\hat{a}_{P9}$) = -34535.3

Price elasticity import demand (E_9) = -1.183

The N.Z. average price of imported goods (t_9P_9) = $102.703

(10) Group 10 Results (Section 7, import quantity measured in cwt).

See Table IV.10.

This is a small group including metalworking machinery, textile machinery and specialised industrial machinery.

Average annual quantity imported 1950-72 (I_{10}) = 247303.5 cwt

Price coefficient ($\hat{a}_{P10}$) = 1656.8

Price elasticity import demand (E_{10}) = 0.887

The N.Z. average price of imported goods ($t_{10}P_{10}$) = $132.419

Table IV. 9 Results of the Analysis for Group 9

	Units	Change in Tariffs			
		Tariff Change Between 1950-72	Tariff Change Between 1966-72	25% Cut in the Average Tariff Rate	Movement to Free Trade
The change in Tariff (1) (Δt_9)	%	8.601(3)	0.094(4)	-4.295(5)	-17.178(6)
Change in Price (2) (ΔP_9)	$	7.648	0.0835	-3.815	-15.259
Change in quantity (ΔI_9) after ΔP_9	No.	-264126	-2883.7	131752.2	526974.1
Trade creation due to Δt_9	$	1010017.7	120.4	251317.3	4020549.2
World Price (P_{w9})	$	88.831	88.831	88.831	88.831
Australian Price (P_{A9}) after Δt_9	$	103.703	102.787	98.888	87.444
Trade Diversion	$	44576395	41830835	30144218	(7)
Net welfare effect of Δt_9	$	-43566378	-41830715	-29892901	4020549.2

Notes (1) - (6) See Table IV. 1.

(7) Negative trade diversion.

Table IV.10 Results of the Analysis for Group 10

	Units	Change in Tariffs			
		Tariff Change Between 1950-72	Tariff Change Between 1966-72	25% Cut in The Average Tariff Rate	Movement to Free Trade
The change in Tariff (1) (Δt_{10})	%	8.601(3)	0.094(4)	-4.295(5)	-17.178(6)
Change in Price (2) (ΔP_{10})	$	9.696	0.106	-4.842	-19.365
Change in quantity (ΔI_{10}) after ΔP_{10}	Cwt	16064.3	175.62	-8022.2	-32083.9
Trade creation due to Δt_{10}	$	-77879.9	-9.3	-19421.8	-310652.7
World Price P_{w10}	$	112.733	112.733	112.733	112.733
Australian Price (P_{A10}) after Δt_{10}	$	142.157	132.567	127.619	113.096
Trade Diversion	$	7276658.1	4905017.6	3681359.9	89771.2
Net welfare effect of Δt_{10}	$	-7354538(7)	-4905018(7)	-3700781.7(7)	-400423.9(7)

Notes (1) - (6) See Table IV.1.

(7) See introductory notes on trade creation and trade diversion estimates with a positively sloped excess demand function (page 57) and Appendix to Chapter III (Case 3).

2. INTERPRETATION OF RESULTS

This section will provide a brief interpretation by commodity group studied of the results outlined in Tables IV.1 to IV.10 in Section 1 of this Chapter.

(1) Group 1 (Section 26 Division 26).

The statistical non-significance of the price estimates for this group is very likely to be responsible for the positive price coefficient but the possibility of a perverse demand curve must not be forgotten. It is most likely however, that other factors outweigh the importance of price as a determinant of demand for Group 1 products. Gross domestic demand was found to be a strong influencing factor on imports of this group. This is made more plausible considering that this group is largely made up of goods going into the manufacture of clothing for domestic consumption (i.e. wool, cotton and synthetic fibres in the raw state).

(a) Trade Creation. The estimates for trade creation are so small that the trade creation potential for this group can be assumed to be zero (see also Table V.2). This result could be expected, considering New Zealand would be the cheapest producer of those types of wool that it produces and that it is not a producer of cotton and synthetic fibres. Furthermore the low level of tariffs existing for this group further reduces the likelihood of large trade creation gains.

(b) Trade Diversion. The potential for trade diversion appears to be non-existent . This seems likely considering the absence of tariffs.

(2) Group 2 (Section 2 Divisions 27-29).

The price estimates are not statistically significant thus poor estimates are likely to have caused the positive price coefficient.

This group is largely made up of raw material inputs for the fertiliser industry. The demand for fertilisers (and therefore for the inputs) is likely to be largely a function of primary product prices and the level of government fertiliser subsidy rather than the production price of fertiliser. It is through this relationship that the very strong positive correlation between gross domestic expenditure and import demand for these commodities may be explained.

(a) Trade Creation. Because of the positive price coefficient the trade creation estimate represents a welfare loss. The results only provide very small estimates for trade creation. It would appear that no significant changes in consumers or producers welfare is likely following a tariff change. This would be expected considering that this group is made up predominantly of commodities (in particular calcium phosphate, gypsum and sulphur) that are not available in New Zealand.

The lack of potential for welfare changes is also due to the low level of tariffs existing for most of this group. Even small tariff estimates for this group are likely to represent overestimates.[1]

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[1] Particularly with this group (but to a small degree applicable to all groups) tariff rates must be viewed with some caution. Considering that they are not weighted on import value and that much of this group has always been tariff free, the rate is influenced by tariff changes on a small number of tariff items of possibly little trading importance.

(b) Trade Diversion. Considering the over-estimation of trade diversion with a positively sloped excess demand function[1] and also a likely over-estimate of the tariff for this group coupled with the relatively insignificant estimate for trade diversion, then it can be assumed trade diversion is unlikely to occur with this group. This lack of trade diversion potential is to be expected considering Australia is already a major supplier of these products to New Zealand.

(3) Group 3 (Section 3).

The price estimates are statistically highly significant and the price coefficient has a negative value.

This group seems to have received a general reduction in tariffs, being partly caused by a restructuring in tariffs for this group and in part due to some preferences under NAFTA, the former being of greater magnitude. However these preferences, combined with a major growth in Australian output of these products, have both attributed to a major shift to Australia as a source of imports (see Table IV.11).

Table IV. 11 Percentage of Refined Petroleum Products Imported from Australia.

	1955	1960	1965	1970	1974
% N.Z. Imports from Australia	12	38	28	31	56

Source: Burtt, D.J. (4) page 65.

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[1] See Appendix to Chapter III (Case 3).

(a) Trade Creation. The trade creation gains would appear to be significant (though not relatively large). The estimates for trade creation may well indicate the costs of expanding an inefficient petrochemical industry in New Zealand, if the current tariff levels were required for it to be competitive.

In the absence of a domestic petrochemical industry tariff reductions may conflict with attempts to encourage energy conservation.

(b) Trade Diversion. With the apparent absence of trade diversion potential it can be assumed that Australia has become price competitive in the international refined petroleum product market.

(c) Free Trade. There appears to exist worthwhile trade creation potential from tariff changes with no risk of trade diversion. If New Zealand was to accept NAFTA in the true spirit of a free trade agreement then it would not be tempted to establish an inefficient tariff protected petroleum refining industry of its own.

(4) Group 4 (Section 5).

This group shows a very similar set of symptoms as shown by Group 3 (petroleum products). The price estimates are statistically significant with a negative price coefficient.

There has been a reduction in tariffs between 1950 and 1972 of 4.4 percent (with 2.8 percent of this occurring since 1966). An examination of the relative market shares of the major commodity groups within Group 4 would indicate that if any of this reduction in tariffs is due to NAFTA it has been

concentrated in the medicinal preparations group (see Table IV.12). The existence of preferences under NAFTA are indicated by the appearance of a preference in the 1972 tariff rate on Australian items over the 1972 British Preferential rate (see Table V.7). This preference could well have contributed to Australia's replacement of the United Kingdom as New Zealand's number one source of medicinal preparations. Australia also became the number two source of chemicals (U.S.A. being number one) in 1974, the United Kingdom shifting from first place (in 1965) to third place as a source of chemicals.

Table IV.12 New Zealand Imports from Australia of Group 4 Commodities.

	% N.Z. Imports from Australia	
	1965	1975
Chemicals (except Alumina and Medicinal preparations)	39	19
Medicinal preparations	29	33
Plastics and Resins	18	15

Source: Burtt, D.J. (4) page 71.

The increased Australian importance as a source of Group 4 commodities is largely accounted for by the growth in the Australian chemical industry, though no doubt the proximity and the preferential access (under the British Preferential Tariff and NAFTA) to the New Zealand market acted as a stimulus.

(a) Trade Creation. The results indicate worthwhile trade creation on a movement to free trade. This seems agreeable with the apparent competitiveness in the

Australian industry, as it also exports significantly to the U.S.A., Japan and the United Kingdom.

(b) Trade Diversion. The results indicate a small amount of trade diversion potential on a move to free trade (outweighed by trade creation). It is likely that trade diversion will occur (particularly in this group) with the phasing out of the British Preferential Tariff.

(5) Group 5 (Divisions 61-64).

The price coefficient was negative but the price estimates were statistically non-significant. There would appear to be a slight decrease in the tariff rate in the 1966-1972 period. Contained within this group is paper and paper board manufactures, an area of considerable importance under NAFTA for New Zealand's exports, though of little apparent significance to Australian exporters to New Zealand. The preferences under NAFTA are indicated by the tariff rate preference on Australian items over the British Preferential Rate for 1972 (see Table V.7). Australia receives tariff preferences for many of the items contained in the four groups in Table IV.13, some are directly due to NAFTA but most are the result of earlier trade negotiations.

(a) Trade Creation. The freeing of the tariffs in this group would appear to result in significant trade creation. Considering the high tariff protection received by local manufacturers of these commodities and the apparent price competitiveness of the Australian commodities then this result seems in order.

(b) Trade Diversion. The results indicate the absence of trade diversion under free trade. This indicates

that Australia is already the cheapest supplier. The quite high trade diversion values in the non-free trade situations are caused by the remaining tariffs (on the Australian price), their magnitude giving an indication of the revenue generated by the tariff.

Table IV.13 New Zealand Imports of Group 5 Commodities. $000* CIF

	Imports from Australia			Total Imports		
SITC	1965-66	1973-74	%Δ	1965-66	1973-74	%Δ
61 Leather & Leather Manuf	353.3	572.9	62	3211	2413.5	-25
62 Rubber Manuf	1185.5	2988.9	152	10851.7	25584	136
63 Wood & Cork Manuf	550.1	2492.7	353	4176.4	11611	178
64 Paper and Paperboard Manuf	3239.2	5477.1	69	22553	32031.8	42

Source: Country Analysis of External Trade, N.Z. Department of Statistics.

(6) Group 6 (Section 6 Division 65, imports by quantity in square yards).

The price estimates are not statistically significant, this possibly accounts for the positive price coefficient. It is interesting to note the high degree of statistical significance of the estimates for gross domestic expenditure.

In general tariff preferences on Australian imports derived from NAFTA are small, though Australia has always received significant tariff preferences under the British

Preferential Tariff. By 1974 Japan had become New Zealand's number one supplier of textile fabrics, followed by Australia and Hong Kong. The percentage of New Zealand textile fabric imports from Australia rose from 7 percent in 1965 to 10 percent in 1974, hardly a significant change. The percentage of Australian exports of textile fabrics going to New Zealand decreased from 71 percent to 59 percent between 1965 and 1974. In general it would appear that Japan is more price competitive than Australia.

(a) Trade Creation. The estimate for trade creation represents a small welfare loss with a movement to free trade because Case 3 (page 55) applies.

In general the direct welfare effects on producers and consumers of such a move appears to be insignificant.

(b) Trade Diversion. The results indicate an absence of trade diversion potential on a move to free trade. The high values for trade diversion in the non-free trade situation demonstrates the tariff revenue effect of the tariff protection. It does seem logical that with the abolition of the British Preferential Tariff trade diversion from United Kingdom sources to Australia may occur. For a group of products such as this facing such tough international competition, it would also seem likely that expanded preferences to Australia may provide trade diversion from Japanese sources.

(7) Group 7 (Section 6 Division 65, imports by quantity in Cwt).

The price estimates are statistically rather non-significant, this was likely to be accounted for by the small quantity of imports in Group 7.[1]

NAFTA provides no significant tariff preferences that were not already applicable under the British Preferential Tariff. This is likely to be a major cause of the lack of growth of such imports from Australia shown in Table IV.14.

Table IV.14 New Zealand Imports of Textile Yarn and Thread
$000 CIF*

Imports from Australia			Total Imports		
1965-66	1973-74	% Δ	1965-66	1973-74	% Δ
3648.4	6179.4	41	23392.5	35741.4	50

Source: Country Analysis of External Trade, Statistics Department.

* Deflated using Import Price Index. Base Year 1974.

(a) Trade Creation. The quite high value for trade creation on a movement to free trade is caused by the high level of protection enjoyed by domestic industry. New Zealand imports very little of these commodities and itself is a major producer. This represents the cost to the New Zealand consumer of such high protection, the necessity of its continued existence may well be in doubt

[1] It includes imports of textile yarn and thread but with a very minor number of other commodities.

considering New Zealand's recent export sales of such products (and thus its apparent international competitiveness).

(b) Trade Diversion. The potential for trade diversion following the complete removal of tariffs appears to be nil. However with the United Kingdom being a major supplier in the past and the high level of preferences under the British Preferential Tariff, it is likely that trade diversion from sources such as Japan to the United Kingdom and Australia has existed for some time prior to NAFTA.

(8) Group 8 (Section 6 Divisions 66-69).

The price estimates were found to be statistically significant only at the 95 percent level but with a positive price coefficient.

As a whole this group has been subject to increased protection (particularly commodities of iron and steel and manufactures thereof). The only commodities within this group for which Australia has received tariff preferences over all other suppliers (of any significance) is for aluminium and aluminium alloys. In 1974 Australia supplied 56 percent (14 percent in 1965) of New Zealand's imports of aluminium products. This is also due to expanded local domestic production and reduced imports (Table IV.15).

Imports of iron and steel and related manufactures from Australia decreased in real terms over most of the 1965-1973 period. Australia received no significant

tariff preferences over the British Preferential Rate, though this contained a considerable tariff preference to Commonwealth suppliers (see Table V.7).

Table IV.15 New Zealand Imports of Aluminium and Aluminium Alloys
$000* CIF

Imports from Australia		Total Imports	
1965-66	1973-74	1965-66	1973-74
1785.9	5747.1	12352.6	10338

Source: N.Z. Country Analysis of External Trade, Statistics Department.
* Deflated using Import Price Index. Base Year 1974.

Table IV.16 New Zealand Imports of Iron and Steel and Related Manufactures
$000*

Imports from Australia				Total Imports	
1965-66	Market Share	1973-74	Market Share	1965-66	1973-74
60029	40%	55923	31%	150491	178562

Source: See previous Table.
* Deflated, see previous Table.

(a) Trade Creation. The trade creation estimate of a move to free trade is reasonably large and represents a welfare loss because of the positive price coefficient in the import function. The loss may be difficult to understand at first glance though it arises from the

Case 3 (page 55) interpretation which was chosen to meet this perverse situation.

(b) Trade Diversion. The results indicate no trade diversion potential in switching to Australia from present suppliers (under free trade conditions), thus it is assumed that Australia is already a competitive supplier of imports.

This does not rule out the possibility of trade diversion resulting from the British Preferential Tariff favouring Australia over such suppliers as Japan and the U.S.A.

(9) Group 9 (Section 7, import quantity by number of items).

The price estimates were statistically highly significant with a negative price coefficient.

This is a group for which Australia does receive a selection of useful preferences under NAFTA that are not available to other suppliers.

The combination of the British Preferential Tariff rates, the tariff preferences granted under NAFTA and the growth of Australian heavy industry, has encouraged and enabled New Zealand to drastically expand its imports of machinery and transport equipment from Australia (see Table IV.17). Though by 1974 Australia remained (as in 1965) New Zealand's number three source of imports of commodities for this group, the main sources being the U.S.A. and the United Kingdom.

Table IV.17 New Zealand Imports of Machinery and Transport Equipment
$000* CIF

	Imports from Australia			Total Imports		
SITC	1965-66	1973-74	% Inc.	1965-66	1973-74	% Inc.
71 Machinery (except electric)	23771	37219	56	265722	326658	19
72 Electric Machinery	11643	21799	47	114594	133889	14
73 Transport Equipment	39429	95175	59	232226	327344	29

Source: N.Z. Country Analysis of External Trade, Statistics Department.

* Deflated using Import Price Index. Base Year 1974.

Table IV.18 Group 9 Imports from Australia as a Percentage of Total Imports of Such Commodities

SITC	1965-66	1973-74
71 Machinery except electric	9	11
72 Electric machinery	10	16
73 Transport equipment	17	29

New Zealand is Australia's main export market for this group of commodities. From Australia's point of view the New Zealand market has been an ideal starting point for its growing exports of heavy industrial finished goods. The tariff preferences (under the security of NAFTA) combined with the proximity of the market have given the Australians an initial advantage.

(a) Trade Creation. New Zealand's heavy industry is never likely to have the available resources to match

overseas production efficiency of most machinery and transport equipment. Thus with Australia developing a fully integrated and increasingly efficient industry there would appear to be ample potential for trade creation, this is reinforced by the trade creation estimates for major tariff changes shown in Table IV.9.

A movement to free trade for this group would provide New Zealand with a powerful bargaining tool for reciprocal rights of entry into Australia for its own lighter manufactured goods.

(b) Trade Diversion. The results indicate the absence of trade diversion following a complete freeing of trade. However built into these results is possible trade diversion resulting from the British Preferential Tariff, favouring Australia over such competitors as the U.S.A. and Japan. Further freeing of trade would increase this advantage and provide further trade diversion potential.

(10) Group 10 (Section 7, import quantity measured in Cwt).

This small group provided statistically highly significant price estimates with a positive price coefficient. The specialised nature of this group and its relative smallness may well have brought about the situation causing a positive price coefficient.

(a) Trade Creation. For a small group the trade creation estimate is quite large though because of the positive price coefficient the estimate theoretically represents a welfare loss to producers. This result is likely to be the product of distortions introduced because of the very specialised nature of the products and the very

limited amount of domestic production. The lack of competition between domestic producers and imported supplies and the quite high tariff protection received on the limited domestic production make it difficult to draw an acceptable conclusion from the welfare change indicated by the trade creation estimate.

(b) Trade Diversion. Trade diversion is indicated in a small but significant amount on a move to free trade. The method of deriving trade diversion where a positive excess demand curve exists is likely to produce a small overestimate.

Australia has enjoyed quite considerable tariff preferences over West Germany (New Zealand's main supplier of these products) but has only been able to maintain a very average growth in its New Zealand import market share (see Table IV.19). Thus there would appear a potential for trade diversion through Australia's lack of competitiveness in this product area.

Table IV.19 New Zealand Imports of Metalworking Machines and Textile Machinery.
$000

From Australia			Total Imports		
1965-66	1973-74	% Change	1965-66	1973-74	% Change
2134	2513	18	28092	33717	20

Source: See Table IV.17.

CHAPTER V

CONCLUSIONS

1. THE WELFARE EFFECTS OF THE LIBERALISATION OF TRANS-TASMAN TRADE

(1) Trade Creation.

The results derived in this study (Table V.1) would indicate that the welfare changes described by the trade creation estimates have been very small as the result of any tariff induced price changes due to NAFTA. This is in keeping with the apparently small number of tariff preferences actually granted under NAFTA (see Tables V.6 and V.7).

Table V.1 Trade Creation Estimates.

		Trade Creation ($) Due to			
		Tariff Change Between 1950-72	Tariff Change Between 1966-72	25% Cut in the Average Tariff rate	Movement to Free Trade
Group	1*	-106.5	-5.1	-2.8	-44.4
	2*	-12409.3	-219.0**	-827.1	-13161.2
	3	508458.3	143390.8	31778.6	512567.0
	4	54827.3	22480.6	16767.6	268785.5
	5	13405.7**	3672.5	23458.3	375467.7
	6*	-3158.6**	-4503.9	-12190.6	-193329.5
	7	2465.5**	3546.9	9619.5	153921.5
	8*	-72796.4**	-64932.6**	-128302.6	-2049880.0
	9	1010017.7**	120.4**	251317.3	4020549.2
	10*	-77879.9**	-9.3**	-19421.8	-310652.7

* Estimates described as trade creation for these groups represent welfare losses, i.e. the consumer gain of such a tariff move is out-weighed by a producer loss. See Appendix to Chapter III (Case 3) page 55.

**These are the result of the reversal of an increase in tariff over the indicated period (see page 58 relating to a positive tariff change).

A description of the commodity coverage within groups in Table V.1 is as follows:

Group 1 : Textile fibres, not manufactured.

Group 2 : Crude fertilisers, crude materials and metalliferous ores.

Group 3 : Mineral fuels, lubricants and related materials.

Group 4 : Chemicals.

Group 5 : Manufactures of leather, rubber, wood, cork, paper and paper board.

Group 6 : Textile fabrics, made up articles and floor coverings.

Group 7 : Textile yarn and thread.

Group 8 : Non-metalic, metalic, iron and steel, nonferrous metal manufactures.

Group 9 : Machinery and transport equipment.

Group 10 : Metalworking, textile and specialised industrial machinery.

Table V.2 compares the positive and negative trade creation effects of NAFTA with those of a proposed movement to free trade. It would appear from this comparison that a movement close to complete free trade is needed before clearly measurable welfare changes of this nature will occur. The trade creation gains appear to be most significant in Groups 5 (leather, rubber, wood, cork, paper and paper board manufactures) and 9 (machinery and transport equipment). Group 8 (iron and steel and manufactures of metals and non-metals) shows possible evidence of significant welfare losses by producers on a move to free trade. These three groups represent the areas of major importance in New Zealand's import trade from Australia and also the groups facing the

Table V.2 Trade Creation as a Percentage of Total Trade[1] in the Commodity Group.

		Tariff Change Between 1966-72	Movement to Free Trade
Group**	1*	0.00005	0.00044
	2*	0.0005	0.0305
	3	0.101	0.362
	4	0.0304	0.364
	5	0.0089	0.907
	6*	0.0035	0.149
	7	0.009	0.391
	8*	0.036	1.114
	9	0.00004	1.306
	10*	0.00002	0.949

* Estimates described as trade creation for these groups represented a welfare loss.

** See Table V.1 for a description of the commodity groups.

highest tariff barriers. It is interesting to note that though New Zealand is a major exporter of wood pulp and newsprint it would appear that trade creation gains may well result from the further importation of more specialised types of paper products.

Burtt (4) derived estimates of the value of trade created and trade diverted[2] due to NAFTA up to 1971 and

[1] Total trade was defined as the average quantity times the average price (for the 1950-72 period) for each commodity group.

[2] Burtt's (4) (page 152) estimates indicate the quantity of trade affected by trade creation and trade diversion influences rather than the welfare effects of such influences on trade. Thus only very general comparisons between Burtt's estimates of trade created and trade diverted and the estimates of trade creation and trade diversion in this study are possible.

an estimate for the combined effects up to 1975. The estimate for trade created in New Zealand's imports from Australia between 1966 and 1971 was relatively insignificant (less than 1 percent of total New Zealand imports from Australia). This is in agreement with the small welfare effects due to changes in New Zealand's producers and consumers surpluses (trade creation) in this study. His relatively much higher estimates for trade diverted (than those for trade diversion in the next section) are open to criticism as their estimation does not focus directly on the relative prices of alternative import sources. Rather they are derived from a residual of trade not attributable to normal trade growth or trade creation, which may well include non-tariff effects on trade. This neglect of such factors is likely to cause the estimate of trade diverted to be overstated. In this study trade diversion estimates are calculated directly from the price[1] difference between the Australian and non-Australian sources.

(2) Trade Diversion.

On a move to free trade the potential for trade diversion appears to be small. This would indicate that Australia is sufficiently price competitive to be able to compete successfully internationally with its industrial goods. Thus the complete freeing of trans-Tasman trade is unlikely to involve major trade diversion costs (see Table V.3).

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[1] Due to the method of deriving the Australian price in this study they may be understated (see page 58).

Table V.3 Trade Diversion Estimates.

Group No.	Description of Commodity Groups (1)	Trade Diversion With a Movement to Free Trade (2) ($)
1	Textile fibres, not manufactured	*
2	Crude fertilisers, crude materials, metal ores	61609.6
3	Mineral fuels and related materials	*
4	Chemicals	24603.9
5	Manufactures leather, rubber, wood, cork, paper and paper board	*
6	Textile fabrics, made up articles, floor coverings	*
7	Textile yarn and thread	*
8	Manufactures of metals, iron and steel	*
9	Machinery and transport equipment	*
10	Metalworking, textile and specialised industrial machinery	89771.2

* Negative trade diversion (see page 57)

(1) For a detailed description see page 42.

(2) The reasons for not highlighting other trade diversion estimates are embodied in the explanation of the derivation of the Australian price (following a tariff change). See page 58.

However excluded from these results is the long term trade diversion effects of the British Preferential Tariff. Considering the degree of this tariff preference (see Table V.7) these effects may be quite large.

Of the prices in Table V.4 (for which a valid comparison can be drawn) only the Australian price for Group 3 items is significantly larger than the world price. This can be accounted for by the very high proportion of refined petroleum products imported from Australia whereas crude

petroleum products make up the bulk of the total imports.[1]

Table V.4 A Comparison of Import Prices for the Year Ending June 1972.
(Average $ price/unit)

Group No.	Description of Commodity Groups	Unit	Imports from Australia	Imports from World
1	Fibres for textile manufacture	Cwt	138.66*	39.959
2	Crude materials, fertilisers and metal ores	Cwt	1.523	1.971
3	Mineral fuels and related materials	Cwt	2.59	1.88
4	Chemicals	Cwt	8.839	8.664
5	Manufactures leather, rubber, wood and paper pulp	Cwt	37.77	37.64
6	Textile fabrics, made up articles and floor coverings	Sq yd	0.675	0.704
7	Textile yarn and thread	Cwt	274.23*	192.798
8	Manufactures of metals, iron and steel	Cwt	19.749	22.742
9	Machinery and transport equipment	Items	71.699	110.463
10	Metalworking, textile and special industrial machinery	Cwt	174.393*	233.029

Source: All import quantities and values to calculate prices were taken from Country Analysis of External Trade, N.Z. Department Statistics.

* Because of the relatively small number of commodities in these groups a valid comparison of the average prices can not be made.

The lack of trade diversion potential indicated by the prices is consistent with the lack of trade diversion indicated by the estimates in Table V.3. Furthermore, it is likely that any potential for trade diversion has already been occurring as a result of the British Preferential

[1] Thus the Group 3 price difference is a product of the price estimation technique.

Tariff and will continue to do so with these preferences being passed onto the Australian tariff rate in the New Zealand Tariff Schedule.

(3) Net Welfare Gains.

In general the net welfare effects of tariff reductions on imports are only significant on a move to free trade with Australia, and even then they are by no means large. However the important factor is whether a movement to or towards free trade is likely to involve welfare costs to the economy as a whole. After all as long as the benefits to one sector outweigh costs to another, compensatory transfers to the losing sectors will still leave some sectors with a net welfare gain.

Of those groups having a negative net welfare effect (see Table V.5) all but for Group 2, this is predominantly caused by a welfare loss incurred by producers. Of Groups 1, 2 and 6 (which all had a positive price coefficient) the lack of statistical significance of the price estimates would suggest doubt could be cast on the validity of the sign of the coefficient. These results indicate that the magnitude of welfare changes involved are likely to be small whether they be positive or negative.

Generally the positive net welfare effects outweigh the negative welfare effects (by about $2,824,214 in total) on a move to free trade. It is however not valid to draw more than a subjective analysis[1] from the aggregation of

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[1] The results for each group represent a separate analysis, using a separately derived import function.

group results. Furthermore the significant positive gains occur in petrochemicals, chemicals, machinery and transport equipment, all areas of major (current and potential) trading importance.

Table V.5 Net Welfare Effects.

Group No.	Commodity Group Description	Net Welfare Effect of a Movement to Free Trade*($)
1	Textile fibres, not manufactured	-44.4
2	Crude fertilisers, crude materials, metal ores	-74770.8
3	Mineral fuels and related materials	512567.0
4	Chemicals	480157.5
5	Manufactures leather, rubber, wood, cork, paper and paper board	375467.7
6	Textile fabrics, made up articles, floor coverings	-193329.5
7	Textile yarn and thread	153921.5
8	Manufactures of metals, iron and steel	-2049880.0
9	Machinery and transport equipment	4020549.2
10	Metalworking, textile and specialised industrial machinery	-400423.9

* The net welfare of this situation only has been highlighted because of the distorting factor of the trade diversion estimates in the non-free trade situation. In the other cases the sign of the net welfare effect would be unchanged and the magnitude closely related to the trade creation values (see Table V.1).

In conclusion, the net welfare effects of a complete movement to free trade would appear to be small but at least predominantly positive. Furthermore much of the trade diversion potential included in these results has already been exploited under the past British Preferential Tariff preferences.

2. NAFTA AND THE BRITISH PREFERENTIAL TARIFF (BPT)

The actual reduction of tariffs on Australian imports into New Zealand has been far from spectacular and has shown little evidence of a genuine effort to achieve a free trade area.

Burtt (4) showed quite clearly that a large proportion of items admitted to Schedule A were already tariff free (prior to 1966) or were not involved in trans-Tasman trade (see Table V.6).

Table V.6 The Effective* Proportion of Schedule A Items

	1966	1971
Australian Tariff	5%	11%
New Zealand Tariff	10%	18%

* Tariff items that when added to Schedule A required duty rate reductions and were involved in trans-Tasman trade.

Source: Burtt, D.J. (4) page 106.

The apparent lack of tariff preferences for Australian imports in the New Zealand tariff over the BPT indicates the ineffectiveness of attempts at further tariff reductions. See Table V.7 for a comparison of the Australian and BPT rates. It was not until 1974 that the last of the duty margins[1] (causing the tariff on Australian imports to be higher than for British imports for some items) was removed. In all, these duty margin reductions affected 509 items between 1966 and 1974 (133 occurring in 1974).

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[1] See comment on margin eliminations, page 24.

Table V.7 New Zealand Tariff Rates : A Comparison of Preferences.

SITC Classification	1960(1) Br. Pref. Tariff %	1960(1) Aust. Pref. Tariff %	1960(1) Average Tariff %	1965(2) Br. Pref. Tariff %	1965(2) Aust. Pref. Tariff %	1965(2) Average Tariff %	1972(3) Br. Pref. Tariff %	1972(3) Aust. Pref. Tariff %	1972(3) Average Tariff %	1974(3) Br. Pref. Tariff %	1974(3) Aust. Pref. Tariff %
Section 2 Div 26	0	0	2.25	0	0	0.6	0	0	0.133	0	0
Section 2 Div 27-29	4.69	4.69	5.04	0.87	0.86	1.47	0.85	0.57	1.9	0.95	0.61
Section 3	9.25	9.25	13.09	3.2	3.2	9.05	2.62	2.58	3.77	2.49	2.03
Section 5	6.88	7.13	10.66	4.57	4.57	9.7	3.51	3.05	6.88	4.29	3.12
Section 6 Div 61-64	11.43	13.71	17.31	15.69	14.38	22.3	14.32	11.23	20.4	16.0	11.66
Section 6 Div 65	8.14	8.62	14.26	11.47	11.31	18.16	9.72	8.68	15.82	11.41	8.96
Section 6 Div 66-69	6.85	7.97	14.39	7.32	6.32	13.84	9.59	8.19	16.45	11.47	8.63
Section 7	6.82	7.25	14.21	10.57	9.85	21.24	11.27	9.55	21.34	13.67	9.53

Source: The figures were calculated from The Customs Tariff of New Zealand (Customs Dept.); 1956, 1962, 1972, 1974. The rates for 1960 and 1965 were calculated using the 1956 and 1962 tariff schedules plus amendments.

(1) The 1960 tariff rate represents an average of the rate for each tariff item (where tariff items are subdivided, the rates for the subdivisions have been averaged to produce a single rate per item).

(2) The 1965 tariff rate represents an average of the items at the four digit level (subdivisions treated as above) of the SITC classification.

(3) The 1972 and 1974 tariff rate represents a simple average of the four digit tariff items of the Brussels Tariff nomenclature.

The Average Tariff was calculated as described on page 46.

With the exception of pulp and paper products (Section 6 Division 64), some machinery items (Section 7) and a small number of iron and steel products (Section 6 Division 69) there has been no significant preferences over the BPT prior to 1974.

The replacement of the BPT with the Commonwealth Preference Countries (CPC) Tariff, which does not include the United Kingdom, Australia and Canada, is likely to place greater emphasis on NAFTA, as a binding force to maintain old BPT preferences passed onto Australian imports in the New Zealand Tariff Schedule.

Tariff preferences for Australia are now listed separately in the New Zealand Tariff, which include the old BPT preferences and preferences under NAFTA. Of New Zealand's six main suppliers of imports (accounting for 73 percent of total imports) only Australia now receives significant preferences over the General Tariff.

NAFTA largely took on the function of a trade agreement designed to bind previously negotiated tariff preferences. Several of the preferences to Australia had been negotiated under the 1933 Trade Agreement and quite a few others in separate agreements before NAFTA came into operation. Although the function of ensuring that these tariff preferences are not lost is important, NAFTA's main aim in the future (but its biggest failure in the past) must be to expand significantly on the preferences on its own merits and using its own machinery for doing so.

In general New Zealand has been able to take greater immediate advantage of trade preferences because of

Australia's general lack of quantitative restrictions on imports. In particular, New Zealand has been able to take advantage of a high concentration of preferences and a significant Australian net import situation in newsprint, wood pulp and floor coverings.[1]

Although Australia has been faced with import licencing in New Zealand, its more diverse industry has enabled it to take advantage of a broader range of tariff preferences.

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[1] Under NAFTA New Zealand is allowed to export 2.1 million sq m of dutyfree woollen carpet to Australia. Above this quantity it is subject to between a 5 percent to a 7.5 percent preferential duty (though this duty is about to be changed the preferential margins will be maintained in relation to the General Tariff).

3. MAJOR RESTRICTIONS TO NAFTA'S PROGRESS

(1) New Zealand Import Licencing.

Import licencing remains a major annoyance to Australian exporters exporting to New Zealand. New Zealand had agreed under Article 5 of NAFTA to remove remaining import licencing restrictions as soon as practicable, allowing for balance of payments conditions.

The maintenance of import licencing by New Zealand on Schedule A items has caused dissatisfaction to Australian industry. The result has been a degree of reluctance[1] in Australia to make additions to Schedule A unless New Zealand could provide some guarantees on market access. A further problem is that due to GATT directives import licences must be issued on a non-preferential basis. It is quite likely that a commodity's import demand may be so restricted by import licencing that any preferences gained by Australia become insignificant.

With the percentage of goods imported under licence dropping from 78 percent in 1966 to 32 percent in 1976 (see Table V.8) it would appear that reasonable progress towards reducing import licencing is being made. However these figures do not make allowance for commodities for which imports have been prohibited due to import licencing restrictions.

As balance of payments problems persist, with domestic manufacturers calling for greater protection and Australia

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[1] This has been reflected in findings by the Australian Tariff Board on items referred to it for advice on their inclusion in Schedule A. See Australian Senate Committee (1) page 12.

introducing selective quotas (in textiles and garments), then future reductions in New Zealand's import licencing seems in doubt, at least in the absence of a major policy change such as the introduction of an exchange rate policy to control imports.

Table V.8 New Zealand Import Licencing.

June Year	% New Zealand Imports (CDV) Imported under Licence
1965	78.1*
1966	74.8
1967	63.8
1968	69.1
1969	48.4
1970	43.2
1971	44.2
1972	40.5
1973	36.8
1974	30.1
1975	35.2
1976	32.3

Source: Calculated from data in the Monthly Abstract of Statistics, N.Z. Department of Statistics.

* The previous year's value of import licence allocations was divided by the total imports (CDV) for the year shown.

(2) Additions to Schedule A.

This is an area of considerable debate and criticism and would appear to contain the main weakness of NAFTA.

Severe criticism has been levelled at the apparent slow growth in the number of items added to Schedule A (and thus the slowness to adopt a substantial proportion of trans-Tasman trade as tariff free). This slowdown in the growth of the Schedule A list is indicated in Table V.9. Furthermore the reluctance to make concessions influencing a major part of trans-Tasman trade is indicated in Table V.10.

Table V.9 The Growth in the Number of Items Listed in Schedule A.

As at June	No. Tariff Items in Schedule A	Increase in No. of Items	Total No. Items in NZ Tariff
1966	1140		4400
1970	1670	530	4550
1975	2000	330	4700

Source: Burtt, D.J. (4) page 120.

The initial growth was due to the inclusion of those items previously traded free of tariffs or those requiring very little tariff reduction. However when it came to agreeing on more substantial reductions the method of negotiation lacked any compulsion on members to give concessions, thus progress became slow.

What is needed is a plan and a schedule for gradual reductions with minimal exceptions. Such a plan would allow either country to plan for foreseeable changes and encourage industry to be prepared for the changes, and where necessary offer compensation. A schedule of tariff reductions would include a form of compulsion to implement the plan. This may involve a set of long term and gradual across the board tariff reductions (with a restricted schedule of exemptions).

(3) Article 3:7.

Burtt (4) has shown that the value of trade involved under Article 3:7 of NAFTA has been quite significant in relation to Schedule A, though in relation to total trans-

Tasman trade Article 3:7 trade has been quite small (see Table V.11).

Table V.10 A comparison of New Zealand Imports of Rate Reducing(1) Items with other Imports(2).

	Year Ending June		
	1965(3)	1971(3)	1975(4)
Imports Rate Reducing Items ($mill)	2.6	15.7	35.8
Schedule A Imports ($mill)	54.8	108.5	297.1
Total Imports From Australia ($mill)	128.7	222.7	502.6
% of Rate Reducing Items in imports under Schedule A	5	14	12
% of Rate Reducing Items in Total Imports from Australia	2	7	7

(1) Those items, when added to Schedule A, requiring a tariff reduction in the New Zealand Tariff (i.e. items not already free).

(2) Except Schedule A, imports being CDV figures.

(3) 1965 and 1971 figures cover items in Schedule A by 1971.

(4) 1975 figures cover items in Schedule A by 1975.

Source: Burtt, D.J. (4) page 122.

Article 3:7 has several undesirable features which are contrary to progress towards a free trade area. Firstly, it is a very selective method of granting trading preferences. The arrangement occurs between two companies, one from each country thus discriminating against other firms within the same industry. Such an arrangement is also difficult to negotiate as it requires finding firms on either side of the Tasman with complementary requirements.

Table V.11 Article 3:7 Trade

	$ million		%
	Total Two Way Trade under Article 3:7	Total Trans-Tasman Two Way Trade	of Total Two Way Trade
Up to 1972	33.6	1780.101	1.9
Year ending June 1973	22.3	455.855	4.9
Year ending June 1974	48.8	616.989	7.9
Year ending June 1975	39.4	690.162	5.7

Source: Burtt, D.J. (4) page 124
also: Official New Zealand Yearbook

The initial function of Article 3:7 was as a stepping stone to Schedule A, but this has not occurred as the system lacked any obligation for the further step to inclusion in Schedule A of items traded under Article 3:7 conditions. Trade under this Article has predominantly involved motor vehicles and whiteware. It has provided some relief to Australian exporters from New Zealand's tight import licencing controls on imports of motor vehicles and motor vehicle parts.

Because of the discriminatory and secret nature of preferences under this Article and the considerable time and negotiating effort required, Article 3:7 should be abolished. What is needed is a system of partial tariff reductions which would become an integral part of the movement to free trade. Combined with this must be a continued effort by New Zealand to replace import licencing controls with import tariffs as a means of regulating imports.

(4) Industry Panels.

These panels were set up for purposes of consultation on marketing of certain primary products included in Schedule A. Examples of these are the Pea and Bean Panel, the Lamb Industry Panel and the Joint Panel on Sawmilling Products, all of which were set up following increases in exports of these products to Australia by New Zealand.

The stating of their purposes as to facilitate 'orderly marketing' or to achieve 'harmonious development of the industry' provided what sounded like euphuisms for non-tariff restrictions on trade. Via these panels Australian producers have obtained quantitative restrictions to protect local producers. Though New Zealand producers have been represented on these panels, they have invariably quietly accepted the restrictions imposed.

Perhaps the most controversial of these panels has been the Pea and Bean Industry Panel[1], which has been instrumental in setting up market arrangements of a monopolistic and market sharing nature. In August 1971 the Australian Trade Practices Tribunal ruled that a price arrangement agreed upon by producers[2] in both countries and represented by this Panel was against the best interests of the consumer and contrary to the spirit of NAFTA.

Industry panels have an important function in sorting out trade difficulties (particularly) with respect to agricultural products), however these panels must not be allowed to become a breeding ground for a host of quantitative restrictions.

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[1] See submissions contained in the Senate Standing Committee on Industry and Trade (1), pages 15-18, 331-382 and 437-456.

[2] J. Wattie Canneries was cited as one of 11 parties to an "orderly marketing agreement." See Lloyd (10), page 84.

4. BILATERAL BALANCING OF TRANS-TASMAN TRADE

In pressing for better treatment under NAFTA, New Zealand politicians have consistently grizzled (in fact since about 1920[1]) about the 'imbalance' of trans-Tasman trade in Australia's favour. They have suggested that New Zealand should receive sufficient tariff preferences for its exports to Australia to allow it to significantly reduce the imbalance. It was even suggested in the 1977 budget speech by the New Zealand Prime Minister that a dollar for dollar quota could be imposed by New Zealand on trans-Tasman trade.

The implication that the trans-Tasman trade imbalance is an unfair state of affairs does not hold up if we consider New Zealand's balance of trade with Russia, for example, of 39 to 1 in New Zealand's favour or similarly over 5 to 1 with the Philippines.

The basic cause of the imbalance is not an unfair distribution of tariff preferences, in fact considering the relative reductions[2] under NAFTA in each country's tariff schedule, plus New Zealand's import licencing policy, it would appear Australian exporters have had greater problems of access to the New Zealand market than vice versa. Rather the problem appears to be a basic lack of two way complementarity in the trans-Tasman economies. Australia with its abundant raw material resources and its integrated industry, has a wide range of raw material, manufactured and heavy industrial exports to offer. New Zealand on the other hand relies on agricultural and forestry products with a

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[1] See Chapter II Section 4, page 10.

[2] See Burtt, D.J. (4) page 97 for a comparison of tariff reductions by each trans-Tasman partner of NAFTA.

limited range of manufactured products for its export income. But Australia is also a major exporter of agricultural products. Thus in trade with Australia New Zealand must rely heavily on forest products and light manufactured products for its exports. Furthermore, of the major commodities entering trans-Tasman trade, only wood pulp is produced in larger quantities in New Zealand.

With further growth and development of Australian mining and industry and the United Kingdom having lost all its preferences under the British Preferential Tariff (except those on motor vehicles), then it is likely that the opportunities for New Zealand imports from Australia will grow at a faster rate than such opportunities of Australian imports from New Zealand. To take full advantage of the proximity and price competitiveness of the Australian industry, New Zealand must put aside ideas of bilaterally balancing its trans-Tasman trade. Attempts to achieve such balancing would involve considerable tariff protection of domestic petrochemical, chemical, iron and steel and heavy manufacturing industries and would involve forgoing indicated trade creation gains.

If a complete free trade area between Australia and New Zealand could not be negotiated then a major freeing of tariffs on Australian imports by New Zealand would give it bargaining power sufficient enough to achieve freedom of entry to the Australian market for its range of apparently quite competitive light manufactures.

Even in free trade with Australia, New Zealand, in the writer's view, would be better attempting to achieve greater

multilateralism in its trade. This would involve a continued emphasis on exports based on New Zealand's traditional primary industries, rather than any major shift of resources into manufacturing which would be needed for any attempt at the bilaterally balancing of trans-Tasman trade.

5. SUMMARY

The use of a partial equilibrium model (and its 'other things being equal' assumption) to establish the affect of changed tariffs on a country's welfare, leaves a host of interactions unaccounted for in a highly complex trading world. Nevertheless this study attempts to isolate the magnitude and type of influences on welfare caused by tariff changes, which may then be viewed in the light of subjective assessment of the general equilibrium consequences or of other research which broadens the scope of the study.

The overall result of this thesis is that a gradual movement to free trade, which would involve 25 percent (about) tariff cuts with Australia, is unlikely to reduce welfare. In general the welfare gains outweigh welfare losses, particularly in those commodity groups most important in New Zealand's imports from Australia (with the exception of the group containing iron and steel and metal manufactures).

Finally, if these estimates are to be believed it would seem New Zealand has nothing to lose from granting an across the board tariff concession to Australia and may expect the benefits of reciprocal action by Australia towards New Zealand's exports.

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Furthermore, I owe considerable gratitude to my parents for their encouragement over the entire period of my studies.

Finally, I alone must accept responsibility for errors of method, fact or interpretation that may appear in this thesis.

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APPENDIX 1

TRADE CREATED AND TRADE DIVERTED DUE TO THE NEW ZEALAND - MALAYSIA TRADE AGREEMENT[1]

1. INTRODUCTION

The aim of this short study is to try and isolate the gains from any trade stimulus (in terms of the quantity of trade created and trade diverted) resulting from the 1961 New Zealand Malaysia Trade Agreement.[2]

The Agreement was signed on 3rd February 1961 and came into force on the 8th June 1961. The basis of the agreement was the granting of a preferential tariff rate (via Schedules A and C) and margins of preference (via Schedules B and D) on a group of commodities, by each member.

2. METHOD OF ANALYSIS

The method used to estimate the quantity of trade created and trade diverted is one used by Burtt, D.J. (4) in his recent study of the NAFTA agreement.

In brief, this method assumes that growth in the value of trade of preferentially traded items[3] between agreement members will be faster than in those commodities not receiving any special treatment under the trade agreement. This excess in

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[1] For the period of this study Malaysia was defined as including West Malaya, Sabah and Sarawak. Singapore was at no stage included.

[2] Hereafter referred to as the 1961 Trade Agreement. For details of the Agreement see New Zealand Treaty Series 1961, No. 6. Department of External Affairs. Wellington.

[3] 'Preferentially traded items', refers to those items receiving trading preferences under the 1961 Agreement.

trade in preferentially traded commodities is assumed to be made up of trade created and trade diverted.

(1) Excess Trade of Preferentially Traded Items.

A growth rate is found for both the non-preferentially traded items[1] and for the preferentially traded items. The quantity of preferentially traded items entering trade above that due to the growth rate of non-preferentially traded items is termed excess trade.

(2) Trade Created.

To find the trade created component of the excess trade, an agreement member's expansion in trade with all countries of the preferentially traded goods is calculated. From this is taken the expected trade growth with all trading partners (i.e. using the growth rate of non-preferentially traded items) of the preferentially traded items.

The extra trade above the expected growth is assumed to be the trade created as a result of the agreement.

(3) Trade Diverted.

This is indicated by establishing the amount by which the growth of trade in preferentially traded items is exceeded by the growth in non-preferentially traded goods with all countries except the trade agreement partner.

Note that because the trade created plus trade diverted is assumed to equal excess trade, trade diverted may be treated as a residual after calculating the trade created and excess trade.

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[1] The growth rate of non-preferentially traded items is assumed to provide an expected or non-agreement trade growth rate.

The time period of the analysis was from 1960 to 1974, 1960 representing the pre-trade agreement levels of trade and 1974 being the most recent trade data available for Malaysia (in sufficient detail).

3. ASSUMPTIONS IN THE ANALYSIS

(1) It is assumed that the portion of trade between the two agreement members that does not receive trading preferences via the trading agreement, is sufficiently large to give a reasonable estimate for the growth in trade of commodities not included in the agreement.

(2) This approach assumes the non-existence of similar trade agreements or other sources of trade creation for the products involved.

(3) It is assumed that the growth in trade of preferentially traded goods maintains only an average trade growth with third countries.

Results of this approach are subject to quite sweeping assumptions and it is likely that irregularities in world trading patterns could overshadow the effects being studied but at the very least the results would provide a basis for qualitative judgement.

4. PART 1 : Malaysian Imports From New Zealand 1960-1974

From 1960 to 1974 there has been a considerably greater growth rate in New Zealand exports to Malaysia of preferentially traded items than of items not included in the agreement.

Using the growth rate of items not receiving trading preferences under the 1961 Agreement of a multiple of 14.29, then the expected level of Malaysian imports of the preferentially traded items would be $10,196,929 (i.e. 14.9 x 713072, see Table A1.1). This leaves excess trade of $7,888,226 which at least theoretically can be attributed to stimulus given to trade as a result of the agreement.

Table A1.1 Excess Trade in Malaysian Imports from New Zealand.

Malaysian Imports From New Zealand	1960 $NZ FOB*	1974 $NZ FOB	Increase (Multiple)	Expected Level Pref Item Imports	Excess Trade
Preferential traded items	713072	18085155	25.36	10196929	7888226
Other items	189408	2707278	14.29		

Source: N.Z. Country Analysis of External Trade, N.Z. Department of Statistics.

* The New Zealand export FOB valuation was used assuming it to be reasonably comparable to CDV.

Table A1.2 The Trade Creation Component of Excess Trade.

Malaysian Imports From all Countries	1960 $NZ* CDV	1974 $NZ CDV	Increase Multiple
Preferentially traded items	18604699	61735500	3.32
Other items	451702260	2667244300	5.9

Source: Trade Year Book : Food and Agricultural Organisation. Yearbook of International Trade Statistics, United Nations, 1974.

* Because figures were only available for CIF valuation, 10 percent was subtracted to give an estimate for CDV.

The value of trade created would appear to be nil whereas trade diverted would appear to be a very significant cause, of the excess trade in Malaysian imports of preferentially traded items from New Zealand. The overall growth of preferentially traded items is considerably behind the growth in non-preferentially traded items (Table A1.2). Furthermore, considering the fall in importance of preferentially traded items (i.e. from 4 percent in 1960 to 2.3 percent in 1974) of total Malaysian imports, there seems to be no evidence of positive economic gains (trade creation) to Malaysia, as a result of the tariff concessions granted in the 1961 Trade Agreement.

New Zealand's share of imports of preferential items into Malaysia grew from 4 percent in 1960 to 29.3 percent in 1974 and its share of the total Malaysian import market grew from 0.2 percent in 1960 to 0.8 percent in 1974. The dramatic expansion of Malaysian imports of preferential items from New Zealand would appear to be the result of a shift in the source of Malaysian imports favouring New Zealand products.

It is unlikely that the tariff preferences given to New Zealand was the only major influence in New Zealand's expansion of its share of the Malaysian import market. Other factors favouring New Zealand products such as a favourable exchange rate, price competitiveness, product range and quality and promotional campaigns, have all been significant contributors. The 1961 Trade Agreement no doubt provided New Zealand with security of ready access on a basis enabling it to compete successfully for a growing market share.

5. PART 2 : New Zealand Imports from Malaysia.

The percentage of New Zealand's total imports dropped from 0.9 percent in 1960 to 0.4 percent in 1974-75 and has seen a small improvement to 0.7 percent in 1975-76. On the whole Malaysia appears to have missed out on receiving a share of New Zealand's growing import market.

This ironically, appears to be largely caused by the items included in Schedules C and D which in total have suffered a considerable decline in real terms (see Table A1.3) and only a very modest growth (relative to other items) in actual value (see Table A1.4). In particular tin, rubber and sago and tapioca have all stayed approximately static in actual value terms (see Table A1.5).

Table A1.3 Excess Trade in New Zealand Imports from Malaysia (Deflated)

Imports from New Zealand	1960 $NZ CDV*	1974-75 $NZ CDV*	Increase	1975-76 $NZ CDV*
Preferential traded items	9549138	5040210	-47%	4868176
Other items	738907	3716095	x5.0	9541232

Source: N.Z. Country Analysis of External Trade, N.Z. Department of Statistics.

* Figures deflated using Import Price Index, Base year 1974.

Table A1.4 Excess Trade in New Zealand Imports from Malaysia (Undeflated)

Imports from New Zealand	1960 $NZ CDV	1974-75 $NZ CDV	Increase	1975-76 $NZ CDV
Preferential traded items	4297112	5236778	21%	6460069
Other items	332508	3861023	x10.6	12661215

Source: See Table A1.1.

Table A1.5 New Zealand Imports of Preferential Items

New Zealand Imports From Malaysia	1960 $NZ CDV	1974-75 $NZ CDV
Sago & Tapioca	32498	40669
Rubber (Nat. & Syn.)	3426286	3500575
Tin	480630	5810

Source: See Table A1.1.

Table A1.6 New Zealand Imports of Crude Rubber*

Source of Imports	$NZ CDV		Increase
	1960	1974-75	
Malaysia	3426286	3500575	2%
Japan	498	3049595	x6123
U.S.A.	1021494	1114411	9%
Canada	413634	799441	93%
France	-	766997	
United Kingdom	158902	300604	89%
Total Imports	5202240	11182395	115%

Source: see Table A1.1.

* Includes synthetic and reclaimed rubber.

The inability of Malaysia to partake in the growth of New Zealand rubber imports appears to be due to a lack of price competitiveness with large industrial producers of synthetic rubber greatly outweighing any tariff preferences given to New Zealand imports of Malaysian natural rubber.

Table A1.7 New Zealand Imports of Tin and Tin Alloys.

Source of Imports	1960 $NZ CDV	1974-75 $NZ CDV	Increase
Malaysia	480630	5810	÷ 83
Australia	19484	1766557	x 91
United Kingdom	49096	66560	36%
Total Imports	568292	1839526	224%

Source: See Table A1.1.

The rather drastic shift in New Zealand's source of tin imports to Australia can largely be attributed to the equivalent tariff preferences given to Australia and its growth as a major and competitive supplier of tin and tin alloys.

There has been a tendency for New Zealand to import semi-finished tin materials and tin alloys (for which Australia receives greater tariff preferences than Malaysia), rather than the bulk tin (i.e. tin billets and ingots) which was guaranteed to remain tariff free on imports from Malaysia (but which has remained completely tariff free for all imports of this raw product, see Table A1.8).

The growth of New Zealand imports of Malaysian pineapples (preserved) and the maintained dominance of Malaysia as New Zealand's main source of this commodity indicates that the margins of preference granted to this product have been both meaningful and appropriate. They have at least nullified other tariff preferences granted to Australia and enabled Malaysia to take advantage of an apparent price advantage in a growing market.

Table A1.8 Tariff Rates for Tin Products (%)

	1956	1962	1967	1972	1974
Tin in Billets, Ingots, Blooms or Pigs					
General Tariff	0	0	0	0	0
Solder (unwrought, wrought)					
Malaysia	3	0	0	15	15
Australia	3	0	0	7½	7½
General Tariff	3	0	0	15	15
Tin; wrought bars, rods, angle shaped sheets, plates and strips					
Malaysia	0	12½	12½	12½	12½
Australia	0	11	7½	4	4
General Tariff	10	36	36	36	25½

Source: The Customs Tariff of New Zealand, Customs Department (N.Z.)

Table A1.9 An Import Price Comparison of Australian and Malaysian Preserved Pineapples.

	Price N.Z. cents CIF/lb	
	Australian	Malaysian
1960	12	8
1961	12	8
1964	10	10
1966	11	10
1968	9	10
1970	12	12
1972	17	13

Source: New Zealand Imports Part A, Country by Commodity, Dept. Statistics.

The agreement appears to have failed to produce any excess trade in the commodities receiving tariff preferences under Schedules C and D (i.e. Malaysian exports to New

Zealand) with the possible exception of preserved pineapples. This has been mainly due to competing tariff preferences granted to trading partners (in particular Australia) and to the price competitiveness of substitute products (i.e. synthetic rubber and tin alloys). Transport costs may have assisted in the shift in imports to Australia but would have been a relatively small determining factor.

6. SUMMARY

There seemed to be an absence of trade creation in the imports of both members of the 1961 Trade Agreement, from each other.

The only significant trading growth was in New Zealand's exports of preferential items (Schedules A and B) to Malaysia, possibly the result of some quite major trade diversion, as the relative importance of these products in total Malaysian imports dropped markedly.

It is unlikely that the level of preference to New Zealand imports was of such a high level to encourage serious trade diversion in Malaysian imports on its own. It is likely that the growth in New Zealand's exports of these preferential products to Malaysia was assisted by the security of access and unimpeded competition that the agreement provided. But more likely to be directly influenced by factors mentioned earlier (such as favourable exchange rates, price competitiveness and product range and quality).

APPENDIX 2

DATA USED IN DERIVING IMPORT FUNCTIONS

The data matrix shows the 23 observations for each of the 23 variables used.

The data was used to derive ten equations. Each equation consisted of a single dependant variable (quantity of imports for a given commodity group) as a function of four independant variables (gross domestic expenditure, the exchange rate, net overseas assets and the New Zealand price of the imported commodity).

In the accompanying data matrix (pages 126 and 127) the first 23 numbers (reading across the eight number row covering two pages) represents the first observation for each of the 23 variables. The values shown in the data matrix represent the adjusted form of the data (where standardization of data was necessary). The variables appear in the data matrix in the following order.

(a) Gross Domestic Expenditure. The values shown have been multiplied by 10^{-7} prior to entering the data matrix. The values are for the March year following the current year for the price and quantity data between 1950 and 1961 thus over this period it has a lead of three months. Between 1962 and 1972 the data is for the March year of the year current for the price and quantity data, thus over this period it is lagged by three months. The data has been deflated using the Consumer Price Index (for all groups), the base year being 1974.

(b) Exchange Rate. The values shown have been multiplied by 10^2 prior to entering the data matrix. They cover the same period as for the current price and quantity data.

(c) Net Overseas Assets. The values have been multiplied by 10^{-7} prior to entering the data matrix. The values are lagged 12 months from the current year for the quantity and price data. The data has been deflated using the Consumer Price Index (for all groups), the base year being 1974.

(d) New Zealand Prices. The next ten values in the data matrix represent unadjusted price values for Groups 1 to 10. The prices have been deflated using the Import Price Index, the base year being 1974.

(e) Import Quantity. The last ten values (in the group of 23) represent import quantities for Groups 1 to 10, which have been multiplied by 10^{-5} prior to entering the data matrix.

The derived equations shown in the text (Chapter III Section 5) have been readjusted to allow for the standardization adjustment of the dependant variable (i.e. the coefficients have been multiplied by 10^5).

DATA IN FINAL MATRIX

.43560000E+03	.11806000E+03	.42217670E+04	.10996900E+03
.15370000E+01	.38505500E+03	.20695000E+02	.12298700E+03
.47228900E+02	.13628300E+02	.11448008E+04	.61740000E+00
.44090000E+03	.11806000E+03	.48818730E+04	.85518000E+02
.14340000E+01	.43841200E+03	.22585000E+02	.13736900E+03
.45781000E+02	.19070500E+02	.12246401E+04	.10661000E+01
.42130000E+03	.11796000E+03	.49130930E+04	.64174000E+02
.14100000E+01	.29836500E+03	.21786000E+02	.99794000E+02
.53217800E+02	.27785300E+02	.92904450E+03	.10353000E+01
.42370000E+03	.11784000E+03	.39979330E+04	.66393000E+02
.12040000E+01	.29442700E+03	.20550000E+02	.86144000E+02
.41649400E+02	.13450300E+02	.72793690E+03	.77780000E+00
.48780000E+03	.11791000E+03	.55637330E+04	.60141000E+02
.12530000E+01	.27683500E+03	.21021000E+02	.10524200E+03
.63117500E+02	.15415300E+02	.11039530E+04	.10813000E+01
.49880000E+03	.11800000E+03	.44617350E+04	.49990000E+02
.11090000E+01	.28262600E+03	.15210000E+02	.15536400E+03
.45245400E+02	.17878200E+02	.11040139E+04	.13469000E+01
.49740000E+03	.11799000E+03	.32241790E+04	.34261000E+02
.10110000E+01	.24582800E+03	.18668000E+02	.14896000E+03
.43817500E+02	.13743900E+02	.10207893E+04	.13458000E+01
.53040000E+03	.11798000E+03	.36785580E+04	.42137000E+02
.99800000E+00	.24785600E+03	.20361000E+02	.12672400E+03
.40546800E+02	.12634400E+02	.11490701E+04	.14489000E+01
.50910000E+03	.11786000E+03	.21399530E+04	.37248000E+02
.10000000E+01	.26096900E+03	.20507000E+02	.15735300E+03
.45827800E+02	.12326100E+02	.11828037E+04	.15797000E+01
.50690000E+03	.11787000E+03	.24873140E+04	.49251000E+02
.97700000E+00	.23787400E+03	.21540000E+02	.15246700E+03
.40534700E+02	.11377100E+02	.10648388E+04	.13305000E+01
.58340000E+03	.11787000E+03	.38065220E+04	.42929000E+02
.93600000E+00	.22940900E+03	.20889000E+02	.13153600E+03
.50894400E+02	.13077500E+02	.13168430E+04	.19018000E+01
.59140000E+03	.11791000E+03	.28488120E+04	.50338000E+02
.94800000E+00	.21489600E+03	.21146000E+02	.13151600E+03
.61938200E+02	.13689800E+02	.13342433E+04	.21154000E+01
.59140000E+03	.11785000E+03	.20798730E+04	.45129000E+02
.94000000E+00	.21861800E+03	.21485000E+02	.11704600E+03
.61682200E+02	.11647600E+02	.11514196E+04	.18457000E+01
.60600000E+03	.11792000E+03	.30626300E+04	.46614000E+02
.87400000E+00	.22600000E+03	.22395000E+02	.55838000E+02
.49687200E+02	.83133000E+01	.13211053E+04	.16916000E+01
.64610000E+03	.11796000E+03	.39141100E+04	.53161000E+02
.86300000E+00	.23014900E+03	.21874000E+02	.47541000E+02
.54257300E+02	.80863000E+01	.15123527E+04	.18402000E+01
.67720000E+03	.11802000E+03	.40379240E+04	.54455000E+02
.86800000E+00	.22616400E+03	.22334000E+02	.44432000E+02
.65795400E+02	.92394000E+01	.14658627E+04	.20069000E+01
.73290000E+03	.11797000E+03	.30863720E+04	.49662000E+02
.78200000E+00	.21998800E+03	.23671000E+02	.95583000E+02
.74325000E+02	.77682000E+01	.17481664E+04	.19799000E+01
.73280000E+03	.11800000E+03	.23041040E+04	.52483000E+02
.87400000E+00	.21276400E+03	.23494000E+02	.83922000E+02
.71028700E+02	.70710000E+01	.15511327E+04	.19451000E+01
.70650000E+03	.12670000E+03	.20017920E+04	.44927000E+02
.76800000E+00	.19290800E+03	.24394000E+02	.65225000E+02
.62377600E+02	.60609000E+01	.13296897E+04	.16800000E+01
.70420000E+03	.13467000E+03	.35595240E+04	.50800000E+02
.76200000E+00	.18255800E+03	.22955000E+02	.59178000E+02
.73075600E+02	.78253000E+01	.15260302E+04	.20550000E+01
.74590000E+03	.13459000E+03	.37179900E+04	.46961000E+02
.79200000E+00	.19379600E+03	.23337000E+02	.62185000E+02
.81088400E+02	.87659000E+01	.16348439E+04	.18816000E+01
.82980000E+03	.13448000E+03	.33560370E+04	.42497000E+02
.86800000E+00	.20343800E+03	.24405000E+02	.65310000E+02
.92189100E+02	.85342000E+01	.16332216E+04	.13713000E+01
.85690000E+03	.13441000E+03	.34497880E+04	.39959000E+02
.70400000E+00	.19279800E+03	.22742000E+02	.11046300E+03
.14941900E+03	.94471000E+01	.18568506E+04	.25197000E+01

MEANS PROBLEM NO. 3

.59810435E+03	.12121217E+03	.35128529E+04	.52999870E+02
.99617391E+00	.24833622E+03	.21654087E+02	.10270343E+03
.61509778E+02	.12036343E+02	.13058110E+04	.15853870E+01

.24760000E+01	.41920000E+01	.79070000E+01	.34918000E+02
.16038800E+03	.75210000E+00	.15315480E+03	.26732120E+03
.49346800E+02	.11247800E+02	.28130000E+00	
.24360000E+01	.37050000E+01	.75280000E+01	.40028000E+02
.21711400E+03	.11884000E+01	.13846950E+03	.25605780E+03
.41581500E+02	.12528100E+02	.21250000E+00	
.25030000E+01	.38990000E+01	.78740000E+01	.30196000E+02
.17493500E+03	.10017000E+01	.18615980E+03	.32332530E+03
.70645900E+02	.20515400E+02	.34590000E+00	
.19680000E+01	.35260000E+01	.85100000E+01	.29363000E+02
.15699400E+03	.59530000E+00	.14931500E+03	.29280540E+03
.45924200E+02	.14822400E+02	.91820000E+00	
.19230000E+01	.34520000E+01	.82640000E+01	.31864000E+02
.12512700E+03	.94450000E+00	.17636540E+03	.33545670E+03
.58010800E+02	.18272500E+02	.11110000E+00	
.22730000E+01	.31370000E+01	.13097000E+02	.29137000E+02
.79016000E+02	.91330000E+00	.16978360E+03	.36139920E+03
.10789400E+02	.15185100E+02	.60910000E+00	
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.79780000E+02	.13976000E+01	.16542090E+03	.36491980E+03
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.20720000E+01	.33020000E+01	.14005000E+02	.29855000E+02
.92199000E+02	.13859000E+01	.15266520E+03	.42166550E+03
.79548500E+02	.15898400E+02	.33070000E+00	
.21010000E+01	.32040000E+01	.14951000E+02	.33265000E+02
.56814000E+02	.16459000E+01	.14098340E+03	.39205870E+03
.84097700E+02	.10375800E+02	.51100000E+00	
.19670000E+01	.31040000E+01	.13209000E+02	.31356000E+02
.48279000E+02	.11510000E+01	.13861910E+03	.36975810E+03
.65073900E+02	.76849000E+01	.43630000E+00	
.19040000E+01	.29460000E+01	.12716000E+02	.30596000E+02
.52740000E+02	.16514000E+01	.17855190E+03	.44287910E+03
.81277100E+02	.13052100E+02	.66280000E+00	
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.10130390E+03	.15119500E+02	.81960000E+00	
.18730000E+01	.28010000E+01	.10484000E+02	.32722000E+02
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.19990000E+01	.26660000E+01	.14363000E+02	.37898000E+02
.13754900E+03	.21646000E+01	.17718660E+03	.49451780E+03
.89789900E+02	.46143700E+02	.46204000E+01	
.18630000E+01	.24610000E+01	.14864000E+02	.41093000E+02
.15810100E+03	.23897000E+01	.22137640E+03	.57504900E+03
.10129200E+03	.69503300E+02	.43856000E+01	
.18420000E+01	.19810000E+01	.14360000E+02	.32185000E+02
.14523900E+03	.28681000E+01	.26504160E+03	.78969790E+03
.10602790E+03	.72809000E+02	.61920000E+01	
.19130000E+01	.18510000E+01	.14779000E+02	.38101000E+02
.15242100E+03	.34587000E+01	.28606800E+03	.67568710E+03
.11483010E+03	.39756700E+02	.64697000E+01	
.22260000E+01	.17640000E+01	.14102000E+02	.37535000E+02
.14510600E+03	.28352000E+01	.28495150E+03	.77927890E+03
.11136640E+03	.42993400E+02	.69004000E+01	
.21230000E+01	.20680000E+01	.14289000E+02	.41957000E+02
.12026500E+03	.22336000E+01	.23863650E+03	.63626360E+03
.87344200E+02	.33324900E+02	.54597000E+01	
.22130000E+01	.19760000E+01	.13610000E+02	.39868000E+02
.20635800E+03	.28392000E+01	.26736790E+03	.70014950E+03
.10576850E+03	.50672400E+02	.27716000E+01	
.22610000E+01	.18260000E+01	.13196000E+02	.39499000E+02
.15544100E+03	.30776000E+01	.29415430E+03	.74207010E+03
.12024080E+03	.52871500E+02	.48891000E+01	
.21050000E+01	.18730000E+01	.13026000E+02	.34474000E+02
.22516200E+03	.31748000E+01	.27199300E+03	.75955160E+03
.11965700E+03	.59538200E+02	.40457000E+01	
.19710000E+01	.18820000E+01	.86640000E+01	.37640000E+02
.23302900E+03	.27253000E+01	.29605510E+03	.74634350E+03
.10097530E+03	.39323000E+02	.48713000E+01	

.20954348E+01	.27700435E+01	.12018957E+02	.34406609E+02
.13241852E+03	.18958913E+01	.20538890E+03	.51123595E+03
.83018230E+02	.29973370E+02	.24730348E+01	