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APEC Early Voluntary Sectoral Liberalisation

Staff Research Paper

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PREFACE

This paper is the second Staff Research Paper examining the effects of APEC trade liberalisation initiatives. The first, *The Impact of APEC's Free Trade Commitment*, was released by the Industry Commission in February 1996.

An earlier version of this paper was presented at the 4th APEC Roundtable: Regional Cooperation and Asian Recovery, held in Boston in May 1998. The Roundtable was hosted by Brandeis University, Keio University, the Institute of Southeast Asian Studies and the Korea Institute for International Economic Policy, with support from the Center for Global Partnership, the Asia Foundation and the APEC Education Foundation. The authors are grateful for the insights from that forum and the comments from participants. The authors also thank Professor Richard Snape of the Productivity Commission for reviewing the paper.

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At their Subic Bay meeting in November 1996, APEC Leaders instructed Ministers to 'identify sectors where early voluntary liberalisation would have a positive impact on trade, investment and economic growth in the individual APEC economies as well as in the region and submit recommendations on how this can be achieved'.

APEC Trade Ministers presented their sectoral nominations at the November 1997 Leaders' meeting in Vancouver. From that meeting, a subset of 15 proposals emerged as clearly having the most support among member economies.

Some of the nominations for APEC early voluntary sectoral liberalisation (EVSL) are sectors with low or moderate protection, at the upstream end of the processing chain. Other nominations have much broader coverage.

A key benefit of broadly-based trade liberalisation is increased access by industries and consumers to cheaper and/or better quality imported products and services. This allows some resources in import-competing industries to be reallocated to more productive uses domestically.

There is a danger that partial liberalisation could move resources further away from their pattern in a world free of protection, and lead to economic welfare losses. This is particularly likely where relatively low-protection upstream sectors are liberalised, while more highly protected downstream processing sectors remain protected.

This paper examines the likely long-term effect of selected EVSL initiatives. It finds that, while the broadly-based nominations are likely to lead to real income gains for a majority of APEC members, some more narrow nominations could generate significant economic losses.

The paper examines a range of modifications to the food proposal which could eliminate such problems. For all of the APEC economies to gain and none to lose, the food proposal needs to be extended to include:

- a much greater coverage of both raw and processed commodities within the sector; and
- subsidies as well as tariffs.

The analysis suggests a number of guidelines that might be adopted if the EVSL process is to avoid possible economic losses associated with second-best sectoral approaches to liberalisation.

A first central guideline is that any proposal should consider and allow for linkages in the production chain. Ideally, a proposal should address protection along all stages of the production chain, from upstream production, right through to intermediate and final stages.

A second possible guideline is that every proposal nominate several moderate to highly protected areas. One way to do this might be to require 'twinned' proposals where, for every proposal that nominates an area of low protection, there must be one that nominates an area of higher protection.

Another way of trading off liberalisation of high and low protection sectors would be by taking the EVSL nominations into the WTO forum, to use as negotiating coin for further tradeoffs within that forum.

At present, a review subsidies by APEC members must be completed before any proposals containing production and/or export subsidies can be put forward. There would be benefits in doing this quickly with a clear and practical outcome, so that the scope and coverage of sectoral liberalisation could be broadened to include subsidies as soon as possible.

The APEC region would gain from ambitious proposals undertaken quickly. This would maximise the potential for all economies to benefit from the region-wide gains from liberalisation.

APEC EARLY VOLUNTARY SECTORAL LIBERALISATION

1 Introduction

At their Subic Bay meeting in November 1996, APEC Leaders instructed Ministers to 'identify sectors where early voluntary liberalisation would have a positive impact on trade, investment and economic growth in the individual APEC economies as well as in the region and submit recommendations on how this can be achieved'. In May 1997, APEC Trade Ministers agreed to an accelerated program which would allow them to make initial recommendations on sectors to Leaders by November 1997. By August, member economies had submitted 62 nominations covering over 30 sectors. Through a process of consolidation this was reduced to 41 sectors prior to the November 1997 APEC meeting in Vancouver.

A subset of 15 proposals emerged as clearly having the most support among member economies and these sectors were selected at Vancouver for early liberalisation. The proposals were divided into two tiers. The first tier comprises nine sectors which were identified for fast-track treatment. Work on these sectors was to conclude in the first half of 1998 with a view to commencing implementation by 1999. APEC Ministers reviewed progress at their June 1998 meeting in Kuching, Malaysia, and the agreement may be finalised by Leaders in Novermber 1998. The nine sectors are environmental goods and services, fish and fish products, forest products, medical equipment and instruments, telecommunications mutual recognition agreement, energy, toys, gems and jewellery, and chemicals.

The second tier covers the remaining six sectors which require more preparatory work. Proposals for the second tier of sectors were further developed for assessment and review by APEC Ministers at Kuching, with possible recommendations to Leaders in November 1998. The second tier sectors are oilseeds and oilseed products, food, rubber, fertilisers, automotive and civil aircraft.

Three of the fifteen sectors selected at Vancouver were nominated by Australia — food, chemicals and energy. Australia also supported most of the other sector nominations that were selected for early liberalisation.

The purpose of this paper is to examine the potential impact of liberalising the key selected sectors, particularly those sectors nominated by Australia.

This section describes the coverage of the first and second tier early voluntary sectoral liberalisation (EVSL) proposals, as they were put forward in Vancouver in November 1997 (they have been modified somewhat since). Section 2 outlines the framework for analysing the five sectors examined in detail in this paper. Section 3 discusses the projected outcomes for the APEC region of early liberalisation in each selected sector, as well as showing the combined impact of liberalising all five sectors. This section identifies some of the problems associated with the sectoral approach to liberalisation. Section 4 examines in greater detail the food proposal, which was jointly nominated by Australia, with a view to identifying ways of minimising the potential problems. Section 5 summarises the key findings of the paper, identifying some considerations for APEC economies as they pursue EVSL.

Selected sectors

The Vancouver nominations differ considerably in their coverage of measures to be liberalised. Proposals range from the reduction and removal of tariffs to economic and technical cooperation, with most nominations covering a range of measures. A brief description of the proposals for both first and second tier sectors is provided below.

First tier sectors

Chemicals

The chemicals sector was jointly nominated by the United States, Singapore, Australia, Hong Kong and China. The proposal includes harmonising and then eliminating tariffs on chemical products, facilitating and liberalising customs and regulatory procedures, and harmonising chemical standards and testing.

Forest products

This was a consolidated proposal from Canada, Indonesia, New Zealand and the United States. It proposes the removal of all tariffs on forest products with time frames differing by product — by 2002–04 for wood and articles of wood or straw as well as for printed books, newspapers, pictures and other products of the printing industry; and by 2000–2004 for pulp, paper and paperboard. A study of non-tariff measures and other trade distorting policies which may impede market access is also proposed, with a completion date of October 1998.

The nomination also includes standards and conformance measures, phytosanitary measures and economic and technical assistance measures.

Energy

The energy sector was nominated by Australia, Thailand and the United States. The proposal includes the acceleration of the progressive removal of residual tariffs on coal and gas items in APEC member economies ahead of the Bogor timetable. It also proposes work programs to further identify and address non-tariff measures affecting the energy sector (including standards and certification) and to identify and remove barriers and impediments to trade in energy-related services. Finally, it recommends the application of principles of transparency in government procurement of energy-related equipment and services and an extended program of work on facilitation and standards.

Fish and fish products

The fish sector was nominated jointly by Brunei, Canada, Indonesia, New Zealand and Thailand. Under this proposal, tariffs on fish and fish products would be eliminated no later than 2005, and non-tariff measures eliminated no later than 2007. A study on subsidies would be undertaken to identify subsidies used in the fisheries sector and to clarify how the WTO Agreement on Subsidies and Countervailing Measures applies to these subsidies before the APEC Leaders' meeting in 1999. APEC economies would make best efforts progressively to remove all prohibited subsidies in advance of current WTO obligations for WTO members, and by 2003 or the date specified in the eventual WTO accession commitments for non-members.

The proposal also includes harmonising sanitary and phytosanitary measures by 2003 and implementing a plan and timetable for economic and technical cooperation initiatives to improve the effectiveness of domestic fisheries management and to facilitate the achievement of liberalised trade in fish products in time for consideration at the November 1998 APEC Leaders' meeting.

Environmental goods and services

The nominating economies for environmental goods and services were Canada, Japan, Taiwan and the United States. Included in this nomination are any activities that produce goods and services to measure, prevent, limit or correct environmental damage to water, air and soil, as well as products related to such activities. The proposed measures include the elimination of tariffs on environmental goods and GATS-based commitments to liberalise trade in environmental services. A study to identify non-tariff measures in this sector is

proposed and APEC members would also be encouraged to submit and support proposals for projects that will facilitate economic and technical cooperation.

Medical equipment and instruments

The United States and Singapore nominated this sector. The proposal includes eliminating tariffs on medical equipment and instruments in a short period of time, identifying and addressing specific non-tariff measures and exploring a program of technical assistance in cooperation with the private sector.

Telecommunications mutual recognition agreement

The development of mutual recognition agreements for equipment subject to telecommunications regulatory requirements was proposed by the United States. Under this proposal, APEC Leaders would declare their resolve to implement an Agreement for Mutual Recognition of Test Results (phase 1) and Certifications (phase 2) for telecommunications equipment. They would instruct the APEC Telecommunications Working Group and the Mutual Recognition Agreement Task Force to complete work on mutual recognition agreements for phase one and two by the meeting of the APEC Telecommunications Ministers, scheduled for June 1998.

Toys

The toy sector was a joint nomination by China, Hong Kong, Singapore and the United States. The proposal involves progressive reduction to zero of tariffs on targeted toys, commencing from 1998 and completing by a date determined by participating economies, preferably by 2000 and no later than 2005. Non-tariff measures are also identified in the proposal and include identification of existing technical, regulatory and other unnecessary non-tariff measures by the end of 1998, consultation on the modality and schedule for elimination of identified unnecessary non-tariff measures by the end of 1999, and progressive elimination of identified unnecessary non-tariff measures by a date to be determined by participating economies, preferably by 2000 and no later than 2005.

Gems and jewellery

The nomination for early liberalisation of gems and jewellery, pearls, precious metals and articles thereof was put forward by Thailand and Taiwan and involves the reduction/elimination of tariff and non-tariff measures, with a schedule for implementation to be jointly formulated by member economies in 1998.

Second tier sectors

Food

The food sector was nominated by Australia, although the proposal also drew on other proposals made by APEC economies relating to the food sector. Specific measures include assigning a high priority to existing work on trade facilitation and economic and technical cooperation affecting food products, undertaking studies of selected food sub-sectors and either eliminating, reducing or harmonising tariffs on selected processed and unprocessed food products prior to 2010–2020. The proposed timetable for trade facilitation and economic and technical cooperation initiatives is 1997 onwards. Compilation of a comprehensive data base on trade flows, tariffs and non-tariff measures as part of the food studies proposal is scheduled for 1998, while the timetable for other studies is 1998 onwards. The identification of a package of food sub-sectors where tariffs can be reduced, harmonised or eliminated is scheduled for 1998 in the proposal, while the timetable for liberalisation would be determined by consensus of APEC economies.

Oilseeds and oilseed products

This sector was proposed by Canada, Malaysia and the United States. Specific measures include the elimination of tariffs, non-tariff barriers, export subsidies and other trade distorting measures and examining options for economic and technical cooperation within the sector. It is proposed that these measures be initiated by January 1999.

Rubber

Natural and synthetic rubber was nominated by Thailand and Japan. The proposal involves establishing details for the gradual reduction and elimination of tariff and non-tariff measures and encouraging cooperation in the development of domestic industries in rubber-producing economies through the transfer of production and manufacturing technology.

Fertilisers

This sector was nominated by Canada. The proposal includes the elimination of tariffs and the implementation of national transportation regulations governing the shipment of sulphur and fertilisers in accordance with specific recommendations contained in the International Maritime Dangerous Goods Code. It also recommends the development of proposals for specific economic and technical cooperation projects which would help achieve the objective of liberalising trade in fertilisers.

Automotive

This sector was nominated by the United States. The proposal involves facilitation measures, identification and liberalisation of trade and investment measures, and economic and technical cooperation.

Civil aircraft

Civil aircraft was nominated by Canada. The proposal involves the elimination of all MFN tariffs on civil aircraft products in two equal cuts on January 1, 1999 and January 1, 2000 and binding the tariffs at zero in the WTO Schedules.

2 A framework for examining sectoral liberalisation proposals

The modelling framework

The analysis in this paper makes use of a multiregion, multisector model called IC95, a hybrid model incorporating features from Jomini et al. (1994), Hertel (1997), Francois, McDonald and Nordstrom (1995) and Brown et al. (1995). Its key features are:

- a database with a 1992 reference year from the GTAP model (Hertel 1997), but updated to incorporate more recent information on various forms of protection from the pre-release version 4 GTAP database; [1]
- an imperfectly competitive, monopolistic competition treatment of resources, food processing and other manufacturing industries along the lines of Francois, McDonald and Nordstrom (1995) and Brown et al. (1995); and
- a treatment of capital accumulation and international capital mobility midway between those of the Salter (Jomini et al. 1994) and GTAP models.

Each of these features is discussed in more detail in Appendix A of this paper.

The analysis uses the model to provide a long-run snapshot view of the impact of APEC's EVSL proposals. The proposals are to be phased in over time, and it will take time for each APEC economy to adjust to the changes. During this phasing and adjustment period, various other changes will also affect each

[1] Time constraints prevented more extensive use of the data from the version four prerelease of GTAP.

APEC economy. These other changes are not taken into account in the current analysis. For this reason, the results from the model should not be interpreted as indicating the likely changes over time that will occur in each APEC economy — such results would require *all* changes, not just changes in assistance, to be taken into account. The model results should instead be seen as providing an indication, at some future point in time after all the phasing and adjustment has taken place, of how different each economy would be, compared with the alternative situation at the same point in time, had the liberalisation not taken place.

The distinction is important to keep in mind. Sometimes to aid fluency, the results are couched as if key economy indicators 'rise' or 'fall'. This should not be interpreted to mean that the indicators would be higher or lower than they are now. It means that they would, at some future time, be higher or lower than they otherwise would have been had the liberalisation not occurred. In both cases, in a growing economy, these indicators could be higher than they are now.

Proposals to be examined

The proposals examined in this paper are limited both by the sectoral detail which is available in IC95 and by the nature of the proposals themselves.

At its most disaggregated level, IC95 is made up of 37 sectors (see Appendix A) which do not correspond exactly to the sectors nominated in the EVSL proposals. In some cases, a sector proposed for liberalisation makes up a very small proportion of a sector in IC95. For example, oilseeds and oilseed products are included in a large IC95 sector called *non-grain crops*. While it is possible to calculate the reduction in protection for the *non-grain crops* sector as a result of reducing protection on just oilseeds and oilseed products, interpreting the results of such a simulation would be difficult and could be misleading. In other cases, a sector proposed for early liberalisation is spread over a number of IC95 sectors. For example, the gems and jewellery proposal is spread over five IC95 sectors — *other minerals*, *textiles*, *non-metallic mineral products*, *non-ferrous metals* and *fabricated metal products*. This makes modelling liberalisation of this proposal (for a sector which is not very large) difficult, and the results nearly impossible to interpret.

The sectors examined in this paper are limited to those that can be matched reasonably well with sectors in IC95.

Many of the EVSL proposals include the removal of restrictions which are difficult to quantify. For example, the United States proposed the development of mutual recognition agreements for equipment subject to telecommunications

regulatory requirements. While the implementation of this proposal is likely to be beneficial to APEC economies, the impacts are likely to be very diffuse, with substantial indirect benefits that are difficult to relate to the economic variables in IC95. Similarly, the impact of economic and technical cooperation initiatives and standards harmonisation proposals, which are included in many of nominations, cannot be examined in a general equilibrium framework such as IC95 unless the first round impacts of these measures on resource use can be determined.

Therefore, the proposals examined in this paper were further limited to those that could be readily measured and hence modelled in IC95.

Sectors covered in the analysis

Five of the fifteen EVSL proposals are examined in this paper. They are chemicals, forest products, energy (coal and gas), fish and fish products and food. The chemicals, energy and food proposals were those nominated by Australia. The complete list of nominated harmonised codes contained in each of the five proposals is set out in Appendix B.

The nominated chemicals sector makes up part of *chemicals, rubber and plastics* in IC95.

The nominated forest products sector corresponds to three sectors in IC95 — *raw forestry products*, *lumber and wood*, and *pulp, paper and printing*. Together, these three sectors match the forest products proposal fairly well, with only minor omissions.

The nominated energy sector corresponds to two sectors in IC95 — *coal* and *gas*.

The nominated fish and fish products sector is spread over two sectors in IC95 — *fishing*, which contains fresh, chilled or frozen fish products and those dried, salted or in brine, and *other food products*, which contains the remainder of the processed fish nominations.

The nominated food sector is spread over three IC95 sectors — *non-grain crops*, *other food products* and *beverages and tobacco* — but does not cover any of these sectors completely.

The extent of liberalisation

The protection measures considered in this paper are limited to tariffs. While non-tariff measures are listed in many of the nominations, much of the work

proposed involves identifying specific measures and exploring options for removing them, rather than straightforward reduction or elimination. The further examination of the food proposal in Section 4 does consider the impacts of removing subsides as well as tariffs. However, this analysis is undertaken in the context of hypothetical extensions of the food proposals.

For sectors in which there was a satisfactory match between IC95 and the EVSL proposals, tariff rates for the IC95 sector were reduced to zero. Table 1 presents the initial tariffs for those IC95 sectors — forestry products (*forestry*; *lumber and wood*; *pulp, paper and printing*), energy (*coal* and *gas*) and part of the fish and fish products nomination (*fishing*).[2] These tariffs are from the version 4 pre-release of the GTAP database. Most of the tariff data in version 4 come from OECD, World Bank and UNCTAD sources. The tariff data are mostly for the new base year of 1995, although some 1993 and 1994 data are retained from version 3 (see Appendix A).

To assess the extent of tariff liberalisation, it is necessary to consider the nominations in the context of the overall pattern of tariff protection in each economy. According to Table 1, Indonesia, Malaysia, the Philippines and Thailand would eliminate much larger tariffs than other economies under the EVSL proposals. However, the tariffs to be liberalised may still be modest relative to tariffs elsewhere in these economies. Table A2 in Appendix A shows the complete pattern of tariff protection in each APEC economy in more detail. Comparing the nominations to the pattern of protection elsewhere shows that for most APEC members the reductions would be fairly similar, relative to other tariffs in their economies.

[2] The tariff data used in IC95 are aggregated from the tariff line item level. Thus, the average tariffs applied by a given country in the model may vary across sources because of compositional differences at the line item level. The data reported in Table 1 are averaged across all sources using import weights.

Table 1: Initial import weighted tariff rates[a] (per cent)

	Aus	*NZ*	*CAN*	*US*	*Jpn*	*Kor*	*Ind*	*Mal*	*Phl*	*Sing*	*Tha*	*Chn*[b]	*Twn*	*Mex*
Forest products														
forestry	0.0	0.0	0.0	0.1	0.0	1.5	14.8	24.6	10.0	0.0	10.0	2.1	4.1	0.9
lumber & wood pds.	7.7	8.5	1.3	0.8	0.8	7.2	34.5	26.2	28.1	1.0	28.5	13.5	4.0	1.1
pulp, paper & printing	6.9	6.4	0.3	0.4	0.5	4.1	7.2	6.7	23.6	0.0	22.8	13.1	5.5	0.8
Energy														
coal	0.0	0.0	0.0	0.0	0.0	1.2	5.0	4.5	3.9	0.0	24.3	3.2	5.9	0.6
gas	3.9	0.0	0.1	0.0	0.1	2.9	5.1	12.8	19.5	0.0	0.0	5.2	0.2	0.0
Fish & fish prods														
fishing	0.0	0.9	0.0	0.3	4.5	13.9	28.7	2.3	4.1	1.8	47.4	9.6	3.8	1.5

a GTAP (version four prerelease) estimates.
b Includes Hong Kong.

Where a nominated sector is smaller than an IC95 sector, additional tariff and trade information is required to calculate the relevant tariff reductions for the IC95 sector. The tariff reductions required for the IC95 sectors are found by calculating the import-weighted average tariff rates for the IC95 sectors before and after the tariff rates for the nominated components of the sector are reduced to zero. Tariff rates and import values for the nominated components are taken from PECC (1995), FAO (1998), United Nations (1995) and the GTAP pre-release version 4 database, which contains more sectoral detail than IC95.

Table 2 presents tariff rates for the IC95 sectors *chemicals, rubber and plastics* and *other food products* before and after tariffs on the proposed chemicals and processed fish nominations are reduced to zero. For example, as shown in Table 2, Australia's import-weighted average tariff rate on *other food products* is initially 4.40 per cent. When the tariff on processed fish (which is part of *other food products*) is reduced to zero, as proposed as part of the fish and fish products nomination, the import-weighted average tariff rate on *other food products* sector would fall to 4.37 per cent.

A small change in the tariff rate on *other food products* could suggest that an economy has a low tariff on processed fish products, and/or the value of its processed fish imports is low. In most economies, processed fish comprises a small proportion of *other food products*, so there is only a marginal impact on the import-weighted average tariff after the tariff on processed fish is reduced to zero. Chemicals generally account for a greater proportion of *chemicals, rubber*

and plastics, and this is reflected in larger changes in the import-weighted average tariff after the tariff on chemicals is reduced to zero.

Table 2: Average tariff rates used for analysing fish and chemical proposals[a] (per cent)

	Aus	*NZ*	*CAN*	*US*	*Jpn*	*Kor*	*Ind*	*Mal*	*Phl*	*Sing*	*Tha*	*Chn*[b]	*Twn*	*Mex*
Fish and fish pds.														
other food products														
- initial	4.4	15.3	7.0	7.2	9.1	17.1	20.0	13.6	22.1	20.6	49.7	12.7	12.4	5.1
- final	4.4	15.2	6.8	6.8	7.1	17.1	18.5	12.7	18.8	20.6	49.7	5.4	12.4	4.5
Chemicals														
chemicals, rubber & plastics														
- initial	7.1	5.4	9.1	6.8	3.7	10.5	11.3	6.1	24.1	0.0	36.9	26.3	4.6	12.1
- final	3.3	2.3	2.7	1.8	0.4	0.7	1.4	1.3	3.3	0.0	7.4	0.3	0.4	2.9

a Estimates from PECC (1995), Food and Agriculture Organisation (1998) and United Nations (1995).
b Includes Hong Kong.

Table 3: Average tariff rates on IC95 food sectors before and after tariffs on proposed food products are reduced to zero[a] (per cent)

	Aus	*NZ*	*CAN*	*US*	*Jpn*	*Kor*	*Ind*	*Mal*	*Phl*	*Sing*	*Tha*	*Chn*[b]	*Twn*	*Mex*
Food products														
non-grain crops														
- initial	4.8	0.1	0.8	6.0	11.2	12.9	54.7	15.8	36.1	17.3	51.9	10.1	9.8	-1.1
- final	4.3	0.0	0.7	5.5	8.5	9.3	42.1	11.8	29.0	11.9	42.6	7.1	6.7	-2.0
other food products														
- initial	4.4	15.3	7.0	7.2	9.1	17.1	20.0	13.6	22.1	20.6	49.7	12.7	12.4	5.1
- final	0.4	0.7	1.1	2.5	3.7	4.3	7.7	2.6	15.2	1.4	11.9	12.7	3.0	4.7
beverages & tobacco														
- initial	8.6	11.6	17.6	10.6	26.7	34.0	31.4	13.8	38.1	0.0	59.6	9.2	39.8	17.5
- final	7.2	6.1	4.9	8.6	23.1	33.2	30.1	13.4	37.4	0.0	59.1	7.6	38.5	11.9

a Estimates from PECC (1995), Food and Agriculture Organisation (1998) and United Nations (1995).
b Includes Hong Kong.

Table 3 presents the import-weighted average tariff rates for *non-grain crops*, *other food products* and *beverages and tobacco* before and after tariffs on the

food nominations are reduced to zero. As can be seen from this table, most of the tariff reductions take place in *other food products*, suggesting that the food products proposed for EVSL covered in *non-grain crops* and *beverages and tobacco* have low tariff rates, low trade volumes, or both. On average, the products proposed for EVSL which are covered in *non-grain crops* and *beverages and tobacco* have low to medium tariffs and low trade volumes for a majority of APEC members.

3 The impact of early voluntary sectoral liberalisation

A key benefit of non-discriminatory trade liberalisation is the opportunity to make use of the cheapest imports from the best available sources, allowing some existing resources in import-competing industries to be reallocated to more productive uses domestically.

In addition to these static gains, IC95's treatment of imperfect competition allows for gains from increased specialisation. The combined effects of the gains from static efficiency from increased specialisation are measured in the model by an index of overall allocative efficiency.[3] Allocative efficiency, however, does not capture all of the potential gains from a policy initiative such as trade liberalisation.

Dynamic gains may be generated when gains from allocative efficiency and increasing international specialisation provide incentives for an economy to increase its underlying resource base. As noted in Appendix A, improvements in the resource base are possible in the model through assumptions which allow capital to be accumulated from any additional domestic savings arising from policy initiatives. There are also provisions in the model for induced employment gains in economies which have a high proportion of their workforce initially in non-wage agriculture.[4]

Real GDP is an index of real final output that, by definition, reflects the combined gains from allocative efficiency, specialisation and from induced improvements in the resource base. While real GDP provides a measure of economic activity, it does not reflect the economic welfare changes that may

[3] This is measured by the change in real GDP (which is an index of real final output) minus the change in an index of primary factor use.

[4] The effects of both international specialisation and changes in the resource base tend to magnify the overall effects of liberalisation (see Appendix A).

arise from changes in the prices of goods and services that a region imports and exports — changes in its terms of trade.[5]

Liberalisation will cause changes in the terms of trade. The direction of the effect depends, in part, on the nature of the protective measures being removed. If export and production subsidies are the main forms of protection, then world production will tend to fall following their removal, putting upward pressure on average world prices. If tariffs and tariff equivalents are the main forms of protection, then world production will tend to rise following their removal, putting downward pressure on average world prices. The resulting change in the terms of trade depends on whether a region is a net exporter or a net importer of goods and services for which prices are changing. The model's treatment of imperfect competition also allows commodities from individual firms to be imperfect substitutes for each other. This allows individual firms a degree of market power, so that when they expand production, there may be a decline in their individual terms of trade, even though the scale of the region's activities may have essentially no impact on the average world price. An index of real final output which reflects both real GDP and terms of trade effects is real national income.

Full, broadly-based liberalisation usually leads to overall gains in welfare, since while the terms of trade effects may be positive or negative, the other components are positive and generally dominate.

By contrast, partial liberalisation has the potential to move resources further away from their pattern in a world free of protective distortions, leading to allocative efficiency losses. This would tend to occur when liberalisation is undertaken in sectors with low or moderate protection initially (relative to the overall pattern of protection). Liberalisation would encourage resources to move out of those low protected sectors, and may encourage them to move into other sectors that retain higher levels of protection. This is particularly likely to occur where low protected upstream sectors are liberalised, while more highly protected downstream processing sectors remain protected — a lesson well-known from the literature on effective protection (eg. Corden 1963, Balassa 1965). In this instance, liberalisation will make imported inputs cheaper for downstream processing, encouraging domestic resources to move out of the

[5] Nor does it take into account income payable abroad. The preferred measure of economic welfare, real income (net national product), does take this into account. However, its potential influence on economic welfare is minimised in the current analysis. In the absence of additional foreign borrowing or lending, real income is not affected by major changes in debt service obligations to foreigners, other than those arising from induced changes in interest rates (see Appendix A).

upstream sector and into downstream processing. This could lead to a loss in overall economic welfare.

It is fairly typical for protection to cascade, so that raw materials are relatively lightly protected (in nominal terms) while downstream processing sectors are more heavily protected. There is a tendency in some of the EVSL initiatives to nominate low or moderately protected sectors for liberalisation, while ignoring the more highly protected sectors. It remains a real question, therefore, whether the EVSL initiatives are likely to guarantee real income gains to a majority of APEC members.

Impact of five selected EVSL proposals

The projected economy-wide impacts of APEC's Vancouver 1997 EVSL initiatives, implemented on a most favoured nation (MFN) basis, are shown in Table 4. Separate results are shown for each of the five EVSL proposals. In addition, the table shows the combined impacts of all EVSL nominations in the first tier, and then for all nominations considered.

Most of the five EVSL proposals, particularly the chemicals and food proposals, tend to involve liberalisation at the upstream end of the processing chain. A danger with liberalising only part of a production process is that inputs may be made cheaper for highly protected downstream industries, resulting in losses in efficiency and overall economic welfare.

Chemicals typically are moderately protected. Petrochemical plants use *coal* or *gas* as a fuel source, and these sectors typically have low protection. One important downstream use of petrochemical products is in making synthetic textiles, with further downstream linkages to clothing. Another important downstream use is in making plastic products, which are in turn used to make toys and sporting goods. These sectors often are very highly protected. Thus liberalising chemicals will tend to encourage resources out of domestic chemicals production and also out of domestic coal and gas production, while encouraging an expansion of domestic textiles, clothing and *other manufacturing* (which contains toys and sporting goods).

Tables 5 shows that this pattern of resource movements explains the projected loss in allocative efficiency for China that was shown in Table 4. The pattern of resource movement is not as clear cut in other APEC economies. For example, *other manufacturing* production is projected to contract in Thailand, in part due to increased competition from China. This contributes to an allocative efficiency gain in Thailand. The loss in allocative efficiency in China, however, contributes strongly to its projected loss in real income as a result of chemicals liberalisation.

Table 4: Projected impacts of selected APEC EVSL initiatives[a]

	Aus	*NZ*	*CAN*	*US*	*Jpn*	*Kor*	*Ind*	*Mal*	*Phl*	*Sing*	*Tha*	*Chn*[b]	*Twn*	*Mex*
Allocative efficiency														
A chemicals	0.04	0.03	0.00	0.00	0.00	0.08	0.11	0.13	0.09	0.10	0.14	-0.22	0.02	-0.01
B forest products	-0.01	-0.01	0.00	0.00	0.00	0.02	0.07	0.25	0.09	0.02	0.16	0.06	0.01	0.00
C coal and gas	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.06	0.01	0.02	0.01	0.00
D fish and fish prods.	0.00	0.03	0.00	0.00	0.00	0.03	0.00	-0.05	0.03	0.02	0.07	0.08	0.00	0.00
E food	0.00	-0.07	-0.01	0.00	-0.02	0.07	0.14	-0.29	0.08	0.28	0.34	0.00	-0.03	-0.01
comb. 1(A,B,C,D)	0.04	0.06	0.01	0.00	0.00	0.13	0.18	0.38	0.21	0.19	0.38	-0.06	0.03	-0.01
comb. 2(A,B,C,D,E)	0.04	-0.01	0.00	0.00	-0.01	0.21	0.31	0.05	0.29	0.46	0.71	-0.06	0.00	-0.01
Real GDP														
A chemicals	0.05	0.04	0.00	0.00	0.00	0.06	0.12	0.13	0.16	0.14	0.17	-0.34	0.01	-0.03
B forest products	-0.04	-0.06	0.00	0.00	0.00	0.02	0.10	0.33	0.13	0.04	0.12	0.04	0.01	0.00
C coal and gas	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.07	0.01	0.02	0.01	0.00
D fish and fish prods.	0.01	0.04	0.00	0.00	0.00	0.03	0.00	-0.07	0.03	0.03	0.03	0.08	0.00	0.00
E food	-0.01	-0.15	-0.02	0.00	-0.02	0.07	0.15	-0.49	0.09	0.35	0.37	0.00	-0.05	-0.01
comb. 1(A,B,C,D)	0.03	0.04	0.01	0.00	0.00	0.11	0.22	0.43	0.33	0.26	0.34	-0.19	0.04	-0.02
comb. 2(A,B,C,D,E)	0.02	-0.11	-0.01	0.01	-0.02	0.18	0.37	-0.12	0.41	0.60	0.71	-0.19	-0.01	-0.03
Terms of trade														
A chemicals	0.11	0.14	0.00	0.05	0.07	-0.52	-0.29	-0.06	-0.11	0.20	-0.53	-0.91	-0.07	-0.25
B forest products	-0.18	-0.26	-0.01	0.01	0.06	-0.05	0.08	-0.07	-0.29	0.09	-0.45	-0.16	0.07	-0.03
C coal and gas	0.05	0.13	0.01	0.01	0.00	-0.01	-0.04	-0.06	0.00	0.03	-0.04	-0.04	-0.06	0.00
D fish and fish prods.	0.03	0.04	0.01	0.01	-0.04	0.01	0.02	0.12	-0.04	0.01	-0.06	-0.12	0.05	0.00
E food	0.00	-0.19	-0.06	-0.04	-0.09	0.03	-0.21	0.05	0.19	-0.02	-0.07	0.05	-0.02	0.03
comb. 1(A,B,C,D)	0.01	0.01	0.02	0.07	0.07	-0.56	-0.24	-0.08	-0.45	0.33	-1.06	-1.21	0.17	-0.28
comb. 2(A,B,C,D,E)	0.01	-0.17	-0.04	0.03	-0.03	-0.53	-0.45	-0.04	-0.29	0.31	-1.08	-1.14	0.15	-0.25
Real income														
A chemicals	0.08	0.09	-0.01	0.01	0.01	-0.18	0.00	0.09	0.13	0.75	-0.01	-0.82	-0.02	-0.10
B forest products	-0.07	-0.15	0.00	0.00	0.01	-0.01	0.14	0.33	0.02	0.29	-0.10	-0.04	0.04	-0.01
C coal and gas	0.02	0.09	0.00	0.00	0.00	0.00	-0.01	0.00	0.02	0.16	-0.01	0.00	-0.01	0.00
D fish and fish prods.	0.01	0.05	0.00	0.00	-0.01	0.03	0.01	0.01	0.02	0.06	0.04	0.03	0.03	0.00
E food	0.00	-0.21	-0.03	0.00	-0.03	0.09	0.08	-0.50	0.18	0.35	0.38	0.03	-0.06	0.00
comb. 1(A,B,C,D)	0.04	0.06	0.01	0.01	0.01	-0.14	0.13	0.43	0.17	1.24	-0.09	-0.81	0.11	-0.10
comb. 2(A,B,C,D,E)	0.04	-0.15	-0.02	0.01	-0.03	-0.05	0.20	-0.14	0.33	1.60	0.31	-0.78	0.05	-0.10

a IC95 model projections. All results represent deviations from control. Variables are measured in percentage changes.

b Includes Hong Kong.

Table 5: Implications of chemicals EVSL, sectoral output results and initial tariff levels for China (including Hong Kong)[a]

Sector	Output changes	Initial tariff levels	Sector	Output changes	Initial tariff levels
Paddy rice	-0.2	-31.8	Leather & fur	6.7	11.0
Wheat	0.4	-12.6	Lumber & wood products	4.3	13.5
Other grains	0.2	3.4	Paper & printing	2.0	13.1
Non-grain crops	0.1	8.7	Petroleum & coal products	0.7	1.5
Wool	1.1	14.6	Chemicals, plastic products	-34.5	12.1
Livestock	0.8	5.6	Non-metal mineral products	0.7	12.5
Forestry	-5.0	2.1	Iron & steel	4.0	8.2
Fishing	-0.4	9.6	Non-ferrous metals	5.3	6.9
Coal	-0.7	3.2	Fabricated metal products	2.7	21.4
Oil	4.3	1.5	Transport industry	3.9	5.7
Gas	-17.6	5.2	Machinery & equipment	6.0	13.9
Other minerals	17.0	3.0	Other manufacturing	13.6	21.6
Processed rice	-0.1	-16.3	Electricity, gas & water	-2.5	0.1
Meat products	1.4	-6.5	Construction	-0.1	43.8
Milk products	0.8	8.8	Trade and transport	0.3	44.9
Other food products	0.7	13.3	Private services	-0.1	52.3
Beverages and tobacco	-0.9	29.9	Government services	-0.7	52.3
Textiles	5.8	24.9	Ownership of dwellings	-1.2	0.0
Wearing apparel	6.6	13.1			

a IC95 model projections. All results represent deviations from control. Variables are measured in percentage changes.

In contrast to the chemicals proposal, the forestry proposal nominates products along the entire production processing chain, from forestry and raw lumber products through pulp and paper production to publishing and printing (see Appendix B for details). Consequently, there is less scope for resource reallocation towards protected downstream processing industries, worsening allocative efficiency. The results reflect this. In Malaysia, for example, there is projected to be a large gain in allocative efficiency as a result of resources moving into the newly liberalised *forestry* and *lumber and wood* sectors. Resources are attracted away from *pulp, paper and printing*, as it is now more efficient to import these products, freeing up the resources to be used elsewhere.

It is somewhat surprising that the energy proposal sees allocative efficiency slightly improved or unchanged for all APEC economies, since both *coal* and *gas* are key inputs to sectors which are relatively highly protected in most APEC economies (such as *other manufacturing*). There are several reasons for this result. *Coal* and *gas* are very lightly protected in most APEC economies, so liberalisation has only a small effect on allocative efficiency. Secondly, *coal* and *gas* are used widely throughout the economy so that both lowly and highly protected industries tend to benefit. This generates allocative efficiency gains

in the economies with some protection of *coal* and *gas* — Malaysia, Thailand, China and the Philippines. Efficient exporters of *coal* and *gas*, such as New Zealand and Singapore, also experience allocative efficiency gains as resources are drawn into *coal* and *gas* (with initial tariffs of zero) to supply the liberalising economies.

The fish and fish products proposal contains a balanced mix of processed and unprocessed categories, so that liberalisation leads to allocative efficiency being unchanged or improved in all APEC economies. The exception is in Malaysia, where there is a small allocative efficiency loss (some resources move into the highly protected *processed rice* sector). Thailand, as an efficient exporter of processed fish, is projected to benefit from liberalisation by being able to make greater use of cheaper unprocessed fish imports. The displaced resources from the domestic fishing industry are drawn into the more efficient processing sector.

The food proposal is projected to cause a loss in allocative efficiency in several APEC economies, including Malaysia, Japan and New Zealand, as resources shift into more highly protected food sectors. In Malaysia, resources shift out of the partially liberalised food areas and into other food sectors such as *processed rice*, *meat* and *milk* which supply the domestic market under the protection of very high tariffs. In Japan, resources shift out of the partially liberalised food areas and into *meat products* which are protected by high tariffs. In New Zealand, it is not immediately apparent why there is a loss in allocative efficiency, as resources shift into *milk products*, *meat* and *livestock* which initially have low tariff levels. The reason is that these sectors appear to attract small production subsidies (see Table A3 in Appendix A) to protect the domestic market, so that there is a loss in efficiency from tariff-only liberalisation as output increases. The impact on the food proposal of removing both production and export subsidies as well as tariffs is examined in the following section.

The results for allocative efficiency give a measure of the changes in static efficiency and gains from specialisation. The projections for real GDP show that the dynamic effects on the resource base generally reinforce these static effects.

As noted above, however, real GDP does not adequately reflect economic welfare changes caused by movements in a region's terms of trade. For example, Thailand records a relatively large terms of trade loss from liberalisation of forest products. This loss is the result of Thai firms' export prices of *lumber and wood* and *pulp, paper and printing*, as well as some of its other relatively important export goods (*other food products*, *wearing apparel* and *machinery and equipment*), falling relative to world prices. Due to its large

terms of trade loss, Thailand is projected to experience a loss in overall welfare (real income), despite gains in real GDP.

Real income is a better measure of a region's overall welfare as it incorporates the effects of changes in real GDP and in the terms of trade.[6] Table 6 shows the real income results from Table 4 in Australian dollars, to help illustrate the relative scale of the impacts of sectoral liberalisation.

Table 6: Implications of APEC EVSL, real income changes in $A million (1996 base year)[a]

	Aus	*NZ*	*CAN*	*US*	*Jpn*	*Kor*	*Ind*	*Mal*	*Phl*	*Sing*	*Tha*	*Chn*[b]	*Twn*	*Mex*	*Total*
Real income															
A chemicals	38	7	-5	89	60	-108	1	10	14	91	-3	-871	-9	-41	-726
B forest products	-37	-12	-2	22	49	-4	40	36	2	35	-20	-39	14	-2	82
C coal and gas	12	7	4	13	1	1	-3	0	2	19	-2	-2	-3	0	51
D fish and fish prods.	6	4	3	18	-32	20	2	2	2	7	7	32	9	0	81
E food	-1	-17	-26	-37	-193	56	23	-54	20	42	80	31	-22	1	-96
comb. 1(A,B,C,D)	20	5	10	126	65	-88	38	46	19	150	-19	-859	38	-43	-491
comb. 2(A,B,C,D,E)	20	-12	-15	83	-148	-28	57	-15	37	192	65	-832	18	-42	-621

a IC95 model projections converted into $A using Real GDP and exchange rates for 1996 from International Monetary Fund (1997) and Department of Finance, Taiwan (1997).

b Includes Hong Kong.

The overall impact of the selected EVSL proposals are reflected in the combined results. Without China's real income loss from chemicals and Japan's loss from food liberalisation, there would be overall gains for APEC from implementing the five proposals.

4 Avoiding second-best welfare losses

As noted in the previous section, partial liberalisation may lead an economy to move further away from a world free of protective distortions rather than closer to it. In this section, a range of alternative food liberalisation packages are considered to illustrate what is needed to avoid such second-best economic welfare losses in the APEC economies. In this section, tariffs, export subsidies and production subsidies are progressively removed on a number of key food

6 In IC95, real income is measured as net national product, deflated by a price index for net national expenditure (private and public consumption and net investment). This is essentially the same as the equivalent variation measure of welfare in the GTAP model.

sectors — *non-grain crops*, *other food products*, *beverages and tobacco*, *paddy rice*, *processed rice*, *milk products*, *meat products* and *livestock*.

The results from Table 6 indicate that the food proposal, in its current form, causes a loss in real income in seven of the fourteen APEC economies examined. With the exception of New Zealand, the reason for their allocative efficiency losses is because resources shift into food sectors which are protected by high tariffs (see Table A2 in Appendix A). In New Zealand, production subsidies on the sectors into which resources move (*milk*, *meat* and *livestock*) cause the loss in allocative efficiency. This raises the question of whether the losses in the remaining countries are exacerbated by production and/or export subsidies. This would certainly be the case where export and/or production subsidies are present.

With the exception of Malaysia, production subsidies are present in all APEC economies for the selected food sectors (Table A3 in Appendix A). Australia, Canada, the United States, Malaysia and China also have high export subsidies on one or more of the food sectors.

The first extension removes both tariffs and subsidies on the complete *non-grain crops*, *other food products* and *beverages and tobacco* sectors, whereas the EVSL food proposal would remove tariffs only on selected products in these three sectors (see Section 2).

The results in Table 7 confirm that eliminating subsidies as well as tariffs reverses the real income loss in New Zealand. The removal of production subsidies on both *non-grain crops* and *other food products* improves allocative efficiency whereas previously, the presence of these subsidies generated an allocative efficiency loss. Eliminating both subsidies and tariffs also reverses the real income loss in Malaysia. The removal of export subsidies on *non-grain crops* and *other food products*, both of which are key export sectors for Malaysia, leads to an improvement in allocative efficiency as well as a significant improvement in terms of trade.

Elsewhere, real income losses are still projected for five APEC economies (Japan, Korea, the Philippines, Taiwan and Mexico). In all of these economies, the pattern of protection is such that at least several food sectors retain very high levels of tariff and/or subsidy protection (see Table A2 and A3 in Appendix A).

Table 7: Implications of extending the EVSL food proposal, real income changes[a]

	Aus	*NZ*	*CAN*	*US*	*Jpn*	*Kor*	*Ind*	*Mal*	*Phl*	*Sing*	*Tha*	*Chn*[b]	*Twn*	*Mex*	*Total*
Real income (percent)															
proposed EVSL food	0.00	-0.21	-0.03	0.00	-0.03	0.09	0.08	-0.50	0.18	0.35	0.38	0.03	-0.06	0.00	–
extended food	0.13	0.08	0.03	0.03	-0.09	-0.10	0.21	1.60	-0.30	0.66	0.56	0.12	-0.09	-0.05	–
extended food & rice	0.15	0.12	0.03	0.04	0.13	0.73	0.24	2.05	-0.37	0.93	2.14	0.24	-0.08	-0.06	–
extended food, rice, meat & milk	0.45	2.22	0.23	0.13	0.41	0.86	0.16	2.09	0.59	1.35	2.57	1.66	0.10	-0.06	–
extended food, rice, meat, milk & livestock	0.53	2.47	0.24	0.14	0.40	0.81	0.17	2.16	0.59	1.25	2.66	186	0.13	0.05	–
Real income ($Am)															
proposed EVSL food	0	-17	-26	-37	-193	56	23	-54	20	42	80	31	-22	1	-96
extended food	67	7	26	294	-514	-62	61	175	-33	79	118	133	-33	-23	295
extended food & rice	77	10	24	391	749	453	71	224	-41	112	448	258	-26	-25	2725
extended food, rice, meat & milk	228	179	175	1289	2422	533	45	227	65	163	537	1765	36	-26	7638
extended food, rice, meat, milk & livestock	266	199	180	1362	2366	501	50	235	66	151	556	1984	45	21	7982

a IC95 model projections. All results represent deviations from control. Projections converted from percentage changes into $A using real GDP and exchange rates for 1996 from International Monetary Fund (1997) and Department of Finance, Taiwan (1997).

b Includes Hong Kong.

The second extension removes subsidies and tariffs on *paddy* and *processed rice* as well as removing tariffs and subsides on *non-grain crops*, *other food products* and *beverages and tobacco*. The results show an improvement in allocative efficiency in economies which initially had relatively high protection levels on these two sectors. This is the case in both Japan and Korea, where the removal of high tariffs on *paddy* and *processed rice* reverses the projected real income losses.

However, liberalisation does not go far enough in the case of the Philippines, Taiwan and Mexico, where the change in real income remains negative. Although the Philippines experiences an allocative efficiency improvement, it is modest because resources shift into the *milk* and *meat products* sectors, both of which have very high tariff protection. In Taiwan, allocative efficiency declines as resources shift into the highly protected *milk products* sector. Allocative efficiency also declines in Mexico as resources shift into the *meat products* and *livestock* sectors, both of which have high export subsidies.

The third extension removes subsidies and tariffs on *milk* and *meat products*. This almost trebles the real income gain for the APEC region. Extending the liberalisation package to include *milk* and *meat products* also reverses the real income losses in the Philippines and Taiwan. New Zealand, an efficient exporter of these products, experiences a significant real income gain due to an improvement in allocative efficiency which is reinforced by a terms of trade improvement (its export price of *milk* and *meat products* rises).

Mexico is now the only country with a projected loss in real income. A survey of Mexico's pattern of protection reveals a significant export subsidy on *livestock* — a key national industry with direct links to the *meat products* sector.

The final extension adds *livestock* to the previous liberalisation package and confirms that eliminating the export subsidy on *livestock* reverses the real income loss in Mexico. The removal of the export subsidy allows Mexico to make greater use of the comparative advantage it holds in the production of both *livestock* and *meat products*.

The final extension shows that all APEC economies can experience gains from sectoral liberalisation if its coverage is broad enough, in terms of both product lines and protective measures. A few economies may have achieved greater gains from a more narrow set of liberalisation initiatives. But the wide coverage is required for all to gain and none to lose.

5 Directions for APEC early voluntary sectoral liberalisation

There is a strong argument in favour of negotiated EVSL outcomes that recognise the characteristics of different regions, so that all APEC members can continue to be involved in the process and to ensure that APEC captures the benefits associated with the diversity of the region. The diversity of the region directly influences the potential gains to be expected from sectoral liberalisation, depending on the extent to which economies are able to specialise in industries in which they hold a comparative advantage.

A counter argument is that too much flexibility can result in regions opting for proposals which target small sectors with low protection, seriously undermining the gains which could otherwise be expected. The first experience with EVSL initiatives tends to support this line of argument. For these reasons, the EVSL process could consider adopting guidelines that ensure that APEC economies are genuine in their commitment to realising gains from sectoral liberalisation.

Guidelines for early voluntary sectoral liberalisation

A key objective is to avoid possible economic losses associated with second-best sectoral approaches to liberalisation. This assumes that the sectoral approach continues to be pursued by APEC economies.

To this end, a first central guideline to the EVSL process is that any proposal should consider and allow for linkages in the production chain. Ideally, a proposal should address protection along all stages of the production chain, from upstream production, right through to intermediate and final stages. This may entail the liberalisation of a group of related industries, as is the case with the forest products proposal, or the complete liberalisation of a single industry. Such a guideline would be an important first step towards avoiding second-best economic welfare losses.

A possible second guideline might be that every proposal nominate several moderate to highly protected areas. One way to do this may be to require 'twinned' proposals where, for every proposal that nominates an area of low protection, there must be one that nominates an area of higher protection. This might be one way to introduce the possibility of trading off the liberalisation of high and low protection sectors, a process that otherwise tends to be lost in the sectoral approach to liberalisation. Another way to introduce such a tradeoff would be by taking the EVSL nominations into the WTO forum, to use as negotiating coin for further tradeoffs within that forum.

The previous section highlights the importance of removing both tariffs and subsidies. If liberalisation is tariff only, then the benefits will be lessened by the scale and extent of subsidies (as well as other non-tariff protection). At present, a review of subsidies must be completed before any proposals containing production and/or export subsidies can be put forward. There would be benefits in doing this quickly with a clear and practical outcome, so that the scope and coverage of sectoral liberalisation could be broadened as soon as possible.

The APEC region would gain from ambitious proposals undertaken quickly. This would maximise the potential for all economies to benefit from the region-wide gains from liberalisation. This could be done through the EVSL process, or through Individual Action Plans. Ultimately, this is what will drive the development and expansion of the APEC process.

APPENDIX A: KEY FEATURES OF THE IC95 MODEL

Database

The starting point for the database is the GTAP multiregion database from 1992, as amended for the IC95 model (see Dee, Geisler and Watts 1996). Dee, Geisler and Watts (1996) used a pre-NAFTA, pre-Uruguay database and then updated it to reflect a post-NAFTA, post-Uruguay environment which was then used as the starting point for the study. This analysis uses as its starting point a pre-NAFTA, pre-Uruguay database because many of the EVSL proposals are scheduled to take place before the Uruguay Round commitments are implemented. In this respect, this is not strictly comparable to the previous exercise.

Ideally, the entire IC95 database would have been updated using the recently pre-released version 4 database for the GTAP model. However, due to time constraints the approach taken in this analysis has been to update only the original IC95 protection rates — tariffs rates on all commodities, export subsidies and production subsidies on agriculture and food, and export taxes on textile, clothing and footwear — with those provided in the pre-release version 4 GTAP database. The export subsidies and production subsidies on goods other than agricultural products and food were not updated because they do not necessarily reflect explicit trade protection measures.

Protection rates were updated by running a simulation using the IC95 database as the starting point and adjusting the tariff rates, export subsidies and production subsidies in the database to reflect the most recent GTAP rates. This provided a new database in which production and trade values had adjusted endogenously to accommodate the new protection rates.

This new database was then used as the starting point for all the sectoral liberalisation scenarios. This approach was adopted, rather than manually adjusting the protection data, because the new GTAP protection data are for a more recent point in time than the protection data in the original IC95 database. Therefore, updating the database via a simulation allowed the impact of recent liberalisation initiatives to be reflected in the model's production and trade structure.[7] The protection data are shown in more detail later in the appendix.

[7] An exception to the updating was the tariff on *other mineral products* imported by the rest of the world from Indonesia. In the 1992 GTAP database, this tariff rate was 1 per cent and

Imperfect Competition

Many conventional models of trade incorporating the Armington assumption allow a commodity or service from one region to be an imperfect substitute for the same commodity or service from other regions. This assumption of imperfect substitution is usually invoked in order to explain the observed phenomenon of two-way trade in a given commodity or service. However, it gives a particular region, even if it is small, a degree of market power. This manifests itself in a terms of trade decline when the region expands exports of a commodity or service, even if the region is sufficiently small that the average world price remains essentially unchanged. Examples of models incorporating the Armington assumption are Salter and GTAP.

By contrast, models that incorporate global monopolistic competition recognise that product differentiation is likely to occur at the firm, rather than the regional level. It is not so much that cars from Japan are imperfect substitutes for cars from the United States or Europe, but that Hondas are imperfect substitutes for Fords or BMWs. A model of firms producing differentiated products and competing globally therefore has some intuitive appeal.

Francois and Shiells (1994) have shown that, analytically, the two approaches are very similar. They differ in only two respects. Firstly, the elasticities of substitution appropriate to firm level product differentiation tend to be larger than those used in models of regional product differentiation. This can be justified in several ways. One is simply the intuitive appeal of product differentiation at the firm level, together with the observation that firms are typically smaller than regions. Another is the observation that large elasticities of substitution are required before multi-country trade models can successfully reproduce historical changes in trade patterns.[8]

Secondly, models of firm level product differentiation typically incorporate a love of variety for its own sake, so that consumers and users are better off when there are more varieties (or firms) globally than when there are fewer. Since most trade is in intermediate goods, an appealing interpretation of this love of variety in a trade context is that, with more variety, a firm can buy an intermediate input that is better tailored to its own particular use. This love of variety can be modelled as a productivity improvement that occurs when the number of varieties expands, or a productivity decline that occurs when the number of varieties contracts. This can affect the productivity of the

in the 1995 GTAP database was -75 per cent. This adjustment created unrealistic outcomes for trade and production values for Indonesia, so it was decided leave it at its 1992 level.

[8] See Gehlhar (1997). Also required is an explicit treatment of human capital as a factor of production. There is no skill differentiation of labour in the current version of IC95.

commodity in both intermediate and final use. With this love of variety, models of monopolistic competition can capture gains from trade arising from specialisation in production, as well as those arising from comparative advantage. The productivity improvements associated with a love of variety tend to amplify the sectoral output adjustments that occur in conventional Armington models of trade.

Francois, McDonald and Nordstrom (1995) and IC (1995) provide examples of both these key differences. Francois, McDonald and Nordstrom also show how global imperfect competition can be built into a multiregion trade model in a particularly parsimonious fashion. With monopolistic competition, firms face increasing returns to scale but entry ensures no super-normal profits for any firm. With monopolistic competition, therefore, market power can be exploited to recover fixed costs, but no further. Under these conditions, there is a direct relationship between the extent of product differentiation and market power (as measured by elasticities of substitution between varieties) and the markup of price over marginal cost (which with free entry will be just sufficient to cover fixed costs). Francois, McDonald and Nordstrom therefore use estimates of scale elasticities obtained from engineering studies to measure markups of price over marginal cost, and hence the elasticities of substitution between varieties. These elasticity taste parameters also parameterise the extent of the productivity improvement when the number of varieties expands.[9]

Their approach, and their parameterisation, is adopted for the resources, food processing and other manufacturing sectors in the current model. In the absence of scale elasticity estimates for the remaining sectors, the 'perfect' competition, Armington treatment of Salter and GTAP is used, also as in Francois, McDonald and Nordstrom.

[9] Under the assumptions they adopt, output per firm is fixed, so that industry output can be used as an indicator of the number of firms, and hence the number of varieties. Richer treatments of monopolistic competition (eg. Brown et al. 1995) allow output per firm and hence average production costs to adjust, leading to the possibility of additional procompetitive effects associated with trade liberalisation.

Table A1: Key elasticities in the IC95 model

	Inverse Scale[a]	*Domestic/Import Armington*[b]	*Import/Import Armington*[b]	*Primary Factor Substitution*[c]
Paddy rice		2.2	4.4	0.56
Wheat		2.2	4.4	0.56
Other grains		2.2	4.4	0.56
Non-grain crops		2.2	4.4	0.56
Wool		2.2	4.4	0.56
Livestock products		2.8	5.6	0.56
Forestry		2.8	5.6	0.56
Fishing		2.8	5.6	0.56
Coal	0.95	20.0	20.0	1.12
Oil	0.95	20.0	20.0	1.12
Gas	0.95	20.0	20.0	1.12
Other minerals	0.95	20.0	20.0	1.12
Processed rice	0.85	6.7	6.7	1.12
Meat products	0.85	6.7	6.7	1.12
Milk products	0.85	6.7	6.7	1.12
Other food products	0.85	6.7	6.7	1.12
Beverages & Tobacco	0.85	6.7	6.7	1.12
Textiles	0.86	7.1	7.1	1.26
Wearing apparel	0.87	7.7	7.7	1.26
Leather & fur	0.88	8.3	8.3	1.26
Lumber & wood products	0.86	7.1	7.1	1.26
Pulp, paper & printing	0.86	7.1	7.1	1.12
Petroleum & coal products	0.92	12.5	12.5	1.26
Chemicals, rubber & plastics	0.85	6.7	6.7	1.26
Non-metallic minerals	0.88	8.3	8.3	1.26
Iron & steel	0.87	7.7	7.7	1.26
Non-ferrous metals	0.86	7.1	7.1	1.12
Fabricated metal products	0.88	8.3	8.3	1.12
Transport equip	0.85	6.7	6.7	1.26
Other machinery & equipment	0.85	6.7	6.7	1.26
Other manufacturing	0.88	8.3	8.3	1.26
Electricity, gas & water		2.8	5.6	1.26
Construction		1.9	3.8	1.40
Trade & transport		1.9	3.8	1.68
Private services		1.9	3.8	1.26
Govt services		1.9	3.8	1.26
Ownership of dwellings		1.9	3.8	1.26

a Under the assumptions in the model, inverse scale elasticities measure the ratio of marginal cost to average cost. For data sources on scale elasticities, see Francois, McDonald and Nordstrom (1995).

b For industries where inverse scale elasticities (s) are available, the Armington elasticities are given by 1/ (1-s). For other industries, the Armington elasticities take the values normally used in the Salter and GTAP models.

c Taken from the GTAP model.

The key parameters for the current exercise are shown in Table A1.[10]

Capital accumulation

The model used for the current exercise makes provision both for capital to accumulate in a given region, and for foreign borrowing to further facilitate the mobility of capital between regions, using the approach in the Salter model (McDougall 1993). In the current exercise, regions are permitted to accumulate capital, but only in a way that keeps their debt to income ratios fixed. Essentially, this means they must fund domestically any additional capital accumulation that would not have taken place otherwise.[11]

There are two possible justifications for this. One is the empirical observation, originating with Feldstein and Horioka (1980), that capital appears to be far from perfectly mobile internationally. The other is that imposing a fixed debt-to-income ratio is akin to imposing a terminal condition, given the long-term snapshot view of the current exercise, that regions cannot accumulate debt 'forever'.

A preferable approach, and an area for further research, would be to implement a treatment of partial capital mobility that is consistent with more recent theories of foreign direct investment (see Markusen 1995 for a useful summary). Petri (1997) has made a very promising start in that direction.

Other key assumptions

In most regions, both labour supplies and employment rates are held fixed (or more precisely, held at the values they otherwise would have had without the trade liberalisation in question). This means that the beneficial labour market impact of trade liberalisation is absorbed in the form of higher wages rather than higher employment levels.

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[10] In common with Brown et al. (1995), however, it was found that the productivity improvements associated with love of variety introduced model instability when parameterised strictly according to a Dixit-Stiglitz (1977) aggregator function. In this exercise, productivity is assumed to increase when industry output (the indicator of number of varieties) increases, but only at a tenth the rate suggested by a Dixit-Stiglitz aggregator. Brown et al. (1995) used a dampening factor of one half. Note that Brown et al. also extend their treatment of imperfect competition to the services sector (see Brown, Deardorff and Stern 1995).

[11] This treatment is very much like the 'endogenous capital, fixed savings rate' treatment in Francois, McDonald and Nordstrom (1995).

There has been some debate in the literature as to whether this is the appropriate treatment for economies with a significant share of the labour force in subsistence agriculture. Dee, Jomini and McDougall (1996) have shown that one alternative treatment, in which employment varies enough to hold real wages fixed, can have a strong impact on the projected results from trade liberalisation scenarios. However, there is ample evidence of strong real wages growth historically in economies with large agricultural sectors (World Bank 1995), so that the assumption of fixed real wages in a trade policy context is probably too extreme. On the other hand, evidence on unemployment and underemployment is still too patchy or untrustworthy to provide a reliable alternative means of gauging the potential employment gains from trade liberalisation.

The current treatment is based on studies that have shown a reasonable degree of wage responsiveness of labour supply among households in subsistence agriculture. The distinguishing feature of these households is that consumption and production decisions are consolidated into a single decision-making unit. One study has shown wage elasticities of labour supply in the range 0.1 to 0.3 (Singh, Squire and Strauss 1986). For economies where more that 20 per cent of the workforce is in non-wage employment in agriculture (World Bank 1995, the economies being Malaysia, Indonesia, Philippines, Thailand and China), the elasticity of labour supply with respect to (post-tax) wages has been set at 0.2.

This treatment raises a second, related issue. The current model contains a treatment of government finances along the lines of the Salter model. This allows IC95 to quantify the lost tariff revenue associated with trade liberalisation. In most regions, income tax rates on labour and non-labour income are assumed to increase equiproportionately so as to maintain government savings rates constant in the face of reduced tariff revenues, and the other changes precipitated by trade reform. In a few economies, tariff revenue constitutes a significant share of government revenue initially, so that the required changes in income tax rates can be substantial, sometimes enough to ensure a reduction in post-tax wages, despite upward movement in pre-tax wages. This in turn can induce a negative labour supply response, a result judged to be implausible. For Thailand and the Philippines, economies where income tax revenue is a relatively small share of total revenue *and* where implied labour income tax rates are very much higher than non-labour income tax rates initially, the burden of adjusting to lower tariff revenue was assumed to fall on non-labour income taxes alone.

Protection regimes in detail

Table A2 shows the import-weighted average tariffs across all sectors and economies. In addition to the fourteen APEC members examined in this paper, the model contains regions for the EC (European Community) and RoW (rest of the world).

Table A2: Average tariff rates using import weights[a] (per cent)

	Australia	*NZ*	*Canada*	*US*	*Japan*	*Korea*	*EC*	*Indonesia*
Paddy rice	1.27	0.13	0.00	0.27	502.98	28.80	128.69	1.64
Wheat	0.00	0.00	0.69	1.87	535.60	62.02	13.38	0.00
Other grains	0.01	0.00	0.43	0.02	449.64	184.20	44.55	3.84
Non-grain crops	4.32	0.10	0.87	6.11	9.48	19.82	8.34	54.84
Wool	-0.03	0.00	-0.02	8.42	0.00	10.63	-0.01	5.00
Livestock	0.01	0.07	-0.21	0.54	6.02	8.02	13.40	4.66
Forestry	0.00	0.00	0.00	0.08	0.01	1.51	0.00	14.77
Fishing	0.00	0.90	0.01	0.34	4.47	13.92	6.15	28.66
Coal	0.00	0.00	0.00	0.00	0.01	1.15	0.41	5.00
Oil	0.00	0.00	7.36	0.23	0.43	4.87	0.00	0.00
Gas	3.94	0.00	0.10	0.00	0.06	2.86	0.01	5.14
Other minerals	0.58	0.47	0.01	0.14	0.01	1.95	0.00	1.34
Processed rice	1.23	0.00	0.06	0.33	93.71	147.08	128.57	0.00
Meat products	0.46	1.74	3.92	1.11	63.84	43.07	43.17	6.93
Milk products	8.31	0.98	90.59	54.08	350.49	99.54	116.59	14.64
Other food products	2.73	2.55	3.70	3.97	7.57	10.85	7.01	11.78
Beverages and tobacco	5.85	5.99	4.95	8.75	5.27	36.71	20.47	28.24
Textiles	24.73	2.33	10.43	8.67	3.52	7.15	5.46	36.79
Wearing apparel	10.01	22.05	21.17	12.69	6.73	8.53	10.45	42.77
Leather & fur	20.30	9.76	11.76	7.91	9.44	6.06	5.06	5.53
Lumber & wood products	7.67	8.45	1.28	0.83	0.80	7.18	2.00	34.49
Paper & printing	6.90	6.40	0.27	0.38	0.46	4.13	2.25	7.19
Petroleum & coal products	0.16	0.36	1.44	3.30	2.74	3.65	1.35	4.78
Chemicals, rubber ,plastics	7.47	1.99	1.70	2.71	2.13	7.75	2.94	6.37
Non-metal mineral products	9.88	5.37	1.93	4.96	1.58	7.90	4.64	14.04
Iron & steel	6.67	1.26	2.06	2.90	1.69	6.17	2.97	7.93
Non-ferrous metals	5.88	2.72	0.56	0.75	0.43	5.17	1.46	8.27
Fabricated metal products	13.02	6.60	2.06	2.59	1.12	8.39	3.22	23.15
Transport industry	13.33	5.31	1.59	1.57	1.77	4.86	5.44	21.37
Machinery & equipment	7.82	5.45	1.03	1.89	0.43	8.08	3.15	14.49
Other manufacturing	10.81	6.78	1.89	2.41	1.37	7.91	4.46	29.88
Electricity, gas & water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction	105.45	104.18	52.14	68.77	67.08	51.78	89.49	46.67
Trade and transport	107.34	106.53	57.85	68.02	67.26	49.28	99.71	45.98
Private services	111.18	109.32	58.99	58.61	69.40	58.49	101.01	55.50
Government services	111.20	109.33	59.00	58.61	69.41	58.50	101.04	55.55
Ownership of dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A2: (continued)

	Malaysia	*Philippines*	*Singapore*	*Thailand*	*China*[b]	*Taiwan*	*Mexico*	*RoW*
Paddy rice	2.36	24.83	13.74	1.76	-31.80	3.08	-3.81	-5.46
Wheat	60.12	59.88	5.88	56.91	-12.61	67.51	-22.06	1.70
Other grains	139.41	99.05	16.16	194.84	3.39	178.23	5.05	4.62
Non-grain crops	10.03	30.85	14.84	51.92	8.70	11.08	-0.11	17.29
Wool	2.13	20.47	9.20	31.96	14.58	0.53	-0.01	13.29
Livestock	8.23	16.19	27.02	110.31	5.55	1.76	-0.64	-23.37
Forestry	24.55	10.01	0.00	10.03	2.14	4.07	0.87	4.75
Fishing	2.25	4.07	1.75	47.35	9.59	3.80	1.47	-4.01
Coal	4.50	3.89	0.00	24.33	3.20	5.88	0.56	4.43
Oil	4.81	9.05	0.00	25.00	1.53	2.83	0.00	7.51
Gas	12.80	19.50	0.00	0.00	5.20	0.15	0.04	-7.50
Other minerals	1.81	3.85	0.00	11.81	3.00	6.69	1.62	1.42
Processed rice	117.01	8.54	43.84	80.82	-16.29	136.98	-3.69	11.98
Meat products	103.29	109.76	8.32	117.31	-6.53	9.76	-14.09	23.22
Milk products	100.69	100.87	24.54	100.92	8.77	65.46	-1.12	22.57
Other food products	9.82	21.60	22.83	41.00	13.29	2.43	1.37	12.72
Beverages and tobacco	29.92	30.64	22.82	60.00	29.90	2.30	14.16	17.24
Textiles	18.09	18.02	0.07	61.12	24.85	6.64	6.20	19.54
Wearing apparel	22.85	30.14	4.64	73.95	13.05	2.02	3.68	13.91
Leather & fur	17.71	20.09	0.84	42.51	11.04	4.07	5.45	16.30
Lumber & wood products	26.17	28.13	1.04	28.54	13.51	4.01	1.06	8.88
Paper & printing	6.65	23.57	0.00	22.79	13.05	5.47	0.78	7.56
Petroleum & coal products	1.24	11.37	10.82	29.62	1.47	5.28	0.41	9.99
Chemicals, rubber ,plastics	8.01	14.11	0.93	18.50	12.06	3.51	2.17	9.42
Non-metal mineral products	11.27	21.44	0.00	36.41	12.49	5.63	3.14	8.63
Iron & steel	8.49	15.99	0.00	13.20	8.18	8.62	2.34	9.98
Non-ferrous metals	6.70	19.21	0.01	15.58	6.92	6.53	1.04	9.97
Fabricated metal products	12.79	20.08	0.00	32.93	21.38	6.78	2.12	10.68
Transport industry	13.01	9.71	2.82	47.73	5.69	5.91	1.80	9.70
Machinery & equipment	6.32	21.35	0.00	30.89	13.88	3.25	2.09	9.22
Other manufacturing	9.29	35.81	0.11	46.29	21.58	3.95	3.28	7.00
Electricity, gas & water	0.00	0.00	0.00	0.00	0.10	0.00	0.09	0.33
Construction	52.29	49.09	48.33	46.15	43.80	44.82	82.68	124.66
Trade and transport	49.11	48.41	47.69	45.52	44.90	48.57	81.70	107.14
Private services	56.27	56.80	56.31	53.21	52.25	58.68	83.39	108.38
Government services	56.28	56.84	56.37	53.24	52.30	58.71	83.40	108.37
Ownership of dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

a GTAP (version four prerelease) estimates.
b Includes Hong Kong.

Table A3 shows export and production subsidies across all APEC economies for the selected food sectors that were examined in Section 4.

Table A3: Average (production weighted) export and production subsidies in IC95 food sectors[a] (per cent)

	Aus	*NZ*	*CAN*	*US*	*Jpn*	*Kor*	*Ind*	*Mal*	*Phl*	*Sing*	*Tha*	*Chn*[b]	*Twn*	*Mex*
Export														
Non-grain crops	0.0	0.0	2.2	1.1	0.0	0.1	0.0	11.1	0.0	0.0	0.0	4.4	0.0	0.3
Other food products	0.1	0.0	0.1	0.1	0.0	0.0	0.0	10.8	0.0	0.0	0.0	0.0	0.1	2.8
Beverages & tobacco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Paddy rice	0.0	0.0	0.0	5.4	0.0	0.0	0.0	0.0	0.0	0.2	0.0	18.2	0.0	1.8
Processed rice	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	23.0	0.0	1.7
Meat products	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.0	0.0	16.1
Milk products	16.4	0.0	42.9	27.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
Livestock	0.0	0.0	0.0	0.0	0.0	0.1	0.0	8.9	0.0	0.0	0.0	10.3	0.1	15.5
Production														
Non-grain crops	2.2	1.4	9.3	4.9	0.8	0.0	1.9	0.0	2.4	1.8	0.3	3.1	0.8	1.0
Other food products	0.0	0.7	0.6	0.0	0.9	5.7	0.0	0.0	2.0	1.0	7.0	3.1	1.1	3.7
Beverages & tobacco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Paddy rice	3.6	0.0	0.0	36.4	9.2	0.0	4.5	0.0	2.2	0.0	0.2	2.1	1.2	1.3
Processed rice	0.0	0.7	0.0	0.0	0.0	0.3	1.0	0.0	0.7	0.0	0.3	2.9	0.2	3.8
Meat products	0.0	0.2	0.0	0.0	1.7	1.7	0.0	0.0	2.3	1.7	1.1	0.5	2.1	0.1
Milk products	0.0	0.5	0.4	4.1	1.7	5.6	0.1	0.0	4.3	0.9	0.6	2.2	1.1	0.1
Livestock	1.3	1.5	4.5	3.4	0.5	0.0	0.0	0.0	1.8	2.1	0.1	1.7	0.1	0.0

a GTAP (version four prerelease) estimates.

b Includes Hong Kong.

APPENDIX B: EVSL PROPOSALS

This appendix lists the tariff nominations contained in the five EVSL proposals examined in this paper, as they were specified for the Vancouver Leader's Meeting in November 1997. The tariff nominations were put forward as harmonised codes which are contained in the customs tariff schedules of each country. The codes, descriptions of the codes and any relevant time frames for liberalisation are shown below.

The nominations are in two-digit (chapter) and four-digit (sub-chapter) harmonised codes with the exception of the chemicals proposal, where there are six-digit exclusions for chapter 29, sub-chapter 5 (2905) and chapter 38, sub-chapters 9 (3809) and 23 (3823). Two-digit nominations mean that the entire chapter has been proposed whereas four digit nominations relate to specific sub-chapters within a chapter.

Chemicals (United States, Singapore, Australia, Hong Kong, China)

Tariffs

-by 2010

28 of Inorganic chemicals; organic or inorganic compounds of precious metals, of rare earth metals, radioactive elements or of isotopes

29 Organic chemicals

30 Pharmaceutical products

31 Fertilisers

32 Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring matter; paints and varnishes; putty and other mastics; inks

33 Essential oils and resinoids; perfumery, cosmetic or toilet preparations

34 Soap, organic surface active agents, washing preparations, lubricating preparations, waxes

3506 Prepared glues and other adhesives, put up for retail sale, not exceeding a net weight of 1 kg

3507 Enzymes; prepared enzymes not elsewhere specified or included

36 Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations

37 Photographic or cinematographic goods

38 Miscellaneous chemical products

39 Plastics and articles thereof

excludes

2905 43 - Mannitol

44 - D - glucitol (sorbital)

3301 Essential oils, including concretes and absolutes; resinoids; oleoresins; extracts obtained by enfleurage of maceration; other terpenic and aqueous solutions

3809 10 - Finishing agents with a basis of amylaceous substances

3823 23 - Sorbitol n.e.p.

Forest products (Canada, Indonesia, New Zealand, United States)

Tariffs

-by 2002-2004 for Ch. 44 and 46

-by 2000-2004 for Ch. 47 and 48

-by 2002-2004 for Ch. 49 and 94

44 Wood and articles of wood; wood charcoal

46 Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork

47 Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard

48 Paper and paperboard; articles of paper pulp, of paper or of paperboard

49 Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans

94 Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and light fittings, illuminated signs and number plates and the like

excludes

9401 Seats (does not include professional's seats such as medical, hairdressing etc)

9403 Other furniture

9406 Prefabricated buildings made of wood

Energy Sector (Australia, Thailand, United States)

Tariffs

-commitment in 1997 with time frame to be developed in 1998

2701 Coal, briquettes, ovoids and similar solid fuels manufactured from coal

2711 Petroleum gases and other gaseous hydrocarbons

Fish Sector (Brunei, Canada, Indonesia, New Zealand, Thailand)

Tariffs

-tariff rationalisation by 1999

by 2001 for tariffs below 20%

by 2003 for tariffs above 20%

0302 Fish, fresh or chilled, excluding fish fillets and other fish meat of 0304

0303 Fish, frozen, excluding fish fillets and other fish meat of 0304

0304 Fish fillets and other fish meat, fresh, chilled or frozen

0305 Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption

0306 in Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried or in brine; crustaceans shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets of crustaceans fit for human consumption

0307 Molluscs, whether in shell or not, live, fresh, chilled, frozen, dried or in brine; aquatic invertebrates, live, fresh, chilled, frozen, dried, salted or in brine; flours, meals and pellets of aquatic invertebrates other than crustaceans fit for human consumption

0511 Miscellaneous items not in above categories

1504 Fats and oils and their fractions, of fish or marine mammals, whether or not refined, but not chemically modified

1603 Extracts and juices of meat, fish or crustaceans, molluscs or other aquatic invertebrates

1604 Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs

1605 Crustaceans, molluscs and other aquatic invertebrates, prepared or preserved

2301 Flours, meals and pellets of fish or of crustaceans, molluscs or other aquatic invertebrates unfit for human consumption

2309 Preparations of a kind used in animal feeding (eg. aquaculture products not covered in the above codes)

Food sector (Australia)

Tariffs

-process of harmonisation and elimination from 1998 onwards

07 Edible vegetables and certain roots and tubers

08 Edible fruit and nuts; peel of citrus fruit or melons

1107 Malt, roasted and unroasted

1201 Soya beans, broken and unbroken

1203 Copra

1507 Soya bean oil and its fractions, whether or not refined, but not chemically modified

1509 Olive oil and its fractions, whether or not refined, but not chemically modified

1510 Other oils and their fractions, obtained solely from olives, whether or not refined, but not chemically modified, including blends

1517 Margarine; edible mixtures or preparations of animal or vegetable fats or oils

1701 Cane or beet sugar and chemically pure sucrose, in solid form

1704 Sugar confectionary (including white chocolate) not containing cocoa

1806 Chocolate and other food preparations containing cocoa

19 Preparations of cereals, flour, starch or milk; pastrycooks' products except 1903

1903 Tapioca and substitutes therefore prepared from starch, in the form of flakes, grains, pearls, siftings or in similar forms

20 Preparations of vegetables, fruit, nuts or other parts of plants

2103 and Sauces and preparations for sauces; mixed condiments and mixed seasonings; mustard flour meal and prepared mustard

2104 Soups and broths and preparations for these, homogenised composite food preparations

2201 Waters, including natural or artificial mineral waters and aerated waters, not containing added sugar or other sweetening matter not flavoured; ice and snow

2202 Waters, including natural or artificial mine ral waters and aerated waters, containing added sugar or other sweetening matter or flavoured; and other non-alcoholic beverages, not including fruit or vegetable juices

2203 Beer made from malt

2204 Wine of fresh grapes, including fortified wines

2309 Preparations of a kind used in animal feeding (also in fish products)

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