ASIA-PACIFIC RTAs AS AVENUES TO ACHIEVING THE BOGOR GOALS: ANALYSIS AND WAYS FORWARD

Basic Concepts

APEC Commitments and the Regional Approach to Liberalisation

APEC's 1994 Bogor Declaration sets out a commitment by APEC members to realisation of the vision of free trade and investment in the Asia-Pacific region, with the liberalisation and facilitation measures required to achieve this vision to be implemented by 2010 in the case of developed APEC economies and by 2020 in the case of developing APEC economies.

There were a number of important features underlying the commitments of APEC members in the Bogor Declaration:

- ?? Achievement of the Bogor goals is to be achieved by a process of "open regionalism", the key feature of which is non-discrimination[1]. "Open regionalism" was explicitly intended to contrast with the discrimination inherent in conventional regional trading arrangements (RTAs). Thus APEC was not intended to be a conventional regional trading bloc
- ?? The Bogor goals are to be pursued in such a way as to strengthen the multilateral trading system and contribute to its increasing openness
- ?? APEC was explicitly conceived as a trans-Pacific regional grouping, embracing both sides of the Pacific.
- ?? In elaborating on the modalities for implementing the Bogor Declaration, the 1995 Osaka Action Agenda (OAA) committed APEC members to adherence to nine basic APEC principles.

APEC members recognised the problem of inconsistency between APEC's "open regionalism" and the discrimination inherent in preferential RTAs, three of which

[1] In this context there was an ambiguity in the interpretation of non-discrimination, as to whether non-discrimination was to be unconditional or conditional, the latter version meaning that the principle would apply only to economies that were prepared to reciprocate. This ambiguity was left conveniently unresolved, allowing APEC members supporting either interpretation to subscribe to APEC's "open regionalism"

were already in existence among APEC members at the time of the Bogor Declaration: NAFTA, AFTA and CER. In 1995 the APEC Eminent Persons' Group (EPG) set out some guiding principles under which RTAs might be considered compatible with "open regionalism". These recommendations of the EPG were not formally adopted by APEC members, and the issue was left essentially unresolved. In practice APEC members largely refrained from pursuing new RTAs between 1994 and 1999. Two new free trade agreements between Canada and Chile and between Mexico and Chile could be regarded realistically as extensions of NAFTA, partly substituting for the earlier failed effort to bring Chile into NAFTA.

The Logic and Benefits of the APEC Approach to Regional Liberalisation

The commitment of APEC members to the Bogor goals was underpinned by the recognition that their successful growth and development was based on openness and stability of global and regional markets. The APEC commitments were also firmly based on a foundation of strong business linkages and intense trade and investment relations already established throughout the APEC region, including across the Pacific (trans-Pacific dimension), within the western Pacific APEC economies (intra-western Pacific dimension) and among APEC members in the Americas (intra-American dimension).

Commitment to the APEC goals also reflected an understanding that the economic benefits of trade and investment liberalisation accrue primarily to the liberalising economies themselves. This is especially true of small economies, and provides the economic rationale for unilateral liberalisation. APEC members also understood that the economic gains from liberalisation are greater if trading partners liberalise at the same time, and indeed this simultaneous liberalisation may be essential in the case of larger economies to ensure that the potential gains from liberalisation are fully realised. One of APEC's original contributions was to provide for this through a process envisaged as simultaneous unilateral liberalisation by APEC members. The term "concerted unilateralism" was coined to describe this process.

At the same time it was also clearly recognised that realisation of the gains from liberalisation by developing economies requires building the capacity of human and

institutional resources, to ensure that liberalisation truly contributes to development goals. For this reason developing APEC members have always insisted that economic and technical cooperation should be given equal status with liberalisation and facilitation in APEC's agenda. It was recognised too that realisation of the potential gains from liberalisation and facilitation requires as well that economies undertake key economic reforms in the areas of market structure and public and corporate governance. This importance of these issues received some recognition in the inclusion of competition policy and deregulation as items on the OAA, and they have received much greater emphasis and prominence following the experiences of the East Asian economic crisis of 1997-98.

The Distinctive Features of the Preferential Route to Trade Liberalisation

There are essentially three routes to trade liberalisation

- Unilateral liberalisation, where economies reduce their trade barriers without expecting or requiring reciprocation from trading partners (APEC's "concerted unilateralism" can be interpreted as a variation on this approach, where parallel liberalisation by trading partners is anticipated, but there is no formal requirement for reciprocation). WTO rules require that in general unilateral liberalisation should be undertaken on an MFN basis.
- Multilateral liberalisation, where economies reach agreement on simultaneous reduction of trade barriers on the basis of negotiated reciprocal concessions. Multilateral liberalisation also takes place on an MFN basis.
- Preferential liberalisation, where barriers to trade are removed between pairs of countries (bilateral trade agreements or BTAs), subregional groupings (subregional trade agreements or SRTAs) or regional groupings (regional trade agreements or RTAs). The term RTA is often used to cover all three types of regional agreement. The common characteristic of all three however is that they are preferential in nature, and it therefore seems better to use the term preferential trade agreement, or PTA, as the generic term covering all such agreements. This term will be used for the remainder of this paper.

In practice economies typically pursue all three forms of liberalisation simultaneously. For countries that profess a commitment both to achieving the full potential gains from trade for themselves and also to eventual achievement of APEC-wide or even global free trade, a key question is whether and to what extent each form of liberalisation contributes to and is consistent with these objectives. Notwithstanding some technical issues relating to multilateral liberalisation, it is generally agreed that unilateral and multilateral liberalisation do so contribute and are consistent with the objectives. The controversial issue has always been whether and under what conditions preferential liberalisation can also contribute to and be consistent with the objectives.

The fundamental characteristic of PTAs is that they are in deed preferential and therefore discriminatory. By favouring the members of the agreement with preferential treatment they necessarily discriminate against the countries that are excluded. In doing so they violate the most basic principle of the WTO, the non-discrimination or MFN principle enshrined in Article I of the GATT, and they also contravene one of the nine principles of APEC's OAA, thereby calling into question the APEC commitment to "open regionalism". In the WTO legal cover for the violation of the WTO's MFN principle is of course provided by GATT Article XXIV and GATS Article V, and this is discussed later in the paper.

This discriminatory property of PTAs has a number of consequences that have long been well understood:

- In addition to the gains from trade creation that normally flow from trade liberalisation, there will also be trade diversion. Trade diversion negatively affects the welfare of the members of the PTA and the whether the overall effect on members is positive or negative depends on whether trade creation effects exceed trade diversion effects or vice versa.
- Trade diversion is also unambiguously harmful for economies excluded from the PTA
- In addition to trade diversion there is also likely to be investment diversion, with analogous and quite possibly larger consequences for the welfare of members and non-members.

- ?? Preferential liberalisation of services trade, like preferential liberalisation of goods trade, cuts across the objective of trade liberalisation, of securing the widest possible access to the best products at the lowest cost.
- ?? The existence of trade and investment diversion creates the potential for conflict and division between members and non-members.

Despite their well-known disadvantages PTAs have proved extremely popular, as illustrated by the number of PTAs that have been notified to the WTO. From the perspective of economic analysis PTAs represent a "second-best approach to liberalisation. From the perspective of policymakers they represent a "pragmatic" approach, to be pursued when unilateral or multilateral liberalisation cannot make progress to the extent desired, due to factors such as market imperfections and political and strategic considerations. The "pragmatic" approach tends to proceed on the assumption that some liberalisation is better than none at all. Economic analysis shows that this is not always or necessarily true, and its contribution is to identify the conditions under which PTAs can indeed be relied upon to contribute to national and global welfare, and towards a more open multilateral trading system.

The Attractions of PTAs

The attractions of the preferential approach to liberalisation are also well-known. They include the following:

- ?? It is likely to be possible to proceed further and faster with a small group of trading partners than in the multilateral negotiations
- ?? Political economy factors: the more readily identifiable increases in export opportunities arising from PTAs make them easier to "sell" politically.
- ?? In contrast to APEC, PTAs allow the establishment of binding commitments through the negotiation of reciprocal concessions.
- ?? PTAs may provide a context for discussing and resolving difficult bilateral trade and investment issues.

- ?? PTAs can serve as "training grounds" for unilateral and multilateral liberalisation, where governments and business learn how to adapt to increased competition resulting from liberalisation.
- ?? PTAs can contribute to economic development by providing vehicles for the production and delivery of regional public goods
- ?? Negotiation of PTAs can be linked to foreign policy and security objectives.

Modern bilateral and regional agreements also extend well beyond the traditional liberalisation in goods and even services, to include a wide range of trade facilitation measures in areas such as customs procedures, standards and conformance, quarantine measures, government procurement and harmonisation of business law and tax practices, as well as provisions in areas such as competition policy, investment, intellectual property, digital commerce and trade-related labour and environmental measures. The term "Closer Economic Partnership", or CEP has come to be commonly used to describe such wide-ranging agreements, and they are also often justified and promoted on the grounds that they are "WTO-Plus". A number of new agreements in the Americas effectively represent the upgrading of earlier inward-looking or "WTO-minus" agreements to the standards of the new CEPs. Even some very progressive CEPs may however be "WTO-minus" in certain respects, most notably in the treatment of agriculture. It may prove useful to consider separating the "PTA" and "non-PTA" components of CEPs, and this issue is discussed later in the paper.

Modern PTAs may be North-North, North-South, and South-South, and different motivations may apply in each case. An important motivation for North-North agreements may be to capture the dynamic gains potentially available from economies of scale and increased competition through intra-industry trade in technologically dynamic markets. Similar motivations may apply in North-South agreements, but North-South agreements are also much more likely to offer potential for the conventional gains from inter-industry trade based on differences in comparative advantage. Developing countries are also likely to pursue agreements with developed partners to safeguard vital export markets that they perceive to be vulnerable. South-South agreements may be pursued by developing countries as a way of developing

potential export markets for value-added products in situations where they face difficulty in penetrating developed country markets for these products due to the well-known phenomena of peak tariffs and tariff escalation.

PTAs as "Building Blocks" or "Stumbling Blocks" to More Open Regional and Global Trade

There is by now a well-developed literature on whether PTAs may act as "building blocks" or "stumbling blocks" to the objective of free trade on a global basis and (by implication if not explicitly) on an APEC-wide basis. As is well-known, one conclusion that can be drawn from this literature is that PTAs may in fact be either "building blocks" or "stumbling blocks", depending on their characteristics in each case. An important task is to identify the conditions under which each outcome is likely, thus allowing proposals to be developed for increasing the likelihood that they will act as "building blocks" and for reducing the risk that they will act as "stumbling blocks".

The purpose of reviewing this set of issues is not to argue against the involvement in RTAs of APEC members. It is rather to point out that while PTAs can be potentially act as "building blocks" for APEC-wide and global free trade, they cannot be relied upon to perform this role of their own accord. Strong leadership and enlightened policy choices on RTA issues will be needed if the "building block" potential of RTAs is to prevail.

From Proliferating PTAs to APEC-wide or Global Free Trade: Possible Routes

There are four main routes that could lead from a proliferation of PTAs to eventual APEC-wide or global free trade, none of them mutually exclusive:

?? Creation of a comprehensive "web" of bilateral PTAs covering all pairwise relationships. While some APEC economies, such as Chile, Mexico and Singapore appear to have a strategy of concluding PTAs with all their significant trading partners, it is to be doubted whether this is a realistic or

efficient route towards free trade at the region-wide or global level. Peter Lloyd points out that to achieve the equivalent of multilateral free trade via bilateral PTAs in a world of n countries would require [n(n-1)/2] bilateral PTAs. Thus to achieve free trade among the 21 APEC members would require 210 bilateral PTAs. To achieve free trade in a world of 200 economies would require 19,900 bilaterals. It is hard to believe that this would be a feasible way to proceed, nor is it likely to be efficient, especially if there are many inconsistencies among the provisions of the multiple PTAs.

?? Gradual expansion of existing PTAs offers in some ways a more practical and efficient way to proceed, since as Lloyd points out adding a new member to an existing PTA is equivalent to establishing separate bilateral PTAs between the new member and each member of the existing PTA. This allows for much greater economy in the number of PTAs required and also reduces though it does not eliminate the likely incidence of inconsistent provisions among the various PTAs.

?? Amalgamation or convergence of existing PTAs will have to occur in a world of multiple PTAs, if the transition is to be eventually made from these multiple PTAs to APEC-wide or global free trade.

?? MFN liberalisation on either a multilateral or unilateral basis, proceeding in parallel with PTA liberalisation but at a slower pace will eventually see all existing PTAs converge on APEC-wide or global free trade, even if the PTAs themselves do not converge.

It is therefore important to establish how far each of these routes can be relied upon. It will be apparent that each of the first three routes faces significant difficulties. This of course only serves to highlight the importance of parallel MFN liberalisation as the guarantee that ultimate the objective will eventually be reached, regardless of what happens within the PTA processes, and the crucial importance also of the question as to whether the PTA process can be expected to have positive or negative effects on MFN liberalisation at the multilateral and unilateral levels, as well on the achievement of the Bogor goals.

Incentives for Proliferation, Expansion or Amalgamation of PTAs: Competitive Liberalisation

The U.S. has recently adopted the doctrine of "competitive liberalisation" promoted by Fred Bergsten and others. According to this doctrine the establishment of new PTAs, particularly by an economic superpower like the United States, creates incentives for other countries to seek PTAs of their own, including with the United States, either by establishing new PTAs or obtaining membership of existing PTAs. One possible explanation is the "domino effect" identified by Baldwin, whereby the establishment of a new trading bloc, or a significant advance in integration within an existing bloc, creates incentives for non-members to seek membership of the bloc, in order to capture the benefits of bloc membership and to avoid the costs of being excluded from the bloc. A similar motivation could lead members of separate PTAs to seek their amalgamation into a single PTA. In another possible variant of the "domino effect", economies react to the success of their competitors in securing a PTA with one of the major economies such as the U.S. by seeking an RTA of their own with the same major partner. The motivation for doing so is to defend their markets in the major trading partner from discrimination arising from RTAs with that partner secured by their competitors.

"Competitive liberalisation" thus explicitly seeks to exploit the negative effects of PTAs, by using them to place pressure on other economies to enter into the preferential liberalisation arena, and in the process to create additional pressure for multilateral liberalisation.

If this effect is important it would be expected that more and more economies would be seeking PTAs with a large trading partner such as the United States that has shown itself open to the establishment of new PTAs, and this does indeed appear to be occurring in the Asia-Pacific region. Proposed amalgamation of existing PTAs could begin to emerge, such as the proposal to merge AFTA and CER into a single PTA. There has been little sign to date of APEC economies seeking to join existing PTAs, perhaps with the exception of Chile's unsuccessful attempt to join NAFTA in the mid-1990s, but there is little doubt that if an East Asian FTA were to be formed by the

"ASEAN Plus Three" group, other western Pacific economies such as Chinese Taipei, Australia and New Zealand would be very anxious to join if possible.

Competitive liberalisation does therefore put pressure on economies excluded from particular PTA developments to seek PTA arrangements of their own. It is less clear that the same incentive exists for the incumbents to admit new members. Andriamananjara points out that for the existing members of a PTA there are two opposing factors affecting their incentive to admit new members. On the one hand they benefit from the expansion of the size of the market when new members are admitted. On the other hand the entry of new members also affects them negatively by diluting their preferences in the PTA market. Andriamananjara's analysis shows that the market expansion effect tends to dominate in the early stages of the expansion of the PTA, but that eventually the preference dilution effect will take over, so that the incentive to expand the PTA peters out well before global free trade (or perhaps even APEC-wide free trade) is achieved. In the western Pacific one notes the opposition of some ASEAN members to the amalgamation of AFTA and CER into a single PTA, and to possible Australian and New Zealand membership of an East Asian PTA, although this opposition may be based more on political than economic grounds. This latter example illustrates the point that in addition to economic incentive effects there may also be significant political obstacles to the expansion, amalgamation or convergence of PTAs, and these obstacles may be difficult to overcome. Furthermore the process of PTA proliferation itself may create divisions and conflicts that add to these obstacles.

In the case where "competitive liberalisation" operates through a major economic "hub" such as the United States negotiating separate bilateral PTAs with individual partners, the structure of incentives is somewhat different. On the basis of an overall economic welfare calculus the "hub" ought to have an incentive to conclude PTAs with all its significant trading partners. On the other hand special interest groups in sensitive sectors will oppose each new PTA, especially in cases where several prospective partners are potentially competitive exporters within the PTA of the same sensitive products. For the incumbents who initially secure PTAs with the major partner however the conclusion by that partner of new PTAs with additional partners is likely to have unambiguously negative effects, since the new PTAs do not provide

them with any additional market access but do dilute their preferences in the market of the major partner. These incumbents will thus have an incentive at the very least not to encourage the negotiation by the "hub" of new PTAs with their competitors, and may well have an incentive to actively obstruct such developments. There are again apparent examples of this behaviour in the Asia-Pacific region.

One issue that regularly comes up in the context of the expansion of existing PTAs is whether each PTA should contain an "open accession" clause, providing for the automatic acceptance of a membership application from any economy willing to join the PTA on the same terms and conditions. While this is an attractive notion in principle it is clear that it will be a difficult one to operationalise. The terms and conditions of bilateral PTAs tend to contain at least some provisions that are specific to relations between the two partners, and that would not be easy to apply to the relationship with the new partner. Certain conditions that are acceptable in an agreement with one partner may not be acceptable in an agreement with a different partner, with whom there may be a different balance of strengths and weaknesses, and advantages and disadvantages. More pessimistically the PTA option may in some cases be chosen precisely because the benefits of the PTA do not have to be extended to other parties, particularly those with strengths in sectors considered sensitive by the original members.

Nevertheless if APEC members remain committed to the objective of free trade and investment in the Asia-Pacific region, on a non-discriminatory basis at least among each other, and if PTAs are going to be an important avenue leading to the eventual achievement of this objective, then its seems reasonable to suggest that some form of credible commitment will need to be devised to assure that all members who wish to do so can participate in the developing pattern of RTAs, and that no member will be permanently excluded.

Effects of RTAs on the Incentives for Multilateral Liberalisation

Economic analysis has not come to definite conclusions on whether RTAs increase or decrease the incentives for multilateral liberalisation. In part the answer depends on whether the incentives are viewed from the perspective of the community as a whole,

or from the perspective of the profits of domestic firms. If PTAs produce a lower level of overall economic welfare than multilateral liberalisation, then the community in at least one potential PTA member is likely to have an incentive to prefer multilateral liberalisation and thus reject the PTA option. On other hand trade diversionary PTAs may yield very sizeable economic rents to some domestic firms, even if their overall economic welfare effect is negative, and these rents may be larger, the greater is the trade diversionary effect of the PTA. Once the PTA is in place these firms are likely to have an incentive to resist any multilateral liberalisation that would dilute their preferences and thus reduce their economic rents. PTAs may also provide an additional rallying point for opponents of trade liberalisation and globalisation, thus indirectly boosting the forces ranged against multilateral liberalisation.

On the other hand there have been clear cases in the APEC region, for example the CER example of Australia and New Zealand, where a PTA has helped to attune the business community to the requirement of adjusting to a liberalising trade environment, and in so doing has helped to pave the way for extensive subsequent MFN liberalisation, in the case of Australia and New Zealand on a unilateral basis.

It has also been argued by advocates of "competitive liberalisation" that the emergence or threatened emergence of significant PTAs may increase the pressure on economies elsewhere to participate effectively in the multilateral negotiations. For example it was argued by Fred Bergsten - and denied by Jagdish Bhagwati - that the potential emergence of APEC as a serious liberalising force was instrumental in persuading the EU that it needed to move constructively towards the successful conclusion of the Uruguay Round. This argument been inconclusive.

One concern that is frequently expressed is that PTA negotiations absorb large quantities of scarce negotiating resources in trade bureaucracies, as well as using up scarce political capital in many cases. The focusing of substantial negotiating resources and deployment of political capital in the pursuit of PTAs may leave some economies in a weak position to play their full part in the multilateral process, which may suffer accordingly.

Another possible issue relates to the apparent intention of some APEC economies, notably Chile, Mexico and Singapore to negotiate PTAs with all their significant trading partners. There could be some concern that once an economy has been successful in this objective it may have little remaining incentive to participate actively in WTO negotiations. On the other hand, it is likely that there will be trade issues of vital interest to these economies that can best be pursued, or in some cases can only be pursued through the WTO, and this may ensure their continuing commitment to engagement with the multilateral process.

Likelihood and Implications of "Hub and Spoke" Patterns

"Hub and spoke" patterns of RTAs are the likely consequence of the variant of "competitive liberalisation" in which the negotiations of PTAs by a major economy with selected partners places pressure on those partners' neighbours to seek PTAs of their own with same major economy. In this case the major economy serve will as the "hub" and the separate RTAs with its various trading partners will form the "spokes".[2]

The disadvantages for the spoke economies in "hub and spoke" patterns of PTA development are well-known. These patterns tend to reinforce the unequal bargaining strength of the parties, since the "hub" can exploit competition among the "spoke" economies, and use precedents established in PTAs with one "spoke" to strengthen the case for inclusion of similar provisions in agreement with other "spokes". There are further inequalities in that the "hub" gains access to all the "spoke" markets whereas the "spokes" gain access to the "hub" alone unless they negotiate separate PTAs with each other. The greater size of market to which access is available from the "hub" also gives the "hub" an advantage over the "spokes" in attracting investment.

One of the strategies for the "spoke" economies to compensate for their disadvantaged position in the "hub and spoke" configuration is to seek PTAs with each other. In

[2] In practice there may be more complex patterns in which "spoke" economies having PTAs with major economies in turn act as "minor hubs" or "sub-hubs" in "hub and spoke" patterns of RTAs with their own neighbours. For simplicity however the discussion here is restricted to single "hub and spoke" patterns.

fact, the pattern that has been observed recently is that leading "spoke" economies seek to establish themselves as "secondary hubs" by negotiating PTAs with a number of their minor trading partners. In this way they may be able to not only offset the disadvantage of being a "spoke" attached to a major "hub" but also to capture the benefits of being the hub within their own secondary "hub and spoke" configuration. The patterns of "hub and spoke" arrangements that are likely to emerge are thus very complex. In the Asia-Pacific region further potential complexity is added by the ambitions of ASEAN, a group of ten smaller APEC economies, to present itself as an alternative "hub", while at least some of its major trading partners, notably the U.S. and Japan appear more interested in treating the individual APEC economies as "spokes".

Economies that find themselves in the position of "spokes" in several "hub and spoke" configurations may find that there are significant inconsistencies between their agreements with the different "hubs". For example the U.S. and E.U. tend to promote distinct RTA "models", and it is possible that other large economies such as Japan and China will also develop their own distinct "models".

By concentrating on their own "hub and spoke" configurations, major "hubs" may forego the benefits of preferential liberalisation with each other, unless steps are taken to pursue this avenue as well as the "hub and spoke" arrangements. Trade flows between "hubs" are generally large, and the potential gains from bilateral liberalisation may be correspondingly significant.

Inclusion and Exclusion: "Ins" and "Outs"

Successful "spokes" ("ins") may derive almost all available gains from trade by securing PTAs with every major "hub", perhaps supplemented by PTAs with other "spokes" with whom they have a significant trading relationship. The trade-off is with the risk of increased business transaction costs if the various PTAs contain inconsistent provisions.

Economies that are unable to secure PTAs with hubs, for whatever reason ("outs")

face significant economic damage. However, the logic of "competitive liberalisation" as propounded by its advocates requires that there should be no permanent "outs", but that "hubs" should be prepared to negotiate PTAs with all prospective partners that display a desire and readiness to do so and are prepared to conclude agreements on acceptable terms and conditions. Permanent exclusion of some potential partners would contradict one of the fundamental purposes of the WTO's non-discrimination principle and one of the most basic arguments for WTO membership, namely that it ensures that small economies cannot be discriminated against by large economies for reasons that have nothing to do with trade. Permanent exclusion of some APEC members is also clearly a violates APEC's own principle of non-discrimination and is inconsistent with APEC's paradigm of "open regionalism".

Rules of Origin

Rules of origin are required in PTAs to prevent unwanted trade deflection and thereby ensure that preferences are available only to those for whom they are intended and to the extent intended. They are one of the most important parts of any PTA, but also one of the most under-emphasised. Rules of origin serve a range of purposes besides assuring the integrity of the preferences under the RTA. At one end of the spectrum they can be designed to facilitate trade. At the other end of the spectrum they can have an explicitly protectionist purpose, being designed to offset the reduction of protection for sensitive products that would otherwise occur as a result of the tariff reduction provisions of the FTA.

Compliance with rules of origin requirements typically involve significant costs for businesses. Estevadeordal and Suominen quote one estimate of the costs of complying with rules of origin at between three and five percent of the f.ob. value of the exported goods. These costs are likely to escalate for exporters from economies that are involved in multiple PTAs, each with their own separate and mutually inconsistent rules of origin. The burden of compliance costs is likely to fall disproportionately heavily on small and medium-sized exporters.

Rules of origin may also impose efficiency costs on the members of an RTA, though these effects are as yet poorly understood. One clear conclusion is that provision of full cumulation of origin in PTAs with multiple membership is important in order to facilitate the efficient development of regional production networks.

Rules of origin in PTAs among APEC economies range from the highly complex to the apparently very simple. Very complex rules of origin are likely to add to the compliance costs of business and increase the likelihood of costly disputes. Ideally rules of origin should be as straightforward as possible consistent with the objective of preventing unwanted trade deflection. However even apparently straightforward rules of origin, such as those based on a percentage of area content, can create significant difficulties for exporters and can have perverse effects on economic efficiency. Perhaps the most unequivocal criteria that can be stated for rules of origin is that they should be transparent, clear and consistent.

The Spaghetti Bowl: Potential Costs of Inconsistent Provisions in Multiple RTAs

As economies become involved in multiple RTAs the likelihood increases that there will be inconsistencies between the provisions of the different RTAs. Rules of origin are the most obvious and perhaps the most important potential source of these inconsistencies, but they inconsistencies can also arise in other areas as well such as standards and conformance, customs procedures and quarantine procedures.

Jagdish Bhagwati has suggested that as individual economies become involved in a growing number of PTAs, a "spaghetti bowl" of inconsistent provisions will develop, imposing increased transactions costs on businesses involved in exporting and importing. The extent of these increased transaction costs is an empirical matter and no reliable estimates are yet available. In the APEC region economies that are already involved in multiple PTAs, such as Chile, Mexico and Singapore may prove to be useful "laboratories" for the investigation of this issue.

Facilitation Measures: the "non-PTA" Components of Closer Economic Partnerships

It is well understood that a comprehensive package of trade and facilitation measures can provide benefits to PTA members at least as great as the traditional PTA elements of trade liberalisation. These facilitation measures should be designed with due regard to the possibility that facilitation measures, like liberalisation measures can sometimes be discriminatory in effect, and that some types of measures may be challenged in the WTO.

To maximise the contribution of PTAs to APEC-wide progress in these areas, member-specific facilitation measures should be applied only where it is not possible to use international standards or APEC-wide agreements including mutual recognition agreements.

Inconsistencies Between "Models" and Other Potential Difficulties

As noted above, the evolution of multiple "hub and spoke" configurations is likely to result in competition between different PTA "models" favoured by the respective hubs. Distinctive E.U. and U.S. "models" can already be observed, and distinctive Japanese, Chinese and Korean "models" may also emerge. Differences between the U.S. and E.U. models can be found on issues where the U.S. and E.U. are competing to have their approaches accepted within the multilateral trading system, and inclusion of these approaches in their respective RTAs is bound to reflect this "competition". The most obvious differences relate to rules of origin, but differences can also be observed on many other issues as well, including contentious area such as environmental and labour standards. The possibility of convergence of the "models" is likely to depend on whether convergence on the issues in question is achieved within the multilateral process.

For the smaller "spoke" economies negotiating PTAs with the "hubs", the result is to increase the likelihood of inconsistencies between the various PTAs in which they are involved. This will reinforce the "spaghetti bowl" effect and its attendant transaction costs.

The propagation of "models" containing features that may not be acceptable at the multilateral level is not likely to be a positive development for the multilateral trading system. It also becomes important to identify whether there are any undesirable features in these "models", viewed in the light of the intention that these PTAs should be "building blocks" for eventual APEC-wide and global free trade. Restrictive and highly complex rules of origin, such as the "NAFTA type rules" appearing in PTAs negotiated by the U.S. clearly fall into the category of undesirable features. Other potentially controversial features, including the treatment of sensitive sectors and provisions on labour and environment need to be reviewed from the same perspective.

Conclusions from Empirical Studies

The appendix to this paper provides a survey summarising the results of 40 separate computable general equilibrium (CGE analyses) of Asia Pacific PTAs. When considering the impact of different RTA configurations on economic welfare there are a number of propositions that receive reasonably consistent support from these results:

- ?? Unsurprisingly, the largest welfare gains tend to come from large groupings
- ?? APEC members generally derive their largest gains in economic welfare from APEC-wide liberalisation, regardless of whether this is undertaken on a non-discriminatory or preferential basis.
- ?? East Asian economies generally derive larger welfare gains from an 'ASEAN Plus Three' PTA rather than 'ASEAN Plus One' configurations.
- ?? Bilateral PTAs yield the smallest gains in economic welfare, although small economies do tend derive substantial economic welfare gains from PTAs with large "hubs".
- ?? Expansion of existing PTAs to include new members often erodes benefits of the existing members (especially small members)
- ?? Economic welfare gains for members ("ins") from PTAs are generally (though not always) accompanied by losses for excluded countries ("outs")
- ?? The welfare losses from PTAs tend or be concentrated on "outs" that trade intensively with "ins"

- ?? While larger blocs yield larger economic welfare gains for members they also impose larger economic welfare losses on these "outs". The welfare losses of economies outside the APEC region, that trade less intensively with APEC economies, tend to be proportionately much lower.
- ?? Studies of individual PTAs can produce widely differing (sometimes contradictory) results

A recent set of simulations of some thirteen potential FTAs involving the U.S., carried out by Gilbert for the IIE conference on U.S. FTAs also produced the following telling results:

- ?? When the FTAs are simulated individually, the welfare gains accrue disproportionately to be the smaller prospective partners of the U.S.
- ?? In a simulation of the thirteen FTAs implemented simultaneously however, relatively large gains accrue to the U.S., whereas the gains to the smaller partners are much smaller than when the FTAs are simulated individually.

The conclusions to be drawn in relation to this evidence include the following:

- ?? The variant of the "domino" effect arising from "competitive liberalisation", whereby small economies are strongly motivated to seek PTAs with potential "hubs", is likely to be strong in the APEC region. Successful achievement by some small economies of PTAs with a major "hub" economy will increase the pressure on their competitors and neighbours to do likewise.
- ?? On the other hand there are mixed incentives for the expansion and consolidation of PTAs. While PTAs involving larger groups of economies do generally larger economic gains for their members, it also often the case that expansion of an existing PTA to include a new member may erode the benefits of some existing members, who may therefore have an incentive to oppose the admission of the new member. Similarly, smaller economies that negotiate an initial "spoke" agreement with a potential "hub" may have an incentive to obstruct the establishment of additional "spoke" agreements.

- Some of the larger prospective PTAs face well-known political obstacles to their achievement. It may not be an exaggeration to say that the most economically beneficial PTAs may be the most difficult to achieve in political terms.
- The keys to East Asia-wide and trans-Pacific integration are respectively the linkages between the Northeast Asian economies and the linkages between these Northeast Asian economies and the U.S. These are largest economies in the APEC region, and the trade flows between them are the region's largest and among its most important. In order for PTAs to serve as building blocks for APEC-wide and global free trade, it will be essential that they embrace these linkages, as well as comprehensive linkages between these major economic powers and the smaller economies of the region.

Further Design Issues

The discussion so far in this paper has identified a number of important issues in the design of RTAs. This section discusses some further important design issues that need to be considered.

WTO- and APEC-Consistency

Economies announcing new PTAs routinely emphasise that the new agreement will be WTO-consistency. It is of course important that PTAs should be WTO-consistent, but it is also important to recognise that WTO disciplines on PTAs, while not wholly lacking in effect, are relatively weak, due to the well-known imprecision and ambiguity of GATT Article XXIV in particular and GATS Article V, and the inability of WTO members to reach agreement on the interpretation of these articles. As a result there is no universally accepted definition of a number of important provisions in the Articles, including but by no means limited to the interpretation of the requirement that PTAs should cover "substantially all trade" between the parties. As a result the WTO's Committee on Regional Trade Agreements (CRTA) has failed to reach consensus on the WTO-compatibility of all but one of the over 100 PTAs that

have been referred to it for examination, and is unlikely to reach consensus on any further PTAs in the near future. The effect is that members are in practice left free within quite a large range to unilaterally adopt their own interpretations of the disputed provisions.

This is not quite to say that "anything goes" in relation to WTO-consistency of PTAs. Some common understandings on the meaning of parts of GATT Article XXIV and GATS Article V do exist, and have the effect of ruling out some modes of dealing with PTA issues. For example non-reciprocal PTAs involving developed economies are ruled out. This counts against the suggestion of the APEC EPG that APEC members of PTAs should consider extending to other APEC members on a voluntary basis the same preferences that they provide to their partners within the PTA. Arrangements involving developed economies for the granting of partial preferences are also ruled out, except for schemes like GSP that are available to all developing economies, and consequently fit criteria set out in the Enabling Clause.

Clarification and improvement of the WTO rules on trade would certainly be desirable and this question is on the negotiating agenda for the Doha Development Agenda. Prospects for significant change are not however encouraging.

For APEC members it is also important that PTAs among APEC members should be APEC-consistent as well as WTO-consistent. At a minimum this should mean that:

- PTAs conform to the APEC Principles set out in the OAA.
- The timetable for liberalisation within PTAs should be consistent with the Bogor dates i.e. it should not extend beyond 2010 in PTAs involving developed APEC economies and beyond 2020 in other PTAs.

Treatment of Sensitive Items

The treatment of sensitive products and sectors within PTAs is a longstanding issue that has not been able to be conclusively resolved, largely because of the lack of an agreed interpretation of the provision in Article XXIV regarding coverage of

"substantially all trade". WTO members have debated endless whether this provision allows the exclusion of an entire sensitive sector such as agriculture.

One view is that "substantially all trade" should be defined in purely quantitative terms, such as 90% or 80% of trade between the parties, and that agriculture can be excluded provided the required proportion of trade is nevertheless covered. Another view is that the provision should be interpreted among other things to mean that no major sector should be wholly excluded. Support for this interpretation is provided in the preamble but not the legally-binding sections of the WTO's 1994 "Understanding" on the interpretation of Article XXIV.

Economic analysis has identified the following relevant considerations:

- In a PTA that contains a competitive producer in the "sensitive sector", the "sensitive sector" is a potential source of trade creation, and its exclusion lower the welfare gains that members can expect from the PTA.
- In a PTA that includes only uncompetitive producers in the "sensitive sector", the sensitive sector is a potential source of trade diversion, and its exclusion may have a positive effect on both members and non-members
- Inclusion of sensitive sectors in PTAs may prepare the way for multilateral liberalisation.
- An ability to exclude "sensitive sectors" from PTAs may encourage economies with highly sensitive sectors (such as agriculture) to increasingly focus on PTAs at the expense of commitment to multilateralism. PTAs with "sensitive sectors" excluded may then become one of the "models" of Asia-Pacific PTAs, and it may be difficult for this model to converge with other models.
- At the same time in the case of agriculture there are three key issues: market access, domestic support and export subsidies. Of these only market access can be adequately addressed within PTAs, while progress on domestic support and export subsidies almost certainly depends on action at the WTO. This suggests that liberalisation in agriculture will need to proceed along parallel but linked tracks in both PTAs and the WTO.

On balance it is suggested that the arguments against exclusion of sensitive sectors clearly carry greater weight.

APEC members should have regard to APEC principles as well as WTO rules. In particular the principle of "comprehensiveness" indicates that all major sectors should be included, while the principle of "flexibility" indicates that liberalisation in sensitive sectors can proceed on a slower timetable and with due regard for the sensitivities of member economies in that sector.

Trade in Services

There are two distinct approaches to liberalisation:

- ?? The GATS approach, in which MFN treatment is applied as comprehensively as possible, but the choice of sectors to be liberalised is made on a positive list basis
- ?? The NAFTA approach, in which a "negative list" approach is taken to the liberalisation of services.

There is also an important question as to whether preferential liberalisation is desirable in certain sectors, particularly key infrastructure sectors such as transport, telecommunications and financial services. In these sectors in particular the aim should be to attract internationally competitive suppliers of the services into the domestic market.. Preferential liberalisation that discriminates against internationally competitive suppliers could have severe negative consequences.

Conclusions: Towards PTAs as "Building Blocks" for Achievement of the Bogor Goals

Based on the discussion above, the following are suggested as requirements for PTAs that will contribute to the achievement by APEC members of their Bogor goals.

Commitment to the Bogor Goals

In the context of PTAs it is important to re-affirm that APEC members remain committed to the Bogor goals and that pursuit of PTAs does not detract from that commitment.

WTO Consistency

Adherence to WTO provisions on RTAs is of course essential, but it must be acknowledged that this is not a sufficient condition for PTAs to serve as "building blocks" towards achievement of the Bogor goals.

Consistency with APEC Commitments

PTAs among APEC members should also be consistent with their APEC commitments, including the Principles that APEC members have adopted. In particular this means that the PTAs should conform to the Principles set out in the Osaka Action Agenda, and the implications of this include the following:

- The principle of Comprehensiveness indicates that PTAs should cover trade in both goods and services
- The principle of Comprehensiveness also indicates that all sectors should be included, while the principle of Flexibility indicates that sensitive sectors may be liberalised on a slower timetable with due regard to the sensitivities of member economies.
- The principle of Non-Discrimination indicates that no APEC member should be permanently excluded from the pattern of PTAs being developed in the region. If "open accession" clauses are not practical, APEC members should nevertheless devise a credible form of commitment that each member is prepared to entertain the possibility of a PTA relationship with every other member, whether through negotiation of a bilateral PTA or through membership of a larger PTA grouping, and that no APEC member will be permanently excluded from larger PTA groupings that may develop among APEC economies.

The timetable for liberalisation within PTA should not extend beyond the target date for achievement of the Bogor goals.

Closer economic partnership (CEP) agreements, including both traditional PTA elements and facilitation elements (sometimes referred to as "non-PTA" or "WTO-Plus" elements are clearly in the spirit of members' APEC commitments, since they allow all items on the Osaka Action Agenda to be covered.

Where relevant, provisions in PTAs among APEC members should be linked to the specific sets of Principles that APEC members have adopted such as the Principles on Competition and Regulatory Reform, the Non-Binding Investment Principles, the Principles on Government Procurement, and the Principles on Trade Facilitation.

Expansion, Amalgamation and Convergence of PTAs: Allowing for Differential Progress

If PTAs are to lead to the achievement of the Bogor goals, expansion, amalgamation or convergence of PTAs, or some combination of these processes, will have to occur. It should be recognised that these processes will not necessarily occur of their own accord. Strong leadership and guidance from APEC leaders will be needed, including but not limited to the commitment suggested above that no APEC member will be permanently excluded from these developments.

In relation to these processes of expansion, amalgamation or convergence, different considerations apply to the "PTA elements" and "non-PTA" or facilitation elements of CEPs. It is likely that there is potential for these processes to be moved forward at different speeds for the two types of elements. To ensure that the processes move forward as quickly as they are able, it may be useful to design CEPs so that the "PTA elements" and "non-PTA" or facilitation elements can be separated from each other if necessary, to allow the processes of expansion, amalgamation or convergence to move forward in one set of elements but not the other.

MFN Liberalisation and Multilateralisation

Progressive MFN liberalisation in parallel with liberalisation within PTAs provides the ultimate assurance that the negative effects of preferential liberalisation will be minimised and that the ultimate goal of APEC-wide or even global free trade will be attained. In order to minimise negative effects it is important that all MFN barriers be reduced to moderate levels as soon as possible, thereby limiting margins of preference in PTAs and so reducing the scope for trade diversion. Elimination of peak tariffs and tariff escalation must be a priority.

Achievement of the Bogor goals effectively implies multilateralisation of the liberalisation commitments undertaken by APEC members within PTAs. Confidence that APEC members are serious in their intention to use PTAs as "building blocks" towards the achievement of Bogor goals will be strengthened by a credible up-front commitment on the part of APEC members to eventually multilateralise the concessions that they make to PTA partners. It is suggested that APEC members give consideration to the form that such a commitment might take. The experience of PTAs where partial or full multilateralisation has already taken place, such as AFTA and CER, may provide useful guidance.

Liberalisation Modalities

APEC members should endeavour to ensure that the liberalisation of both goods and services within PTAs is progressive and automatic.

In the case of services trade, binding of the status quo should be regarded as acceptable. Where liberalisation is undertaken, MFN liberalisation should be regarded as the norm, especially in key infrastructure sectors. APEC members should not insist on preferential liberalisation by their PTA partners in these key sectors. To facilitate liberalisation of trade in services, relevant domestic regulations should be subject to a necessity test, and should be applied in the least trade restrictive manner possible.

In cases where liberalisation cannot commence immediately "negative lists" should be employed, with provision for regular reviews aimed at removing all remaining trade

restrictions. This should apply to both goods and services trade, including "sensitive sectors". The "negative lists" should be subject to "sunset clauses" and there should be no permanent exclusions.

Rules of Origin

The crucial importance of rules of origin must be recognised. Rules of origin are not an appropriate mechanism for protecting "sensitive sectors' or for facilitating adjustment to liberalisation. Complex rules with protectionist purposes should be avoided. Ideally rules of origin should as far as possible be neutral in their impacts on trade flows. Rules of origin should be as straightforward as possible, and should be transparent, clear and consistent, and should not impose unnecessary compliance costs. It is important to allow full cumulation in PTAs with multiple members. The development by APEC members of "best practice guidelines" for rules of origin would be a very useful contribution.

Facilitation Measures

In regard to facilitation, to ensure maximum contribution to achievement of the Bogor goals, use should be made wherever possible of international standards and APEC-wide agreements and processes, including mutual recognition agreements.

Development Dimension

APEC members should carry over into their PTAs and CEPs their recognition that trade and investment liberalisation and facilitation must be accompanied by capacity building for developing economies in order for the full benefits to be realised. CEPs between APEC economies should allow for assistance in capacity building to be provided to developing economy members by their developed economy partners. The potential for CEPs to serve as vehicles for the provision of regional public goods should be recognised and exploited.

Transparency

Transparency in PTAs among APEC members is essential if confidence is to be maintained that they will serve as "building blocks" towards achievement of the Bogor goals. There is merit in the suggestion that a review process similar to the TPRM should be introduced in the WTO for PTAs, and APEC members should consider promoting this suggestion.

In the meantime, in the interests of transparency, APEC members should institute their own process of peer review of PTAs involving APEC members. To be fully effective, peer review should occur before the PTAs are finally concluded. It is also important that provision be made for the inclusion of PTAs in the IAPs of APEC members. This would formally bring IAPs within the scope of the IAP peer review process.

Also in the interests of transparency, the texts of PTAs should be made publicly available as soon as possible after agreements are concluded. APEC members might also consider following the example of Canada, in releasing the negotiating texts of PTAs into the public domain, thereby facilitating meaningful input by business and civil society into the negotiating process.

APPENDIX

SUMMARY OF RESULTS OF CGE ANALYSES OF ASIA-PACIFIC RTAs

CONTENTS:

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Western Pacific Agreements - Multiple **Ma, Jun; Wang, Zhi** (2002) **"Options and Implications of Free Trade Arrangements in East Asia"**	* CGE model, GTAP (v5) * Recursive dynamic, import embodied technology transfers, trade linked TFP growth and capital accumulation. * Perfect competition * 18 x 26 aggregation[3] * Household saving, government budget balance and foreign capital inflows are assumed to be perfect substitutes and constitute the source of investment in each region * There are 6 primary factors of production (agricultural land, natural resources, capital, agricultural labour, unskilled and skilled labour). * China and Taiwan's accession to the WTO is baseline scenario.	**Baseline:** China and Taiwan's accession to the WTO modelled over a transition period (1998-2012). **1.** Creation of an FTA between China/Hong-Kong and ASEAN countries. **2.** Creation of an FTA between Japan and ASEAN countries. **3.** ASEAN plus three FTA (ASEAN + Japan-China/Hong-Kong and Korea) **4.** East Asian FTA (ASEAN+ 3) including the US.	Effects given are real GDP growth (accumulated), changes in welfare (real purchasing power) measured by equivalent variation, and changes in exports. Additional GDP growth is defined as the difference between the cumulative GDP growth rate for 2003-2012 under the FTA scenario and the cumulative GDP growth rate for 2003-2012 under the baseline (China's and Taiwan's WTO entry) scenario. **1.** Real GDP increases in all members, by most in Singapore (4% of GDP), followed by Hong-Kong, Thailand and Indonesia (all above 0.7% GDP). China's exports to ASEAN countries increase by 7%. Trade creation exceeds trade diversion. In welfare (real purchasing power) terms ASEAN countries collectively gain US$47.2 billion over 10 years, while the ROW loses US$10.5 billion. The US, EU, Korea and China lose most.	China and Japan each gain from a bilateral free trade agreement with ASEAN, but lose if they are excluded (eg. Japan loses from an ASEAN-China FTA). The larger East Asian agreement (ASEAN + 3) benefits most countries involved, the exceptions being Malaysia and Philippines, but is trade diverting away from the rest of the world. Trade creation effects dominate however. Although it is politically less likely then the ASEAN +3 scenario, an East Asian agreement including the US almost doubles the purchasing power of members in equivalent variation terms, with the world average for real GDP growth unchanged at 0.07%. Overall gains for members are greater under the final scenario (4), however this scenario also sees the largest losses for non-members.

[3] Aggregation stated as region x commodity

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			2.Real GDP rises in most members, however falls slightly in Malaysia and the Philippines due to adverse terms of trade effects. Largest real GDP rise in Singapore (3.9%) followed by Thailand and Vietnam (1.7% and 0.7%). In welfare (real purchasing power) terms Japan will gain US$22.9 billion and ASEAN gains US$44.3 billion, while the US, EU, China and Korea lose. **3.** Total gains in welfare (real purchasing power) for members comes to US$181 billion, while countries in the 'ROW' category lose US$24 billion and non-members as a whole lose US$24.8 bill. The US loses US$18.7 bill, Taiwan US$6.5 bill, while Australia and New Zealand are not separately identified. Singapore still shows the largest rise in real GDP (over 4%), Thailand, Indonesia, Korea and China also register large real GDP increases. **4.** Largest welfare gains of the 4 scenarios. All members except Malaysia and Vietnam gain more than under (3). Japan and China gain most in purchasing power terms, almost double the ASEAN+3 scenario. The US also gains US$35.3 billion. All other regions lose significantly in welfare terms. Singapore again realises the largest increase in real	

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			GDP (4.88%), followed by Hong-Kong, Thailand and Indonesia.	
Scollay and Gilbert (2002) **"Impact of East Asian Regional or Subregional FTAs"**	* CGE model GTAP v? * Static * Perfectly competitive * 26 x 20 aggregation * Standard GTAP closure * Full mobility of capital and labour domestically * All import tariffs are eliminated between participating countries on a preferential basis, unless specifically stated.	Each simulation is conducted both for both full trade liberalisation, and for liberalisation of non-agricultural goods only. **1.** China-Korea-Japan FTA **2. "**ASEAN plus three" (ASEAN + China-Korea-Japan) **3.** "ASEAN plus three plus CER" (ASEAN+ China-Korea-Japan-New Zealand-Australia) **4.** ASEAN - China **5.** ASEAN - Japan	Effect given is welfare changes, measured by changes in Equivalent Variation as a percentage of GDP. **1. With agriculture:** Korea gains 1% of GDP, while Japan and China gain 0.1% each. There is a negative impact for other Asian countries, Australia, NZ and South America. **Without agriculture:** Korea gains 0.6%, Japan 0.2% and China loses 0.2%. The effect on other Asian and Australasian countries is not as bad. Less trade diversion. **2. With agriculture:** All member countries gain, Vietnam by 5% and Singapore by 3.1%. All other regions are either unaffected (i.e 0%) or suffer mild trade diversion. Hong-Kong hit worst with –0.9%. **Without agriculture:** Members gain except China and Philippines, but gain less. Trade diversion is reduced substantially. **3. With agriculture:** Members, except Philippines gain. Australia and NZ by over 1%. Vietnam benefits most 4.9%, China is unaffected. **Without agriculture:** Gains significantly less. Australia and NZ benefit 0.1% and 0% respectively. China and Philippines lose, trade diversion reduced. **4. With agriculture:** China	A China-Japan-Korea FTA has the potential to provide large benefits for its members, however it would be significantly trade diverting. Expanding it to an "ASEAN+3" FTA would have even greater welfare benefits for those involved, but would still have noticeable trade diversion effects. Individual agreements with ASEAN provide only small welfare gains for China, Japan and Korea, but if they are excluded (i.e Korea from the ASEAN-Japan agreement), welfare effects become negative. Welfare for New Zealand and Australia is improved greatly in the ASEAN+3+CER arrangement, especially if agriculture is included. Japan gains most in the ASEAN+3+CER agreement, while for Korea it is second only to ASEAN+3. China experiences positive but weak effects in the context of this arrangement.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			doesn't benefit, Singapore gains most 3.4%, Hong-Kong, Korea and Taiwan lose. **Without agriculture:** All members gain, China 0.1%. Hong-Kong, Korea and Taiwan still lose slightly, the rest are unaffected. **5. With agriculture:** Japan's welfare unaffected, Singapore and Vietnam gain over 2% each. Some small negative effects in Australasia and China, Hong-Kong, Korea, Taiwan. **Without agriculture:** Members all gain, except Philippines, but gains less than with agriculture. Overall less trade diverting. China, Hong-Kong, Korea and Taiwan all lose 0.1%.	
Yang, Duncan and Vines (1999) **"Who Gains and Who Loses from Unilateral and Concerted Trade Liberalisation"**	* CGE model based on GTAP v3 * Static * Perfect competition * Constant returns to scale * 9 x 9 aggregation * Trade elasticities are doubled. * Labour and capital are perfectly mobile, while land is partially mobile. Savings are a fixed share of income, while global investment is allocated by a 'global bank'	Liberalising regions remove all their tariffs, antidumping duties, price undertakings, voluntary export restraints, export subsidies and taxes and production subsidies. **1.** Australasia (Australia and New Zealand) unilaterally remove trade restrictions. **2.** ASEAN joins Australasia in concerted unilateral MFN liberalisation. **3.** The 'Rest of Asia' joins Australasia and ASEAN in concerted unilateral MFN liberalisation. **4.** Japan and North America join	Effect given is welfare, measured by Equivalent Variation in US$ millions, broken down into the allocative efficiency effect and the terms of trade effects. **1.** Australasia's terms of trade falls and causes welfare to decrease by US$1.9 billion overall. This is partially offset by positive allocative efficiency effects worth US$1.8 bill. Overall welfare in Australasia falls US$0.1 bill. All other regions, except North America, benefit, or experience negligible welfare effects. **2.** Negative terms of trade effects	Unilateral trade liberalisation can lead to a terms of trade deterioration which may overpower the efficiency gains. The APEC strategy of concerted unilateral MFN liberalisation may overcome this problem, as countries liberalise at the same time, and the terms of trade effects are lessened Economic size is important, as large countries which liberalise unilaterally could see large terms of trade losses, although even small countries which are important traders of certain goods could see significant terms of trade effects

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
		the countries in (3) in concerted unilateral MFN liberalisation. **5.** The Rest of the World liberalises trade resulting in global trade liberalisation.	in Australasia are reduced and the allocative efficiency effects dominate. ASEAN experiences large overall benefits (US$22.1 bill), while only North America loses overall (US$ -1.3 bill). **3**. Terms of trade effects in Australasia improve to zero, with overall welfare gains reaching US$2.1 bill. The 'Rest of Asia' suffers negative terms of trade effects but allocative efficiency gains dominate and overall welfare gains come to US$43.7 bill. These results are primarily due to the complementarities between the Australasian and East Asian economies. All regions in the model see positive welfare effects. **4.** Concerted unilateral liberalisation within the US and Japan lead to large welfare gains for those countries (US$77.7 bill for Japan and US$33.9 bill for the US). The EU is the only region which suffers welfare losses (US$8 bill), which are mostly attributable to inefficiencies in the Common Agricultural Policy (CAP). Overall global gains are US$180 bill. **5.** Global liberalisation maximises overall welfare gains, and benefits all regions. Some regions (ASEAN, 'Rest of Asia' and 'Rest of World') suffer slight negative ToT effects, but allocative	upon liberalisation. Thus, concerted unilateral liberalisation will have the best effects when countries with complementary economic structures liberalise simultaneously. Overall the results are 'broadly sympathetic' to APEC's strategy of concerted unilateral MFN liberalisation.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			efficiency gains dominate. Global welfare gains reach US$376 bill.	

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Western Pacific Agreements- Individual				
Chirathivat, Suthiphand (August 2002) **"ASEAN-China Free Trade Area: background, implications and future development"**	* Chulalongkorn and Monash General Equilibrium Model (CAMGEM) CGE model based on a standard GTAP model. * Static * Perfectly competitive * 45 x 50 aggregation * Model has a representative household whose Cobb-Douglas preferences are defined for composite private expenditure, composite public expenditure and savings. * The macro balances in the model are the government budget balance, aggregate savings and investment, and the balance of trade. Product and factor markets are flexible, but each region has arable land in a fixed quantity.	**1.** Tariff liberalisation between China and ASEAN. **2.** Removal of non-tariff barriers between China and ASEAN.	Effects given are percentage changes in real GDP relative to the baseline scenario, and changes in welfare measured by equivalent variation, in millions of US$. **1.** Tariff liberalisation results in a 0.4% increase in real GDP for both China and the ASEAN-6 bloc. However, ASEAN stands to gain more than China given that its wage rates and land values will increase by more. In Equivalent variation terms ASEAN gains US$2986.2 million, and China US$1787.1 million. No overall welfare effects are given for third countries, however ASEAN exports to Japan, the US and the EU in particular would fall by around 1% each. ASEAN exports to China would increase by over 50%, and Chinese exports to ASEAN by 23%. Exports from China to Japan, the US and the EU rise slightly (around 0.5%). **2.** Liberalisation of non-tariff barriers will result in large gains to both China and ASEAN-6. China could increase its real GDP by 2.3%, ASEAN-6 by 1.4%. In equivalent variation terms ASEAN would gain US$11639.5 million,	Both China and the ASEAN-6 bloc stand to gain from the formation of an FTA, with overall trade creation exceeding trade diversion. In the case of ASEAN-6 there is evidence of trade diversion away from the US, Japan and the EU in favour of China. In the case of China these trade diversion effects are not so pronounced.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			and China US$11858.2 million. When non tariff barriers are eliminated ASEAN exports to China increase by 187%, but exports to the US, Japan and the EU fall by around 5% each. Chinese exports to all regions increase significantly.	
Davis, Mckibbin, Stoekel (June 2000) **"Economic benefits from an AFTA-CER free trade area"**	* APG-Cubed model * Dynamic * Perfectly competitive * 18 x 6 aggregation * Integrates real and financial markets and imposes intertemporal budget constraints. Full short and long run closure around a neoclassical framework.	1. AFTA-CER liberalisation, Australia and New Zealand embark on reduction schedule in line with AFTA liberalisation. 2. AFTA-CER liberalisation at the same time as APEC liberalisation (i.e. MFN tariff rates are reduced to zero by 2010).	The effects given are absolute and percentage changes in real GDP, and percentage changes in real consumption (welfare). The absolute increases in real GDP are defined as 'net present value of additional GDP' over the time period 2000-2020, while the percentage increases in real GDP is defined as the 'percentage deviation from baseline' by 2010. Percentage changes in real consumption are taken to be the additional consumption above what would otherwise have been each year without the liberalisation scenarios. **1.** AFTA and CER: AFTA gains US$25.6 billion, amounting to additional GDP just over 0.3%. CER gains US$22.5 billion, or just under 0.3% additional GDP. Real consumption increases by 2005: ASEAN 5, 1-2% Australia, 0.5%	The benefits of an AFTA-CER FTA have been estimated at US$48.1 billion over time. The AFTA-CER countries benefit from net capital inflows, mostly coming from the US and Northeast Asia. The size of the gains is reduced if APEC liberalisation occurs at the same time. The simulation covers only the older ASEAN(5) members Indonesia, Thailand, Singapore, Malaysia and the Philippines. Effects on the newer ASEAN members were also estimated and were found to be similar to those of the original members. Given the large amount of trade the newer ASEAN members conduct with the older members, what is good for the older members is generally good for the new members.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			New Zealand, 1% Malaysia and Singapore had lower real GDP increases than the other ASEAN(5) members, but gained more in terms of real consumption effects. **2.** If APEC liberalisation occurs at the same time as an AFTA-CER FTA is formed, the absolute GDP increases are reduced. AFTA would now be expected to gain US$10.2 billion, and CER US$1.9 billion in real GDP by 2020. Real consumption (welfare) in New Zealand and Australia would increase by 3-4%, in Malaysia and Singapore by over 14%, Philippines by 6%, Indonesia 8% and Thailand over 11% by 2005.	
Fukase and Martin (1999) **"A Quantitative Evaluation of Vietnam's Accession to the ASEAN Free Trade Area (AFTA)"**	* CGE model, GTAP 4 * Static * Perfectly competitive * Constant returns to scale in technology * 12 x 13 aggregation * There are 5 factors of production (land, unskilled labour, skilled labour, capital and natural resources) * Import and domestic goods are differentiated via the Armington assumption. * Analysis uses large country assumption, because Vietnam is a large supplier of some goods.	**1.** AFTA accession, inclusion list and temporary exclusion list goods undergo reciprocal liberalisation. ASEAN-5 by 2003, Vietnam by 2006. **2.** AFTA accession, scenario 1 and sensitive list products also liberalised. ASEAN-5 by 2010, Vietnam by 2013. **3.** AFTA accession, scenario 2 and General Exclusion list liberalisation. No time frame given. **4.** Unilateral. Scenario 3 plus Vietnam extends unilateral liberalisation to the rest of the world.	Effect given is welfare, measured by equivalent variation in US$ millions and broken down into the allocative efficiency and terms of trade effects. **1.** Welfare gains of $2.1m comprised of $19.2m of positive allocative efficiency effects and terms of trade losses worth $17.1m. **2.** Welfare gains of $51.3m of which allocative efficiency gains comprise $21.7m and terms of trade gains come to $29.6m. **3.** Welfare losses of $5.6m of which allocative efficiency gains make up $26.6m and terms of trade	The static effects of Vietnam's accession to AFTA are small, excluded products limit trade-creation, while there is some evidence of trade-diversion. Since Singapore dominates as Vietnam's main export market, and trade barriers there are already low, gains from improved status in this market are small. MFN liberalisation is much more preferable. Accession to AFTA appears to benefit Vietnam's agricultural sectors, while broader unilateral liberalisation favours labour

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
	* Non-tariff barriers are not included.	**5.** APEC liberalisation on an MFN basis to 2.5% across the board.	losses $32.3m. **4.** Welfare gains of $191.6m of which allocative efficiency gains make up $251m and negative terms of trade effects create losses of $59.4m. **5.** Welfare gains of $180.3m of which allocative efficiency gains make up $293m and terms of trade losses -$133m. Agricultural output decreases by 23% as labour and resources move into the more profitable manufacturing industries.	intensive manufacturing sectors. Moving from scenario 1 to scenario 4 there is a favourable impact on export volumes, however export prices fall and therefore terms of trade effects are negative
Gilbert and Wahl (2002) **"Applied General Equilibrium Assessments of Trade Liberalisation in China"**	* CGE model, GTAP (v4) * Static * Perfectly competitive * 9 x 11 aggregation * Two alternative closures – first is standard neoclassical with fixed factor endowments, second is longer run steady state closure.	1. Bangkok Agreement: Complete liberalisation in all sectors on preferential basis. Standard neoclassical closure. 2. Bangkok Agreement: Complete liberalisation in all sectors on a preferential basis. Long run closure.	Effects given are welfare measured by equivalent variation in $US millions and as a percentage of GDP. **1.** The members collectively gain 1.1% in welfare as a percentage of GDP ($US18290 million), sum of world net welfare, 0%. South Korea and Sri Lanka gain 5.5% and 2.7% respectively. China and India lose. Japan, NAFTA, ASEAN and the ROW also lose, but insignificantly when taken as % of GDP. **2.** Members gain 4.5% of GDP ($US76265 million), overall net world welfare, 0.2%. Sth Korea and Rest of South Asia gain 14.1% and 11.1% respectively. India and ASEAN lose.	If the Bangkok agreement could achieve full liberalisation there would be positive overall welfare effects, however, not all countries benefit and there is evidence of trade diversion. There is a long way to go for the countries to achieve complete tariff elimination.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Hertel, Walmsley and Itakura (2001) **"Dynamic Effects of the 'New Age' Free Trade Agreement between Japan and Singapore"**	* CGE model, GTAP (v4) * Recursive-dynamic * Perfectly competitive * 17 x 17 aggregation * Considers effects of implementing uniform standards for e-commerce and automated customs procedures. Explicitly models international transport and trade. * Incorporates international capital mobility and ownership.	1. Trade liberalisation between Japan and Singapore including liberalisation in services, e-commerce and customs automization.	Effects given are economic welfare and real GDP changes. Welfare is measured using equivalent variation ('the cumulative changes that have occurred between the baseline and the FTA simulation') in US$ millions as well as *per capita* percentage changes by 2020 due to the FTA. Real GDP increases (decreases) are defined as 'cumulative percentage differences from baseline simulation'. 1. Singapore gain US$396.8m or 0.668% *per capita*, Japan gain US$6919.7m or 0.157% per capita. China gains US$266.1m (0.041%), Taiwan US$199.5 (0.079%), Korea US$237m (0.059%), the US $523.1m (0.008%), Australia and NZ US$65.8m (0.019%). Real GDP increases in all regions except Canada and Western Europe. Singapore's real GDP increases 1.67% and Japan's 0.2%. Malaysia and Thailand each see real GDP increases above 0.3%.	Without the 'new age' features of the agreement global welfare effects would be ambiguous or negative and trade diversion would be significant. The addition of e-commerce standards and customs automisation allows for greater benefits both to the countries involved and to non-members. Global benefits come to over US$9 billion a year. With 70% acruing to Japan. All regions in the world benefit.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Lee (August 2001) **"General Equilibrium Evaluation of Japan-Singapore Free Trade Agreement"**	* CGE model (based on OECD's linkage model, 1997) * Dynamic (trade-productivity linkage) * Perfectly competitive * Constant returns to scale * 18 x 15 aggregation * Model spans 1995-2020. * Trade barriers are removed bilaterally excluding agriculture and food sectors and incorporating reductions in customs costs. Goods are differentiated by region of origin and modelled as imperfect substitutes on both import side (Armington assumption) and export side. * Labour is mobile, but not across regions, capital is divided into 'old' and 'new'. The growth of capital is endogenously decided by the savings-investment identity. Income tax rates adjust to compensate for changes in the government's budget balance. * It is assumed that reduced customs costs would lower the price of imports by 0.5% for Japanese consumers and by 0.25% in Singapore.	**1.** FTA between Japan and Singapore with no TFP growth. **2.** FTA between Japan and Singapore with TFP growth.	Effect given is percentage change in real GDP relative to the baseline measures, by 2020. **1.** Japan's real GDP increases 0.01%, Singapore's by 0.08% compared with the baseline. There is evidence of trade diversion (small) away from all other regions except Malaysia (0.018%) and Latin America (0%). Global welfare is unaffected. **2.** Japan's real GDP increases 1.38% and Singapore's by 1.8%. There is no evidence of trade diversion as other countries gain from productivity spillovers. Global welfare increases by 0.2%.	Where positive spillover effects on total factor productivity (TFP) are excluded the FTA is estimated to have negligible effects even when customs costs are decreased. Where TFP effects are included the welfare impact is much larger and trade diversion is decreased.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Mckibbin, Warwick, Lee and Cheong (2002) **"A Dynamic Analysis of a Korea-Japan Free Trade Area: Simulations with the G-Cubed Asia Pacific Model"**	* Asia-Pacific G-Cubed (APG-Cubed) model, GTAP v5 * Intertemporal dynamic model * 18 x 6 aggregation * Macroeconomic characteristics: money is introduced into the model through a restriction that households must use money to purchase goods and the model also allows for short run nominal wage rigidity and short term unemployment. Financial capital is flexible, whereas physical capital is 'sticky'.	**1.** Complete tariff elimination between Japan and Korea announced and implemented in 2001. **2.** Complete tariff elimination announced in 2001 and phased in by 2005 for manufactured goods and 2010 for agricultural goods. **3.** Bilateral tariff elimination (phased) with the exclusion of agriculture.	Effects given are real GDP changes and changes in real consumption (welfare) both as a percentage deviation from the baseline scenario by 2020. **1.** Under the instant, bilateral tariff elimination scenario the real GDP gain for Korea amounts to about 0.15% of the baseline GDP by 2020, for Japan the figure is 0.1%. There are consumption gains of 0.4% in Korea. In both countries consumption gains are greater than GDP increases. Real GDP increases in Europe and China, but falls in Australia, Malaysia, the Philippines and the US. **2.** The overall real GDP gains are slightly larger for Korea when tariffs are phased out, because adjustment costs are spread over more years. Real GDP does not increase by quite as much, overall, in the case of Japan. **3.** GDP and consumption gains are reduced for both countries. In the case of Korea real GDP gains are 5% less in 2005 if agriculture is excluded.	The output gains are greater when tariff cuts are phased in, rather than being implemented instantaneously. The omission of agriculture reduces the consumption and GDP gains for both countries. The gains from multilateral liberalisation would be much larger than liberalisation on a bilateral basis. The presence of adjustment costs and a 'sticky' labour market suggest that phased liberalisation is superior to immediate tariff elimination.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Nakajima, Tomoyoshi (August 2002) **"An Analysis of Japan-Korea FTA: Sectoral Aspects"**	* CGE model, GTAP v5. Two different models - short-run standard GTAP model, static, perfect competition, exogenous capital stock - Long-run same basic model, but includes endogenous capital accumulation * 8 x 17 aggregation	**1.** Japan- Korea FTA short-run (efficiency effects only) **2.** Japan-Korea FTA long-run (efficiency effects and capital accumulation effects)	Effects given are percentage changes in real GDP relative to the baseline, and absolute changes in welfare measured by equivalent variation in US$ millions. **1.** Insignificant effects for all regions except Korea 0.29% increase in real GDP. Japan sees a very slight loss in the short run, as does China. In equivalent variation terms Japan gains under US$1000million and Korea under US$2000 million. The rest of the regions lose in EV terms. **2.** In the long run Korean GDP increases 1.09%, Japan gains 0.02%. China, NAFTA, EU all lose slightly and ROW –0.03%. Japan gains slightly under US$3000 million in equivalent variation terms, Korea gains slightly under US$4000 million.	When the long run effects of capital accumulation are taken into account there are benefits for both Japan and Korea in forming a free trade area. Korea gains proportionately more than Japan.
Wang and Schuh (2000) **"The Impact of Economic Integration Among Taiwan, Hong-Kong and China- A Computable General Equilibrium Analysis"**	* CGE model, GTAP (v4), * Static analysis (Dynamic effects considered in the second scenario) * Constant returns to scale in technology * 7 x 7 aggregation * Trade performance and total factor productivity linked, import embodied technology transfer. Closure: Savings-investment gap held constant, household savings and/or exchange rate change to keep equilibrium.	**1.** Formation of a Chinese Economic Area (CEA). Complete tariff liberalisation between China, Hong Kong and Taiwan. Short term static effects only. **2.** Formation of a Chinese Economic Area (CEA). Complete tariff liberalisation between China, Hong Kong and Taiwan. Medium term capital accumulation effects considered.	Effects given are welfare gains, measured by equivalent variation, in both absolute terms US$ millions and as a percentage change from the baseline scenario. **1.** Where short term static effects only are considered Taiwan would gain US$7.5 billion, Hong Kong US$2.4 billion and China US$0.5 billion a year (2.7, 2.4 and 0.1% of their respective GDPs). **2.** Where medium-term capital accumulation effects are also taken	Trade creation exceeds trade diversion and if the political relationsh ip between China and Taiwan improves and transport costs on the Taiwan Straits decrease trade flows in this area could increase three fold. The gains from economic integration are substantial but many political factors stand in the way.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
	5 factors of production (land, natural resources, capital, skilled and unskilled labour), capital and labour mobile between sectors but not regions. Armington assumption, international shipping industry incorporated into model.		into account welfare gains would reach 1.7% of base year GDP for China and 4.3% for Hong Kong, with gains for Taiwan lying in between. There is evidence of significant trade diversion away from Japan.	
Yamazawa (March 2001) **"Assessing a Japan-Korea Free Trade Agreement"**	* CGE model, GTAP 4 * Static analysis (some dynamic effects i.e. productivity increases considered) * 7 x 7 aggregation * Goods and factor prices change flexibly to balance supply and demand. Exchange rates and interest rates are provided exogenously. Production technology and consumer preferences are fixed. The simulation reciprocally removes all import tariffs and as a consequence production and consumption volumes will change, prices will change and the trade balances will change. Changes in trade balances are financed by capital transfers.	**1.** Tariff abolition and complete capital transferability. **2.** Tariff abolition and incomplete capital transfers (terms of trade changes help trade balance fall within range of capital transfers) **3.** Tariff abolition and productivity increases. **4.** Increase in productivity only.	Effects given are percentage changes in national income (deflated by changes in average production cost), and percentage changes in national welfare measured by equivalent variation. **1.** Change in national income: Japan 0%, Korea 0.37%. Change in equivalent variation: Japan 0.03%, Korea 0.34% **2.** National Income: Japan 0%, Korea 0.38%. Equivalent variation: Japan 0.04%, Korea 0.38%. **3.** National income: Japan 10.45%, Korea 9.11%. Equivalent variation: Japan 9.33%, Korea 7.51%. **4.** National income: Japan 10.44%, Korea 8.67%. Equivalent variation: Japan 9.29%, Korea 7.09%	The author concludes that the dynamic effects of an FTA between Japan and Korea would be potentially much larger than the static effects of tariff abolition. The agreement should also go beyond simple liberalisation and be a more comprehensive economic partnership. To achieve closer economic relations, currency and financial cooperation needs to be promoted, along with technical, agricultural and fisheries cooperation.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Trans-Pacific Agreements- Multiple				
Ballingall, John (2000) **"The Pacific 5 Free Trade Area: Impacts on Agriculture in New Zealand"**	* CGE model, GTAP (v4) * Static analysis * Perfect Competition * 14 x 17 aggregation[4] * Because GTAP 4 is based in 1995 some tariff rates were adjusted to more current levels using the ALTERTAX tool in the RunGTAP program. * Tariffs and export subsidies are removed on a preferential basis between P5 countries.	**1.** Tariffs are removed completely in all sectors except the agricultural sector where protection rates are left unchanged. **2.** Tariffs are completely removed in all sectors, including the agricultural sector. Export subsidies on agriculture are also abolished.	Effect given is welfare, measured using equivalent variation in US$ millions. **1.** Global welfare increases by $400mill. The US gains $750mill, Singapore gains $73mill, but Australia loses $700mill and Chile loses $400mill. New Zealand loses, but only $63mill. Proportionately Singapore gains the most and Chile loses the most with respect to GDP **2.** Global welfare increases $432mill, US gains $662mill, Singapore gains $48.4mill, Australia loses $660mill, Chile loses $413mill, NZ loses $13.5mill. Chile loses the most and Singapore gains the most proportional to GDP.	The welfare loss experienced by New Zealand can be best explained by the fall in export prices following Pacific-5 liberalisation. The prices fall by less when the agricultural sector is also liberalised and hence the welfare loss for New Zealand is not as pronounced. New Zealand's terms of trade are also adversely affected in each scenario. In New Zealand, output in the 6 agricultural sectors increases when agricultural trade is liberalised. The dairy industry experiences the most growth. Overall the author concludes that NZ must be careful when negotiating regional trading agreements due to possible welfare losses, and that NZ should continue to push for liberalisation of agricultural trade.

[4] Aggregation is stated as region x commodity.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Brown, Deardorff and Stern (December 2002) **"Multilateral, Regional and Bilateral Trade-Policy Options for the United States and Japan"**	* Michigan model, GTAP v4 * Static * Some elements of "new trade theory" used i.e. monopolistic competition (except agriculture) and increasing returns to scale. * 20 x 18 aggregation * 10 year extrapolation (from 1995)	1. APEC liberalisation (preferential, not open regionalism) 2. ASEAN + 3 (ASEAN + Japan, Korea and China/Hong Kong) 3. NAFTA + Chile 4. Western Hemisphere FTA For these four scenarios liberalisation takes the form of combined removal of agricultural and manufacture tariffs and services barriers. 5. Japan- Singapore 6. Japan- Korea 7. Japan- Mexico 8. Japan- Chile 9. US- Chile 10. US- Singapore 11. US- Korea	Effects given are welfare changes measured using equivalent variation, either in absolute US$ terms, or as a percentage of GNP. **1.** Global welfare: US$824.2 bill, large increases for members (Japan gains US$318 bill, the US $244.2 bill) and little trade diversion. **2.** Global welfare: US$282.6 bill, over 10% GNP gains for Singapore, little evidence of trade diversion. Australia and New Zealand gain 0.4 and 0.42% of GNP respectively, Taiwan gains over 3% of GNP and the US benefits by 0.14%. **3.** Global welfare: US$5.8 bill, the US gains $4.4 billion in absolute terms and Chile $840 million (or 0.15% as a percentage of GNP), insignificant for others. **4.** Global welfare: US$83.47 bill, gains of around 1-2% of GNP to most Sth American countries, the US gains over $55 billion, while Canada and Mexico gain $3.1 billion each and Chile around $2.3 bill. There is evidence of trade diversion away from HK, Korea and Aus. **5.** Global welfare: US$20 bill, Japan 0.19% (US$12 bill), Singapore 3.17% ($2.4 bill), worst for Malaysia –0.3% and China is the only other region which suffers negative welfare effects.	Benefits of preferential liberalisation accrue mainly to the developed countries and thus for developing countries multilateral liberalisation is more desirable. Multilateral liberalisation gives greater benefits across the board. Regional and bilateral trade agreements can be welfare enhancing for those involved, but trade diversion effects exist in almost all circumstances.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			6. Global welfare: US$34.6 bill, Japan 0.45% ($29.5 bill), Korea 0.94% ($5.3 bill), Taiwan and ASEAN affected. **7.** Global welfare: US$7.6 bill, Japan 0.1% ($6.6 bill), Mexico 0.58% ($2 bill). There is evidence of trade diversion away from the US ($-832 mill), Canada ($-36 mill), the EU ($-148 mill) and other Asian countries. **8.** Global welfare: US$5 bill, Japan 0.07% ($4.4 bill), Chile 0.93% ($749 mill), insig rest. **9.** Global welfare US$4.8 bill, US 0.05%, Chile 0.69% **10.** Global welfare US$25 mill, US 0.19% ($17.5 bill), Singapore 3.37% ($2.5 bill), bad for NAFTA partners (lose 0.01% GNP each). Hong Kong, Malaysia and the Philippines suffer mild trade diversion effects (around or under 0.1% of GNP) other ASEAN countries gain very slightly. **11.** Global welfare US$44.8 mill, US 0.33% ($30.1 bill), Korea 2.11% ($12 bill), only Taiwan shows some trade diversion ($5mill).	
Brown, Deardorff and Stern (January 2001) **"CGE Modelling and Analysis of Multilateral and Regional Negotiating Options"**	* Michigan model, using GTAP v4 * Static * Some elements of "new trade theory" used i.e. monopolistic competition (except agriculture),	1. APEC preferential liberalisation 2. Japan- Singapore 3. Japan- Mexico 4. Japan- Sth Korea	Effects given are welfare changes measured using equivalent variation, either in absolute US$ terms, or as a percentage of GNP. **1.** Global welfare up US$764.4	Regional and bilateral FTAs can enhance welfare for those involved, but may have diverting effects away from non-members. Multilateral liberalisation offers

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
	product differentiation and increasing returns to scale. * 20 x 18 aggregation * Extrapolates to 2005 (from 1995), trade remains balanced and real exchange rates move. * Liberalisation of agricultural tariffs, manufacturing tariffs, and services barriers.	5. Japan- Chile 6. ASEAN + 3 (ASEAN + Japan, Korea and China/ Hong Kong)	bill, Japan gains 4.4% GNP, US gains 2.2% GNP, US$ 7 bill trade diversion away from the EU. **2.** Global welfare: US$ 15.4 mill, Japan 0.16% GNP, Singapore 2.4% GNP. Negative for China, Chile and ASEAN countries. **3.** Global welfare: US$7 mill, Japan 0.1%, Mexico 0.5%, neg results in Asian region. **4.** Global welfare: US$ 30 mill, Japan 0.4%, Korea 0.56%, China loses around 0.003% GNP, while the US, EU and most ASEAN countries also lose slightly. Bilateral removal of agricultural tariffs has negligible effects on Korea and Japan, however the bilateral removal of services barriers benefits Japan by 0.24% of GNP and Korea by 0.8%. **5.** Global welfare $US4.9 mill Japan 0.07%, Chile 0.85%, insignificant for rest. **6.** Global welfare: US$224,685 mill. All members gain over 2% of GNP, except China who gains 0.359%. Negative welfare effects for EU, Mexico and 'rest of Asia' (India, Sri Lanka and Vietnam), the US gains 0.025%, Taiwan gains 1.966%, Australia and New Zealand gain around 0.2% GNP each.	much larger benefits.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Kiyota and Tsutsumi (2002) **"Japan's Regional Strategy in Asia: Evaluation by the CGE model"**	* CGE model, GTAP (v4), * Static * Perfect Competition * 19 x 16 aggregation * 1995-2010 time-frame, savings rate is fixed so the economy follows a Solow-Swan type growth path. * Capital accumulation is endogenised * Labour is treated exogenously * Exogenous variables used to capture the remittance of factors abroad.	Each scenario assumes full liberalisation, excluding agriculture **1.** Japan Singapore **2.** Japan- Singapore- Korea **3.** Japan- Singapore- Mexico **4.** Japan- Singapore- Korea- Mexico **5.** Japan- Singapore- Korea- China (incl. HK)- ASEAN 4 **6.** Singapore- ASEAN 4- China (incl. HK) **7.** Japan- US (immigration from Japan to US) **8.** Japan- US (immigration from US to Japan) **9.** Japan- China (incl. HK)	Effects given are real GDP growth (accumulated) and changes in welfare. Real GDP growth is measured in absolute terms, and by changes in the cumulative real GDP growth rate (over the time period 1995-2010) compared to the baseline scenario. Changes in welfare are measured using equivalent variation in US$ millions. **1.** Singapore's real GDP increases 5.76% ($2985m), Japan's by 0.07% ($2705m. World welfare increases US$5932 mill. No effect, or very small gain (0.1% GDP or under) to all other regions. **2.** Singapore 7.23% ($3412m), Korea 6.33% ($21779m), Japan 0.14% ($9626m) China, Taiwan and Thailand negative. World welfare increase US$34298 mill. **3.** Sing. 7.04% ($3232m), Mex. 4.2% ($11135m), JP 0.1% ($5099m), rest of the regions experience mixed, but small effects. World welfare increases US$20139 mill. **4.** Sing. 9.77% ($4375m), Mex. 4.22% ($11137m), Korea 5.89% ($19324m), JP 0.18% ($12216m),effect on other regions small but mixed, China, Taiwan, US and EU lose. World welfare increases US$47378 mill. **5.** JP 1% up to China 27.7%. HK –	Preferential trading agreements in Asia generally improve welfare, with ASEAN + 3 producing the best results. A Japan- US agreement would be highly trade diverting. The inclusion of agriculture could be welfare worsening for Japan, even though its inclusion would produce efficiency gains. The terms of trade effects could be negative, and overwhelm these efficiency gains.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			0.2% and Taiwan –2.56%. Australia and New Zealand together gain 0.35%, and the US 0.07% real GDP. World welfare increases US$322580 mill. **6.** 3-10% benefits for members except HK –6.7%. Taiwan, Korea, Japan negative. Australia and New Zealand together gain 0.14%, while the effect on the US is 0% i.e. insignificant. World welfare increases US$75854 mill. **7.** JP 0.99%, US 0.35%. Negative for most excluded esp NAFTA and Asia. World welfare increases US$57571 mill. **8.** JP 0.77%, US 0.41%. Negative for most excluded. World welfare increases US$51439 mill. **9.** JP 0.78%, China 24.95%, HK –1.8%. Negative for ASEAN countries and Korea loses 0.28% real GDP. World welfare increases US$179889 mill.	
Lee and Woodall (1998) **"Political Feasibility and Empirical Assessments of a Pacific Free Trade Area"**	* CGE model, GTAP (v3) * Static * Perfect Competition * 10 x 10 * Labour supply is endogenous to the model with a positively sloped labour supply curve. * Each region's trade with the rest of the world is governed by export supply and import demand functions whose elasticities depend	**1.** East Asian FTA (Japan, China Asian NIEs, and ASEAN-4) **2.** US retaliates by imposing optimal tariffs resulting in trans-Pacific trade war. **3.** Pacific FTA (Essentially APEC FTA, 4 East Asian regions, America, Canada, Mexico, Australasia) **4.** APEC liberalisation MFN basis	Effects given are changes in real GDP and changes in welfare (real consumer purchasing power). Real GDP changes are measured both in absolute US$ million terms, and as a percentage increase (decrease) above (below) the baseline level. Welfare is measured using equivalent variation in both absolute US$ millions or as a percentage change from the	There are strong economic incentives for the formation of an East Asian or Pacific free trade area, but the political considerations should not be underestimated. The authors concluded that 'economic rationality and political feasibility are not necessarily coterminous'. The formation of an East Asian FTA might be difficult considering

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
	on the size of the countries in the ROW market.		baseline level. **1.** Real GDP in all four regions increase, China 0.78%, NIEs 0.93%, Japan 0.18%, ASEAN 0.55%. Welfare gains in members equivalent to US$17.52 billion, non-members also collectively gain US$1.3 bill due to positive terms of trade effects. **2.** If US imposed optimal tariffs US terms of trade increase 10% and welfare gains would be US$32.39 billion (0.55% higher than baseline). East Asian countries would lose US$73.9 bill. Trade war could continue for 6 iterations with global loss of US$57.6 billion. **3.** Welfare effects net of NAFTA, all countries benefit except Mexico. Welfare gains in China, the Asian NIEs and Australasia are over 1% each, while real GDP increases are around 2% for China, Asian NIEs and ASEAN-4. Pacific region gains US$68 bill, non-members little affected. **4.** All regions gain but Japan, China and ASEAN-4 gain less than under the preferential scenario. APEC region gains US$75.5 billion.	the possibility of US retaliation. A Pacific free trade area promises global welfare gains four times that of an East Asian FTA, but non-discriminatory APEC liberalisation is better again.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Lee, Roland-Holst and van der Mensbrugghe (2001) **"General Equilibrium Assessments of Trade Liberalisation in APEC Countries"**	* CGE model, GTAP (v4) * Dynamic (trade-productivity linkage) * Perfectly competitive, * Constant returns to scale. * 18 x 16 aggregation * Model spans 1995-2020 * 3 factors of production (land, labour and sector specific fixed factors). Capital is divided into 'old' and 'new' capital. New capital and labour are mobile between sectors but not regions. * Growth of capital is endogenously determined by the investment-savings relationship. Service trade not included.	1. APEC liberalisation on a MFN basis.	Effects given are absolute and percentage changes in real GDP relative to the baseline, from 2000-2020. Absolute changes are given in billions of US$. **1.** Between 2000 and 2020 real GDPs of developed and developing APEC member countries are predicted to increase by US$42 bill and US$83 bill respectively. Under MFN liberalisation, the real GDP of non-members also increases US$16 bill by 2020. China, Japan, the US and Taiwan benefit the most in absolute terms but the Philppines, Vietnam and Thailand see the highest increases (1-3%) in percentage terms.	APEC liberalisation on an MFN basis provides large gains for both members and non-members, with developing country members benefiting the most. The welfare gains here are likely to be underestimated as services trade liberalisation is not included, and the effects of scale economies and/or human capital etc are not included in the production function. Structural adjustment costs are likely to be high, but outweighed by the benefits of liberalisation.
Lee, Roland-Holst and van der Mensbrugghe (May 2002) preliminary draft **"Emergent Trilateralism in the Pacific Basin: How Should China, Japan and the United States Respond to Regional Trade Initiatives"**	* CGE model, GTAP 5 * Dynamic (trade-productivity linkage) * Perfect competition * Constant returns to scale. * 10 x ? * 1997 baseline, extrapolated to 2015. * Investment is driven by aggregate saving, while foreign saving is exogenous. * Labour can have 3 different skill levels –low, medium, high it is exogenous. Capital is partially mobile and is divided into 'old' and 'new' capital. Land is also partially mobile across sectors.	**1.** Global trade liberalisatiom **2.** North Asia Free Trade Area (Japan, China/HK, Korea and Taiwan) **3.** ASEAN + 3 **4.** US- Japan- China/HK (by 2005) **5.** US-Japan- China/HK (with accelerated FDI from US and Japan to China)	Effects given are welfare (real purchasing power) measured using equivalent variation, either in US$ or as a percentage of national income. **1.** Global welfare: US$316.8 billion. Substantial benefits for all. **2.** Benefits all involved except China/ HK. Negative effects on ASEAN. The US loses $3.6 billion or 0%, Australia, New Zealand and Canada as an aggregate region lose $0.4 billion or 0%. Global welfare increases $28.9 billion or 0.1%. **3.** Positive for all members esp. ASEAN, negative for Taiwan and the 'ROW' loses the equivalent of	The trilateral (Japan- US- China) proposal generates large positive welfare benefits for those involved and overall trade creation exceeds trade diversion. However, trade diversion is substantial and there would be strong political opposition from those excluded. Global welfare gains are greatest under the global liberalisation scenario, but for Japan and China the trilateral option is superior, while Taiwan would prefer a Nth East Asian FTA. In scenario 5 the US and Japan accelerate bilateral FDI into China aiding the expansion of this huge

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			0.1% national income. Global welfare increases $54.3 billion or 0.2%. **4.** Global welfare increases by $134.6 billion or 0.4%. Same effects as global liberalisation (1) for Japan and US and even better for China/HK $78.4 bill (3.2%). Bad for those excluded, ROW – 0.2%. ASEAN countries, Taiwan and Korea lose significantly. **5.** Global welfare increases $152.3 billion or 0.4%, China/HK gains $89.7 bill (3.7%), Japan $62.6 bill (0.5%) and the US $18.6 bill (0.2%). Bad for excluded countries with Korea losing 0.2%, Taiwan 0.6% and ASEAN countries all losing as well. ROW –0.2%. Canada, Australia and New Zealand lose as an aggregate by 0.1%.	market and producing additional gains for Japan and China, but not the US.
Scollay, Gonzalez and Gilbert (2002) **"Mega-Blocs in East Asia and the Americas: How Might They Affect Each Other (and the Rest of the World)?"**	* CGE model, GTAP (pre-release v5) * Static * Perfectly competitive * Constant returns to scale in technology. * 26 x 20 aggregation * Products are differentiated via the Armington assumption and the model also assumes full employment of factors of production. Returns to the factors of production accrue to households	**1.** ASEAN + China-Korea-Japan. **2.** FTAA **3.** FTAA and ASEAN + China-Korea-Japan	The effect given is economic welfare, measured using equivalent variation as a percentage of GDP. **1.** Relatively small gains for China and Japan (0.1 and 0.2% respectively), but much larger ones for Korea and ASEAN countries. The welfare of non-members is generally affected negatively, especially Taiwan and Hong-Kong (-0.7 and –0.9% respectively). Effects on total exports are uniformly positive for members,	The effects of the FTAA are generally smaller than the projected effects of an East Asian trading bloc. When both blocs come into being simultaneously the positive welfare effects for each bloc's members are dampened slightly, but are still in most cases positive. The impact on excluded countries is pronounced, hence the recent movements by New Zealand and Australia to conclude bilateral agreements with member countries

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
	in the region where they are employed. * Tariffs are removed between members on a preferential basis, while each country maintains its own external barriers against third parties.		and negative for non-members. China's exports increase 13.6%. **2.** Members' welfare generally increases, although in most cases by small amounts. Some Latin American countries gain over 0.5% of GDP, but Uruguay, and 'rest of South America' lose 0.7% and 0.5% respectively. Non-members are adversely affected, but by no more than 0.1% of GDP in all cases. **3.** Results for East Asian countries are inferior to an East Asian bloc only, but the differences are small. Benefits from the FTAA are slightly reduced by the East Asian bloc, except for Venezuela, Uruguay and 'rest of South America'. Countries excluded from both agreements lose considerably, especially Hong-Kong (-1%), Taiwan (-0.8%), NZ (-0.3%) and Australia (-0.2%).	such as Singapore.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Scollay and Gilbert (2000) **"Measuring the Gains from APEC Liberalisation: An Overview of CGE Assessments."**	* CGE model, GTAP 4 * Static * Perfectly competitive * 15 x 15 aggregation * The starting point for simulations is post-Uruguay, post-NAFTA, post-AFTA liberalisation. Armington elasticities are doubled.	**1.** Broad APEC liberalisation. The removal of import tariffs and export subsidies on all goods (calculated for MFN, preferential, MFN reciprocation and global bases). **2.** Removal of import tariffs and export subsidies on agricultural and food goods (calculated for MFN, preferential, MFN reciprocation and global bases)	Effects given are economic welfare measured using equivalent variation expressed both in $US billions and as a percentage of GDP. **1. MFN basis:** Indonesia, Malaysia and Canada lose, all others including ROW gain. NZ gains most at 2.8%. **Preferential:** NZ, Philippines and 'other APEC members' gain over 3%. Indonesia, Malaysia, Canada, Mexico, EU and ROW lose (all less than 0.2% except Malaysia at 0.7%) **MFN reciprocation:** Indonesia, Canada and ROW lose slightly, all others gain and 6 regions by more than 2% of GDP. **Global liberalisation:** Small negative effects fro Mexico and Canada, positive effects for all others,although smaller for many countries than preferential of reciprocated MFN. **2.** Indonesia and Mexico will lose in all scenarios except global agricultural liberalisation. New Zealand, Australia, Thailand and Malaysia stand to gain the most from liberalisation of food trade. MFN liberalisation of food would give $34.5bill in benefits to APEC members, compared with $31.3 for the preferential scenario and $54.4 for global free trade.	Global welfare is increased most through global trade liberalisation, followed by reciprocated MFN liberalisation. Preferential liberalisation yields the lowest global returns but greater benefits in absolute terms for APEC members than unconditional MFN liberalisation. The majority of potential gains from APEC liberalisation would come from the agricultural sectors and thus it is important that member economies do not allow domestic pressures to lead them to ignore agricultural liberalisation.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Scollay, Gilbert, Bora (2001) **"Assessing Regional Trading Arrangements in the Asia-Pacific"**	* CGE model, GTAP (v5) * Static * Perfectly competitive * Constant returns to scale * 34 x 3 aggregation * Armington assumption. Model is closed by assuming full employment of all factors of production, a single representative household governs demand via a Cobb Douglas function.	**1.** Singapore- Japan **2.** Singapore- US **3.** Japan- Canada **4.** Republic of Korea (ROK)- Mexico **5.** FTAA **6.** Japan- ROK **7.** Japan- ROK- China **8.** ASEAN- Japan- ROK- China **9.** ASEAN- Japan- ROK- China- CER Each RTA simulated by complete, preferential tariff removal. **10.** APEC MFN liberalisation	Effect given is economic welfare, measured using equivalent variation in US$ millions. **1.** Singapore gain $60mill, Japan lose $33.8mill. Insignificant impact on rest, global welfare -$7.3mill. **2.** Singapore lose $1270mill, US gain $1009mill, insig effect on rest, global welfare up $420.5mill. **3.** Japan gain $306mill, Canada gain $4604mill, negative welfare effects on US, global welfare $2669mill **4.** Korea $623mill, Mexico $37.2mill, insig effect on rest. **5.** FTAA members gain $6947mill. Large gains for Brazil, US and Argentina. Small gains for other members. Non-members lose $4098mill. Global welfare $2848mill. **6.** Japan $1430mill, Korea $291mill, significant, negative welfare effects on non-members. **7.** Japan $5285mill, Korea $5700mill, China $249mill. Global welfare $6235mill. **8.** Members all gain, non-members still lose substatially, global welfare $8853mill **9.** Members all gain except Philippines, non-members lose $13 494mill, global welfare up over $10000mill. **10.** Members all gain except Mexico and Singapore. Non-	Both the gravity model analysis and CGE simulations find that there are likely to be significant welfare gains from the realisation of some of the new RTA proposals in the Asia Pacific area. In some cases there seems to be a connection between 'natural' trading blocs and welfare benefits. However, these 'natural' trading blocs are not necessarily less trade diverting, and in some cases more so. APEC MFN liberalisation is by far the most welfare enhancing and by nature of the proposal does not lead to trade diversion. The question is whether the formation of smaller RTAs in the region will ultimately lead towards, or away from, this APEC liberalisation.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			members gain overall. Global welfare increases by $45229 million.	
Scollay, Gilbert and Bora (2003) **"New Regional Trading Developments in the Asia Pacific: Implications for East Asia"**	* CGE model, GTAP (pre-release version 5 database) * Static * Perfect competition * Constant returns to scale in technology * 26 x 20 aggregation * Armington assumption allows product differentiation. The model assumes full employment of factors of production and that incomes from those factors accrue to the households in the region in which they are employed. * Import tariffs are completely eliminated on a preferential basis. * A gravity model was used alongside the CGE analysis to investigate whether FTAs within 'natural trading blocs' would produce greater welfare benefits than FTAs between countries which are not as 'natural' for trade.	**1.** Singapore- Japan **2.** Singapore- US **3.** Canada- Japan **4.** Korea- Mexico **5.** Japan- Korea **6.** Japan-China- Korea **7** ASEAN plus Japan-China-Korea, with and without agriculture. **8.** APEC MFN liberalisation, with and without agriculture. **9.** APEC preferential liberalisation, with and without agriculture. **10.** FTAA **11.** ASEAN+3 and FTAA	Effect given is economic welfare measured using equivalent variation in both absolute terms (US$ millions) and as a percentage of GDP. **1**. Japan loses $750mill or 0% of GDP in welfare gains whereas Singapore gains 0.6%. Slight (but insignificant) negative effects on others. **2.** Singapore gains 0.3% and the US loses $267mill or 0%. Slight but insignificant effects on others. **3.** Canada gains 0.5% and Japan loses $1171mill or 0% of GDP. Insignificant effects on other countries. **4.** Mexico gains $117 mill or 0%, Korea gains $170 mill or 0%. Mixed impact on other countries, but generally insignificant. **5.** Korea gains $1349mill or 0.3% GDP, Japan gains insignificantly. Very little regional impact. **6.** China gains $335mill, while Korea and Japan both gain over $3000mill. Korea experiences welfare benefits of 0.7% GDP. Significant trade diversion away from ASEAN countries, especially Taiwan and Vietnam. **7.** Significant benefits for those involved, over 1% of GDP for	Bilateral agreements are unlikely to have large region-wide effects, although they may cause some moderate trade diversion. Of the larger agreements studied, ASEAN+ 3 appears to be the most beneficial for East Asian nations, although APEC MFN liberalisation is undoubtedly superior in welfare terms. Excluding agriculture unambiguously reduces welfare benefits for the East Asian economies. As the comparison of CGE results with gravity model results suggests, 'bloc effects' are associated with larger gains for FTA members. This trend is more pronounced for the larger 'blocs', suggesting that the larger 'blocs' are more 'natural' or perhaps simply that larger agreements are better.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			Hong-Kong, Singapore, Thailand and Vietnam. Australasia, Taiwan and South America experience negative welfare effects. Excluding agriculture reduces combined welfare gains in East Asian countries by 35%. **8.** Philippines experiences negative welfare effects worth 0.3% of GDP. The US, Chile and Peru have some welfare loss, but insignificant. All other regions gain substantially. No trade diversion. Excluding agriculture reduces combined welfare gains of East Asian counties by 48% **9.** Large welfare benefits for members (better than MFN liberalisation), Hong-Kong gains 2% and Vietnam 3.3%. South American countries tend to lose, as does the ROW and the EU. Excluding agriculture reduces combined welfare benefits in East Asian countries by 33% **10.** Substantial gains for all members, but some negative effects for Asian countries. China, Korea, Taiwan, Indonesia, Singapore etc all lose 0.1%of GDP. Net global welfare $3769mill **11.** Australia, New Zealand and Taiwan lose significantly (0.1, 0.3, 0.7% respectively). Members, except Philippines all gain, while EU and ROW lose 0.1% GDP	

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			each. Net global welfare effects are positive.	
Scollay and Gilbert (May 2001) ***New Regional Trading Arrangements in the Asia Pacific?***	* CGE model, GTAP v4 with protection updated to post-Uruguay round levels. * Static * Perfectly competitive * Constant returns to scale in production * 22 x 21 aggregation * Five primary factors (land, natural resources, capital, skilled and unskilled labour). Armington elasticities doubled. * Neoclassical microeconomic closure, endogenous factor prices and factors mobile between sectors but not regions. Macroeconomic closure based on fixed current account balance, household savings used as primary macro adjustment mechanism.	**1.** Japan- Canada **2.** Japan- Mexico **3.** South Korea- Mexico **4.** Singapore- Mexico **5.** Singapore- US **6.** Pacific 5 (Singapore, New Zealand, Australia, Chile, US) **7.** Japan-Chile **8.** South Korea- Chile **9.** Singapore- Chile **10.** New Zealand- Chile **11.** New Zealand- Singapore- Australia- Chile **12.** Japan- Singapore **13.** Singapore- Australia **14.** Singapore- New Zealand **15.** New Zealand- Singapore- Australia **16.** South Korea- New Zealand **17.** Japan- South Korea **18.** Japan- South Korea (excluding agriculture) **19.** Japan- South Korea- China **20.**AFTA-Japan-South Korea **21.**AFTA-Japan-South Korea – China **22.** AFTA-CER-Japan-South Korea- China **23.** AFTA-CER-Japan-South Korea **24.** AFTA-CER **25.** APEC MFN basis **26.** APEC preferential	Effect given is economic welfare, measured using equivalent variation (US$ millions) as a percentage of GDP. **1.** Slightly positive for Japan, negative for Canada and trade diverting. Total world –0.01% **2.** Mexico 0.3%, Japan 0.01%, total world welfare impact 0% **3.** Korea 0.08%, Mexico 0.02%, total world impact 0. **4.** Singapore 0.13%, Mexico 0%, total world impact 0 **5.** Singapore 0.7%, US 0%, world impact 0 **6.** Singapore gains most (0.9%), NZ and US gain slightly but Aus and Chile lose. Non-members lose and total world impact = 0% **7.** Japan –0.04%, Chile 1.14%, total world 0. **8.** Korea 0.06%, Chile –0.08%, total world 0. **9.** Very small gain for Singapore, loss for Chile and insignificant for rest. **10.** NZ 0.02%, Chile 0% and total world 0% **11.** Slight gains for NZ and Singapore, 0% for Aus and slight loss for Chile. Total world 0% **12.** Singapore 4.06%, Japan 0%, total world 0 but some trade	The effects of many of these sub-regional FTAs in the Asia-Pacific region tend to be negligible, however dynamic effects may contribute more than static effects alone can show. Larger groupings provide greater welfare benefits for those involved and avoid the complications of having various smaller blocs. APEC continues to offer superior welfare benefits for the region and is the best alternative short of complete global liberalisation. The welfare gains from having a large East Asian and/or Western hemisphere trading bloc are potentially large, but the agreements will need to be as inclusive as possible to realise maximum benefits.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
		27. Global liberalisation **28.** FTAA	diversion in Asia. **13.** 0.21% Singapore, -0.01% Australia, nothing else very significant, some slightly neg. Total world= 0 **14.** 0.04% Singapore, 0.03% NZ. Rest 0% **15.** 0.25% Singapore, 0.02 NZ, -0.01% Aus. Total world 0% **16.** 0.28% NZ, 0.01% Korea, total world 0% **17.** -0.28% Sth Korea, 0.01% Japan. Mostly negative effects on others, esp. ASEAN, Aus, NZ and US. Total world -0.01% **18.** –0.15% Korea, 0.04% Japan, not as trade diverting, total world 0% **19.** 0.25% Japan, 0.8% Korea, 2.09% China, very bad for Taiwan and ASEAN. Total world 0.09% **20.** Positive for all members, but trade diverting especially for Taiwan and China. Total world 0.01% **21.** Large gains for members but very bad for Taiwan (-1.1%), total world 0.11% **22.** 1-5% gains for members, bad for Taiwan, total world 0.16% **23.** Positive for all members, Taiwan and China lose, total world 0.07% **24.** Members except Vietnam gain. Non members –0.01%, total world 0%	

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			25. Global welfare 0.34%, non-members 0.05%, better than APEC preferential for US and Sth America. **26.** Global welfare 0.27%, non-members –0.12%, better than MFN basis for many APEC members. **27.** Greatest benefits to all except Philippines, Vietnam and US. **28.** Positive results for members except Chile (-0.04%). Trade diverting, especially away from Asia.	
Wang and Coyle (2002) **"APEC Open Regionalism and its Impact on the World Economy: A Computable General Equilibrium Analysis"**	* CGE model, GTAP 5 * Recursive dynamic * Import-embodied technology transfer and trade induced TFP growth. * 22 x 18 aggregation * Six primary factors of production (Agricultural land, natural resources, agricultural labour, unskilled labour, skilled labour and capital). The macro closure is based on assumptions about government budget balance and the balance of trade for each country. * Both goods trade and services trade are liberalised.	**1.** APEC Free trade area **2.** APEC liberalisation on an MFN basis. **3.** Global trade liberalisation.	Effects given are real GDP growth (accumulated) and changes in economic welfare. Real GDP growth is defined as the 'additional accumulated growth during 2001-2020, percentage different from baseline'. Welfare changes are measured using equivalent variation, or 'changes from the baseline as a percentage of baseline real consumption' **1.** Real GDP increases in all APEC member regions except Mexico and Malaysia (-1% and –0.44% real GDP growth respectively), but overall there are decreases for non-member regions. GDP increases range from 0% in the Philippines and 0.5% in the US up to 11.6% for Singapore. The world average is 0.58% GDP growth. Equivalent variation increases 0.26% from the	By the Authors simulation results, all three situations raise global welfare above baseline levels, with global free trade producing the best results. The MFN liberalisation of APEC countries is clearly second best, but may be the most constructive way to move towards full global liberalisation. If the WTO negotiations were to fail, APEC liberalisation could pave the way instead. Non-APEC countries would be unable to take full advantage of access to the APEC market and would suffer unless they too undertook liberalisation, thus the 'free rider' problem should not in fact be a problem.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			baseline for APEC members and 0.13% for world as a whole. **2.** All regions except Malaysia, Philippines, Mexico and Chile realise increases in real GDP growth. Increases for members are not as great as under the preferential scenario, but non-members see increases as well so trade-diversion reduced. World average is 0.93% real GDP growth. Welfare (equivalent variation) gains of 0.28% for APEC members and 0.21% for the world. **3.** Global liberalisation gives the greatest welfare benefits, although the real GDP growth in Philippines and Mexico lose (0.5% and 1% respectively). The world average is 1.76% real GDP growth. Equivalent variation increases 0.47% for APEC members and 0.42% for the world.	

Trans-Pacific Agreements-Individual				
Scollay (October 2002) **"The Impact on New Zealand of a Free Trade Agreement Between Australia and the United States"**	* CGE model, GTAP (v5) * Static * Perfect competition * 26 x 19 aggregation * Products are differentiated via the Armington assumption. Labour and Capital are completely mobile between sectors domestically, but not between regions * The effect of the closure of NZ's motor vehicle industry since 1997 was factored in. * In simulations tariffs are removed across the board on a reciprocal, preferential basis. Services are not included.	**1.** Australia-US FTA **2.** New Zealand-US FTA **3.** Australia-New Zealand-US FTA.	Effect given is economic welfare, measured using equivalent variation as a percentage of GDP. **1.** New Zealand will lose 0.03% of GDP. **2.** New Zealand will gain 0.27% of GDP **3.** New Zealand will gain 0.23% of GDP. - The effects on Australia mirror those on New Zealand. Australia gains from an Australia-US FTA and even more from an Australia-US-New Zealand FTA, but loses from a US-New Zealand FTA.	The negative effects on New Zealand's exports are more pronounced in the Australian market than in the US market. The fall in exports to the US is four and a half times less the fall in exports to Australia. These falls in exports are partially offset in other markets, but the overall effect is negative. The overall impact of an Australia-Us FTA on New Zealand is slightly negative, as opposed to positive welfare effects from an NZ-US FTA
ACIL Consulting. A Report prepared for the Rural Industries Research and Development Corporation (February 2003) **"A Bridge Too Far? An Australian Agricultural Perspective on the Australia/United States Free Trade Area Idea"**	* Tasman-Global model, GTAP 5 (Dynamic version of the GTAP framework) * Perfectly competitive * Constant returns to scale * 10 x 34 aggregation * The model is solved on a year by year basis, from the base year. Capital stock increases are taken into account. * It is assumed that there is no removal of agricultural subsidies and no liberalisation of quarantine arrangements. Unlike the Centre for International Economics (CIE) model, there is no assumption that Australian productivity in the services sector will increase as a	**1.** Unilateral liberalisation by Australia **2.** Bilateral free trade. Removal of tariffs and non-tariff equivalents as found in GTAP 1997 database. Free trade to be phased in from 2005 to 2010. **3.** Multilateral trade liberalisation.	Effects given are real GNP changes compared to the baseline scenario, and changes in real consumption (welfare) relative to the baseline. **1.** Australian real GNP would likely decrease by 0.61%. Real GDP on the other hand is projected to increase by 0.07%, whilst real consumption would fall by 0.16%. Under this scenario there would probably be a decrease in export earnings for all key agricultural products, except rice (that is wheat, other grains, cattle and sheep meat, dairy and sugar) **2.** Australian real GNP is projected to fall 0.09%, real GDP by 0.02% and real consumption by 0.05%.	The findings of this assessment are that the benefits of an Australia-US FTA are precarious and that the effects on Australian farmers are likely to be negative, especially if key areas of meat, dairy and sugar are excluded. Trade diversion away from more important trading partners in the region is likely. The aut hors question the robustness of the results of the Centre for International Economics' 2001 study, which found that the FTA would probably be trade creating overall. This model found that a deal resulting in complete free trade by

	result of greater knowledge of US managerial techniques.		Cattle and sheep meat, dairy and sugar export earnings rise is free trade with the US is achieved. Wheat, grains and rice suffer. **3.** By far the best of the 3 options, Australian real GNP would increase 0.13%, real GDP by 0.06% and real consumption by 0.17%. Export earnings of all key agricultural sectors rise.	2005 would be detrimental to the Australian economy. An FTA with the US could be detrimental to Australia's chances with other forms of trade liberalisation. It is possible that Australia could do better by focussing on multilateral fora, or by unilateral liberalisation.
Berkelmans, Davis, Mckibbin and Stoekel Centre for International Economics (June 2001) **"Economic impacts of an Australia-United States Free Trade Area"**	* APG-cubed model, GTAP 4 data updated by CIE and corrected for 'apparent irregularities and inconsistencies' * Dynamic * Integrates financial and goods markets. * 15 x 6 aggregation * As in the GTAP model consumers maximise utility and producers maximise profit, however a the APG-cibed model is inter-temporal, with a time dimension added and expectations fully allowed for.	- Full Australia-US liberalisation - 50% removal of trade barriers - 25% removal of trade barriers	Effects given are percentage changes in real GDP and real consumption (welfare) compared with the baseline scenario of no preferential liberalisation. Australian real GDP and real consumption increase 0.4% Real GDP in US rises by 0.02% and real consumption by 0.016%. A 50% removal of trade barriers gives approx. half the benefit. A 25% reduction gives approx. a quarter. The report mentions that there would be gains to New Zealand, due the resulting expansion of the Australian market. Real GDP in New Zealand would increase by just over 0.3% by 2020, and by around 0.1% in Korea, Taiwan, Singapore, Japan and 'other OECD'.	Trade creation exceeds trade diversion. Both members gain, and the major third party beneficiary is New Zealand.

Berkelmans, Davis, Mckibbin and Stoekel Centre for International Economics (June 2001) **"Economic Impacts of an Australia-United States Free Trade Area"**	* CGE, GTAP (v4) model Updated by CIE to 1998-1999 data and corrected for 'apparent irregularities and inconsistencies' * Static * Perfectly competitive * Constant returns to scale in production * 16 x 24 aggregation * Neoclassical utility and profit maximisation. Capital stock constant (i.e. short run closure)	- Full trade liberalisation - 50% reduction in trade barriers - 25% reduction in trade barriers	The effects given are the percentage increase (decrease) in real GDP compared to the baseline scenario, and the change in the value of exports. **Full liberalisation:** Australia 0.34% US 0.02% **50% reduction:** Australia 0.16% US 0.01% **25% reduction:** Australia 0.08% US 0.01% Effects on third countries are mentioned only briefly and there are no significant real GDP effects, although there is evidence of deteriorating terms of trade for Canada, China, Japan, Korea and ASEAN. The value of exports from Australia to New Zealand is estimated to fall by $US36million. Exports to all regions other than the US will fall slightly.	The impact of excluding the dairy and sugar sectors is significant with GDP decreasing dramatically. Overall there are real GDP gains for both member countries. The effects on third countries are negligible, although there are some negative terms of trade movements.
Choi, Schott and Gilbert (May 2001) ***Free Trade Between Korea and the United States?***	* CGE model, GTAP (v4) * Static * Perfect competition * 10 x 10 aggregation * Standard GTAP macro closure, two different micro closures. First is medium-run approach, fixed factor endowments and price changes maintain full employment. Second is long-run, where the capital stock can change and the rate of return to capital is set exogenously.	1. Full liberalisation between US and Korea. Results are estimated for both the medium and the long term. 2. Liberalisation between Korea and the US in non-agricultural sectors only. Results are estimated for both the medium and long term.	The effects given here are welfare (real purchasing power) measured using equivalent variation in both US$ millions and as a percentage of GDP. **1.** US gains $3783.4m (0.06%GDP) in the medium run and $8934.6m (0.13% GDP) in the long run. Korea gains US$4099.6m (0.91% GDP) in the medium run and $10960m (2.41%) in the long run. Japan loses up to -$3581.9m in the long run (-0.07% GDP). All	A US-Korea FTA would benefit both the countries involved but create large trade diversion effects, especially for Japan and China. The deal is not worth doing unless it is comprehensive and covers agriculture.

	* 5 factors of production (land, natural resources, capital, skilled and unskilled labour)		other regions lose slightly as well. **2.** When agriculture is omitted gains are halved. US gains $4196.1m or 0.06% of GDP in the long run and Korea gains up to $4923.4m or 1.09%. All other regions lose (except for Australia and New Zealand in the long run, who experience a negligible but positive welfare effect). Japan loses -$1941.2m or –0.04% of GDP in the long run. Strong trade diversion effects. China/HK and ASEAN lose more than 0.1% of GDP. ROW loses. Trade creation just exceeds trade diversion.	

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Western Hemisphere Agreements - Multiple				
Brown, Deardorff and Stern (2000) **"Computational Analysis of the Accession of Chile to NAFTA and Western Hemisphere Integration"**	* Michigan model: applied general equilibrium * Dynamic * Monopolistically competitive except agriculture which is perfectly competitive. * 9 x 29 aggregation[5] * Products are differentiated by firm. Other important assumptions include: full employment, balanced trade, fixed relative wages, fixed labour supply.	**1.** Tariff removal between Chile and the NAFTA countries. **2.** Expansion of NAFTA to include Chile, Argentina, Brazil and Colombia. **3.** Expansion of NAFTA to include Chile: tariff and non-tariff barriers. **4.** Expansions of NAFTA to include Chile: tariffs and capital flows. (Chile's accession to NAFTA is assumed to cause more foreign direct investment and consequently increase Chile's capital stock by 5%)	Effects given are changes in welfare (real purchasing power), measured by equivalent variation both in $US and as a percentage of GNP. **1.** US welfare rises by $4.6 billion, and Chile's by $101million. Overall welfare effects are negligible, as are trade diversion effects. **2.** Positive effects for all members ranging from 0.1 to 0.5% of GNP (except Argentina who loses 0.17%). Non-members gain insignificantly. **3.** Surprisingly, Chile actually loses compared with scenario 1. Chilean welfare increases 0.32% GNP or $90 mill. Argentina, Brazil and Colombia all lose slightly, while the NAFTA countries gain 0.01-0.1%. Economies of scale gains are smaller when NTBs are also liberalised. **4.** Chile experiences substantial gains of 5.5%. Argentina and the residual 'others' category lose slightly, while NAFTA members experience small welfare gains of between 0.01 and 0.1%.	Tariff removal will have positive gains for the countries involved, but these gains as well as the costs to non-members are very small. Where trade liberalisation succeeds in increasing investment flows the gains are substantially bigger. The model does result in exaggerated estimates of gains from economies of scale, however the error is small, given than the gains from liberalisation itself are small. The authors conclude that hemispheric integration should be viewed positively given that effects are likely to be positive and costs small.

[5] Aggregation stated as region x commodity.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Diao, Xinshen; Somwaru, Agapi (2000) **"An Inquiry on General Equilibrium Effects of Mercosur."**	* CGE model, GTAP (v3). * Dynamic based on inter-temporal optimisation * Perfect competition * 8 x 6 aggregation * Armington assumption. Home firm equities and foreign bonds are assumed to be perfect substitutes. Each region has a representative firm whose value-added production function for capital and labour is Cobb-Douglas. Each region also has a representative household who allocates income to consumption and savings to maximise an inter-temporal utility function.	**1.** Trade liberalisation between Mercosur countries. **2.** Trade liberalisation between Mercosur countries and harmonised external tariff rates. The base level for the external tariffs is taken to be roughly the world average for comparable goods.	Effect given is changes in welfare (real purchasing power), measured as a percentage change in equivalent variation from the baseline steady state. **1.** Welfare increase 0.318% for Argentina and 0.311% for Brazil. Real GDP increase by 1.4% for Argentina and 0.7% for Brazil. Intra-Mercosur trade increases with Argentine exports to Brazil increasing around 200% and Brazilian exports to Argentina doubling. **2.** Welfare increases 0.17% in Argentina and 0.4% in Brazil, but GDP goes up 2.1% and 2.3% respectively. Intra-Mercosur trade doesn't expand by as much, but total exports increase by more than scenario 1.	Intra-Mercosur trade liberalisation coupled with external tariff harmonisation enlarges trade opportunities by more than simple FTA formation. In addition to this, scenario 2 does not have a trade diverting effect on non-member countries, except for the 'rest of the world' region. This is mostly because terms of trade effects are negative in scenario 1 and positive in scenario 2. Even in scenario 1, given the relative sizes of third countries, the trade diversion effects are not large. Overall the Mercosur agreement raises member country welfare by stimulating trade and investment. Lowering the common external tariff brings additional benefits when compared with simple intra-agreement trade liberalisation.
Harrison, Rutherford and Tarr (1997) **"Trade Policy Options for Chile: A Quantitative Evaluation"**	* CGE model, GTAP (v3), * Static * Constant returns to scale * 11 x 24 aggregation * 3 primary factors (labour, capital and land). * Revenue neutral requirement for government. Model also considers the lost revenue of government through tariff removal and lump sum transfers or uniform VAT to counter it.	1. Chile-Mercosur FTA, complete liberalisation with no subsidies or export taxes. The simulations are conducted for both low and medium elasticities of substitution for imports and results are for the scenario where a uniform VAT and trade policy are used together for tax replacement purposes. 2. Chile-Mercosur CU, Chile adopts common external tariff. Simulations conducted under the same scenarios as above.	Effect given is changes in welfare (real purchasing power), measured as a change in equivalent variation as a percentage of GDP. **1.** Chile experiences a 0.19% increase in GDP when the elasticities of substitution for imports are low, but loses welfare of 0.19% of GDP when the elasticities are central.. **2.** Chile experiences a 0.14% loss of GDP with low elasticities, and a 0.62% loss when elasticities are	Without complementary reduction in Mercosur's common external tariff an agreement with Mercosur would be counter productive. An FTA with NAFTA could be better for Chile than unilateral liberalisation due to improved market access.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
		2. Chile- NAFTA, complete trade liberalisation. Simulations conducted under the same scenario as above.	central. **3.** Chile gains 1.23% of GDP, conditional on full market access within NAFTA, and central elasticities of substitution. Results for third countries are not given.	
Rutherford and Martinez (2000) **"Welfare Effects of Regional Trade Integration of Central American and Caribbean Nations with NAFTA and Mercosur"**	* CGE model, GTAP (v4), * Static * Perfect competition * Constant returns to scale * 9 x 22 aggregation * Five factors of production, mobile between sectors but not regions, Armington assumption, model is subject to a balance of payments constraint. * Policy simulations constructed to be revenue-neutral but tariff replacement instrument assumed to be costly, imposing deadweight loss. * When Chile's export demand curve is downward sloping there will be an optimal export tax to maximise export profits, and this will be inversely related to elasticity of demand faced by Chile in the world markets. This is essentially how substitutable Chilean products are with those of other countries. When Chile's products are perfect substitutes the optimal export tax is zero and by Lerner Symmetry that implies the	**1.** Unilateral tariff reform by Central America and the Caribbean (CAM) on a non-discriminatory basis. **2.** Unilateral tariff reform by CAM on imports from NAFTA (Mercosur) **3.** CAM forms an FTA with NAFTA (Mercosur) Each scenario is simulated under both high and low elasticities of substitution and three different levels of the marginal excess burden of the tariff replacement mechanism.	Effect given is changes in welfare (real purchasing power) measured using percentage changes in equivalent variation from the base year 1995. **1.** Unilateral tariff reform gives benefits of 0.82% or 1.57% to CAM (low and high elasticities) **2.** Unilateral non-reciprocal tariff reform extended to NAFTA only or Mercosur only has negative welfare effects. **3.** An FTA with NAFTA has large positive welfare gains for CAM under all scenarios. The largest benefit coming where there is high elasticity of substitution and no marginal excess burden (4.63%). An FTA with Mercosur has small positive effects (less than 1%)	Welfare gains from trade reforms may be reduced (or be made negative when gains are of a small magnitude) if lump sum taxes are not available to replace tariff revenue losses. Most preferred policy would be to join NAFTA, followed by MFN trade reform aimed at tariff uniformity. Association with Mercosur would be least beneficial. In the CAM tariff revenue accounts for 48% of total revenue compared with just 4% in the US. This makes the means of tariff revenue replacement vital.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
	optimal import tariff should be zero. Hence the importance of elasticities in telling us how much market power Chile will have.			
Teixeira, Cypriano and Pinto (2002) **"Impacts of AFTA and MERCOEURO on Agribusiness in the Mercosul Countries"**	* Applied General Equilibrium model, GTAP (v4) * Static * Perfect competition * 9 x 10 aggregation * Model follows standard GTAP closure * Labour and capital are perfectly mobile, land is only used in agricultural activity. Armington assumption. Regional income is distributed via a Cobb-Douglas utility function. * The GTAP database is altered to include the effect of Mercosur, and export taxes on primary and semi-manufactured goods are removed to make the situation more realistic. Results include effects on the Mercosur countries Brazil, Argentina, Chile and Uruguay, but not Paraguay or Bolivia as they are not in the GTAP database	**1.** American Free Trade Area (AFTA), where tariffs are eliminated. **2.** AFTA, where tariffs, export subsidies and agricultural subsidies are eliminated. **3.** MERCOEURO FTA, All tariffs are removed between The EU and Mercosur. **4.** MERCOEURO FTA, tariffs, export subsidies and agricultural subsidies are removed.	Effects given are percentage changes in production levels compared to the baseline scenario, changes, GDP growth and welfare. Welfare is measured by percentage change in GDP and by equivalent variation in US $millions. **1.** Elimination of tariffs causes NAFTA sugar production to fall over 10%, while Brazilian sugar production increase. Wheat production in Brazil falls 3%, but exports of dairy from Mercosur countries increases over 11%. Mercosur countries (except Argentina) gain in GDP terms, NAFTA gains around $4000m but GDP increases only slightly. The EU loses, but insignificantly. **2.** NAFTA agricultural production decreases, especially rice, wheat, sugar and soybeans. Production of those commodities increases in Mercosur countries. Manufacturing increases within NAFTA and decreases in Mercosur. Compared with AFTA 1, the gains from subsidy removal are large for Mercosur. Effects within NAFTA are small, with EV of around $2000m and GDP virtually	In all scenarios agricultural exports and production in Mercosur countries increases. Of the four scenarios the last offers the greatest gains to Mercosur countries. All scenarios stimulate welfare growth within the Mercosur countries while leaving NAFTA and EU welfare levels relatively unaffected.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			unchanged. Brazil and Chile lose welfare overall. The EU loses around $1000m in EV terms. **3.** In general agribusiness in the EU decreases slightly and manufacturing and services industries increase output. Meat production in Mercosur increases, by 8.8% in Argentina, 16.6% in Uruguay and 4% in Brazil. Exports of soybeans from Mercosur decrease by over 4%. This scenario provides the greatest increase in Mercosur countries' welfare of all the scenarios and EU welfare also increases (EV gains of around $2000m). NAFTA countries lose slightly. **4.** In this scenario there is an intense decrease in agribusiness production in the EU (wheat production down 24.3%, corn production down 22% and soybeans down 9%). This scenario provides the greatest gains in equivalent welfare terms for the EU ($10000m), and Mercosur countries gain, although not as much as under MERCOEU RO scenario 1. NAFTA exports of wheat, corn and soybeans increases significantly. Effects on other regions are not given for any of the scenarios.	

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Watanuki and Monteagudo (2002) **"FTAA in Perspective: North-South and South-South Agreements in the Western Hemisphere Countries"**	* CGE model * Static analysis, but model includes some elements of 'new trade theory' * Imperfect competition * Constant returns to scale, except manufacturing industries which have increasing returns to scale and a contestable market structure. * 12 x 15 aggregation * Trade linked externalities, scale economies, TFP growth, capital accumulation. Model is benchmarked in 1997. * Differentiated products, three factors of production. Other assumptions include balanced trade, balanced budget, savings-investment identity, each country is a price taker, no financial markets.	**1.** South American Free Trade Area (SAFTA): Mercosur, Chile and the Andean Community eliminate import tariffs, export subsidies and domestic support. **2.** FTA between Andean Community and the US. **3.** FTA between Mercosur and the US. **4.** FTA between the Andean Community and the EU. **5.** FTA between Mercosur and the EU. **6.** Formation of the FTAA	Effect given is changes in real GDP, measured as a percentage increase (or decrease) in real GDP compared with the baseline scenario. **1.** GDP of members all increase in real GDP terms, especially Chile (1.14%) and 'rest of the Andean Community' (Bolivia, Ecuador, Peru) (1.2%). Effects on the NAFTA countries negligible, Caribbean and Central American (C&CA) countries' real GDP decreases 0.01%. **2.** Real GDP of Canada, Mexico, C&CA countries, Brazil and Chile rise very slightly, Colombia, Venezuela and 'rest of AC' increase real GDP by 0.6-1.7%. **3.** Only Mexico's decreases (-0.02 %), 2.5% increases for Brazil and over 1% for Argentina, but rest insignificant. **4.** EU real GDP goes up 0.5%, no regions experience decreases but largest increases for Andean Community countries (0.6% Venezuela, 0.95% Colombia and 1.8% for the rest) **5.** Over 4% increasess in real GDP for Argentina and Brazil, EU sees a 0.6% increases, no region's GDP decreases. **6.** All member countries experience real GDP increases, over 2% for Mercosur, Andean Community,	There is a high correlation between the size of the proposed economic area and the size of the expected welfare gains. SAFTA has political significance as a mid-term option for South America. Sectoral results are different for the Latin American countries with an FTA with the US increasing manufacturing exports, while one with the EU drastically increases agricultural exports. The best result for Mercosur is an agreement with the EU, for other American countries the FTAA gives the best results.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			Chile and CA&C countries. EU sees a 0.01% drop in real GDP.	

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Western Hemisphere Agreements- Individual				
Burfisher, Mary; Robinson, Sherman; Thierfelder, Karen (August 2002) **"Developing Countries and the Gains from Regionalism: Links Between Trade and Farm Policy Reforms in Mexico"**	* NAFTA-CGE model, in which three single country CGE models of the US, Mexico and Canada are linked through trade flows. * Static * Perfect competition * 26 x 3 aggregation * 7 factors of production (4 labour types, 2 land types and capital). * Each country has a single aggregate household which optimises a Cobb-Douglas utility function. Output supply is given by constant elasticity of substitution value added production functions. * Export supply and Import demand functions are specified for each country. Farm policies are represented as endogenous distortions in the model- price wedges, lump-sum income transfers or 'switching regimes'. Production activities in the rest of the world are not explicitly modelled, but it is assumed to have flat export supply curves and downward sloping aggregate import demand curves. Thus, there is a key assumption that supply from RTA partners is less elastic than from the rest of the world.	**1.** NAFTA liberalisation under 1993 levels of farm program expenditure. **2.** NAFTA liberalisation under 1997 levels of farm program expenditure.	Effects given are changes in real GDP and economic welfare. Changes in real GDP are measured using percentage increase (or decrease) in real GDP compared to the baseline scenario. Changes in welfare are measured using equivalent variation in US$ billions. **1.** US real GDP unchanged, Canada real GDP up 0.01%, Mexico real GDP up 0.03%. Using equivalent variation welfares measures in $US billions: US gains $0.34 bill, Canada $0.57 bill and Mexico loses $1.02 bill. **2.** US real GDP up 0.01%, Canada real GDP up 0.01%, Mexico real GDP up 0.26%. Using EV welfare measures in $US billions: US up $0.43 bill, Canada up $0.54 bill, Mexico up $0.34 bill.	Under both scenarios NAFTA has a greater impact on Mexican agriculture than on the farming sectors in the US and Canada. The authors find that Mexico experiences a welfare loss only when there are distorting domestic policies in place which prevent the efficient reallocation of resources. When domestic reforms accompany NAFTA trade liberalisation Mexico experiences welfare gains from the RTA. Trade creation from NAFTA exceeds trade diversion, particularly in the case of Mexico where exports to both NAFTA and non-NAFTA countries increase under both scenarios.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
Diao, Somwaru and Raney (1998) **"A Dynamic Evaluation of the Effects of Western Hemisphere Integration on the US economy"** Chapter 4 of *Regional Trade Agreements and US Agriculture* By Mary Burfisher and Elizabeth Jones (eds) 1998	* CGE model, GTAP (v3) * Dynamic, intertemporal with capital accumulation and trade linked to productivity increases and technology spillovers. * Perfect competition * 8 x 4 aggregation * Closure through the savings-investment identity (Note was made that tariff rates in Western hemisphere countries have come down significantly since 1992 (baseline year) and thus the effects of integration may be overestimated in this analysis).	The base against which all results are compared assumes that NAFTA, Mercosur and Uruguay Round agreements are not in effect. **1.** Mercosur, NAFTA and Uruguay round agreements all implemented. Western hemisphere integration excluding the US (tariff removal only). **2.** Mercosur, NAFTA and Uruguay round agreements implemented, Western hemisphere integration (FTAA) including the US (tariff removal only).	Effects given are GDP growth, changes in foreign asset ownership and the levels of exports and imports, and changes in the level of consumption . GDP growth is measured as a percentage increase (or decrease) on the baseline scenario. **1.** US GDP will increase 0.6% in total compared to the baseline, even if it is left out of the FTAA. If only the short-term resource allocation effects are considered (i.e. the comparative static effects) US GDP only increases by 0.08%. Foreign assets owned by US firms rise by 9% as investment opportunities arise. Mexico, Chile, Argentina and Brazil's GDPs would increase by more than 7%. The path of change in overall consumption follows that of GDP. **2.** US GDP will increase by 1.2% if the FTAA is formed and the US is included. If only the short-term resource allocation effects are considered (i.e. the comparative static effects) US GDP only increases by 0.18%. Foreign assets owned by US firms increases by 13% as investment opportunities increase. If the US joins the FTAA exports will rise by 2.6% and imports by 2.3% (as compared to scenario 1). Mexican, Chilean, Argentinean and Brazilian GDPs	The US will enjoy economic gains from Western Hemisphere integration regardless of whether it participates in the FTAA. When it becomes a member agricultural exports and imports increase, as do farm incomes. Consumption levels follow the growth path of GDP relatively closely, as income growth generally results in higher levels of consumption. The US has a comparative advantage in the financial markets, and as a result both the US and the rest of the hemisphere gains when the US invests in other American nations, especially when the US joins the FTAA. If agricultural trade is liberalised the US may face stiffer competition, especially in the long-run and in third country markets. In GDP terms the effects of FTAA membership or hemispheric integration are not large, however when dynamic considerations such as investment are considered there are substantial gains to be made.

Study	*Model features*	*Experiments*	*Economic Effects*	*Key Results/ Findings*
			will increase by more than 7% each. The path of change in overall consumption follows that of GDP.	
Xinshen and Somwaru (May 2000) **"A Dynamic Evaluation of the Effects of A Free Trade Area of the Americas- An Intertemporal, Global General Equilibrium Model"**	* CGE model, GTAP (v4), * Dynamic, intertemporal, trade liberalisation-productivity linkage * Perfect competition * 7 x 6 aggregation * Armington assumption. Capital stock remains constant, foreign bond accumulation constant.	1. Formation of FTAA, static effects only. 2. Formation of FTAA, TFP-linkage considered.	Effect given is changes in economic welfare, measured using equivalent variation and expressed as a percentage change on the base year. **1.** Trade diversion exceeds trade creation. Looking at inter-temporal effects Mercosur loses (-0.02% compared to the baseline), US gains, but only 0.04%. Canada and Mexico gain 0.03% and 0.07% respectively. Imports from non-member countries to Western Hemisphere countries decreases about 3-4%. **2.** Other Western Hemisphere countries gain over 4% compared to the baseline, Mercosur gains 6.75%, while the US gains just 0.08%. Canada gains 0.4 and Mexico 1.96% Trade diversion is reduced due to expanded markets in Western Hemisphere countries. Regions outside the Western Hemisphere are not included.	A static analysis of the FTAA finds that the benefits are small or non-existent, but when technology spillovers are considered the gains, especially to developing countries, can be large. Increases in investment opportunities across the region will also give higher gains than those captured by the changes in equivalent variation.

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