# 3

# Exploring the Economic Effects of Alternative Regional Trade Configurations

This chapter provides a preliminary analysis—based on computable general equilibrium (CGE) techniques—of the economic effects of the new regional trade developments in the Asia-Pacific region. Results are reported from CGE simulations of a large number of the new SRTA proposals, along with a range of alternative scenarios for the overall development of regional trade arrangements and their relation to the possible evolution of the global trading system. The initiatives and scenarios modeled in this study are grouped under four headings:

1. New bilateral and plurilateral SRTAs
   a. The transpacific initiatives (CRFTAs)
   b. Intra-Western Pacific initiatives

2. Potential steps to the establishment of an East Asian trade bloc[1]

3. APEC liberalization
   a. APEC nondiscriminatory liberalization
   b. An APEC preferential trading area

4. Bloc formation in the Asia-Pacific and global contexts

Each grouping provides the focus for exploration of a separate but related set of issues. The simulations in the first group cover the majority

1. This group includes some initiatives, such as the proposed Japan-South Korea and AFTA-CER free trade arrangements, that could also have been included in the first group.

of the current ''crop'' of bilateral and plurilateral SRTA proposals and thus provide the basis for an initial preliminary assessment of the new trend. The second group focuses on the economic effects of different potential building blocks in the establishment of an East Asian trade bloc, and some different configurations of such a bloc. The simulations here provide insights into some of the economic implications of such a development, and in particular the economic incentives and potential trade conflicts surrounding each possible configuration.

Simulations of APEC liberalization act as a kind of benchmark for the new developments, indicating the extent to which an APEC-wide approach continues to offer economic advantages over approaches based on more limited groupings. They thus provide a measure both of the opportunity cost to APEC members of turning away from APEC in favor of the new developments, and the strength of the case for instead finding ways to make APEC more effective, or more appealing to the full range of its members. The simulation of an APEC preferential area is included as an exploration of one possible approach to the latter concern.

The final section considers the potential impact of APEC and an East Asian bloc in relation to the possible emergence of a three-bloc world, with a particular focus on the interaction of the likely interests of the major economic powers inside and outside the Asia-Pacific region. A simulation of global liberalization is included as the ultimate benchmark for each of the last two groups of simulations. This allows for an assessment of the existing and potential new developments in relation to prospects for further progress toward a more open international economy through the multilateral approach to liberalization.

It needs to be stressed that the intention here is not to advocate any one regional trade configuration, but rather to highlight likely positive and negative economic and trade implications of the various alternatives, with a view to narrowing the range of options to those that offer relatively favorable economic outcomes. This in turn does not imply a prediction that any one of these outcomes is most likely to occur. Both in the real world and in the world of economic theory,[2] it is easy to point to cases in which governments do not implement trade liberalization, despite large potential gains in national economic welfare.

Whether implementation occurs is to a very considerable extent a matter of political economy. Arrangements that appear attractive at the aggregate national level may appear less so when governments consider their sectoral implications; political factors generally play a vital role in the choice of options, and in some cases may outweigh economic considerations. An intensive analysis of the political economy of the proposed arrangements is thus another essential element in any overall assessment of the

2. See, e.g, Panagariya (1999) for examples of some theoretical cases.

new trend toward subregionalism in the APEC region, but is beyond the scope of this book. Furthermore, the range of alternatives presented here is certainly not exhaustive. New, quite different proposals may emerge in the future. However, it is hoped that the results presented here contribute to setting benchmarks for evaluating further proposals.

## A Note on CGE Modeling

CGE models are widely used, very useful tools for simulating the effects of trade policy changes, such as those considered in this book.[3] A change in protection levels in any country alters the relative prices facing its consumers and producers—as well as those facing at least some producers and consumers among its trading partners. The result can be imagined as a chain of reactions in each country, involving adjustments in production and trade not only in the sectors directly affected by the change in protection, but also in all the industries that are either directly or indirectly connected to it.

The connection may arise because industries in different sectors are customers or suppliers of each other (e.g., a change in the price of steel affects the cost of producing cars and trucks, and also affects the demand for iron ore), or because consumers treat their products as substitutes or complements (e.g., a change in the price of cars affects the demand for bicycles, public transport, and gasoline). Some of the changes will have feedback effects on the industry where the initial change occurred (e.g., a change in transport costs will in turn affect the cost of producing steel). Typically, a change affecting any one industry will have ''ripple'' and feedback effects throughout the economy in which it is located and throughout the economies of its trading partners. In other words, ''everything affects everything else.''

CGE models capture these interdependencies within and between economies in a way that combines real world data with rigorous assumptions about the behavior of economic agents. For real world data, the models incorporate summary descriptions of the structure of each economy, broken down by sector. The information for each sector includes production levels, the input-output structure of production,[4] and the protection levels and trade flows applicable to the sector. The modeling of the behavior of economic agents is based on standard profit- and utility-maximizing principles, and the price mechanism is given the central role in allocating

3. There are a number of useful surveys of the CGE trade modeling literature. Particularly useful overviews include Bandara (1991) and (at a more general level) François and Reinert (1997).

4. ''Input-output structure'' refers to the proportion in which each sector combines the outputs of other sectors and the factors of production to produce its output.

resources: Prices rise or fall in response to changes in relative scarcity, and producers and consumers respond to changes in prices in the usual ways predicted by economic theory.

The power of modern computers is used to simulate the effect of ''shocks,'' such as changes in protection levels—which may occur in a single economy, in several economies, or in all economies covered by the model, and may be (but need not be) identical in each economy. The simulations are done by calculating the consequential changes throughout each economy needed to satisfy the requirements of profit and utility maximization, taking as given the assumed production technology in each sector. In general, this may involve changes in the production and trade flows for every sector in every economy. CGE simulations thus can capture economywide and regionwide effects in a manner that is both internally consistent and firmly grounded in both real world data and economic theory, which other techniques cannot do.

For this book, all simulations were undertaken using the same basic model, so that we have a consistent framework for analysis. The model is a perfectly competitive,[5] Armington trade model, based on Rutherford (1998). In structure, it is essentially the same as the intraperiod model used in Gilbert, Scollay, and Wahl (2000), but it uses a broader commodity aggregation. The GTAP4 database (McDougall, Elbehri, and Truong 1998) is our primary source of protection, trade, and production data. For reasons of computational efficiency, the dimensions of the model are restricted to 22 regions and 21 commodities, which are listed in table 3.1. The protection data in the GTAP4 database are adjusted to take full account of the implementation of the Uruguay Round (using a database developed by François and Strutt 1999) and AFTA (based on the authors' estimates, using data supplied by the ASEAN Secretariat). Protection data in the GTAP4 database already takes account of the implementation of NAFTA.

Because of data limitations, the treatment of services in the model is relatively crude. The entire services sector is incorporated into a single production sector in each economy, and adequate protection data are not available. Thus the simulations can indicate in broad terms the impact on the services sector of liberalization of goods trade, but liberalization of the services sector itself cannot be satisfactorily modeled.

In each liberalization scenario considered, the formation of an RTA or SRTA is modeled as the complete removal of tariffs by participating economies, on a preferential basis.[6] All simulations are implemented as ''comparative static'' experiments. This means that we can interpret the results as representing how the economic system would have looked in the base year had the relevant RTA or SRTA been in place, and having

5. The ''perfect competition'' assumption is important. Among other things, it rules out the inclusion of effects such as the exploitation of economies of scale.

6. Except, of course, in the case of APEC MFN liberalization.

**Table 3.1 Regional and commodity aggregations**

| Regions (22): | Sectors (21): |
|---|---|
| Australia | Rice |
| New Zealand | Wheat and grains |
| Japan | Other nongrain crops |
| South Korea | Forestry |
| Indonesia | Fisheries |
| Malaysia | Meat products |
| Philippines | Dairy products |
| Thailand | Other food products |
| China | Mining and quarrying |
| Canada | Textiles and apparel |
| United States | Wood products |
| Mexico | Chemical products |
| Singapore | Metal products |
| Taiwan | Fabricated metal products |
| Vietnam | Automobiles |
| Central America and Caribbean | Transportation equipment |
| Argentina | Electronic machinery |
| Brazil | Machinery |
| Chile | Other manufactured products |
| Rest of South America | Services |
| Europe | Capital goods |
| Other countries (rest of the world) | |

allowed all relevant economic adjustments to take place (given the model's characterization of the underlying structure of the system). (We provide further detail on the model structure and simulation assumptions in appendix A.)

CGE simulations can also be undertaken in a dynamic setting, projecting the effects of economic policy changes out to a specified future date, and taking account of changes during the period covered by the simulation in investment, the size of the labor force, and productivity.[7] It would naturally be of considerable interest to explore the possible development of Asia-Pacific trading relationships within a dynamic framework, but this is not done here. The substantial extra demands of dynamic simulations precluded their use for the large number of simulations described here.

## Interpretation of Results

Using the information generated by the simulations, this book focuses primarily on the estimated impact on net economic welfare of participants,

7. The simulations in Gilbert, Scollay, and Wahl (2000) provide an example of such a dynamic approach, and Scollay and Gilbert (2000) include a review of the use of dynamic simulations in the APEC context.

prospective participants, and nonparticipants in the various initiatives. This information is supplemented by information on changes in aggregate trade flows and in the aggregate income of factors of production,[8] where this can usefully throw additional light on the economic effects. The results being discussed are summarized in the chapter tables, and reference is made to them in the following discussion.

Tables 3.2, 3.3, 3.4, and 3.5 indicate, respectively, effects on aggregate economic welfare, exports, imports, and factor incomes. The subtables are arranged and numbered so that the various scenarios appear in the same order in each table. A brief explanation of an illustrative case may assist in interpretation. The example used for this illustration is the possible Japan-South Korea-China FTA, one of the more significant initiatives simulated. The results for this are found in tables 3.2d, 3.3d, 3.4d, and 3.5d. The relevant column in table 3.2d indicates welfare gains for Japan, South Korea, and China respectively equal to 0.25, 0.80, and 2.09 percent of GDP. Welfare effects on other economies and groupings are also shown in the column.

The minus signs attached to a large number of these effects show that many are negative. Some negative effects are quite large; for example, welfare losses are indicated for Taiwan, Malaysia, and Singapore respectively equal to 0.84, 0.70, and 0.87 percent of GDP. The overall effect on various groupings is shown in the lower rows of the column. The ''rest of the world'' group includes all countries not separately identified or included in one of the groups listed in one of the higher rows of the column. The overall effect on the APEC region (''total APEC'') is a welfare gain equal to 0.16 percent of the APEC members' combined GDP. This in turn is a composite of the overall welfare gain for the members of the simulated arrangement (''total members,'' in this case Japan, South Korea, and China), equal to 0.50 percent of their combined GDP, and the overall welfare effect on the APEC members not included in the proposed arrangement (''total APEC non-RTA members''), in this case a welfare loss of 0.06 percent of their combined GDP.[9] The overall effect on world welfare (''total world'') is a gain equal to 0.09 percent of world GDP, a composite of the overall effect on the members (''total members'') and the overall effect on all countries not included in the arrangement, whether APEC members or not (''total all nonmembers''), in this case a loss equal to 0.03 percent of their combined GDP.

The corresponding column in Table 3.3d indicates that exports of Japan, South Korea, and China respectively increase by 10.29, 19.49, and 44.36

8. The factors of production identified in the model are capital, land, natural resources, skilled labor, and unskilled labor.

9. The small overall welfare loss in this case clearly reflects the fact that the United States, which experiences only a very slight welfare loss, represents a very large share of the excluded APEC members' combined GDP.

**Table 3.2a Changes in welfare** (equivalent variation basis), **NAFTA-related transpacific bilaterals and plurilaterals** (percent of initial GDP)

| Country or group | Japan-Canada | Japan-Mexico | South Korea-Mexico | Singapore-Mexico | Singapore-United States | Pacific 5 |
|---|---|---|---|---|---|---|
| Japan | 0.10 | 0.01 | 0.00 | 0.00 | 0.00 | −0.01 |
| South Korea | −0.01 | −0.01 | 0.08 | 0.00 | 0.00 | −0.03 |
| China | −0.02 | −0.02 | −0.01 | 0.00 | −0.01 | −0.02 |
| Taiwan | −0.02 | −0.03 | 0.00 | 0.00 | −0.01 | −0.02 |
| Indonesia | 0.00 | 0.00 | 0.00 | 0.00 | −0.02 | −0.02 |
| Malaysia | 0.07 | −0.03 | −0.02 | 0.03 | −0.04 | −0.13 |
| Philippines | 0.08 | −0.01 | −0.01 | 0.00 | −0.05 | −0.06 |
| Thailand | 0.00 | 0.00 | 0.00 | 0.00 | −0.01 | −0.02 |
| Vietnam | −0.18 | −0.01 | −0.03 | −0.01 | −0.17 | −0.27 |
| Singapore | −0.01 | −0.02 | −0.01 | 0.13 | 0.70 | 0.92 |
| Australia | 0.00 | −0.01 | 0.00 | −0.01 | −0.01 | −0.06 |
| New Zealand | −0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.26 |
| United States | −0.02 | −0.01 | 0.00 | 0.00 | 0.00 | 0.02 |
| Canada | −1.17 | 0.00 | 0.00 | 0.00 | 0.00 | −0.01 |
| Mexico | 0.01 | 0.30 | 0.02 | 0.00 | −0.01 | −0.01 |
| Chile | 0.00 | 0.00 | 0.00 | −0.01 | −0.01 | −0.14 |
| Argentina | −0.58 | 0.00 | 0.00 | 0.00 | 0.00 | −0.01 |
| Brazil | −0.01 | 0.00 | 0.00 | 0.00 | 0.00 | −0.02 |
| Other South America | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | −0.01 |
| CACM/Caricom | −0.05 | 0.00 | 0.00 | −0.01 | −0.02 | −0.09 |
| European Union | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | −0.01 |
| Rest of world | −0.01 | 0.00 | 0.00 | 0.00 | −0.01 | −0.01 |
| Total APEC | −0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total members | −0.02 | 0.02 | 0.06 | 0.01 | 0.05 | 0.02 |
| Total APEC non-RTA members | −0.01 | −0.01 | 0.00 | 0.00 | 0.00 | −0.02 |
| Total all nonmembers | −0.01 | 0.00 | 0.00 | 0.00 | 0.00 | −0.01 |
| Total world | −0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

APEC = Asia Pacific Economic Cooperation.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
RTA = regional trade agreement

*Source:* Model simulations.

**Table 3.2b Changes in welfare** (equivalent variation basis), **Chile-related transpacific bilaterals and plurilaterals** (percent of initial GDP)

| Country or group | Japan-Chile | South Korea-Chile | Singapore-Chile | New Zealand-Chile | New Zealand-Singapore-Australia-Chile |
|---|---|---|---|---|---|
| Japan | −0.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| South Korea | −0.01 | 0.06 | 0.00 | 0.00 | 0.00 |
| China | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Taiwan | −0.01 | 0.00 | 0.00 | 0.00 | −0.01 |
| Indonesia | 0.00 | 0.00 | 0.00 | 0.00 | −0.01 |
| Malaysia | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 |
| Philippines | 0.00 | 0.00 | 0.00 | 0.00 | −0.01 |
| Thailand | 0.00 | 0.00 | 0.00 | 0.00 | −0.01 |
| Vietnam | 0.01 | −0.01 | −0.01 | 0.00 | −0.09 |
| Singapore | −0.01 | 0.00 | 0.03 | 0.00 | 0.28 |
| Australia | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| New Zealand | −0.13 | 0.00 | 0.00 | 0.02 | 0.03 |
| United States | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Canada | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Mexico | −0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| Chile | 1.14 | −0.08 | −0.01 | 0.00 | −0.03 |
| Argentina | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Brazil | 0.00 | −0.01 | 0.00 | 0.00 | 0.00 |
| Other South America | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| CACM/Caricom | 0.01 | −0.02 | 0.00 | 0.00 | −0.01 |
| European Union | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rest of world | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total APEC | −0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total members | −0.03 | 0.04 | 0.01 | 0.01 | 0.02 |
| Total APEC non-RTA members | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total all nonmembers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total world | −0.01 | 0.00 | 0.00 | 0.00 | 0.00 |

APEC = Asia Pacific Economic Cooperation.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
RTA = regional trade agreement

*Source:* Model simulations.

percent. Once again, there are a large number of minus signs in the column, indicating that an FTA between Japan, South Korea, and China would cause the exports of many countries to fall. For example, the exports of Taiwan, Malaysia, and Singapore fall by 3.08, 0.70, and 1.81 percent, respectively. Total exports of the APEC region rise by 7.36 percent, but this is a composite of the rise of 22.18 percent in the combined exports of the three members, and the 0.57 percent decline in the combined exports

**Table 3.2c Changes in welfare** (equivalent variation basis), **Western Pacific bilaterals and plurilaterals** (percent of initial GDP)

| Country or group | Japan-Singapore | Singapore-Australia | Singapore-New Zealand | New Zealand-Singapore-Australia | South Korea-New Zealand |
|---|---|---|---|---|---|
| Japan | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| South Korea | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| China | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Taiwan | −0.02 | −0.01 | 0.00 | −0.01 | 0.00 |
| Indonesia | −0.02 | −0.01 | 0.00 | −0.01 | 0.00 |
| Malaysia | −0.35 | 0.01 | 0.00 | 0.01 | −0.01 |
| Philippines | −0.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| Thailand | −0.09 | −0.01 | 0.00 | −0.01 | 0.00 |
| Vietnam | −0.63 | −0.07 | −0.03 | −0.08 | 0.00 |
| Singapore | 4.06 | 0.21 | 0.04 | 0.25 | 0.00 |
| Australia | −0.02 | −0.01 | 0.00 | −0.01 | 0.00 |
| New Zealand | −0.23 | −0.01 | 0.03 | 0.02 | 0.28 |
| United States | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Canada | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Mexico | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Chile | −0.01 | −0.01 | 0.00 | −0.01 | 0.00 |
| Argentina | −0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| Brazil | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other South America | −0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| CACM/Caricom | −0.02 | −0.01 | 0.00 | −0.01 | 0.00 |
| European Union | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rest of world | −0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total APEC | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total members | 0.05 | 0.01 | 0.04 | 0.01 | 0.04 |
| Total APEC non-RTA members | −0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total all nonmembers | −0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total world | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

APEC = Asia Pacific Economic Cooperation.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
RTA = regional trade agreement

*Source:* Model simulations.

of all other APEC members. World exports rise by 3.26 percent, being a composite of the rise in the combined exports of the three members and a fall of 0.28 percent in the combined exports of all other countries in the global economy. The effects on imports can be similarly extracted from the corresponding column in table 3.4d, and the effects on factor incomes can be read across the relevant rows of table 3.5d.[10]

*(text continues on page 76)*

10. Note that aggregate effects for ''total APEC,'' ''total APEC non-RTA members,'' ''total world,'' and ''total all nonmembers'' are not shown in table 3.5.

**Table 3.2d Changes in welfare** (equivalent variation basis), **East Asian and Western Pacific configurations** (percent of initial GDP)

| Country or group | Japan-South Korea | Japan-South Korea (excluding agriculture) | Japan-South Korea-China | AFTA-Japan-South Korea | AFTA-Japan-South Korea-China (East Asia) | AFTA-CER-Japan-South Korea-China (Western Pacific) | AFTA-CER-Japan-South Korea | AFTA-CER |
|---|---|---|---|---|---|---|---|---|
| Japan | 0.01 | 0.04 | 0.25 | 0.12 | 0.34 | 0.57 | 0.38 | −0.02 |
| South Korea | −0.28 | −0.15 | 0.80 | 0.18 | 1.18 | 1.20 | 0.19 | −0.05 |
| China | −0.05 | −0.04 | 2.09 | −0.21 | 1.96 | 1.94 | −0.25 | −0.03 |
| Taiwan | −0.05 | −0.03 | −0.84 | −0.28 | −1.10 | −1.18 | −0.34 | −0.08 |
| Indonesia | −0.01 | −0.01 | −0.15 | 0.76 | 0.69 | 0.71 | 0.70 | 0.57 |
| Malaysia | −0.07 | −0.07 | −0.70 | 0.03 | 1.24 | 1.74 | 0.74 | 1.13 |
| Philippines | −0.05 | −0.04 | −0.35 | −0.31 | −0.19 | 1.01 | 0.978 | 0.05 |
| Thailand | −0.03 | −0.02 | −0.21 | 0.82 | 1.00 | 1.19 | 1.09 | 0.08 |
| Vietnam | −0.05 | −0.01 | −0.54 | 0.63 | 1.25 | 1.47 | 0.77 | −1.41 |
| Singapore | −0.07 | −0.06 | −0.87 | 4.53 | 4.12 | 0.92 | 1.33 | 2.04 |
| Australia | −0.02 | −0.01 | −0.05 | −0.08 | −0.11 | 1.05 | 1.12 | 0.11 |
| New Zealand | −0.06 | −0.01 | −0.12 | −0.29 | −0.36 | 4.32 | 4.31 | 1.12 |
| United States | −0.01 | −0.01 | −0.02 | −0.02 | −0.03 | −0.06 | −0.05 | −0.01 |
| Canada | 0.00 | 0.00 | 0.05 | 0.02 | 0.06 | 0.06 | 0.01 | 0.01 |
| Mexico | 0.00 | 0.00 | 0.02 | 0.01 | 0.03 | 0.03 | 0.01 | 0.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chile | −0.02 | −0.01 | 0.03 | −0.03 | 0.02 | 0.01 | −0.05 | 0.00 |
| Argentina | −0.01 | 0.00 | −0.50 | −0.20 | −0.52 | −0.58 | −0.56 | −0.01 |
| Brazil | 0.00 | 0.00 | −0.02 | −0.02 | −0.05 | −0.05 | −0.03 | −0.01 |
| Other South America | 0.00 | 0.00 | −0.01 | −0.01 | −0.02 | −0.01 | −0.01 | 0.00 |
| CACM/Caricom | 0.00 | 0.02 | −0.17 | −0.06 | −0.22 | −0.33 | −0.19 | −0.06 |
| European Union | −0.01 | 0.00 | 0.02 | −0.04 | −0.02 | −0.02 | −0.03 | −0.01 |
| Rest of world | −0.01 | −0.01 | −0.05 | −0.09 | −0.14 | −0.14 | −0.09 | −0.02 |
| Total APEC | −0.01 | 0.00 | 0.16 | 0.06 | 0.25 | 0.35 | 0.17 | 0.02 |
| Total members | −0.01 | 0.02 | 0.50 | 0.21 | 0.64 | 0.84 | 0.50 | 0.44 |
| Total APEC non-RTA members | −0.01 | −0.01 | −0.06 | −0.04 | −0.06 | −0.08 | −0.07 | −0.01 |
| Total all nonmembers | −0.01 | −0.01 | −0.03 | −0.05 | −0.06 | −0.07 | −0.06 | −0.01 |
| Total world | −0.01 | 0.00 | 0.09 | 0.01 | 0.11 | 0.16 | 0.07 | 0.00 |

AFTA = ASEAN Free Trade Area.
APEC = Asia Pacific Economic Cooperation.
ASEAN = Association of Southeast Asian Nations.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
CER = Australia-New Zealand Closer Economic Relations Trade Agreement.
RTA = regional trade agreement

*Source:* Model simulations.

**Table 3.2e Changes in welfare** (equivalent variation basis), **APEC, global liberalization, and East Asian bloc formation** (percent of initial GDP)

| Country or group | **APEC MFN basis** | **APEC preferential basis** | **APEC MFN** (excluding United States) | **APEC MFN** (excluding United States and Japan) | **AFTA-CER-Japan-South Korea-China** (Western Pacific) | **Global liberalization** |
|---|---|---|---|---|---|---|
| Japan | 0.68 | 0.74 | 0.64 | 0.25 | 0.57 | 0.98 |
| South Korea | 1.08 | 1.63 | 0.94 | 0.93 | 1.20 | 1.83 |
| China | 3.35 | 2.56 | 3.19 | 3.05 | 1.94 | 4.51 |
| Taiwan | 3.82 | 4.36 | 3.58 | 3.29 | −1.18 | 4.95 |
| Indonesia | 0.55 | 0.70 | 0.53 | 0.50 | 0.71 | 1.31 |
| Malaysia | 1.35 | 1.59 | 1.74 | 1.95 | 1.74 | 6.05 |
| Philippines | 3.94 | 4.16 | 2.47 | 2.41 | 1.01 | 3.42 |
| Thailand | 1.93 | 1.81 | 1.90 | 1.71 | 1.19 | 2.57 |
| Vietnam | 1.63 | 1.28 | 1.41 | 1.64 | 1.47 | 0.08 |
| Singapore | 0.37 | 0.72 | 0.21 | −0.12 | 0.92 | 6.94 |
| Australia | 0.81 | 0.81 | 0.70 | 0.12 | 1.05 | 0.98 |
| New Zealand | 2.53 | 3.60 | 2.42 | 0.80 | 4.32 | 4.90 |
| United States | 0.01 | −0.01 | 0.06 | 0.05 | −0.06 | −0.05 |
| Canada | −0.07 | 0.02 | 0.12 | 0.16 | 0.06 | 0.36 |
| Mexico | 0.07 | 0.12 | 0.31 | 0.30 | 0.03 | 1.06 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Chile | 0.24 | 0.18 | 0.22 | 0.20 | 0.01 | 1.20 |
| Argentina | −0.57 | −0.69 | −0.59 | −0.07 | −0.58 | 0.18 |
| Brazil | 0.06 | −0.14 | 0.01 | 0.01 | −0.05 | 0.30 |
| Other South America | 0.03 | −0.08 | 0.03 | 0.03 | −0.01 | 0.74 |
| CACM/Caricom | 0.24 | −0.93 | −0.15 | −0.01 | −0.33 | 1.27 |
| European Union | 0.05 | −0.06 | 0.04 | 0.05 | −0.02 | 0.22 |
| Rest of world | 0.13 | −0.21 | 0.12 | 0.11 | −0.14 | 0.12 |
| Total APEC | 0.56 | 0.58 | 0.56 | 0.39 | 0.35 | 0.84 |
| Total members | 0.56 | 0.58 | 0.98 | 1.35 | 0.84 | n.a. |
| Total APEC non-RTA members | n.a. | n.a. | n.a. | n.a. | −0.08 | n.a. |
| Total all nonmembers | 0.05 | −0.12 | 0.04 | 0.09 | −0.07 | n.a. |
| Total world | 0.34 | 0.27 | 0.33 | 0.24 | 0.16 | 0.56 |

n.a. = not applicable
AFTA = ASEAN Free Trade Area.
ASEAN = Association of Southeast Asian Nations.
APEC = Asia Pacific Economic Cooperation.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
CER = Australia–New Zealand Closer Economic Relations Trade Agreement.
MFN = most favored nation
RTA = regional trade agreement

*Source:* Model simulations.

**Table 3.2f Changes in welfare** (equivalent variation basis), **FTAA, APEC, global liberalization, and East Asian bloc formation** (percent of initial GDP)

| Country or group | FTAA | APEC MFN and FTAA | APEC MFN basis | APEC preferential and FTAA | APEC preferential basis | Western Pacific bloc | Western Pacific bloc and FTAA | Global liberalization |
|---|---|---|---|---|---|---|---|---|
| Japan | 0.00 | 0.68 | 0.68 | 0.74 | 0.74 | 0.57 | 0.57 | 0.98 |
| South Korea | −0.10 | 1.01 | 1.08 | 1.56 | 1.63 | 1.20 | 1.12 | 1.83 |
| China | −0.08 | 3.33 | 3.35 | 2.51 | 2.56 | 1.94 | 1.88 | 4.51 |
| Taiwan | −0.04 | 3.79 | 3.82 | 4.32 | 4.36 | −1.18 | −1.21 | 4.95 |
| Indonesia | −0.04 | 0.53 | 0.55 | 0.67 | 0.70 | 0.71 | 0.68 | 1.31 |
| Malaysia | −0.02 | 1.34 | 1.35 | 1.59 | 1.59 | 1.74 | 1.74 | 6.05 |
| Philippines | −0.34 | 3.87 | 3.94 | 3.93 | 4.16 | 1.01 | 0.79 | 3.42 |
| Thailand | −0.06 | 1.90 | 1.93 | 1.76 | 1.81 | 1.19 | 1.14 | 2.57 |
| Vietnam | −0.15 | 1.54 | 1.63 | 1.16 | 1.28 | 1.47 | 1.35 | 0.08 |
| Singapore | −0.01 | 0.36 | 0.37 | 0.73 | 0.72 | 0.92 | 0.91 | 6.94 |
| Australia | −0.01 | 0.81 | 0.81 | 0.80 | 0.81 | 1.05 | 1.03 | 0.98 |
| New Zealand | −0.06 | 2.50 | 2.53 | 3.55 | 3.60 | 4.32 | 4.27 | 4.90 |
| United States | 0.06 | 0.07 | 0.01 | 0.06 | −0.01 | −0.06 | 0.01 | −0.05 |
| Canada | 0.04 | −0.03 | −0.07 | 0.06 | 0.02 | 0.06 | 0.10 | 0.36 |
| Mexico | 0.27 | 0.31 | 0.07 | 0.35 | 0.12 | 0.03 | 0.29 | 1.06 |
| Chile | −0.04 | 0.29 | 0.24 | 0.30 | 0.18 | 0.01 | 0.00 | 1.20 |
| Argentina | 0.26 | −0.35 | −0.57 | −0.39 | −0.69 | −0.58 | −0.29 | 0.18 |
| Brazil | 0.15 | 0.12 | 0.06 | 0.04 | −0.14 | −0.05 | 0.11 | 0.30 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Other South America | 0.19 | 0.16 | 0.03 | 0.11 | −0.08 | −0.01 | 0.19 | 0.74 |
| CACM/Caricom | 0.01 | −1.13 | 0.24 | −1.49 | −0.93 | −0.33 | −0.44 | 1.27 |
| European Union | −0.02 | 0.04 | 0.05 | −0.08 | −0.06 | −0.02 | −0.05 | 0.22 |
| Rest of world | −0.03 | 0.11 | 0.13 | −0.23 | −0.21 | −0.14 | −0.16 | 0.12 |
| Total APEC | 0.02 | 0.59 | 0.56 | 0.60 | 0.58 | 0.35 | 0.37 | 0.84 |
| Total members | 0.08 | 0.54 | 0.56 | 0.55 | 0.58 | 0.84 | 0.37 | n.a. |
| Total APEC non-RTA members | −0.02 | n.a. | n.a. | n.a. | n.a. | −0.08 | −1.21 | n.a. |
| Total all nonmembers | −0.02 | 0.05 | 0.05 | −0.11 | −0.12 | −0.07 | −0.10 | n.a. |
| Total world | 0.01 | 0.35 | 0.34 | 0.28 | 0.27 | 0.16 | 0.18 | 0.56 |

n.a. = not applicable
APEC = Asia Pacific Economic Cooperation.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
FTAA = Free Trade Area of the Americas.
MFN = most favored nation
RTA = regional trade agreement

*Source:* Model simulations.

**Table 3.3a Changes in exports, NAFTA-related transpacific bilaterals and plurilaterals** (export values FOB; percentage change from base)

| Country or group | Japan-Canada | Japan-Mexico | South Korea-Mexico | Singapore-Mexico | Singapore-United States | Pacific 5[a] |
|---|---|---|---|---|---|---|
| Japan | 1.39 | 0.72 | −0.02 | −0.01 | −0.02 | −0.21 |
| South Korea | 0.00 | −0.03 | 0.69 | −0.01 | −0.02 | −0.19 |
| China | −0.07 | −0.03 | −0.02 | −0.01 | −0.05 | −0.12 |
| Taiwan | −0.09 | −0.08 | −0.01 | −0.01 | −0.04 | −0.10 |
| Indonesia | 0.02 | 0.02 | 0.00 | 0.02 | −0.10 | −0.15 |
| Malaysia | 0.02 | −0.02 | −0.03 | 0.01 | −0.05 | −0.10 |
| Philippines | 0.07 | 0.02 | −0.02 | 0.00 | −0.17 | −0.15 |
| Thailand | −0.01 | 0.00 | 0.00 | 0.00 | −0.03 | −0.05 |
| Vietnam | −0.16 | 0.00 | 0.00 | 0.08 | 0.00 | −0.25 |
| Singapore | 0.10 | −0.01 | −0.02 | 0.34 | 0.88 | 1.35 |
| Australia | −0.27 | −0.05 | 0.00 | −0.01 | −0.03 | 5.90 |
| New Zealand | −1.29 | 0.00 | 0.00 | 0.00 | 0.00 | 2.42 |
| United States | −0.51 | −0.32 | −0.07 | −0.02 | 0.17 | 1.42 |
| Canada | 3.32 | −0.05 | 0.00 | 0.00 | −0.03 | −0.05 |
| Mexico | 0.00 | 3.12 | 1.00 | 0.24 | −0.06 | −0.10 |
| Chile | −0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 5.55 |
| Argentina | −4.54 | −0.03 | 0.00 | 0.00 | 0.00 | −0.19 |
| Brazil | −0.01 | −0.06 | −0.01 | 0.00 | −0.03 | −0.08 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Other South America | −0.12 | 0.00 | 0.00 | 0.00 | −0.02 | −0.10 |
| CACM/Caricom | −0.20 | −0.06 | 0.00 | 0.00 | −0.06 | −0.51 |
| European Union | 0.05 | −0.01 | 0.00 | 0.00 | 0.00 | −0.08 |
| Rest of world | −0.10 | −0.01 | −0.01 | 0.00 | −0.02 | −0.04 |
| Total APEC | 0.33 | 0.12 | 0.04 | 0.61 | 0.45 | 0.63 |
| Total members | 1.94 | 1.06 | 0.80 | 0.57 | 1.05 | 1.84 |
| Total APEC non-RTA members | −0.24 | −0.14 | −0.03 | 0.04 | −0.60 | −0.14 |
| Total all nonmembers | −0.11 | −0.06 | −0.02 | 0.04 | −0.73 | −0.10 |
| Total world | 0.13 | 0.05 | 0.02 | 0.61 | 0.33 | 0.24 |

APEC = Asia-Pacific Economic Cooperation.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
FOB = free on board
RTA = regional trade agreement

a. Pacific 5 includes Australia, Chile, New Zealand, Singapore, and the United States.

*Source:* Model simulations.

**Table 3.3b Changes in exports, Chile-related transpacific bilaterals and plurilaterals** (export values FOB; percentage change from base)

| Country or group | Japan-Chile | South Korea-Chile | Singapore-Chile | New Zealand-Chile | New Zealand-Singapore-Australia-Chile |
|---|---|---|---|---|---|
| Japan | 0.72 | −0.01 | 0.00 | 0.00 | −0.01 |
| South Korea | −0.08 | 0.42 | 0.00 | 0.00 | −0.01 |
| China | −0.01 | −0.01 | 0.00 | 0.00 | −0.02 |
| Taiwan | −0.06 | 0.00 | 0.00 | 0.00 | −0.02 |
| Indonesia | 0.00 | 0.00 | 0.00 | 0.00 | −0.07 |
| Malaysia | −0.02 | 0.00 | 0.00 | 0.00 | −0.01 |
| Philippines | −0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| Thailand | −0.02 | 0.00 | 0.00 | 0.00 | −0.01 |
| Vietnam | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 |
| Singapore | −0.01 | 0.00 | 0.07 | 0.00 | 0.63 |
| Australia | −0.11 | 0.00 | 0.00 | 0.00 | 0.49 |
| New Zealand | −0.57 | 0.00 | 0.00 | 0.15 | 0.46 |
| United States | −0.02 | −0.02 | 0.00 | 0.00 | −0.03 |
| Canada | −0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| Mexico | −0.06 | −0.02 | 0.00 | 0.00 | 0.00 |
| Chile | 9.18 | 2.01 | 0.22 | 0.18 | 0.76 |
| Argentina | 0.00 | −0.03 | 0.00 | 0.00 | −0.03 |
| Brazil | −0.17 | 0.03 | 0.00 | 0.00 | −0.01 |
| Other South America | 0.03 | −0.02 | 0.00 | 0.00 | −0.02 |
| CACM/Caricom | −0.02 | −0.14 | 0.00 | 0.00 | 0.00 |
| European Union | −0.02 | −0.01 | 0.00 | 0.00 | 0.00 |
| Rest of world | −0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total APEC | 0.18 | 0.03 | 0.00 | 0.00 | 2.24 |
| Total members | 1.07 | 0.63 | 0.10 | 0.17 | 2.34 |
| Total APEC non-RTA members | −0.04 | −0.01 | 0.00 | 0.00 | −0.09 |
| Total all nonmembers | −0.03 | −0.01 | 0.00 | 0.00 | −0.16 |
| Total world | 0.07 | 0.01 | 0.00 | 0.00 | 2.18 |

APEC = Asia Pacific Economic Cooperation.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
FOB = free on board
RTA = regional trade agreement

*Source:* Model simulations.

The interpretation of changes in trade flows and factor incomes is straightforward, but the measure used for changes in economic welfare requires explanation. Welfare changes are measured as the change of income at constant (initial equilibrium) prices that is equivalent to the change in utility associated with changes in the combination of goods

**Table 3.3c Changes in exports, Western Pacific bilaterals and plurilaterals** (export values FOB; percentage change from base)

| Country or group | Japan-Singapore | Singapore-Australia | Singapore-New Zealand | New Zealand-Singapore-Australia | Korea-New Zealand |
|---|---|---|---|---|---|
| Japan | 1.66 | −0.01 | 0.00 | −0.01 | −0.01 |
| South Korea | −0.07 | −0.01 | 0.00 | −0.01 | 0.32 |
| China | −0.10 | −0.02 | 0.00 | −0.02 | 0.00 |
| Taiwan | −0.15 | −0.02 | 0.00 | −0.02 | −0.01 |
| Indonesia | −0.16 | −0.07 | −0.02 | −0.07 | 0.00 |
| Malaysia | −0.45 | 0.00 | −0.01 | −0.01 | −0.01 |
| Philippines | −0.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| Thailand | −0.30 | −0.01 | 0.00 | −0.01 | −0.01 |
| Vietnam | −0.25 | 0.08 | 0.00 | 0.08 | 0.00 |
| Singapore | −2.43 | 0.46 | 0.10 | 0.55 | 0.00 |
| Australia | −0.36 | 0.45 | −0.03 | 0.42 | −0.04 |
| New Zealand | −1.08 | −0.05 | 0.41 | 0.31 | 1.91 |
| United States | −0.10 | −0.02 | 0.00 | −0.02 | −0.01 |
| Canada | −0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| Mexico | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Chile | −0.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| Argentina | −0.08 | 0.00 | 0.00 | 0.00 | 0.03 |
| Brazil | −0.08 | −0.01 | 0.00 | −0.01 | −0.01 |
| Other South America | −0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| CACM/Caricom | −0.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| European Union | −0.02 | 0.00 | 0.00 | 0.00 | −0.01 |
| Rest of world | −0.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total APEC | 0.09 | 0.78 | 0.01 | 1.20 | 0.02 |
| Total members | 0.83 | 0.90 | 0.14 | 1.28 | 0.50 |
| Total APEC non-RTA members | −0.14 | −0.13 | 0.00 | −0.09 | −0.01 |
| Total all nonmembers | −0.08 | −0.14 | 0.00 | −0.10 | −0.01 |
| Total world | 0.02 | 0.76 | 0.00 | 1.18 | 0.01 |

APEC = Asia Pacific Economic Cooperation.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
FOB = free on board
RTA = regional trade agreement

*Source:* Model simulations.

and services chosen by a representative household[11] between the initial equilibrium situation and the new equilibrium reflected in the simulation results. The technical term for the measure is ''equivalent variation'' (EV),

*(text continues on page 86)*

11. In the model, the existence is assumed in each economy of a single representative household, whose utility function drives final demand. When comparing alternative equilibriums, the equivalent variation measure is used to make an unambiguous comparison between the utility levels associated with the combinations of goods and services chosen by the economy's representative household in each case.

**Table 3.3d Changes in exports, East Asian and Western Pacific configurations** (export values FOB; percentage change from base)

| Country or group | Japan-South Korea | Japan-South Korea (excluding agriculture) | Japan-South Korea-China | AFTA-Japan-South Korea | AFTA-Japan-South Korea-China (East Asia) | AFTA-CER-Japan-South Korea-China (Western Pacific) | AFTA-CER-Japan-South Korea | AFTA-CER |
|---|---|---|---|---|---|---|---|---|
| Japan | 2.06 | 1.38 | 10.29 | 7.02 | 14.82 | 16.06 | 8.07 | −0.32 |
| South Korea | 8.21 | 6.24 | 19.49 | 12.07 | 22.96 | 23.66 | 12.94 | −0.30 |
| China | −0.20 | −0.16 | 44.36 | −0.92 | 47.28 | 47.78 | −1.02 | −0.31 |
| Taiwan | −0.17 | −0.11 | −3.08 | −0.96 | −4.04 | −4.26 | −1.13 | −0.31 |
| Indonesia | −0.03 | −0.02 | −0.72 | 6.42 | 8.00 | 8.34 | 6.22 | 4.20 |
| Malaysia | −0.06 | −0.07 | −0.70 | 7.00 | 7.94 | 8.89 | 8.22 | 6.76 |
| Philippines | −0.11 | −0.11 | −1.09 | 23.97 | 25.41 | 25.61 | 24.30 | 11.67 |
| Thailand | −0.01 | 0.02 | −0.14 | 10.63 | 11.84 | 12.18 | 11.09 | 4.34 |
| Vietnam | −0.08 | −0.08 | −0.90 | 10.08 | 11.07 | 10.82 | 9.84 | 3.11 |
| Singapore | −0.14 | −0.15 | −1.81 | −1.01 | −1.98 | 0.27 | 1.49 | 3.46 |
| Australia | −0.20 | −0.06 | −0.43 | −0.91 | −1.16 | 17.94 | 17.42 | 4.53 |
| New Zealand | −0.21 | 0.00 | −0.51 | −1.39 | −1.65 | 27.60 | 25.64 | 12.62 |
| United States | −0.25 | −0.23 | −0.35 | −0.67 | −0.80 | −1.33 | −1.16 | −0.21 |
| Canada | 0.06 | 0.08 | 0.56 | 0.23 | 0.65 | 0.61 | 0.25 | −0.02 |
| Mexico | 0.06 | 0.06 | 0.47 | 0.24 | 0.63 | 0.60 | 0.26 | 0.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chile | −0.13 | −0.09 | 0.22 | −0.18 | 0.13 | 0.13 | −0.18 | 0.00 |
| Argentina | −0.06 | 0.00 | −3.95 | −1.70 | −4.23 | −4.62 | −4.37 | −0.14 |
| Brazil | −0.07 | −0.03 | −0.15 | −0.66 | −0.86 | −0.95 | −0.70 | −0.15 |
| Other South America | −0.02 | −0.02 | −0.02 | 0.00 | −0.02 | 0.08 | 0.05 | 0.02 |
| CACM/Caricom | −0.04 | 0.00 | −0.41 | −0.37 | −0.80 | −0.92 | −0.55 | −0.33 |
| European Union | −0.03 | −0.03 | −0.03 | −0.48 | −0.53 | −0.61 | −0.49 | −0.17 |
| Rest of world | −0.04 | −0.02 | −0.22 | −0.30 | −0.50 | −0.52 | −0.33 | −0.08 |
| Total APEC | 0.72 | 0.50 | 7.36 | 2.71 | 9.84 | 10.90 | 3.67 | 0.86 |
| Total members | 3.44 | 2.47 | 22.18 | 7.72 | 20.34 | 21.21 | 9.61 | 5.47 |
| Total APEC non-RTA members | −0.15 | −0.13 | −0.57 | −0.59 | −0.85 | −1.19 | −0.86 | −0.23 |
| Total all nonmembers | −0.08 | −0.07 | −0.28 | −0.50 | −0.65 | −0.78 | −0.61 | −0.18 |
| Total world | 0.30 | 0.21 | 3.26 | 0.98 | 4.14 | 4.59 | 1.39 | 0.31 |

AFTA = ASEAN Free Trade Area.
APEC = Asia Pacific Economic Cooperation.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
CER = Australia–New Zealand Closer Economic Relations Trade Agreement.
FOB = free on board
RTA = regional trade agreement

*Source:* Model simulations.

**Table 3.3e Changes in exports, APEC, global liberalization, and East Asian bloc formation** (export values FOB; percentage change from base)

| Country or group | APEC MFN basis | APEC preferential basis | APEC MFN (excluding United States) | APEC MFN (excluding United States and Japan) | AFTA-CER-Japan-South Korea-China (Western Pacific) | Global liberalization |
|---|---|---|---|---|---|---|
| Japan | 16.47 | 17.98 | 15.39 | 7.51 | 16.06 | 28.55 |
| South Korea | 23.40 | 26.28 | 22.17 | 22.06 | 23.66 | 39.68 |
| China | 58.85 | 57.78 | 57.18 | 56.38 | 47.78 | 77.36 |
| Taiwan | 21.19 | 24.03 | 20.13 | 19.09 | −4.26 | 30.88 |
| Indonesia | 8.80 | 10.44 | 8.09 | 8.21 | 8.34 | 21.20 |
| Malaysia | 10.05 | 11.13 | 9.57 | 10.00 | 8.89 | 23.98 |
| Philippines | 38.65 | 41.29 | 33.93 | 34.32 | 25.61 | 52.83 |
| Thailand | 14.78 | 15.38 | 14.54 | 14.17 | 12.18 | 27.46 |
| Vietnam | 10.25 | 10.66 | 9.92 | 10.82 | 10.82 | 14.59 |
| Singapore | −1.67 | −0.28 | −1.55 | −1.23 | 0.27 | 13.11 |
| Australia | 17.61 | 18.71 | 16.25 | 11.97 | 17.94 | 29.25 |
| New Zealand | 19.57 | 24.82 | 19.00 | 11.74 | 27.60 | 43.82 |
| United States | 7.16 | 7.26 | 1.58 | 1.34 | −1.33 | 19.98 |
| Canada | 1.43 | 2.46 | 3.82 | 4.06 | 0.61 | 8.66 |
| Mexico | 5.55 | 4.54 | 7.50 | 7.74 | 0.60 | 14.91 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Chile | 14.01 | 10.21 | 14.06 | 14.19 | 0.13 | 18.35 |
| Argentina | −4.15 | −5.68 | −4.28 | −0.25 | −4.62 | 32.16 |
| Brazil | 1.26 | −2.22 | 1.21 | 1.01 | −0.95 | 54.03 |
| Other South America | −0.14 | −0.41 | 0.02 | 0.12 | 0.08 | 36.83 |
| CACM/Caricom | 0.45 | −3.81 | −1.27 | −0.92 | −0.92 | 32.26 |
| European Union | −0.22 | −1.00 | −0.26 | −0.15 | −0.61 | 10.19 |
| Rest of world | 0.49 | −1.02 | 0.32 | 0.32 | −0.52 | 35.83 |
| Total APEC | 16.47 | 17.26 | 14.40 | 12.59 | 10.90 | 29.35 |
| Total members | 16.47 | 17.26 | 19.80 | 20.91 | 21.21 | n.a. |
| Total APEC non-RTA members | n.a. | n.a. | n.a. | n.a. | −1.19 | n.a. |
| Total all nonmembers | −0.05 | −1.11 | 0.20 | 1.05 | −0.78 | n.a. |
| Total world | 7.43 | 7.20 | 6.44 | 5.69 | 4.59 | 23.23 |

n.a. = not applicable
AFTA = ASEAN Free Trade Area.
ASEAN = Association of Southeast Asian Nations.
APEC = Asia Pacific Economic Cooperation.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
CER = Australia–New Zealand Closer Economic Relations Trade Agreement.
FOB = free on board
MFN = most favored nation
RTA = regional trade agreement

*Source:* Model simulations.

**Table 3.3f Changes in exports, FTAA, APEC, global, and East Asian bloc liberalization** (export values FOB; percentage change from base)

| Country or group | FTAA | APEC MFN and FTAA | APEC MFN basis | APEC preferential and FTAA | APEC preferential basis | Western Pacific bloc and FTAA | Global liberalization |
|---|---|---|---|---|---|---|---|
| Japan | −0.03 | 16.49 | 16.47 | 17.96 | 17.98 | 15.96 | 28.55 |
| South Korea | −0.62 | 22.90 | 23.40 | 25.71 | 26.28 | 23.13 | 39.68 |
| China | −0.39 | 58.66 | 58.85 | 57.35 | 57.78 | 47.28 | 77.36 |
| Taiwan | −0.11 | 21.12 | 21.19 | 23.89 | 24.03 | −4.35 | 30.88 |
| Indonesia | −0.30 | 8.67 | 8.80 | 10.15 | 10.44 | 8.06 | 21.20 |
| Malaysia | −0.05 | 10.07 | 10.05 | 11.04 | 11.13 | 8.82 | 23.98 |
| Philippines | −0.94 | 38.72 | 38.65 | 40.66 | 41.29 | 25.08 | 52.83 |
| Thailand | −0.06 | 14.76 | 14.78 | 15.29 | 15.38 | 12.13 | 27.46 |
| Vietnam | −0.25 | 10.16 | 10.25 | 10.49 | 10.66 | 10.57 | 14.59 |
| Singapore | 0.13 | −1.55 | −1.67 | −0.15 | −0.28 | 0.36 | 13.11 |
| Australia | 0.11 | 17.77 | 17.61 | 18.77 | 18.71 | 18.01 | 29.25 |
| New Zealand | −0.26 | 19.46 | 19.57 | 24.56 | 24.82 | 27.39 | 43.82 |
| United States | 3.69 | 9.59 | 7.16 | 10.02 | 7.26 | 2.29 | 19.98 |
| Canada | 1.30 | 2.11 | 1.43 | 3.07 | 2.46 | 1.89 | 8.66 |
| Mexico | 2.90 | 7.66 | 5.55 | 6.93 | 4.54 | 3.46 | 14.91 |
| Chile | 6.76 | 9.89 | 14.01 | 9.76 | 10.21 | 6.94 | 18.35 |
| Argentina | 20.45 | 14.58 | −4.15 | 15.28 | −5.68 | 16.39 | 32.16 |
| Brazil | 29.37 | 26.71 | 1.26 | 26.26 | −2.22 | 28.58 | 54.03 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Other South America | 20.22 | 18.60 | −0.14 | 19.19 | −0.41 | 20.19 | 36.83 |
| CACM/Caricom | 24.73 | 12.12 | 0.45 | 13.29 | −3.81 | 22.42 | 32.26 |
| European Union | −0.21 | −0.37 | −0.22 | −1.18 | −1.00 | −0.84 | 10.19 |
| Rest of world | −0.17 | 0.41 | 0.49 | −1.11 | −1.02 | −0.67 | 35.83 |
| Total APEC | 1.23 | 17.24 | 16.47 | 18.09 | 17.26 | 12.09 | 29.35 |
| Total members | 6.59 | 17.37 | 16.47 | 18.19 | 17.26 | 13.71 | n.a. |
| Total APEC non-RTA members | −0.18 | n.a. | n.a. | n.a. | n.a. | −4.35 | n.a. |
| Total all nonmembers | −0.19 | −0.18 | −0.05 | −1.16 | −1.11 | −0.95 | n.a. |
| Total world | 1.30 | 8.37 | 7.43 | 8.27 | 7.20 | 5.86 | 23.23 |

n.a. = not applicable
APEC = Asia Pacific Economic Cooperation.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
FOB = free on board
FTAA = Free Trade Area of the Americas.
MFN = most favored nation
RTA = regional trade agreement

*Source:* Model simulations.

**Table 3.4a Changes in imports, NAFTA-related transpacific bilaterals and plurilaterals** (import values CIF; percentage change from base)

| Country or group | Japan-Canada | Japan-Mexico | South Korea-Mexico | Singapore-Mexico | Singapore-United States | Pacific 5[a] |
|---|---|---|---|---|---|---|
| Japan | 1.51 | 0.86 | −0.03 | −0.01 | −0.03 | −0.25 |
| South Korea | 0.00 | −0.03 | 0.68 | −0.01 | −0.02 | −0.19 |
| China | −0.08 | −0.03 | −0.03 | −0.01 | −0.05 | −0.14 |
| Taiwan | −0.12 | −0.10 | −0.02 | −0.02 | −0.05 | −0.12 |
| Indonesia | 0.02 | 0.02 | 0.00 | 0.00 | −0.11 | −0.19 |
| Malaysia | 0.03 | −0.02 | −0.03 | 0.02 | −0.06 | −0.12 |
| Philippines | 0.04 | 0.00 | −0.02 | 0.00 | −0.15 | −0.13 |
| Thailand | −0.02 | 0.00 | −0.01 | 0.00 | −0.03 | −0.05 |
| Vietnam | −0.16 | 0.00 | 0.00 | 0.16 | 0.00 | −0.24 |
| Singapore | 0.09 | −0.02 | −0.03 | 0.34 | 0.92 | 1.41 |
| Australia | −0.26 | −0.06 | 0.00 | −0.01 | −0.02 | 5.51 |
| New Zealand | −1.47 | 0.00 | 0.06 | 0.06 | 0.00 | 2.82 |
| United States | −0.47 | −0.30 | −0.07 | −0.02 | 0.16 | 1.32 |
| Canada | 3.89 | −0.05 | 0.00 | −0.01 | −0.03 | −0.06 |
| Mexico | 0.00 | 3.98 | 1.28 | 0.30 | −0.06 | −0.13 |
| Chile | −0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 6.05 |
| Argentina | −4.88 | −0.03 | 0.00 | 0.00 | 0.00 | −0.21 |
| Brazil | 0.00 | −0.04 | 0.00 | 0.00 | −0.03 | −0.08 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Other South America | −0.11 | 0.00 | 0.00 | 0.00 | 0.00 | −0.10 |
| CACM/Caricom | −0.18 | −0.05 | 0.00 | 0.00 | −0.05 | −0.45 |
| European Union | 0.05 | −0.01 | 0.00 | 0.00 | 0.00 | −0.08 |
| Rest of world | −0.11 | −0.01 | −0.01 | 0.00 | −0.02 | −0.04 |
| Total APEC | 0.32 | 0.13 | 0.04 | 0.80 | 0.46 | 0.66 |
| Total members | 2.19 | 1.28 | 0.87 | 0.64 | 1.08 | 1.74 |
| Total APEC non-RTA members | −0.24 | −0.14 | −0.04 | 0.16 | −0.62 | −0.16 |
| Total all nonmembers | −0.11 | −0.06 | −0.02 | 0.16 | −0.72 | −0.10 |
| Total world | 0.12 | 0.05 | 0.02 | 0.80 | 0.36 | 0.24 |

APEC = Asia Pacific Economic Cooperation.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
CIF = cost, insurance, and freight
RTA = regional trade agreement

a. Pacific 5 includes Australia, Chile, New Zealand, Singapore, and the United States.

*Source:* Model simulations.

**Table 3.4b Changes in imports, Chile-related transpacific bilaterals and plurilaterals** (import values CIF; percentage change from base)

| Country or group | Japan-Chile | South Korea-Chile | Singapore-Chile | New Zealand-Chile | New Zealand-Singapore-Australia-Chile |
|---|---|---|---|---|---|
| Japan | 0.86 | −0.02 | 0.00 | 0.00 | −0.01 |
| South Korea | −0.07 | 0.42 | 0.00 | 0.00 | −0.01 |
| China | −0.01 | −0.02 | 0.00 | 0.00 | −0.03 |
| Taiwan | −0.09 | −0.01 | −0.01 | 0.00 | −0.03 |
| Indonesia | 0.00 | 0.00 | 0.00 | 0.00 | −0.09 |
| Malaysia | −0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| Philippines | −0.02 | 0.00 | 0.00 | 0.00 | −0.02 |
| Thailand | −0.03 | 0.00 | 0.00 | 0.00 | −0.01 |
| Vietnam | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 |
| Singapore | −0.02 | −0.01 | 0.08 | 0.00 | 0.65 |
| Australia | −0.12 | 0.00 | 0.00 | 0.00 | 0.45 |
| New Zealand | −0.65 | 0.00 | 0.00 | 0.18 | 0.53 |
| United States | −0.02 | −0.01 | 0.00 | 0.00 | −0.02 |
| Canada | −0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| Mexico | −0.07 | −0.03 | 0.00 | 0.00 | 0.00 |
| Chile | 10.16 | 2.20 | 0.20 | 0.20 | 0.78 |
| Argentina | 0.00 | −0.06 | 0.00 | −0.03 | −0.03 |
| Brazil | −0.15 | 0.03 | 0.00 | 0.00 | 0.00 |
| Other South America | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| CACM/Caricom | −0.02 | −0.13 | 0.00 | 0.00 | 0.00 |
| European Union | −0.02 | −0.01 | 0.00 | 0.00 | 0.00 |
| Rest of world | −0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total APEC | 0.19 | 0.03 | 0.00 | 0.00 | 2.26 |
| Total members | 1.27 | 0.63 | 0.09 | 0.19 | 2.41 |
| Total APEC non-RTA members | −0.04 | −0.01 | 0.00 | 0.00 | −0.15 |
| Total all nonmembers | −0.03 | −0.01 | 0.00 | 0.00 | −0.18 |
| Total world | 0.07 | 0.01 | 0.00 | 0.00 | 2.23 |

APEC = Asia Pacific Economic Cooperation.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
CIF = cost, insurance, and freight
RTA = regional trade agreement

*Source:* Model simulations.

and it can be regarded in simple terms as the change in society's real income. To give a clear sense of their relative magnitude, the value of welfare effects is often measured as a percentage of GDP, but they are not the same thing as a change in GDP.

**Table 3.4c Changes in imports, Western Pacific bilaterals and plurilaterals** (import values CIF; percentage change from base)

| Country or group | Japan-Singapore | Singapore-Australia | Singapore-New Zealand | New Zealand-Singapore-Australia | South Korea-New Zealand |
|---|---|---|---|---|---|
| Japan | 1.96 | −0.01 | 0.00 | −0.01 | −0.01 |
| South Korea | −0.08 | −0.01 | 0.00 | 0.00 | 0.32 |
| China | −0.12 | −0.02 | 0.00 | −0.03 | −0.01 |
| Taiwan | −0.19 | −0.03 | −0.01 | −0.03 | −0.01 |
| Indonesia | −0.19 | −0.07 | −0.02 | −0.07 | 0.00 |
| Malaysia | −0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| Philippines | −0.30 | −0.02 | 0.00 | −0.02 | 0.00 |
| Thailand | −0.28 | −0.01 | −0.01 | −0.01 | −0.01 |
| Vietnam | −0.16 | 0.08 | 0.00 | 0.08 | 0.00 |
| Singapore | −2.28 | 0.47 | 0.10 | 0.57 | −0.01 |
| Australia | −0.35 | 0.42 | −0.02 | 0.39 | −0.04 |
| New Zealand | −1.23 | 0.00 | 0.47 | 0.41 | 2.29 |
| United States | −0.10 | −0.02 | 0.00 | −0.02 | −0.01 |
| Canada | −0.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| Mexico | −0.01 | 0.00 | 0.00 | 0.01 | 0.00 |
| Chile | −0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| Argentina | −0.12 | 0.00 | 0.00 | 0.00 | 0.03 |
| Brazil | −0.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other South America | −0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| CACM/Caricom | −0.07 | 0.02 | 0.00 | 0.00 | 0.00 |
| European Union | −0.03 | 0.00 | 0.00 | 0.00 | −0.01 |
| Rest of world | −0.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total APEC | 0.09 | 0.77 | 0.01 | 1.27 | 0.02 |
| Total members | 0.99 | 0.89 | 0.14 | 1.37 | 0.52 |
| Total APEC non-RTA members | −0.15 | −0.12 | 0.00 | −0.10 | −0.01 |
| Total all nonmembers | −0.09 | −0.10 | 0.00 | −0.10 | −0.01 |
| Total world | 0.01 | 0.79 | 0.00 | 1.27 | 0.01 |

APEC = Asia Pacific Economic Cooperation.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
CIF = cost, insurance, and freight
RTA = regional trade agreement

*Source:* Model simulations.

It would be unwise to place undue weight on the particular numerical results obtained in the simulations, for at least two reasons. First, it would in general be reasonable to regard the welfare effects recorded in this book as lower bounds. This is mainly because the perfectly competitive, comparative static model used here cannot capture dynamic effects associated with exploitation of economies of scale or the impact over time on

*(text continues on page 110)*

**Table 3.4d Changes in imports, East Asian and Western Pacific configurations** (import values CIF; percentage change from base)

| Country or group | Japan-South Korea | Japan-South Korea (excluding agriculture) | Japan-South Korea-China | AFTA-Japan-South Korea | AFTA-Japan-South Korea-China (East Asia) | AFTA-CER-Japan-South Korea-China (Western Pacific) | AFTA-CER-Japan-South Korea | AFTA-CER |
|---|---|---|---|---|---|---|---|---|
| Japan | 2.47 | 1.65 | 12.19 | 8.32 | 17.58 | 19.09 | 9.54 | −0.39 |
| South Korea | 8.12 | 6.16 | 19.42 | 11.96 | 22.85 | 23.54 | 12.83 | −0.30 |
| China | −0.22 | −0.18 | 48.55 | −1.01 | 51.75 | 52.29 | −1.13 | −0.34 |
| Taiwan | −0.22 | −0.14 | −3.84 | −1.20 | −5.04 | −5.32 | −1.40 | −0.40 |
| Indonesia | −0.04 | −0.02 | −0.82 | 7.36 | 9.18 | 9.57 | 7.15 | 4.85 |
| Malaysia | −0.07 | −0.07 | −0.80 | 7.95 | 9.02 | 10.11 | 9.34 | 7.69 |
| Philippines | −0.09 | −0.11 | −0.97 | 20.55 | 21.78 | 21.95 | 20.83 | 9.97 |
| Thailand | −0.01 | 0.01 | −0.16 | 9.64 | 10.73 | 11.03 | 10.07 | 3.94 |
| Vietnam | −0.08 | −0.08 | −0.88 | 9.96 | 11.00 | 10.68 | 9.72 | 3.03 |
| Singapore | −0.15 | −0.15 | −1.88 | −0.79 | −1.77 | 0.34 | 1.59 | 3.62 |
| Australia | −0.19 | −0.06 | −0.42 | −0.87 | −1.11 | 16.87 | 16.38 | 4.26 |
| New Zealand | −0.23 | 0.00 | −0.59 | −1.58 | −1.94 | 32.14 | 29.91 | 14.60 |
| United States | −0.23 | −0.22 | −0.34 | −0.64 | −0.78 | −1.26 | −1.08 | −0.20 |
| Canada | 0.08 | 0.09 | 0.64 | 0.26 | 0.73 | 0.68 | 0.29 | −0.03 |
| Mexico | 0.07 | 0.07 | 0.59 | 0.29 | 0.76 | 0.73 | 0.32 | 0.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chile | −0.15 | −0.10 | 0.20 | −0.24 | 0.10 | 0.10 | −0.24 | 0.00 |
| Argentina | −0.06 | −0.03 | −4.25 | −1.84 | −4.58 | −5.00 | −4.70 | −0.15 |
| Brazil | −0.05 | −0.01 | −0.15 | −0.63 | −0.84 | −0.92 | −0.67 | −0.15 |
| Other South America | −0.02 | 0.00 | −0.03 | 0.00 | −0.03 | 0.05 | 0.03 | 0.02 |
| CACM/Caricom | −0.04 | 0.00 | −0.38 | −0.34 | −0.72 | −0.85 | −0.49 | −0.29 |
| European Union | −0.04 | −0.03 | −0.05 | −0.49 | −0.56 | −0.63 | −0.49 | −0.18 |
| Rest of world | −0.04 | −0.02 | −0.24 | −0.32 | −0.54 | −0.56 | −0.35 | −0.09 |
| Total APEC | 0.75 | 0.52 | 7.67 | 2.83 | 10.27 | 11.38 | 3.83 | 0.90 |
| Total members | 3.93 | 2.82 | 24.94 | 8.40 | 22.13 | 22.90 | 10.34 | 5.53 |
| Total APEC non-RTA members | −0.16 | −0.13 | −0.59 | −0.62 | −0.89 | −1.23 | −0.88 | −0.25 |
| Total all nonmembers | −0.08 | −0.07 | −0.30 | −0.51 | −0.68 | −0.81 | −0.62 | −0.19 |
| Total world | 0.30 | 0.21 | 3.25 | 0.97 | 4.12 | 4.57 | 1.38 | 0.30 |

AFTA = ASEAN Free Trade Area.
APEC = Asia Pacific Economic Cooperation.
ASEAN = Association of Southeast Asian Nations.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
CER = Australia–New Zealand Closer Economic Relations Trade Agreement.
CIF = cost, insurance, and freight
RTA = regional trade agreement

*Source:* Model simulations.

**Table 3.4e Changes in imports, APEC, global liberalization, and East Asian bloc formation** (import values CIF; percentage change from base)

| Country or group | APEC MFN basis | APEC preferential basis | APEC MFN (excluding United States) | APEC MFN (excluding United States and Japan) | AFTA-CER-Japan-South Korea-China (Western Pacific) | Global liberalization |
|---|---|---|---|---|---|---|
| Japan | 19.48 | 21.34 | 18.17 | 8.96 | 19.09 | 33.99 |
| South Korea | 23.15 | 26.08 | 21.92 | 21.81 | 23.54 | 39.38 |
| China | 64.37 | 63.27 | 62.53 | 61.66 | 52.29 | 84.75 |
| Taiwan | 26.27 | 29.83 | 24.94 | 23.66 | −5.32 | 38.35 |
| Indonesia | 10.06 | 11.97 | 9.23 | 9.37 | 9.57 | 24.33 |
| Malaysia | 11.39 | 12.67 | 10.83 | 11.31 | 10.11 | 27.31 |
| Philippines | 33.13 | 35.44 | 29.03 | 29.35 | 21.95 | 45.37 |
| Thailand | 13.31 | 13.92 | 13.08 | 12.73 | 11.03 | 24.97 |
| Vietnam | 10.12 | 10.52 | 9.80 | 10.68 | 10.68 | 14.58 |
| Singapore | −1.70 | −0.22 | −1.61 | −1.29 | 0.34 | 13.84 |
| Australia | 16.47 | 17.57 | 15.17 | 11.12 | 16.87 | 27.48 |
| New Zealand | 22.64 | 28.86 | 21.99 | 13.43 | 32.14 | 50.97 |
| United States | 6.56 | 6.69 | 1.43 | 1.20 | −1.26 | 18.48 |
| Canada | 1.61 | 2.83 | 4.40 | 4.68 | 0.68 | 10.04 |
| Mexico | 6.95 | 5.72 | 9.48 | 9.78 | 0.73 | 18.93 |
| Chile | 15.23 | 11.04 | 15.28 | 15.43 | 0.10 | 20.07 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Argentina | −4.46 | −6.13 | −4.64 | −0.30 | −5.00 | 34.28 |
| Brazil | 1.16 | −2.15 | 1.11 | 0.94 | −0.92 | 50.63 |
| Other South America | −0.16 | −0.43 | 0.00 | 0.10 | 0.05 | 34.73 |
| CACM/Caricom | 0.40 | −3.42 | −1.12 | −0.81 | −0.85 | 28.78 |
| European Union | −0.24 | −1.02 | −0.28 | −0.18 | −0.63 | 9.57 |
| Rest of world | 0.48 | −1.09 | 0.30 | 0.29 | −0.56 | 36.08 |
| Total APEC | 17.15 | 18.03 | 14.99 | 13.13 | 11.38 | 30.73 |
| Total members | 17.15 | 18.03 | 21.81 | 22.45 | 22.90 | n.a. |
| Total APEC non-RTA members | n.a. | n.a. | n.a. | n.a. | −1.23 | n.a. |
| Total all nonmembers | −0.08 | −1.14 | 0.15 | 1.00 | −0.81 | n.a. |
| Total world | 7.39 | 7.17 | 6.40 | 5.66 | 4.57 | 23.18 |

n.a. = not applicable
AFTA = ASEAN Free Trade Area.
APEC = Asia Pacific Economic Cooperation.
ASEAN = Association of Southeast Asian Nations.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
CER = Australia–New Zealand Closer Economic Relations Trade Agreement.
CIF = cost, insurance, and freight
MFN = most favored nation
RTA = regional trade agreement

*Source:* Model simulations.

**Table 3.4f Changes in imports, FTAA, APEC, global liberalization, and East Asian bloc formation** (import values CIF; percentage change from base)

| Country or group | FTAA | APEC MFN and FTAA | APEC MFN basis | APEC preferential and FTAA | APEC preferential basis | Western Pacific bloc and FTAA | Global liberalization |
|---|---|---|---|---|---|---|---|
| Japan | −0.05 | 19.50 | 19.48 | 21.31 | 21.34 | 18.97 | 33.99 |
| South Korea | −0.62 | 22.65 | 23.15 | 25.50 | 26.08 | 23.01 | 39.38 |
| China | −0.43 | 64.17 | 64.37 | 62.80 | 63.27 | 51.74 | 84.75 |
| Taiwan | −0.15 | 26.18 | 26.27 | 29.65 | 29.83 | −5.42 | 38.35 |
| Indonesia | −0.36 | 9.91 | 10.06 | 11.63 | 11.97 | 9.25 | 24.33 |
| Malaysia | −0.06 | 11.41 | 11.39 | 12.56 | 12.67 | 10.05 | 27.31 |
| Philippines | −0.84 | 33.18 | 33.13 | 34.90 | 35.44 | 21.48 | 45.37 |
| Thailand | −0.07 | 13.29 | 13.31 | 13.83 | 13.92 | 10.97 | 24.97 |
| Vietnam | −0.24 | 10.04 | 10.12 | 10.44 | 10.52 | 10.52 | 14.58 |
| Singapore | 0.13 | −1.58 | −1.70 | −0.08 | −0.22 | 0.43 | 13.84 |
| Australia | 0.11 | 16.61 | 16.47 | 17.63 | 17.57 | 16.91 | 27.48 |
| New Zealand | −0.29 | 22.52 | 22.64 | 28.62 | 28.86 | 31.91 | 50.97 |
| United States | 3.43 | 8.82 | 6.56 | 9.26 | 6.69 | 2.10 | 18.48 |
| Canada | 1.52 | 2.40 | 1.61 | 3.55 | 2.83 | 2.17 | 10.04 |
| Mexico | 3.73 | 9.67 | 6.95 | 8.79 | 5.72 | 4.40 | 18.93 |
| Chile | 7.37 | 10.74 | 15.23 | 10.60 | 11.04 | 7.52 | 20.07 |
| Argentina | 21.83 | 15.49 | −4.46 | 16.24 | −6.13 | 17.42 | 34.28 |
| Brazil | 27.53 | 24.97 | 1.16 | 24.55 | −2.15 | 26.75 | 50.63 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Other South America | 19.07 | 17.45 | −0.16 | 18.03 | −0.43 | 18.99 | 34.73 |
| CACM/Caricom | 21.98 | 10.71 | 0.40 | 11.74 | −3.42 | 19.90 | 28.78 |
| European Union | −0.21 | −0.40 | −0.24 | −1.21 | −1.02 | −0.86 | 9.57 |
| Rest of world | −0.18 | 0.39 | 0.48 | −1.18 | −1.09 | −0.72 | 36.08 |
| Total APEC | 1.28 | 17.96 | 17.15 | 18.90 | 18.03 | 12.63 | 30.73 |
| Total members | 6.46 | 17.96 | 17.15 | 18.86 | 18.03 | 14.11 | n.a. |
| Total APEC non-RTA members | −0.21 | n.a. | n.a. | n.a. | n.a. | −5.42 | n.a. |
| Total all nonmembers | −0.21 | −0.21 | −0.08 | −1.20 | −1.14 | −0.98 | n.a. |
| Total world | 1.29 | 8.34 | 7.39 | 8.24 | 7.17 | 5.83 | 23.18 |

n.a. = not applicable
APEC = Asia Pacific Economic Cooperation.
CACM/Caricom = Central American Common Market/Caribbean Community and Common Market.
CIF = cost, insurance, and freight
FTAA = Free Trade Area of the Americas.
MFN = most favored nation
RTA = regional trade arrangement

*Source:* Model simulations.

**Table 3.5a Change in factor incomes, NAFTA-related transpacific bilaterals and plurilaterals** (base year = 1.00)

| Agreement | Factor | Japan | South Korea | China | Taiwan | Indonesia | Malaysia | Philippines | Thailand | Vietnam | Singapore | Australia | New Zealand |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Japan-Canada | Land | 0.98 | 0.99 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.01 | 0.99 | 0.97 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |
| | Unskilled labor | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 | 1.02 |
| Japan-Mexico | Land | 0.99 | 0.99 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| South Korea-Mexico | Land | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Singapore-Mexico | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Singapore-USA | Land | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 0.99 | 0.99 | 1.00 | 0.99 | 0.99 | 1.00 | 0.99 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Pacific 5[a] | Land | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 0.99 | 0.99 | 1.00 | 0.99 | 0.99 | 1.08 | 1.05 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.02 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.02 | 1.01 | 1.01 |
| | Capital | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 | 1.00 | 1.01 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |

*(table continues next page)*

**Table 3.5a Change in factor incomes, NAFTA-related transpacific bilaterals and plurilaterals** (base year = 1.00) *(continued)*

| Agreement | Factor | United States | Canada | Mexico | Chile | Argentina | Brazil | Rest of South America | Central America and Caribbean | Europe | Rest of world |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Japan-Canada | Land | 1.02 | 2.51 | 1.01 | 0.99 | 0.83 | 0.99 | 1.00 | 1.01 | 0.99 | 1.00 |
| | Skilled labor | 1.00 | 1.01 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.02 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.03 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 0.93 | 1.00 | 1.00 | 1.05 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 |
| Japan-Mexico | Land | 1.00 | 1.00 | 1.09 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.01 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| South Korea-Mexico | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Singapore-Mexico | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Singapore-USA | Land | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled lAbor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Pacific 5[a] | Land | 1.00 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.01 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

a. Pacific 5 includes Australia, Chile, New Zealand, Singapore, and the United States.

*Source:* Model simulations.

**Table 3.5b Change in factor incomes, Chile-related transpacific bilaterals and plurilaterals** (base year = 1.00)

| Agreement | Factor | Japan | South Korea | China | Taiwan | Indonesia | Malaysia | Philippines | Thailand | Vietnam | Singapore | Australia | New Zealand |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Japan-Chile | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 | 1.01 | 1.00 | 0.99 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 |
| South Korea-Chile | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Singapore-Chile | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| New Zealand-Chile | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 |
| New Zealand-Singapore-Australia-Chile | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 0.99 | 1.00 | 0.99 | 1.00 | 1.04 | 1.02 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 |

**Table 3.5b** *(continued)*

| Agreement | Factor | United States | Canada | Mexico | Chile | Argentina | Brazil | Rest of South America | Central America and Caribbean | Europe | Rest of world |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Japan-Chile | Land | 1.00 | 1.00 | 1.00 | 1.18 | 1.00 | 1.01 | 1.01 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.04 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.05 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.04 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.01 | 1.00 | 1.00 | 0.79 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| South Korea-Chile | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.02 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Singapore-Chile | Land | 1.00 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| New Zealand-Chile | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| New Zealand-Singapore-Australia-Chile | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 0.99 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

*Source:* Model simulations.

**Table 3.5c Change in factor incomes, Western Pacific bilaterals and plurilaterals** (base year = 1.00)

| Agreement | Factor | Japan | South Korea | China | Taiwan | Indonesia | Malaysia | Philippines | Thailand | Vietnam | Singapore | Australia | New Zealand |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Japan-Singapore | Land | 0.98 | 0.99 | 1.00 | 0.99 | 1.00 | 1.01 | 1.00 | 1.00 | 1.00 | 0.95 | 0.99 | 0.98 |
| | Skilled labor | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.11 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.07 | 1.00 | 0.99 |
| | Capital | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.04 | 1.00 | 1.00 |
| | Natural resources | 0.99 | 1.00 | 1.00 | 0.99 | 0.99 | 1.00 | 1.00 | 1.00 | 0.98 | 0.96 | 1.00 | 1.01 |
| Singapore-Australia | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.04 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Singapore-New Zealand | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.02 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| New Zealand-Singapore-Australia | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 0.99 | 1.00 | 0.99 | 1.00 | 1.04 | 1.02 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| South Korea-New Zealand | Land | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.09 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |

**Table 3.5c** *(continued)*

| Agreement | Factor | United States | Canada | Mexico | Chile | Argentina | Brazil | Rest of South America | Central America and Caribbean | Europe | Rest of world |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Japan-Singapore | Land | 0.99 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 0.99 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Singapore-Australia | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Singapore-New Zealand | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| New Zealand-Singapore-Australia | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| South Korea-New Zealand | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

*Source:* Model simulations.

**Table 3.5d Change in factor incomes, East Asian and Western Pacific configurations** (base year = 1.00)

| Agreement | Factor | Japan | South Korea | China | Taiwan | Indonesia | Malaysia | Philippines | Thailand | Vietnam | Singapore | Australia | New Zealand |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Japan-South Korea | Land | 0.99 | 1.09 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 | 1.01 | 1.00 | 0.99 |
| | Skilled labor | 1.00 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.01 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 |
| Japan-South Korea (excluding agriculture) | Land | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 | 0.99 |
| | Skilled labor | 1.00 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.01 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 0.99 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Japan-South Korea-China | Land | 0.97 | 1.09 | 1.24 | 0.97 | 1.00 | 1.01 | 1.00 | 1.01 | 1.00 | 1.03 | 0.97 | 0.94 |
| | Skilled labor | 1.02 | 1.04 | 1.05 | 0.98 | 0.99 | 0.99 | 0.99 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.03 | 1.05 | 1.07 | 0.98 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 0.99 | 1.01 | 1.00 |
| | Capital | 1.01 | 1.04 | 1.05 | 0.98 | 1.00 | 0.99 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 |
| | Natural resources | 0.95 | 0.96 | 0.96 | 1.03 | 1.02 | 1.03 | 1.01 | 1.02 | 1.02 | 1.01 | 1.01 | 1.03 |
| AFTA-Japan-South Korea | Land | 0.93 | 1.05 | 1.00 | 0.96 | 1.10 | 1.05 | 1.01 | 1.26 | 0.93 | 1.03 | 0.99 | 0.96 |
| | Skilled labor | 1.00 | 1.02 | 1.00 | 0.99 | 1.02 | 1.04 | 1.06 | 1.02 | 1.07 | 1.12 | 1.00 | 1.00 |
| | Unskilled labor | 1.01 | 1.02 | 1.00 | 1.00 | 1.03 | 1.04 | 1.08 | 1.03 | 1.07 | 1.08 | 1.00 | 0.99 |
| | Capital | 1.00 | 1.02 | 1.00 | 0.99 | 1.02 | 1.03 | 1.06 | 1.00 | 1.06 | 1.05 | 1.00 | 1.00 |
| | Natural resources | 0.98 | 0.98 | 1.00 | 1.00 | 0.98 | 0.96 | 0.90 | 1.00 | 0.91 | 1.00 | 1.01 | 1.03 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AFTA-Japan-South Korea-China | Land | 0.91 | 1.05 | 1.22 | 0.94 | 1.05 | 1.11 | 1.01 | 1.26 | 0.90 | 1.07 | 0.96 | 0.91 |
| | Skilled labor | 1.02 | 1.05 | 1.06 | 0.98 | 1.02 | 1.04 | 1.06 | 1.02 | 1.08 | 1.12 | 1.00 | 1.00 |
| | Unskilled labor | 1.03 | 1.06 | 1.07 | 0.98 | 1.03 | 1.05 | 1.10 | 1.03 | 1.08 | 1.08 | 1.00 | 0.99 |
| | Capital | 1.02 | 1.05 | 1.06 | 0.98 | 1.03 | 1.04 | 1.07 | 1.00 | 1.08 | 1.06 | 1.00 | 1.00 |
| | Natural resources | 0.94 | 0.95 | 0.96 | 1.04 | 0.99 | 0.96 | 0.93 | 1.02 | 0.96 | 1.03 | 1.01 | 1.05 |
| AFTA-CER-Japan-South Korea-China | Land | 0.84 | 1.02 | 1.14 | 0.93 | 1.04 | 1.08 | 0.99 | 1.21 | 0.89 | 1.16 | 2.94 | 1.41 |
| | Skilled labor | 1.02 | 1.05 | 1.06 | 0.98 | 1.02 | 1.05 | 1.07 | 1.02 | 1.08 | 1.03 | 1.02 | 1.10 |
| | Unskilled labor | 1.03 | 1.06 | 1.07 | 0.98 | 1.03 | 1.06 | 1.10 | 1.02 | 1.08 | 1.02 | 1.04 | 1.13 |
| | Capital | 1.02 | 1.06 | 1.06 | 0.98 | 1.03 | 1.05 | 1.07 | 1.01 | 1.07 | 1.03 | 1.03 | 1.11 |
| | Natural resources | 0.95 | 0.95 | 0.96 | 1.04 | 0.99 | 0.94 | 0.95 | 1.03 | 0.99 | 1.06 | 0.91 | 0.73 |
| AFTA-CER-Japan-South Korea | Land | 0.86 | 1.02 | 0.99 | 0.94 | 1.03 | 1.02 | 0.97 | 1.21 | 0.90 | 1.11 | 3.11 | 1.46 |
| | Skilled labor | 1.01 | 1.02 | 1.00 | 0.99 | 1.02 | 1.05 | 1.06 | 1.02 | 1.06 | 1.03 | 1.02 | 1.10 |
| | Unskilled labor | 1.02 | 1.02 | 1.00 | 1.00 | 1.03 | 1.05 | 1.08 | 1.03 | 1.07 | 1.03 | 1.04 | 1.13 |
| | Capital | 1.01 | 1.02 | 1.00 | 0.99 | 1.03 | 1.04 | 1.06 | 1.01 | 1.06 | 1.03 | 1.03 | 1.10 |
| | Natural resources | 0.99 | 0.98 | 1.01 | 1.00 | 0.98 | 0.94 | 0.93 | 1.00 | 0.94 | 1.04 | 0.90 | 0.70 |
| AFTA-CER | Land | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 0.94 | 0.94 | 1.00 | 0.96 | 0.99 | 1.15 | 0.96 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 0.99 | 1.02 | 1.04 | 1.02 | 1.00 | 1.01 | 1.03 | 1.00 | 1.03 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.02 | 1.05 | 1.04 | 1.01 | 1.01 | 1.04 | 1.01 | 1.03 |
| | Capital | 0.99 | 1.00 | 1.00 | 1.00 | 1.02 | 1.04 | 1.03 | 1.00 | 1.01 | 1.03 | 1.00 | 1.03 |
| | Natural resources | 1.00 | 1.01 | 1.01 | 1.01 | 0.95 | 0.93 | 0.96 | 1.00 | 1.04 | 1.04 | 0.99 | 0.90 |

*(table continues next page)*

**Table 3.5d Change in factor incomes, East Asian and Western Pacific configurations** (base year = 1.00) *(continued)*

| Agreement | Factor | United States | Canada | Mexico | Chile | Argentina | Brazil | Rest of South America | Central America and Caribbean | Europe | Rest of world |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Japan-South Korea | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Japan-South Korea (excluding agriculture) | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Japan-South Korea-China | Land | 1.00 | 1.00 | 0.99 | 0.97 | 0.85 | 0.99 | 0.99 | 0.98 | 0.94 | 0.99 |
| | Skilled labor | 1.01 | 1.01 | 1.01 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.01 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.01 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.01 | 1.00 | 1.00 | 1.01 | 1.05 | 1.03 | 1.01 | 1.00 | 1.01 | 1.01 |
| AFTA-Japan-South Korea | Land | 1.00 | 0.99 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.01 | 0.99 | 1.00 | 1.00 | 1.02 | 1.01 | 1.00 | 1.00 | 1.01 | 1.00 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AFTA-Japan-South Korea-China | Land | 0.99 | 0.99 | 1.00 | 0.97 | 0.85 | 0.99 | 0.99 | 0.98 | 0.96 | 0.99 |
| | Skilled labor | 1.01 | 1.01 | 1.01 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.01 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.01 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.01 | 1.00 | 1.00 | 1.01 | 1.06 | 1.03 | 1.01 | 1.00 | 1.02 | 1.01 |
| AFTA-CER-Japan-South Korea-China | Land | 0.99 | 0.99 | 0.99 | 0.97 | 0.83 | 0.99 | 0.99 | 0.95 | 0.96 | 1.00 |
| | Skilled labor | 1.01 | 1.01 | 1.01 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.01 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.01 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.02 | 1.00 | 1.01 | 1.02 | 1.06 | 1.04 | 1.01 | 1.01 | 1.02 | 1.01 |
| AFTA-CER-Japan-South Korea | Land | 0.99 | 0.98 | 1.00 | 0.98 | 0.84 | 0.99 | 0.99 | 0.97 | 0.99 | 1.00 |
| | Skilled labor | 1.00 | 1.01 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |
| | Unskilled labor | 1.00 | 1.01 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.01 | 1.00 | 1.00 | 1.01 | 1.05 | 1.03 | 1.00 | 1.00 | 1.01 | 1.00 |
| AFTA-CER | Land | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.01 | 1.00 | 1.00 | 1.00 | 1.01 | 1.01 | 1.00 | 1.00 | 1.01 | 1.00 |

AFTA = ASEAN Free Trade Area.
ASEAN = Association of Southeast Asian Nations.
CER = Australia-New Zealand Closer Economic Relations Trade Agreement.

*Source:* Model simulations.

**Table 3.5e Change in factor incomes, APEC and FTAA variations** (base year = 1.00)

| Agreement | Factor | Japan | South Korea | China | Taiwan | Indonesia | Malaysia | Philippines | Thailand | Vietnam | Singapore | Australia | New Zealand |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| APEC MFN basis | Land | 0.71 | 0.98 | 1.02 | 1.36 | 0.98 | 0.98 | 0.97 | 1.09 | 0.82 | 1.09 | 2.23 | 1.25 |
| | Skilled labor | 1.01 | 1.04 | 1.08 | 1.07 | 1.01 | 1.07 | 1.13 | 1.02 | 1.07 | 1.02 | 1.01 | 1.05 |
| | Unskilled labor | 1.02 | 1.04 | 1.07 | 1.09 | 1.02 | 1.08 | 1.19 | 1.01 | 1.06 | 1.01 | 1.02 | 1.07 |
| | Capital | 1.01 | 1.04 | 1.07 | 1.08 | 1.02 | 1.06 | 1.13 | 1.00 | 1.06 | 1.01 | 1.01 | 1.06 |
| | Natural resources | 0.94 | 0.87 | 0.91 | 0.89 | 0.98 | 0.90 | 0.85 | 0.97 | 0.99 | 1.04 | 0.96 | 0.86 |
| APEC preferential basis | Land | 0.74 | 1.01 | 1.05 | 1.43 | 1.01 | 1.01 | 1.00 | 1.12 | 0.87 | 1.12 | 2.32 | 1.33 |
| | Skilled labor | 1.03 | 1.06 | 1.08 | 1.09 | 1.03 | 1.08 | 1.15 | 1.02 | 1.07 | 1.03 | 1.03 | 1.09 |
| | Unskilled labor | 1.03 | 1.06 | 1.08 | 1.12 | 1.03 | 1.09 | 1.21 | 1.03 | 1.07 | 1.03 | 1.04 | 1.11 |
| | Capital | 1.03 | 1.06 | 1.08 | 1.10 | 1.04 | 1.07 | 1.15 | 1.01 | 1.07 | 1.03 | 1.03 | 1.09 |
| | Natural resources | 0.94 | 0.93 | 0.93 | 0.93 | 1.00 | 0.91 | 0.87 | 1.01 | 1.00 | 1.06 | 0.94 | 0.80 |
| APEC MFN (excluding United States) | Land | 0.71 | 0.98 | 1.01 | 1.37 | 0.99 | 0.99 | 0.84 | 1.09 | 0.82 | 1.09 | 2.23 | 1.25 |
| | Skilled labor | 1.01 | 1.03 | 1.07 | 1.06 | 1.01 | 1.06 | 1.10 | 1.01 | 1.06 | 1.01 | 1.00 | 1.05 |
| | Unskilled labor | 1.02 | 1.04 | 1.06 | 1.09 | 1.02 | 1.06 | 1.12 | 1.01 | 1.06 | 1.01 | 1.02 | 1.06 |
| | Capital | 1.01 | 1.04 | 1.07 | 1.07 | 1.02 | 1.06 | 1.10 | 1.00 | 1.05 | 1.01 | 1.01 | 1.05 |
| | Natural resources | 0.95 | 0.88 | 0.92 | 0.91 | 0.99 | 0.92 | 0.90 | 0.98 | 1.00 | 1.05 | 0.97 | 0.87 |
| APEC MFN (excluding United States/ Japan) | Land | 1.01 | 0.95 | 0.98 | 1.02 | 0.98 | 0.96 | 0.83 | 1.02 | 0.81 | 1.06 | 1.30 | 1.10 |
| | Skilled labor | 1.01 | 1.04 | 1.07 | 1.06 | 1.01 | 1.06 | 1.10 | 1.01 | 1.07 | 1.01 | 0.99 | 1.02 |
| | Unskilled labor | 1.02 | 1.04 | 1.06 | 1.09 | 1.02 | 1.07 | 1.12 | 1.00 | 1.06 | 1.00 | 1.00 | 1.02 |
| | Capital | 1.01 | 1.04 | 1.07 | 1.07 | 1.02 | 1.06 | 1.10 | 1.00 | 1.06 | 1.01 | 1.00 | 1.02 |
| | Natural resources | 0.96 | 0.87 | 0.92 | 0.86 | 0.98 | 0.91 | 0.90 | 0.99 | 1.01 | 1.06 | 1.05 | 0.99 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FTAA | Land | 1.00 | 0.99 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.98 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 |
| | Unskilled labor | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.01 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 1.01 | 1.01 | 1.00 | 1.00 | 1.01 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| APEC MFN and FTAA | Land | 0.71 | 0.98 | 1.01 | 1.36 | 0.98 | 0.98 | 0.97 | 1.08 | 0.82 | 1.08 | 2.23 | 1.25 |
| | Skilled labor | 1.01 | 1.04 | 1.08 | 1.07 | 1.01 | 1.07 | 1.13 | 1.02 | 1.07 | 1.02 | 1.01 | 1.05 |
| | Unskilled labor | 1.02 | 1.04 | 1.07 | 1.09 | 1.02 | 1.08 | 1.19 | 1.01 | 1.06 | 1.01 | 1.02 | 1.07 |
| | Capital | 1.01 | 1.04 | 1.07 | 1.08 | 1.02 | 1.06 | 1.13 | 1.00 | 1.06 | 1.01 | 1.01 | 1.06 |
| | Natural resources | 0.94 | 0.87 | 0.91 | 0.88 | 0.98 | 0.90 | 0.85 | 0.97 | 1.00 | 1.04 | 0.95 | 0.86 |
| APEC preferential and FTAA | Land | 0.74 | 1.01 | 1.04 | 1.43 | 1.00 | 1.01 | 1.00 | 1.12 | 0.86 | 1.10 | 2.31 | 1.33 |
| | Skilled labor | 1.03 | 1.06 | 1.08 | 1.09 | 1.03 | 1.08 | 1.14 | 1.02 | 1.07 | 1.03 | 1.03 | 1.09 |
| | Unskilled labor | 1.03 | 1.06 | 1.08 | 1.12 | 1.03 | 1.08 | 1.20 | 1.03 | 1.07 | 1.03 | 1.04 | 1.11 |
| | Capital | 1.03 | 1.06 | 1.08 | 1.10 | 1.03 | 1.07 | 1.15 | 1.01 | 1.07 | 1.03 | 1.03 | 1.09 |
| | Natural resources | 0.94 | 0.93 | 0.93 | 0.93 | 1.00 | 0.92 | 0.87 | 1.01 | 1.00 | 1.06 | 0.94 | 0.80 |
| Global liberalization | Land | 0.78 | 1.10 | 1.19 | 1.49 | 1.12 | 1.24 | 1.10 | 1.22 | 0.95 | 1.27 | 2.53 | 2.32 |
| | Skilled labor | 1.09 | 1.13 | 1.17 | 1.15 | 1.10 | 1.19 | 1.20 | 1.10 | 1.13 | 1.18 | 1.09 | 1.18 |
| | Unskilled labor | 1.10 | 1.14 | 1.17 | 1.18 | 1.12 | 1.21 | 1.27 | 1.11 | 1.12 | 1.20 | 1.11 | 1.23 |
| | Capital | 1.09 | 1.14 | 1.17 | 1.16 | 1.12 | 1.17 | 1.21 | 1.09 | 1.13 | 1.15 | 1.10 | 1.19 |
| | Natural resources | 0.94 | 0.84 | 0.94 | 0.88 | 0.95 | 0.88 | 0.89 | 0.98 | 1.02 | 1.27 | 0.95 | 0.75 |

*(table continues next page)*

**Table 3.5e Change in factor incomes, APEC and FTAA variations** (base year = 1.00) *(continued)*

| Agreement | Factor | United States | Canada | Mexico | Chile | Argentina | Brazil | Rest of South America | Central America and Caribbean | Europe | Rest of world |
|---|---|---|---|---|---|---|---|---|---|---|---|
| APEC MFN basis | Land | 1.14 | 1.14 | 1.02 | 0.98 | 0.81 | 1.05 | 0.99 | 0.90 | 0.97 | 1.01 |
| | Skilled labor | 1.00 | 1.00 | 1.00 | 1.01 | 0.99 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.00 | 1.01 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.00 | 1.01 | 0.99 | 1.00 | 1.00 | 1.01 | 1.00 | 1.00 |
| | Natural resources | 1.02 | 1.02 | 1.02 | 0.97 | 1.14 | 1.03 | 1.00 | 0.98 | 1.01 | 1.01 |
| APEC preferential basis | Land | 1.19 | 1.18 | 1.06 | 1.00 | 0.80 | 0.99 | 0.99 | 0.95 | 0.94 | 0.99 |
| | Skilled labor | 1.01 | 1.01 | 1.01 | 1.01 | 0.99 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.01 | 1.01 | 1.01 | 1.01 | 0.98 | 0.99 | 1.00 | 0.98 | 1.00 | 1.00 |
| | Capital | 1.01 | 1.01 | 1.01 | 1.01 | 0.99 | 0.99 | 1.00 | 0.99 | 1.00 | 1.00 |
| | Natural resources | 1.02 | 1.01 | 1.02 | 1.03 | 1.06 | 1.07 | 1.02 | 1.04 | 1.03 | 1.02 |
| APEC MFN (excluding United States) | Land | 1.16 | 1.12 | 1.03 | 0.99 | 0.80 | 1.01 | 1.01 | 0.95 | 0.97 | 1.01 |
| | Skilled labor | 1.01 | 1.01 | 1.01 | 1.01 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.01 | 1.01 | 1.01 | 1.01 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.01 | 1.01 | 1.01 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.02 | 1.01 | 1.00 | 0.97 | 1.14 | 1.03 | 1.01 | 1.00 | 1.02 | 1.01 |
| APEC MFN (excluding United States/ Japan) | Land | 1.07 | 1.01 | 1.00 | 0.99 | 0.97 | 1.01 | 1.00 | 0.99 | 0.96 | 1.01 |
| | Skilled labor | 1.01 | 1.01 | 1.01 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Unskilled labor | 1.01 | 1.01 | 1.01 | 1.01 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.01 | 1.01 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Natural resources | 1.02 | 1.02 | 1.00 | 0.98 | 1.10 | 1.04 | 1.01 | 1.01 | 1.02 | 1.02 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FTAA | Land | 0.98 | 1.02 | 1.00 | 1.02 | 0.97 | 1.08 | 1.02 | 0.87 | 0.99 | 1.00 |
| | Skilled labor | 1.01 | 1.01 | 1.01 | 1.00 | 1.02 | 0.99 | 1.00 | 1.05 | 1.00 | 1.00 |
| | Unskilled labor | 1.01 | 1.01 | 1.01 | 1.01 | 1.02 | 0.98 | 1.01 | 1.06 | 1.00 | 1.00 |
| | Capital | 1.01 | 1.01 | 1.01 | 1.01 | 1.02 | 0.99 | 1.00 | 1.06 | 1.00 | 1.00 |
| | Natural resources | 1.00 | 0.99 | 0.99 | 1.00 | 1.03 | 1.11 | 1.04 | 0.85 | 1.01 | 1.00 |
| APEC MFN and FTAA | Land | 1.13 | 1.18 | 1.01 | 1.01 | 0.78 | 1.10 | 1.02 | 0.89 | 0.97 | 1.01 |
| | Skilled labor | 1.01 | 1.00 | 1.01 | 1.00 | 1.01 | 0.98 | 1.00 | 1.02 | 1.00 | 1.00 |
| | Unskilled labor | 1.00 | 1.00 | 1.01 | 1.01 | 1.00 | 0.97 | 1.00 | 1.01 | 1.00 | 1.00 |
| | Capital | 1.00 | 1.00 | 1.01 | 1.01 | 1.00 | 0.98 | 0.99 | 1.02 | 1.00 | 1.00 |
| | Natural resources | 1.02 | 1.01 | 1.00 | 1.00 | 1.10 | 1.16 | 1.06 | 0.95 | 1.01 | 1.01 |
| APEC preferential and FTAA | Land | 1.17 | 1.20 | 1.03 | 1.02 | 0.77 | 1.07 | 1.02 | 0.88 | 0.94 | 0.99 |
| | Skilled labor | 1.02 | 1.01 | 1.02 | 1.01 | 1.02 | 0.98 | 1.00 | 1.02 | 1.00 | 1.00 |
| | Unskilled labor | 1.02 | 1.01 | 1.02 | 1.01 | 1.00 | 0.98 | 1.00 | 1.02 | 1.00 | 1.00 |
| | Capital | 1.02 | 1.01 | 1.02 | 1.01 | 1.01 | 0.98 | 0.99 | 1.03 | 1.00 | 1.00 |
| | Natural resources | 1.01 | 1.00 | 1.00 | 1.04 | 1.08 | 1.18 | 1.07 | 0.95 | 1.03 | 1.02 |
| Global liberalization | Land | 1.52 | 1.52 | 1.41 | 1.47 | 0.91 | 1.45 | 1.46 | 1.01 | 0.66 | 0.93 |
| | Skilled labor | 1.07 | 1.07 | 1.08 | 1.08 | 1.08 | 1.04 | 1.06 | 1.13 | 1.05 | 1.04 |
| | Unskilled labor | 1.07 | 1.07 | 1.09 | 1.10 | 1.07 | 1.04 | 1.08 | 1.12 | 1.04 | 1.04 |
| | Capital | 1.08 | 1.07 | 1.08 | 1.08 | 1.09 | 1.04 | 1.05 | 1.15 | 1.05 | 1.04 |
| | Natural resources | 1.02 | 1.00 | 1.00 | 0.93 | 1.00 | 1.15 | 1.07 | 0.84 | 1.09 | 1.13 |

APEC = Asia Pacific Economic Cooperation.
FTAA = Free Trade Area of the Americas.
MFN = most favored nation

*Source:* Model simulations.

investment and productivity levels.[12] It is also likely that, at least in some cases, existing levels of protection are understated in the database.[13] Second, there is an inherent uncertainty about the parameters, data, and model specification from which the results are drawn.

The appropriate approach to interpretation of the results is therefore to focus on orders of magnitude and direction of change of the effects generated by the simulations. Even in this regard, different CGE models have in other contexts sometimes produced conflicting results. In the case of simulations of liberalization among the APEC economies, however, there has been a broad consistency in results across a large number of studies, as reported in Scollay and Gilbert (2000), and the results reported here are also broadly consistent with the results from earlier studies. This gives some grounds for confidence in the orders of magnitude and direction of the results. Confidence in the results would be increased if further studies of the same developments—using different model specifications, aggregations, and datasets—produced comparable results.

The main strengths and contribution of CGE techniques in a study like this are—in addition to their ability to capture economywide and regionwide effects—that they allow the application of a consistent, rigorously specified framework across the range of scenarios being simulated. Provided one can have a reasonable degree of confidence in the orders of magnitude and direction of change of the results, these simulations thus serve as a useful tool for comparing the welfare effects of various possible developments. This in turn provides a valuable input into an assessment of their contribution to realizing the benefits of a more open regional and global economy.

## General Observations

One point that stands out from the simulations as a whole is the way in which they can be grouped according to their economic effects. For a large group of SRTAs, the simulation results show negligible economic welfare effects, for both members and nonmembers of each arrangement.

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12. In their survey of CGE studies of APEC liberalization, Scollay and Gilbert (2000) find that models that are dynamic or recursively dynamic, or that use some other methodology to account for the increased capital accumulation and induced productivity increases that result from liberalization, or account for increased capital mobility, tend to predict larger gains than the more traditional comparative static models. Similarly, models that account for imperfect competition in some sectors have a tendency to produce larger estimates of welfare gains than do perfectly competitive models, all other things being equal.

13. The inadequate representation of protection levels in the services sector, noted above, is one case in point.

For another large group, the simulations indicate significant[14] welfare gains for members of the proposed arrangement, but at the same time widespread negative welfare effects on nonmember economies and groups of economies. A quick indication of this latter effect is given by the number of minus signs in the columns of table 3.2 for the arrangements in question. As the groupings considered become larger, however, the spread of these negative welfare effects not surprisingly diminishes.

The suspicion that these widespread negative welfare effects may reflect pervasive trade diversion tends to be reinforced by the summary data in table 3.3a. Although aggregate exports rise in almost every case for the participating APEC economies and for both APEC and the world as a whole, they also fall in the vast majority of cases for APEC members excluded from each agreement, although it must be acknowledged that the declines in exports are generally small.

Viewed in terms of the criteria for building blocks discussed in chapter 1, SRTAs with negligible effects are of little significance, either positive or negative. They may, on the other hand, be justified by special features of the national interests of the countries concerned; by objectives other than promotion of trade in goods between the partners (e.g., stimulation of investment or trade in services); as a strategic step toward more significant arrangements; or as a way of maintaining forward momentum in the process of regional and global trade liberalization, in line with what is sometimes called the ''bicycle theory'' of trade liberalization. There have also been suggestions that some of the new SRTAs have been conceived in part as models of best practice in SRTA design, with a view to encouraging the adoption of similarly high standards by other SRTAs emerging in the region.[15]

The building block credentials of arrangements with widespread negative welfare effects on nonmembers are clearly open to question if one is applying the ''strong'' building block criterion advanced at the end of chapter 1. If avoidance of these negative effects is an important criterion, the results of the simulations described here will argue strongly for larger, more inclusive groupings. The emergence of a number of new initiatives with significant negative welfare effects on nonmembers is likely to be associated with an increase in trade tensions and conflicts in the APEC region—and probably at the global level as well—unless prompt steps are taken to expand the arrangements in ways that reverse or at least

14. As a rule of thumb, we tend to regard welfare changes of 0.1 percent of GDP as ''significant'' and changes of more than 1 percent of GDP as ''very significant.'' Although the use of such a rule of thumb facilitates discussion, it is clearly an arbitrary rule without analytical foundation, and we do not hesitate to vary it where we judge this to be warranted.

15. Officials in New Zealand and Singapore have made statements suggesting that this is one of the intentions behind the SRTA between those countries.

neutralize the negative welfare effects. At the very least, the management of trade relations is likely to become more difficult under those conditions.

A second general observation is that there is of course particular interest in the effects of the various possible developments on the United States, because of its importance both in the international economy and global trading system and as a trading partner for most economies in the Asia-Pacific region. Although the United States has, at least until very recently, been relatively unengaged in the new SRTA developments, it is reasonable to suppose that it would be provoked to react to any new development that had significant adverse effects upon it. That reaction in turn would have major potential ramifications for its trading partners, and could well be important in determining future patterns of trade liberalization in the international economy.

It is therefore of interest to explore which if any of the new SRTA developments would have adverse effects on the United States, and what the response of the United States might be. It would also be useful to identify any developments that have particularly favorable effects on the United States, because the United States might be inclined to encourage these. Similarly, other major economic powers both inside and outside the Asia-Pacific region may also have a strong influence on the direction of regional trade developments. Accordingly, toward the end of this chapter particular attention is paid to the implications of some of the larger potential developments not only for the United States but also for China, Japan, and the European Union.

However, another feature of the simulation results is that in every case the welfare effects on the United States—expressed as a percentage of GDP—are minor. Although there are clear differences in these effects when expressed in dollar terms, when converted to a percentage of GDP the welfare effects—positive or negative—amount to less than 0.1 percent in every case. Given the small size of these effects, it may be unwise to read too much into them, although some discussion is provided toward the end of the chapter.

The simulation results may thus provide relatively little clear guidance as to the likely strategy of the United States. They could be consistent with a passive stance by the United States. They could also be taken to support the view that the US response will be governed largely by political and security considerations. More pessimistically, the results could also be interpreted to suggest that the way will remain open for the US approach to be developed largely in response to perceived adverse effects at narrower sectoral levels. If the US response is unpredictable, the resulting uncertainty may to some extent inhibit other economies in developing new initiatives of their own. It may also place an added premium on engaging the United States in consultative mechanisms, such as that provided by APEC.

Emphasis on the relatively insignificant effects on US welfare must be qualified by noting that the summary trade effects shown in table 3.4 indicate significant changes in US exports and imports under some scenarios, particularly those involving some of the larger groupings in table 3.4e and 3.4f. Table 3.5 also indicates nonnegligible changes—both up and down—in certain US factor incomes in some cases. On the optimistic side, the largest boost to US exports comes in scenarios involving APEC or global liberalization. Less optimistically, the existence of these trade and factor income effects may be symptomatic of the existence of significant sectoral effects with the potential to heavily influence US trade policy, as suggested above. More work is needed to explore this.

## New Bilateral and Plurilateral SRTAs

The large group of new bilateral and plurilateral subregional trade arrangements constitutes the majority of the proposed new SRTAs in the APEC region. For purposes of discussion, they have been divided into transpacific RTAs linking economies on either side of the Pacific (recently dubbed cross-regional FTAs, or CRFTAs) and intra-Western Pacific initiatives, or SRTAs between pairs or small groups of economies located entirely on the western side of the Pacific. The transpacific group has been further divided into those involving NAFTA members (the ''NAFTA-related'' group) and those involving Chile as the western hemisphere partner (the ''Chile-related'' group). The Pacific 5, which includes both Chile and the United States (as well as Australia, New Zealand, and Singapore), is included in the NAFTA-related group.

### Transpacific Initiatives

Three things stand out in the welfare effects resulting from simulations on the transpacific group of potential SRTAs, shown in tables 3.2a and 3.2b. First, in the majority of cases the welfare effects on both members and nonmembers are very small, or even zero. Second, the cases where the welfare effects are somewhat more significant are invariably those where either Japan or the United States is included as one of the prospective members. Third, in such cases there are widely dispersed, though generally small, negative welfare effects on nonmembers both inside and outside the APEC region. This pattern is not unexpected, given that the trade flows involving the United States, and to a lesser extent Japan, are by far the most important of the transpacific flows (as indicated in chapter 2). The trade flows covered by SRTAs in which those countries are not involved are invariably very small, in both absolute and relative terms.

Japan or the United States is involved in four of the ''NAFTA-related'' scenarios: Japan-Canada, Japan-Mexico, United States-Singapore, and the

Pacific 5. In these cases, the more significant welfare effects are on the prospective partners of the United States or Japan, and they are not always positive. Thus a welfare loss for Canada equal to 1.17 percent of GDP is registered in the simulation of a Japan-Canada FTA. Conversely, Mexico records a modest gain equal to 0.30 percent of GDP in an FTA with Japan. In an FTA with the United States, Singapore registers a substantial welfare gain equal to 0.70 percent of GDP, and this rises to 0.92 percent of GDP when Australia, Chile, and New Zealand are brought in as additional partners in the Pacific 5 scenario.

The results for the other potential Pacific 5 members are mixed. A modest welfare gain is shown for New Zealand, but there are small welfare losses for Australia and Chile. The effect on US welfare in the Singapore-United States and Pacific 5 scenarios is close to zero, as is the effect on Japan's welfare in the Japan-Mexico case, although a slightly more significant welfare gain for Japan of 0.1 percent of GDP is registered in the Japan-Canada scenario.

The negative welfare effects on nonmembers of the prospective arrangements in each of the NAFTA-related scenarios involving the United States or Japan are generally small, although there are isolated instances of somewhat more severe effects. In general, the widespread negative effects are more pronounced in the Pacific 5 case than in the other cases. In both the Singapore-United States and Pacific 5 cases, there is a noticeable tendency for the negative welfare effects on Singapore's ASEAN partners to be somewhat higher than on other nonmembers.

In the other NAFTA-related scenarios, South Korea-Mexico and Singapore-Mexico, the welfare effects are very much smaller, although it is noticeable that Singapore's projected gain from a Singapore-Mexico arrangement of 0.13 percent of GDP stands out against the negligible effects registered for other countries, including Mexico itself. In the South Korea-Mexico case, South Korea registers a rather smaller gain, and the effect on Mexico, although positive, is insignificant. The effect on nonmembers of these two potential SRTAs is invariably zero or close to zero.

In the four Chile-related SRTA scenarios, the welfare effects indicated by the simulations for both members and nonmembers are, perhaps unsurprisingly, almost invariably negligible. This is true even when four economies are linked together in the ''Pacific 4'' (or Pacific 5 minus the United States) scenario. The few exceptions highlight tendencies that are also observed in the NAFTA-related scenarios. Thus it is in the scenario involving Japan, the Japan-Chile FTA, that two of the very few significant welfare effects are observed, with a welfare gain of 1.14 percent of GDP for Chile as Japan's partner, and a welfare loss of 0.13 percent of GDP for New Zealand, a close competitor of Chile in a number of primary product markets. In the Pacific 4 scenario, Singapore again stands out among a batch of otherwise insignificant welfare effects, with a welfare gain equal to 0.28 percent of GDP.

## Intra-Western Pacific Initiatives

The dominant picture from the five simulations of potential Western Pacific SRTAs is one of largely insignificant welfare effects for both members and nonmembers. The exceptions to this picture again highlight tendencies already familiar from the simulations of transpacific SRTAs. Thus it is in the simulation involving Japan, the Japan-Singapore case, that the largest welfare gain by a member is observed—4.06 percent of GDP for Singapore—as well as the most widespread negative effects on nonmembers. It is interesting that these negative welfare effects again appear to be somewhat concentrated on Singapore's ASEAN partners.

Among the almost uniformly insignificant welfare effects in the other four scenarios, Singapore again stands out, with a welfare gain of 0.21 percent of GDP in an FTA with Australia, and 0.25 percent in one that also includes New Zealand. The welfare gain of 0.28 percent of GDP to New Zealand in an FTA with South Korea is perhaps the only result that does not follow a pattern already evident in the transpacific SRTA simulations, although it is in any case readily explicable in terms of the importance to New Zealand of agricultural and other primary product exports, and the relatively high barriers applying to a number of those products in South Korea.

## Implications

The results from the simulations of SRTAs not involving Japan and the United States tend to bear out a somewhat skeptical view of the value of such initiatives to the countries involved. To realize the proposed arrangements, governments will have to commit substantial amounts of negotiating resources, and in some cases will have to expend considerable amounts of political capital. Attention will be distracted from more broadly based liberalization efforts in the WTO and APEC. The potential exists for developing one of Bhagwati's spaghetti bowl phenomenons (Bhagwati, Greenaway, and Panagariya 1998), where difficulties are created by overlapping RTAs with inconsistent provisions.

Yet, in the face of these negatives and potential negatives, the simulations indicate that the net economic benefits may be insignificant. Perhaps the most cogent rationale for these initiatives is provided by the bicycle theory of trade liberalization, which suggests that they perform a valuable service by at least maintaining some forward momentum in the direction of trade liberalization at a time when other proliberalization processes are faltering. It could also be said in defense of these initiatives that although they promise little net economic gain for their members, they also appear to do little damage to nonmembers. In addition, it is possible, as noted above, that at least some of the new initiatives are motivated

by objectives other than the stimulation of trade in goods, such as the encouragement of investment or trade in services. In this case it could be unfair to judge their outcome solely by their impact on goods trade.

Singapore stands out as an exception to these general comments. The simulations indicate significant welfare gains to Singapore from the SRTA initiatives that it is pursuing, and thus provide some validation of its strategy. The fact that Singapore's gains appear at least partly to come at the expense of its ASEAN partners suggests, however, the potential for future trade tensions. In this respect, Singapore illustrates a general point that emerges from the simulations as a whole, namely, that any significant welfare gains for members of Asia-Pacific subregional trade initiatives[16] tend to be associated with widespread welfare losses to nonmembers.

The simulation results also suggest, again perhaps unsurprisingly, that Japan and the United States are likely to be the most highly prized SRTA partners for other countries in the region, because it would appear to be a reasonable inference from the results that it is primarily in SRTAs with these two countries that most—though not all—other countries in the region may have realistic prospects of significant welfare gains.[17] The implications of this observation are not especially positive. Competition to secure Japan and the United States as SRTA partners could be a divisive factor in trade relations in the region. Any economic gains to countries that are successful in securing a preferential arrangement with one of the two major economic powers seems likely to come at the expense of economic losses for many of the countries that are unable or unwilling to do so. A form of domino effect may operate, whereby countries that otherwise might not be inclined to pursue preferential trade arrangements may feel themselves compelled to do so as a defensive maneuver.

The later addition of ''latecomers'' to the ranks of Japan's or the United States's preferential partners may not be welcomed by the earlier ''incumbents,'' who may perceive this—probably correctly—as diluting their own economic welfare gains. A preference among other countries of the region for Japan or the United States as a trading partner seems likely to lead to a regional SRTA configuration of the hub and spokes variety, with all the associated negative implications of the likely unequal balance of negotiating strength between the hubs and spokes, and of the tendency of such arrangements to further undermine the WTO's nondiscrimination principle.

Conversely, it is not yet clear whether, and under what conditions, Japan and the United States are likely to be responsive to overtures from

16. ''Subregional'' here means any initiative that falls short of a full East Asian economic bloc.

17. This is not to discount the potential future importance of China as an SRTA partner for other countries in the region. China, however, has yet to declare its hand in relation to transpacific SRTA initiatives, and has only very recently begun to show interest in exploring possible involvement in East Asian SRTA developments.

other prospective preferential trading partners in the region. The United States has been a late entrant in the field, and it remains to be seen how an initiative launched at the tail-end of one US presidential administration will be treated by the new one. Japan has already been engaged in discussions with some potential partners, but statements by its officials suggest that it may be following a learning-by-doing strategy, using the negotiation of SRTAs with a small number of countries, perhaps even initially with Singapore alone,[18] as a ''training ground'' for the subsequent negotiation of a wider array of preferential agreements. The long-term strategy of Japan and the United States toward preferential trade initiatives in the Asia-Pacific region thus remains unclear, and this adds to current uncertainty over the future direction of the region's trading relationships, as was noted above.

Initial indications of possible strategies by Japan and the United States have not, however, been particularly encouraging. Both have been carefully selective in their initial choice of partners. Japanese officials have openly stated that the choice of Singapore as an initial partner was primarily based on the consideration that the potential for agricultural trade between Japan and Singapore is minimal. Even so, Japan has reportedly insisted on excluding from any proposed agreement even the small number of agricultural and fisheries products in which some minor potential for increased trade exists, such as goldfish and cut flowers.[19]

In announcing the opening of its own discussions with Singapore, the United States indicated that an understanding had been reached that any resulting agreement would contain labor provisions modeled on those included in an earlier agreement with Jordan, which the administration of President William Clinton at least apparently regarded as a template for future FTAs (at any rate in the areas of labor and the environment). It would be difficult to contemplate with equanimity a scenario in which Japan and the United States began establishing networks of preferential trading links in the region with countries selected on the basis of willingness to accept their respective positions on labor standards and the exclusion of agriculture from trade liberalization programs, particularly if these networks also became vehicles for renewed trade rivalry between these two major economic powers of the region. The pursuit of strategies of this kind by Japan and the United States, however divisive, is bound to

18. Of the various FTA proposals involving Japan, only the proposed FTA with Singapore appears to have reached the negotiating stage. Others are still at the stage of study or discussion.

19. This is apparently because Japan's Ministry of Agriculture, Fisheries, and Forestry wishes to avoid any precedent that might establish the principle of the inclusion of the agriculture, fisheries, and forestry sector in SRTAs involving Japan, on the grounds that this would undermine their efforts to minimize the liberalization of agriculture in all forums, including the WTO. We are indebted to Hugh Patrick for this insight.

capture more attention from other countries in the region than any efforts by some smaller countries to promote their own blueprints for best-practice SRTAs.

## Potential Steps to Establish an East Asian Trade Bloc

This section deals with two possibilities that have been floated among the recent explosion of SRTA proposals—the proposed Japan-South Korea FTA and its possible extension to include China, and the proposed ''merger'' between AFTA and CER—together with a number of further hypothetical configurations involving further extensions of linkages between the economies of the Western Pacific.

The Japan-South Korea and AFTA-CER initiatives could of course be considered on their own merits, and need not be viewed as the inevitable precursors of an East Asian trade bloc. The decision to include the proposed Japan-South Korea FTA in a section of this nature, separate from the other recent initiatives, reflects, however, a judgment that this proposal involves a step that is qualitatively different from the other recent initiatives. The extension of the proposal to include China would of course elevate it to a still higher level of significance, both in regional and global terms.

The filling of the ''empty box'' that previously existed in Northeast Asia in the region's (and world's) map of preferential trade arrangements, and the linking together in such an arrangement of the three leading economic powers of the Western Pacific, would be a momentous event in its own right, as well as creating a strong platform for the eventual establishment of an East Asian trade bloc. AFTA-CER is likewise included here because of its potential to form another building block for an East Asian or Western Pacific trade bloc, by linking together the other two subregional groupings that such a bloc might bring together.

The other simulations reported in this section include two alternative configurations of an eventual East Asian trade bloc, one including Australia and New Zealand and the other excluding them. Also included are three further scenarios that could be regarded as intermediate steps between proposals already floated and an eventual regionwide bloc. The inclusion of these intermediate scenarios does not imply that their emergence is necessarily regarded as likely, but rather serves to facilitate an exploration of some aspects of the economic logic of bloc formation in East Asia, and in particular the question of which if any potential combinations are likely to serve as building blocks for—rather than stumbling blocks to—a more open regional and global trading system. Because emergence of an East Asian bloc would potentially be of global significance, this section of the chapter focuses attention on the likely impact of such a development both inside and outside the Asia-Pacific region.

## Japan-South Korea FTA

The simulation of a Japan-South Korea FTA (see table 3.2d) yields a negligible positive welfare effect for Japan, and a moderately significant negative welfare effect for South Korea, perhaps indicating some basis for the cautious approach adopted by South Korea toward this proposal. Adverse welfare effects are also recorded in almost every economy in the rest of East Asia, and in Australia and New Zealand, although in no case do these effects exceed 0.1 percent of GDP. Although these effects are small, they are perhaps sufficient to reinforce suggestions that a Japan-South Korea FTA would be likely to create a certain amount of apprehension in the rest of East Asia. There are negligible negative effects in Chile and the United States among western hemisphere APEC members, and also in Argentina, the European Union, and the rest of the world. These latter results do not suggest a basis for any major adverse reaction outside the Western Pacific to the formation of a Japan-South Korea FTA.

In view of concerns that have been expressed over the possible exclusion of agriculture from a Japan-South Korea FTA, the proposed FTA between the two countries is simulated both with and without the agricultural sector. The exclusion of agriculture yields an unambiguous improvement in the welfare outcome. Japan's welfare gain increases slightly, there is a significant drop in South Korea's welfare loss, and the welfare losses for many other countries also fall slightly.

It may appear initially curious that the exclusion of agriculture from a Japan-South Korea FTA slightly improves the welfare outcome not only for the two countries but also for most of their trading partners. The explanation may be along the lines of the argument attributed above to Laird (1999), whereby the exclusion of highly protected sectors from an RTA reduces the potential for trade diversion. A clue is provided by the changes in factor returns in Japan and South Korea. When agriculture is included, there is a sharp increase in the returns to land in South Korea and a fall in the returns to land in Japan. But when agriculture is excluded, returns to land fall or remain unchanged in both countries.

This suggests that the inclusion of agriculture in the Japan-South Korea FTA results in a significant amount of trade diversion, primarily in the form of increased South Korean agricultural exports to Japan. The removal of agriculture from the agreement eliminates this trade diversion. The export data from the simulations provide (table 3.4d) further evidence for this hypothesis. When agriculture is excluded, there is a significantly smaller rise in Japanese and South Korean exports, particularly the latter. At the same time, the exclusion of agriculture from a Japan-South Korea FTA is generally though not uniformly associated with a smaller negative effect on exports in Southeast Asia, Australia, and New Zealand, and in the agricultural exporting countries of the western hemisphere.

This is not a conclusive nor even necessarily a strong argument for encouraging Japan and South Korea to exclude agriculture from their proposed FTA. A contrary argument was also advanced above, that inclusion of agriculture in the SRTA might eventually lead to a more forthcoming attitude in multilateral negotiations on agricultural trade, while a permissive attitude to the exclusion of agriculture in RTAs could encourage countries with ''sensitive'' agricultural sectors to place more emphasis on the regional approach to liberalization rather than on multilateral negotiations in the WTO. These competing considerations need to be weighed by agricultural exporters and others interested in the liberalization of agricultural trade.

## Japan-South Korea-China FTA

Extension of the proposed Northeast Asia FTA to include China modestly but significantly improves the welfare outcome for Japan, and dramatically improves it for South Korea, from a slight welfare loss to a welfare gain approaching 1 percent of GDP (table 3.2d). The biggest welfare gain—more than 2 percent of GDP—however, is by China, in contrast to the slight welfare loss it records when excluded from the Japan-South Korea arrangement. The simulation results thus once again appear to support the arguments of South Korea, which has suggested that China should be included in any Northeast Asian FTA. The very slight improvement for Japan may not, however, be viewed by that country as making up for the additional political complications that could arise as a result of a decision to include China.

However, although a three-way agreement is the most beneficial Northeast Asian configuration for the three economies concerned, this arrangement also results in sharply increased welfare losses in the rest of the Western Pacific, particularly in ASEAN economies and Taiwan. This is not unexpected, given the direct trade competition existing between China and ASEAN. Table 3.3d shows that exports of the three Northeast Asian partners rise dramatically, accompanied by slight falls in exports of the Southeast Asian economies, Australia, Taiwan, and New Zealand. Welfare also deteriorates very slightly in the United States and throughout Central and South America except Chile, generally to a negligible extent but rather more significantly in Argentina. Canada, Chile, and Mexico register slight improvements in economic welfare relative to the impact of a Japan-South Korea FTA.

In this simulation, which includes agriculture, the pattern of factor income changes observed in Japan and South Korea in the Japan-South Korea FTA is repeated, whereby returns to land rise in South Korea but fall in Japan, and returns to natural resources fall in both countries (table 3.5). Returns to land also rise particularly sharply in China, while returns

to natural resources fall there also. There are also significant rises in both China and South Korea in returns to skilled labor, unskilled labor, and capital. Elsewhere, there are significant declines in the returns to land in Australia, New Zealand, Taiwan, and some Western Hemisphere countries.

Thus it appears that a Japan-South Korea-China FTA would lead to substantial trade creation but also to some trade diversion in the agricultural and possibly also the nonagricultural sectors. A Northeast Asian FTA involving these three countries alone is thus unlikely to be welcomed elsewhere in the Asia-Pacific region.

## Bringing in ASEAN

As noted above, an arrangement that links AFTA to the three Northeast Asian economies would effectively represent an extension of the ''ASEAN-plus-three'' concept to embrace the establishment of a free trade area. In this scenario, the negative welfare effects on Southeast Asia observed in the case of a Northeast Asian FTA disappear, except for the Philippines, whose welfare loss declines but does not disappear (table 3.2d). Japan and South Korea do a little better, and although China does not do as well as in the Northeast Asia-only arrangement, it nevertheless still records a welfare gain equal to almost 2 percent of GDP. For the Southeast Asian economies other than the Philippines, welfare losses are replaced by strong improvements in net economic welfare. These gains are particularly large for Singapore, and are also substantial for Malaysia, Thailand, and Vietnam. Conversely, larger welfare losses are indicated for Australia, Taiwan, and New Zealand, as well as for South and Central America, the European Union, and the rest of the world. The welfare loss of the United States rises very slightly relative to the case of an FTA involving Northeast Asia alone, but nevertheless remains negligible at 0.03 percent of GDP. Under this scenario, the Southeast Asian economies share in the increased exports enjoyed by their Northeast Asian partners, while export declines emerge in those nonmembers experiencing welfare losses (table 3.4d).

It is interesting also that the effects of an FTA that includes China but excludes ASEAN are in some respects mirrored in an FTA between AFTA, Japan, and South Korea that excludes China. This is perhaps further reflection of the competitive economic relationship between China and ASEAN. In this case, China experiences welfare losses while all ASEAN economies do better if China is excluded, with all except the Philippines enjoying positive welfare effects. Among nonmembers, Taiwan does much better (although still experiencing welfare losses) if Japan and South Korea link up with ASEAN rather than with China, whereas New Zealand does significantly worse, and Australia, Canada, Mexico, the European Union, and the rest of the world all do slightly worse.

## Bringing in CER

The pattern of improving welfare outcomes is repeated if the scope of the proposed FTA is further enlarged to include Australia and New Zealand, thereby creating a Western Pacific trade bloc (table 3.2d). Japan's net welfare gain almost doubles, while welfare in China and South Korea remains virtually unchanged. There are increases in net welfare in all Southeast Asian economies except Singapore, particularly in the Philippines, where the welfare effect also turns positive. Although Singapore does much worse, it continues to experience positive welfare effects. The welfare losses of Australia and New Zealand are replaced by welfare gains that are substantial for Australia, and very large for New Zealand.

Not surprisingly, these two economies register strong increases in exports, relative to the decline in exports when they are excluded from East Asian FTAs. There are also spectacular increases in the returns to land in these two countries, partially balanced, perhaps surprisingly, by declines in returns to natural resources. For Taiwan, conversely, this is the worst scenario of all those so far considered, and there are slight deteriorations in the welfare in Chile and the United States. This simulation yields the largest negative impact on the United States of all those described here. The US welfare loss remains low, however, at 0.06 percent of GDP.

The entry of Australia and New Zealand into East Asian subregional arrangements could also come about initially through the amalgamation of AFTA and CER, which as noted above is one of the subregional initiatives currently under discussion. It was also noted that these are both high-standard FTAs, so that it might be suggested that their amalgamation should have some attraction as a possible building block for wider integration. The AFTA-CER simulation results tend to partially bear this out, although the estimated net welfare outcomes are somewhat mixed. There are positive welfare effects for all members of both groups except Vietnam, but the gains are small for Australia, the Philippines, and Thailand. Conversely, there are mildly negative effects on the welfare of the four Northeast Asian economies. Welfare effects outside the Western Pacific region are negligible.

The negative welfare effects on Japan and South Korea of an AFTA-CER FTA are converted into positive effects if the AFTA and CER economies combine with the two Northeast Asian economies to form a more extensive FTA. This move also uniformly improves the welfare outcome for the AFTA and CER economies themselves, in a number of cases by a substantial amount. The welfare loss registered by Vietnam under the AFTA-CER scenario is transformed into a welfare gain. Yet there is a significant increase in the welfare losses suffered by China and Taiwan. The effect on China provides another demonstration of the tendency observed above for welfare effects on China and ASEAN to move in

sharply opposite directions when one is included but the other is not. Welfare effects generally remain small outside the Western Pacific region, although there are isolated cases of substantial welfare losses, particularly for Argentina and the Central American and Caribbean countries.

In comparison with the outcome described in the preceding paragraph, the inclusion of China in a more complete Western Pacific trade bloc transforms China's welfare loss into the substantial welfare gain noted above. There are significant welfare improvements for both Japan and South Korea, especially the latter, and there are further welfare gains for all the AFTA and CER economies except Australia and Singapore. The additional gains are large for Malaysia and Vietnam, although they are small in other cases. Conversely, as mentioned above, Taiwan suffers a sharp loss of welfare if it is not included in the wider arrangement. There is little change in welfare effects outside the Western Pacific, except for a further perceptible welfare deterioration in the Central American and Caribbean countries.

## Steps to an East Asian Bloc?

A firm conclusion emerges from the simulations of East Asian SRTAs: Wherever an SRTA initiative emerges among a subset of Western Pacific economies, strong economic incentives can be identified for expanding membership to embrace more complete sets of economies from the region. These incentives arise because expansion of the SRTA can generally both improve the outcome for the existing members and transform the outcome for previously excluded economies—for which welfare gains from inclusion in the expanded arrangement replace welfare losses from exclusion from the narrower group. In other words, something like the domino effect hypothesized by Baldwin (1999) seems likely to become a factor once an initial step toward an East Asian bloc is taken.

Thus expansion of a Japan-South Korea FTA to include China converts welfare losses for China into welfare gains, while improving the welfare outcome for both Japan and South Korea. This, however, creates further incentives for expansion, because the addition of China worsens the welfare outcome for the ASEAN economies. This result, in turn, can be reversed by including the ASEAN economies within the FTA, so that their welfare effects become positive, while the welfare effects for Japan and South Korea are further improved, and those for China only marginally reduced. Similarly, if Japan and South Korea form an FTA with ASEAN while excluding China, welfare improves in both Japan and South Korea and most ASEAN economies, but China suffers a welfare loss. Bringing China into the arrangement converts that country's welfare loss into a substantial welfare gain, while improving welfare further in Japan and several ASEAN economies.

In turn, however, establishing an FTA made up of the two East Asian subregions adversely affects the economic welfare of Australia and New Zealand. A further expansion of the FTA to include Australia and New Zealand yields substantial positive welfare effects for those two economies, while further enhancing the economic welfare of most East Asian economies. Table 3.2d clearly shows that, of all the configurations simulated in this section, an SRTA covering all three subregions yields the highest overall aggregate welfare gains—not only for the potential members of the proposed arrangement, but also for both the entire APEC membership and for the world as a whole.

Unfortunately for Australia and New Zealand, the incentives for this final expansion are not uniformly strong among the East Asian economies, and one of them, Singapore, suffers a substantial decline in economic welfare when Australia and New Zealand are added to the arrangement. If AFTA-CER is taken as the basic building block instead of the Japan-South Korea FTA, a similar sequence of economic incentives leading toward a complete Western Pacific RTA can be identified.[20]

It can therefore be inferred that if a movement toward SRTAs becomes established in Northeast Asia, strong economic logic will support an eventual full-scale East Asian trade bloc. However, it does not follow that this economic logic will be applied. The key to a possible East Asian bloc clearly lies in Northeast Asia. Agreement by Japan and South Korea to form an FTA, either bilaterally or with partners, appears to be a decisive step toward the realistic possibility of an East Asian trade bloc. A second decisive step would be the expansion of the scope of such an arrangement to include China.

The economic incentives to form a Japan-South Korea FTA are, however, relatively weak, and formidable political obstacles stand in the way of both a Japan-South Korea FTA and any wider preferential grouping involving the two countries. The additional step needed to include China, for example, would greatly enhance the economic benefits of economic integration in Northeast Asia. But a proposal to take this step would multiply the already formidable political difficulties inherent in a proposed Japan-South Korea arrangement.[21] These political difficulties may be the major factor inhibiting SRTA development in East Asia, at least in the short term.

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20. And once again it is Singapore that lacks the economic incentive to move to the final step.

21. Any proposal to further expand a Northeast Asian economic grouping to include Taiwan is likely to provide yet another illustration of the points being made here. Although not modeled here, inclusion of Taiwan is likely to increase the economic benefits of a Northeast Asian SRTA for its members (although possibly also leading to increased welfare losses in Southeast Asia). A proposal to include Taiwan would, however, clearly add a further dimension to the political obstacles facing potential SRTA developments in Northeast Asia.

The contrasting economic and political implications of moving beyond a Japan-South Korea SRTA to one that also includes China highlights a disturbing possible feature of SRTA development in East Asia. In general, it is quite possible that economic logic and political feasibility may point in opposite directions. Although there may be economic disadvantages to smaller groupings, the greatest political difficulties may well be encountered in establishing broader groupings.

Economic logic may favor a trade bloc covering the entire Western Pacific rather than more limited groupings. But if political constraints lead in the direction of more limited groupings, the economic outcomes will be considerably less benign, because establishing FTAs with more limited groupings tends to lead to a deterioration of economic welfare among those countries excluded from the arrangements. In addition to the direct consequences of these negative welfare effects, a scenario of this kind may also be a recipe for sharply increased levels of trade conflict, possibly leading to further welfare-reducing activities in the region. The potential for increased trade conflict, and also political conflict, is likely to be especially acute if the Northeast Asian powers—Japan, South Korea, possibly China, and perhaps even Taiwan—pursue separate strategies of building their own SRTA linkages in the Western Pacific (and further afield).

Furthermore, the fact that a full-scale East Asian economic bloc yields the most favorable economic outcome for the East Asian economies among all the alternatives considered in this section does not mean that it is necessarily the optimal outcome for East Asia. Before reaching a conclusion on this point, it is necessary to consider the possibilities available through APEC. This is the subject of the next section.

A further noticeable feature is that all the simulations of East Asian SRTAs yield negative economic welfare effects for Taiwan. Taiwan is not included as a member of any of the arrangements for which simulations are reported in this section.[22] The negative effects on it tend to increase with the size of the group forming the SRTA, and also tend to be larger if China is a member of the group from which Taiwan is excluded. It is of course possible in practice that Taiwan would be included in any new trade groupings that develop in the region, although the potential clearly also exists for China to use potential inclusion in or exclusion from such groups as an economic lever against Taiwan.

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22. This does not imply any judgment on the desirability of including Taiwan in East Asian SRTA arrangements. It rather reflects a sense that the issue of Taiwan's participation appears at this stage to be left in abeyance in any discussions that are taking place on the issue. The simulation results reported here for arrangements not including Taiwan indirectly highlights the need for this issue to be addressed. From an economic perspective, the desirability of Taiwan's inclusion would appear to be beyond doubt (although there may be some unfavorable implications for its closest economic competitors). The political dimen-

The effects on the United States, and the potential US response, must also be considered. Although the welfare effects on the United States produced by the simulations are invariably small, it is also very noticeable that the negative effects on the United States rise in proportion to the size of the East Asian bloc being simulated. Thus, although a larger East Asian bloc may produce more favorable economic outcomes in East Asia, it may also be more likely to attract unfavorable attention and perhaps countermeasures from the United States.

A curious feature of the results is the inverse relation between the welfare outcomes for the United States on the one hand and Canada and Mexico on the other, with the latter two countries experiencing slight gains versus losses for the United States. The explanation may lie in terms-of-trade effects. To the extent that welfare losses for the United States reflect deterioration in its terms of trade, this may benefit Canada and Mexico, because they conduct an overwhelming share of their trade with the United States.

Finally, although the welfare effects of these East Asian and Western Pacific configurations on economies outside East Asia and North America are often negative, they are generally minor in these simulations. In many cases, they are negligible, and in only a small number of cases do they exceed 0.1 percent of GDP. Argentina, and to a lesser extent the CACM/Caricom (Central American Common Market and Caribbean Community and Common Market) countries, experience more severe welfare losses. Some scenarios also produce significant welfare losses for the rest of the world.

## APEC Liberalization

The prospective effects of APEC liberalization provide a benchmark against which the effects of alternative potential developments in East Asia can be measured, in two senses. First, the establishment of APEC and its trade liberalization program were in part conceived as a more desirable alternative to the kind of preferential developments now beginning to be considered once again in East Asia. If the preferential alternatives are again beginning to look tempting (perhaps at least partly because of frustration with APEC's lack of progress), it is interesting to compare their results with the APEC simulation results to assess whether and to what extent they offer the region welfare gains, or conversely represent a falling away from ambitions for substantial, widely diffused welfare gains from the regionwide liberalization process. If the comparison is particularly unfavorable to the new alternatives, it may suggest that the

sion of the issue is of course both critical and extremely delicate, but is beyond the scope of this book.

members should instead consider renewing their commitment to the APEC process, and at the same time look for more effective ways to put APEC's Bogor vision into practice (see chapter 1).

Second, APEC's members in fact continue to affirm their commitment to its objectives and principles, and profess concern that the new developments should be consistent with those objectives and principles, as well as with their WTO obligations. This implies that any new developments should serve as building blocks for achieving APEC's goals and ultimately a more open international trading system. Thus it is of interest to see whether the simulation results indicate that the new developments will leave a substantial margin of additional economic benefits to be obtained by moving beyond them to full implementation of APEC's goals.

In the building block approach, the ultimate benchmark is of course global liberalization on an MFN basis. This scenario therefore is also simulated, for comparison with the various regional liberalization options.

A number of APEC scenarios are simulated. APEC MFN is the basic scenario, in which it is assumed that APEC members continue to practice ''open regionalism,'' understood in the sense of collective implementation of unconditional MFN liberalization, or ''concerted unilateralism.'' Since the failure of the EVSL initiative, the unwillingness of the United States, and possibly also Japan, to engage in concerted unilateralism has been increasingly conspicuous, leading to questions of whether APEC's approach will still be attractive to its remaining members if these two leading APEC economies effectively abstain from APEC-style liberalization, or whether this is providing additional motivation to consider subregional alternatives. Simulations are therefore run of APEC MFN liberalization in which first the United States and then both Japan and the United States do not participate.

In addition to its commitment to open regionalism, another important feature of APEC is its transpacific dimension. If the evident move toward preferential trade arrangements is driven in part by disillusionment with the apparent lack of effectiveness of the concerted unilateral approach, and if this shift in mindset appears to have become entrenched (at least for the time being), consideration might still be given to whether the transpacific dimension nevertheless continues to make APEC attractive as a vehicle for regional trade liberalization. In the event of an affirmative answer, one possible response might be to consider converting APEC into a preferential trade arrangement. Under APEC preferential liberalization, its members remove tariffs against each other, but not against nonmembers.

This option was of course explicitly rejected in the past, when APEC adopted its distinctive philosophy of open regionalism. Arguments were also raised about the practical and political feasibility of an APEC-wide preferential trade arrangement. The ASEAN economies, for example, have

always firmly opposed the idea that binding liberalization commitments should be made within APEC. Even if these objections can be overcome, there are questions of whether agreement could be reached on a sufficiently broad basis to achieve compatibility with the provisions of GATT Article XXIV. Nevertheless, in an environment where it appears that all the possibilities are once again being placed on the table, an assessment should perhaps be made as to whether the advantages of the transpacific dimension are sufficient to outweigh any disadvantages of the preferential approach, in the event that the latter does turn out to offer a more politically feasible way forward toward APEC's regional free trade goals. One potentially useful function of a move by APEC to preferential trade may be to encourage renewed engagement with Asia-Pacific regional liberalization by Japan and the United States.

An APEC preferential scenario is therefore included among the simulations considered in this section, and is used as a basis for several comparisons. A comparison with the results for the formation of a Western Pacific trade bloc is made to assess the strength of the economic incentives for the East Asian economies to consider an APEC-wide preferential arrangement rather than one based on East Asia or the Western Pacific alone—and to assess whether such a development would be welcomed by their western hemisphere APEC partners and other participants in the international trading system. A comparison with the APEC MFN option can provide one indication of the opportunity costs of moving from a nonpreferential to a preferential APEC. Finally, a comparison with the results for global liberalization is important for assessing the potential for a preferential APEC to serve as a building block for a more open global trading system.

## APEC Nondiscriminatory Liberalization

The effects of APEC MFN liberalization have been analyzed in a considerable number of CGE studies, the results of which are surveyed in Scollay and Gilbert (2000). The results presented here are broadly consistent with the main body of results from those studies. Unconditional APEC MFN liberalization potentially raises economic welfare across the APEC membership by 0.56 percent of the members' combined GDP. This is a substantial gain for the APEC region. Positive welfare effects—of varying size but generally substantial except in the United States and Mexico—are registered by all APEC members in the simulation except Canada. Among non-APEC western hemisphere countries, only Argentina experiences a welfare loss, and welfare rises slightly in both the European Union and the rest of the world. There is a significant increase in global economic welfare, equal to 0.34 percent of global GDP. This is the familiar win-win outcome for both APEC members and nonmembers that has been widely portrayed in other studies.

In comparison with the results for a Western Pacific trading bloc, APEC MFN liberalization, not surprisingly, yields significantly higher welfare both for APEC members (0.56 percent of GDP, relative to 0.35 percent) and for the world as a whole (0.34 percent of GDP, relative to 0.16 percent). However, a number of mainly smaller APEC members—Australia, Indonesia, South Korea, Malaysia, and New Zealand—do better under the Western Pacific trade bloc scenario than under APEC MFN liberalization. Conversely, the three largest APEC economies—China, Japan, and the United States—are all better off under APEC MFN liberalization,[23] with the difference for China being particularly marked. Significantly, the welfare loss inflicted on the United States through the establishment of a Western Pacific trade bloc does not arise under APEC MFN liberalization. Taiwan, which was not included in the Western Pacific bloc, naturally does much better under APEC MFN liberalization. As might be expected, non-APEC members are without exception better off under APEC MFN liberalization.

The simulation of APEC MFN liberalization without the United States shows that US abstention impairs the welfare outcomes for most APEC economies only slightly. Although this result is perhaps surprising, it may reflect the fact that the US economy is for the most part relatively open.[24] Significantly, under this scenario there is a perceptible improvement in the welfare outcome for the United States itself, and the outcomes for Canada, Malaysia, and Mexico also improve.

The result for the three NAFTA economies is quite understandable if it is recalled that the simulations all assume that NAFTA liberalization has already been implemented. Thus US participation in APEC MFN liberalization may dilute some of the benefits received by its NAFTA partners, while the United States itself is likely to enjoy a terms-of-trade gain by abstaining from APEC MFN liberalization.

If Japan also abstains from APEC MFN liberalization, the welfare outcome becomes significantly less favorable for the majority of Western Pacific APEC economies, including Japan itself (although the outcome does improve for Malaysia, and very marginally also for Vietnam). The United States, however, continues to do better by abstaining from APEC MFN liberalization, as do its two NAFTA partners.

It is interesting that Japan is the only Western Pacific economy for which the abstention of Japan and the United States from APEC MFN liberalization turns the balance of advantage in favor of a Western Pacific bloc, in the sense that APEC MFN liberalization yields a more favorable

23. This is the case despite the fact that Japan and the United States have appeared themselves to be unwilling to participate in concerted unilateral liberalization within APEC.

24. As is well known, the incidence of high levels of protection in the United States tends to be heavily concentrated in a small number of industries.

welfare outcome than the Western Pacific bloc when all members participate, but not when Japan and the United States abstain. These results therefore do not suggest that US abstention should be decisive in encouraging a majority of Western Pacific economies to abandon APEC MFN liberalization for a bloc of their own. It is significant, however, that Japan and South Korea both enjoy more favorable welfare outcomes under the Western Pacific bloc scenario, if both Japan and the United States abstain from APEC MFN liberalization. China, conversely, continues to do better under APEC MFN liberalization.

## An APEC Preferential Trading Area

For APEC as a whole, the preferential scenario produces aggregate welfare gains that are almost identical to the full, unconditional MFN scenario.[25] Thus the aggregate margin of benefit for APEC as a whole over the Western Pacific bloc scenario will also be almost identical. South Korea is the only APEC economy for which the comparison between APEC and the Western Pacific bloc is favorable to the latter under APEC MFN liberalization, but becomes favorable to APEC if APEC liberalizes preferentially. Vietnam is the only case where the opposite change is observed. Under APEC preferential liberalization, the United States is once again largely insulated from the welfare loss that occurs in the Western Pacific trade bloc scenario.

The welfare outcomes are superior to full APEC MFN liberalization for a majority of individual APEC economies, with the difference being particularly marked for Taiwan, South Korea, Malaysia, New Zealand, the Philippines, and Singapore. Conversely, the outcome for China is substantially less favorable (though still strongly positive) under preferential APEC liberalization, and is less favorable also for Chile, Thailand, the United States, and Vietnam, although the US difference is negligible.

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25. This result may seem surprising in view of the strong arguments put forward in early APEC debates in favor of the superior welfare benefits of APEC liberalization on an unconditional nondiscriminatory basis, but is less surprising when viewed against results from other CGE-based studies. Although early surveys of CGE studies of APEC liberalization by Petri (1997) and the APEC Economic Committee (1997) found that the majority of studies showed larger benefits from unconditional nondiscriminatory liberalization, the later survey by Scollay and Gilbert (2000), covering a larger number of studies, found that the balance of results is less clear cut, with a number of studies finding a preferential APEC FTA delivering higher welfare to the APEC region as a whole than unconditional APEC MFN liberalization; furthermore, the difference in welfare effects between the two scenarios is relatively slight in most studies. Many of the studies surveyed in Scollay and Gilbert (2000) also include comparisons with the welfare effects of conditional APEC MFN liberalization (where APEC MFN liberalization is assumed to be reciprocated by the rest of the world). Not surprisingly, the studies surveyed showed that this option, which is not simulated here, yields higher welfare gains for the whole APEC region than either a preferential APEC FTA or unconditional APEC MFN liberalization.

One consequence of a switch to a preferential approach to liberalization within APEC will thus clearly be to redistribute welfare effects among APEC members. But it is difficult to conclude on the basis of welfare outcomes that the preferential approach yields any clear advantage to APEC as a whole, unless significance is attached to the simple numbers of economies whose welfare rises or falls as a result of the change. In terms of incentives for participation by the larger economies, the switch to preferential liberalization marginally lowers net welfare in the United States, but the change is insignificant. There is a minor welfare improvement for Japan, and a very substantial deterioration in welfare for China.

On the basis of a comparison with the welfare effects of MFN liberalization, there is thus not an especially strong case to be made for a switch within APEC to a preferential approach to liberalization. Yet when the comparison of welfare effects is made with the Western Pacific bloc concept, an equally cogent case can be made for either APEC preferential liberalization or APEC MFN liberalization. Thus an APEC preferential trade arrangement might well be viewed as a possible option if APEC MFN liberalization is not seen as sufficiently effective to form a viable alternative to the prospect of a Western Pacific or East Asian trade bloc. In particular, if APEC MFN liberalization is not politically salable in the United States, the results indicate that APEC preferential liberalization can deliver broadly comparable economic benefits to that country as well as to the APEC region.

One clear difference between the APEC MFN and APEC preferential scenarios is in their effects on nonmembers. As might be expected, an APEC preferential arrangement gives rise to pervasive negative welfare effects on nonmembers, which might therefore be expected to view a preferential APEC arrangement as a significant threat. The differences in outcomes for nonmembers between the preferential and MFN scenarios range from modest to very significant. The negative welfare effects on APEC nonmembers observed under an APEC preferential scenario are also uniformly somewhat greater than in the case of a Western Pacific trade bloc.

Conversely, the difference in global welfare between the preferential and MFN APEC scenarios is perhaps surprisingly small, at 0.07 percent of global GDP. The welfare loss for the European Union is in line with this, at 0.06 percent of EU GDP. Thus, whereas an APEC preferential trade arrangement will certainly inflict some economic damage on nonmembers, it could be argued that overall the damage is likely to be moderate. One positive implication of the potential negative effects on nonmembers is that the prospect of an APEC preferential RTA may prompt nonmembers to give a higher priority to pursuing constructive multilateral negotiations in the WTO.

## Global Liberalization and the Building Block Issue

The simulation of global liberalization strongly supports the presumption that this remains the first-best (terminology). The aggregate welfare gains for both the world as a whole and the combined APEC membership are about 50 percent higher than under the next most favorable option simulated. Furthermore, the welfare gains for APEC members are much higher than the gains for the world as a whole. In other words, APEC members are among the biggest potential gainers from global liberalization, and should thus have a strong interest in supporting or leading efforts to restart multilateral negotiations.

Global liberalization yields significant welfare gains for most countries or groups of countries. Particularly noteworthy is the fact that the welfare effects are positive in every case except one. It is disturbing that the one exception is the United States, which as the world's leading economy has of course a crucial role to play in any move toward global trade liberalization. Clearly, this is a major potential difficulty, but discussion of it is postponed until later in the chapter. Leaving aside this troubling exception for the moment, the results of the global liberalization simulation provide strong confirmation of the view that it is appropriate to evaluate the various regional initiatives discussed in this book in terms of their potential as building blocks for a fully open international trading system.

As might be expected, the simulations indicate that APEC MFN liberalization has strong credentials as a building block. The welfare effects are positive in all but two cases, and almost all countries or groups register significant welfare improvements if the further step is taken from APEC MFN to global liberalization. Apart from the United States, the other exceptions to this are the Philippines, Vietnam, and the rest of the world. Thus substantial economic incentives to move from an APEC MFN scenario to global liberalization exist across an almost complete spectrum of countries and groups.

The building block credentials of APEC preferential liberalization are somewhat weaker, primarily because of the widespread negative welfare effects on nonmembers. Leaving aside this defect, APEC preferential liberalization performs very similarly to APEC MFN liberalization. With the exception of the Philippines, the United States, and Vietnam, all countries or groups register welfare improvements by moving from APEC preferential to global liberalization. The incentives to move to full global liberalization are thus comparable to those existing under APEC MFN liberalization.

The Western Pacific trade bloc, like APEC preferential liberalization, generates widespread negative welfare effects among nonmembers. Like the two APEC scenarios, however, the move from this scenario to global liberalization produces welfare improvements for almost all participants

and nonparticipants. The only exception in this case is Vietnam, while the United States registers a ''no change'' result.

If the path to global liberalization is envisaged as leading from establishment of a Western Pacific bloc through APEC liberalization as an intermediate step, then the building block credentials of the Western Pacific bloc become rather more equivocal. Although the aggregate benefits of moving from a Western Pacific bloc to one of the APEC options are substantial—both for the combined APEC membership and for the world as a whole—a significant minority of APEC members register a welfare loss from the change. It is true that South Korea is the only one of the major APEC economies in this group, and that the group also includes two strong supporters of multilateral liberalization in Australia and New Zealand. Nevertheless, it cannot be asserted unequivocally that the overwhelming majority of APEC members would continue to have strong incentives to support APEC liberalization following the establishment of a Western Pacific bloc.

## Bloc Formation in the Asia-Pacific and Global Contexts

Although ideas for the formation of an East Asian trade bloc are still at an embryonic stage, a decision in principle has already been made on the creation of a western hemisphere bloc, in the form of the proposed Free Trade Area of the Americas. The concept was floated at the first Summit of the Americas, in Miami in 1994, and the second Summit of the Americas decided formally to move toward an FTAA agreement by 2005. Work toward this goal has been proceeding since then at the official and vice ministerial levels. Although committed to its own version of open regionalism, the FTAA is clearly envisaged as a preferential trade arrangement. Assuming the FTAA proceeds as planned, development of an East Asian trade bloc would (as noted above) thus constitute the final step in the emergence of a three-bloc world.

It goes without saying that this would be a momentous event in the development of global trade architecture. Establishing separate megablocs on opposite sides of the Pacific would also be a defining event in the development of trade arrangements in the Asia-Pacific region. Establishing a clear separation between preferential blocs on either side of the Pacific would sharply contrast with APEC's approach, which has sought to maintain a bridge between East Asia and at least North America and the Pacific seaboard of South America, and has been based on MFN rather than preferential liberalization. The APEC geoeconomic approach reflects the importance of transpacific trade links for countries on both sides of the ocean, as was emphasized earlier in the book. The implications for those trade links of the development of separate East Asian and

western hemisphere blocs, and possible interaction between them, clearly needs to be explored.

Another set of issues relates to the implications of the emergence of the FTAA for APEC and its continuing attractiveness as an alternative to an East Asian trade bloc, and hence also its effectiveness as a counter to the emergence of a three-bloc world. This is a question for all APEC members, but it is an especially pointed question for APEC's five western hemisphere members—Canada, Chile, Mexico, Peru, and the United States—which of course are also participants in the proposed FTAA. APEC, as a transpacific grouping, will remain viable only as long as the countries on both sides of the ocean perceive a mutual coincidence of interest in continuing to pursue regional trade liberalization on a transpacific basis. Among these five countries, the attitude of the United States is obviously of overwhelmingly decisive significance.

A third set of issues is obviously the implications of these developments for further multilateral liberalization in the WTO. A critical issue here is the extent to which the emergence of a three-bloc world might reduce or increase incentives for further participation by each bloc in multilateral liberalization.

To explore these issues, it was necessary to add an additional simulation of the implementation of the FTAA, so that the potential simultaneous existence of all three megablocs could be captured in subsequent simulations. This allows an exploration of the possible interaction between the simultaneous formation of blocs on both sides of the Pacific, and an assessment of the extent to which the APEC alternative might continue to offer advantages for countries on both sides of the ocean. It also allows an assessment of the extent to which substantial incentives for global liberalization might remain after the establishment of all three megablocs. The basic simulation results for this section are reported in table 3.2f.

In considering these issues of bloc formation and their implications for the multilateral trading system, it is crucial to focus on the likely interests of the major trading powers inside and outside the region, because they can be expected to have a decisive influence on the directions finally taken. Accordingly, the discussion concludes with an analysis of the effects of the various possible developments on China, the European Union, and the United States, and the implications for possible outcomes.

## Enter the FTAA

Simulation of the FTAA (table 3.2f) in isolation produces a modest increase in welfare in the United States, and larger proportionate increases in most parts of Latin America (with the exception of Chile, which registers a slight welfare loss). The effects on the Western Pacific economies are invariably negative, but they are also generally small, exceeding 0.1 per-

cent of GDP only in the Philippines (−0.34 percent) and Vietnam (-0.15 percent). Of all the simulations discussed in the book, this one produces the strongest welfare gain for the United States, but the effect is still small as a proportion of US GDP. Of the other western hemisphere APEC members covered individually in the simulations,[26] Canada and Mexico, the US NAFTA partners, both register more favorable welfare outcomes in the FTAA simulation than under APEC MFN or APEC preferential liberalization. Chile, however, does substantially better under APEC than under the FTAA.

When the FTAA is simulated in conjunction with the formation of the Western Pacific trade bloc,[27] the welfare outcomes for the Western Pacific economies are uniformly less favorable than in the Western Pacific trade bloc on its own. In general, the differences are slight, although the outcome is significantly worse for the Philippines, and there is also a perceptible difference for China, South Korea, and Vietnam. Perhaps the most significant result is that the addition of a Western Pacific bloc wipes out the welfare gains registered for the United States under the FTAA simulation.

Conversely, the results for Canada and Mexico move in the opposite direction to those for the United States, as they also did in the East Asian trade bloc simulations. Both countries, together with Chile, gain from the introduction of a Western Pacific bloc alongside the FTAA. The rest of the western hemisphere is divided among those countries or groups for which the addition of a Western Pacific bloc makes almost no difference to their gains under the FTAA scenario (Brazil and other South America) and those for whom the welfare outcomes turn sharply negative (Argentina, the Caribbean, and Central America).

The FTAA was also simulated in conjunction with the APEC MFN and APEC preferential scenarios, both to observe the effects of the FTAA on the outcomes from those approaches (and the effect of APEC on FTAA outcomes), and to explore how far APEC might offer advantages over a Western Pacific trade bloc as a response to the FTAA. The introduction of the FTAA again has negative effects on welfare outcomes for Western Pacific economies. But in the APEC MFN scenario the effects are uniformly less than 0.1 percent, whereas under the APEC preferential scenario the Philippines again experiences more significant effects.

For the United States, APEC liberalization has virtually no effect on its welfare gains from the FTAA, in contrast to the effect of a Western Pacific trade bloc in wiping out US welfare gains from the FTAA. Combin-

26. Peru is included in the ''rest of South America.'' The GTAP database used for the book does not provide individual data for Peru.

27. The Western Pacific trade bloc is chosen for these comparisons because it produces more favorable welfare outcomes than other possible configurations of an East Asian bloc. The results presented in the tables allow comparisons to be made with other configurations as well.

ing the FTAA with either APEC scenario improves the welfare outcome for Chile and Mexico, but worsens it for Canada in the case of MFN liberalization. For the remainder of Latin America and the Caribbean, the outcome is again less favorable than if the FTAA is considered in isolation, and for Argentina and Central America and the Caribbean the welfare outcomes once again turn sharply negative.

The introduction of the FTAA also makes almost no perceptible difference to the ranking of, or difference between, the outcomes from APEC MFN and preferential liberalization for APEC members. For other Latin American economies, however, the margin in favor of APEC MFN liberalization narrows perceptibly, indicating that the FTAA would provide them with some offset to the effects of any APEC preferential liberalization.

It is perhaps surprising that the introduction of the FTAA does little to change the relative attractiveness of APEC liberalization and a Western Pacific trade bloc for the Western Pacific economies. This is true for both forms of APEC liberalization. At the aggregate level, the comparison continues to favor APEC by very similar margins. At the individual level, those economies that do better under APEC liberalization in the absence of the FTAA continue to do better under that approach when the FTAA is taken into account—and vice versa for those that do better under a Western Pacific trade bloc. The margins of difference at the individual-economy level also remain very similar. The same result generally holds true for the western hemisphere APEC members, although for Chile the margin of difference in favor of APEC, especially APEC preferential liberalization, does increase perceptibly when the FTAA is introduced into the picture.

The simulations reported here appear to indicate that—although the emergence of the FTAA will of course be a significant event in world trade—it need not lead to major change in trade strategy by the Western Pacific economies. Its effects on their economic welfare, although negative, are almost invariably small, and it appears to do little to change the relative attractiveness of the various alternative strategies open to them.

The more significant implications are those for the United States. The FTAA potentially offers the United States significant welfare gains, but these are canceled out if a Western Pacific bloc forms at the same time. APEC liberalization, conversely, leaves US welfare gains from the FTAA largely intact.

APEC liberalization generally also continues to be associated with positive potential economic welfare outcomes for other western hemisphere APEC members. Latin American countries are divided between those for which APEC liberalization or the emergence of a Western Pacific trade bloc has few or no effects on their welfare gains from the FTAA, and those for which welfare outcomes turn sharply negative under those conditions.

In general, the simulations can also be interpreted as showing that the effect of the formation of a trade bloc on one side of the Pacific is to modestly increase the incentive for economies on the other side to pursue liberalization initiatives of their own, because this not only offsets the negative effects of the formation of the bloc on the other side, but also for most economies yields a positive welfare outcome. Thus if the FTAA becomes a reality, any negative effects on Western Pacific economies can be more than offset by continuing with APEC liberalization or by forming a Western Pacific trade bloc. For western hemisphere countries, the FTAA generally results in better welfare outcomes than they would otherwise experience if APEC liberalization or the establishment of a Western Pacific trade bloc proceeds.

It is somewhat reassuring, but not surprising in the light of the foregoing discussion, that the emergence of the FTAA also makes little difference in the extent to which global liberalization yields more favorable welfare outcomes than either APEC liberalization or a Western Pacific trade bloc. For the vast majority of countries and groups, the welfare gains from global liberalization generally continue to exceed those from the other scenarios. The exceptions are the same as in the previous scenarios, from which the FTAA is absent. It is interesting to observe that, for Western Pacific economies, the margin in favor of global liberalization is generally somewhat higher when the FTAA is included in the scenario, whereas for western hemisphere economies the margin is generally somewhat less.[28]

A further question is the extent to which incentives would exist in the tripolar world for blocs to raise barriers against each other or for one bloc to form a coalition with a second bloc against a third. These are the possibilities that lie behind the assessments that a tripolar world may be the worst possible outcome for the international trading system. Our simulations did not explicitly explore these possibilities,[29] and therefore cannot definitively rule them out. The results do show, however, that in a tripolar world the potential welfare gains from preferential liberalization

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28. One possibility not considered here, but foreshadowed in EPG (1995), is a trade megabloc encompassing both APEC and the FTAA. Such a megabloc would become at least a technical possibility if APEC were to embrace the preferential approach to liberalization, because the modalities being followed in the two groupings would then be compatible. It could place enormous pressure on others, especially the European Union, to press actively for more effective global negotiations. It might cut cross Latin American ambitions to give a higher priority to north-south trading relations in the western hemisphere, and might be difficult to accept for Latin American exporters who see their relationship with East Asia as principally one of rivalry for the US market. Conversely, it could be argued to be consistent with the desire of East Asia and Latin America to deepen their economic linkages, as expressed through the formation of the East Asia-Latin America Forum.

29. In all simulations of preferential trade arrangements in this book, it is assumed that the external barriers of the members of the arrangement are held constant.

do not in general rise relative to those indicated under a nondiscriminatory approach such as APEC MFN liberalization. This may be interpreted as indirect evidence that a tripolar world may not lead to the negative outcome suggested by Krugman (1991) and others. An effective WTO of course provides further insurance against this possibility. The extent to which the welfare benefits from global liberalization dominate those from other scenarios suggests that the three blocs would have a strong incentive to cooperate in ensuring the continued effectiveness of the WTO.

A cautiously optimistic conclusion may therefore be in order. Although the formation of each major bloc does have negative effects on the members or potential members of the other bloc, it does not seem likely to reduce incentives to engage in first-best rather than second-best approaches to trade liberalization.

## Major Power Interests

Figures 3.1 to 3.4 summarize the welfare effects discussed above for the United States, the European Union, Japan, and China with the aim of throwing light on their possible strategies, if they follow their overall national economic interests in responding to the possible developments under consideration. Figures 3.3 and 3.4 indicate rather similar profiles for Japan and China, although the absolute size of potential welfare gains for China is much larger. In general, these two countries stand to enjoy substantial welfare gains from the establishment of an East Asian bloc, provided it includes all three core economies of Northeast Asia. Japan can compensate for the absence of China by including both ASEAN and the CER economies in the arrangement, but China quite naturally does not benefit from any arrangement in which it is not included along with the other two Northeast Asian core economies. Japan's potential welfare outcome improves significantly if the boundaries of an East Asian bloc are drawn to include all Western Pacific economies. To secure these gains, however, Japan would have to include agriculture in the prospective arrangement, and the potential for substantial welfare gains at the national level has not generally in the past been sufficient to tempt Japan into more comprehensive moves to free up agricultural trade.

For both Japan and China, larger welfare gains are attainable under either alternative APEC approach, and the potential gains from APEC MFN liberalization are not significantly impaired if the United States does not participate. In both cases, the emergence of the FTAA causes only minor reductions in potential economic gains. For both countries, economic welfare also would be sharply increased by a move to global liberalization from either form of APEC liberalization or from the Western Pacific bloc scenario.

The effects on the United States and the European Union illustrated in figures 3.1 and 3.2 are expressed in billions of US dollars. This is because

in both cases the effects as a percentage of GDP are so small that it is difficult to distinguish clearly between them. Although expression in billions of dollars does allow clear distinctions to be made, it must be remembered that the differences being identified are very small relative to the size of the two economies, so that the economic incentives indicated by the results are likely to be weak. Moreover, it may be unwise to rely too much on the results in the absence of corroborating evidence.

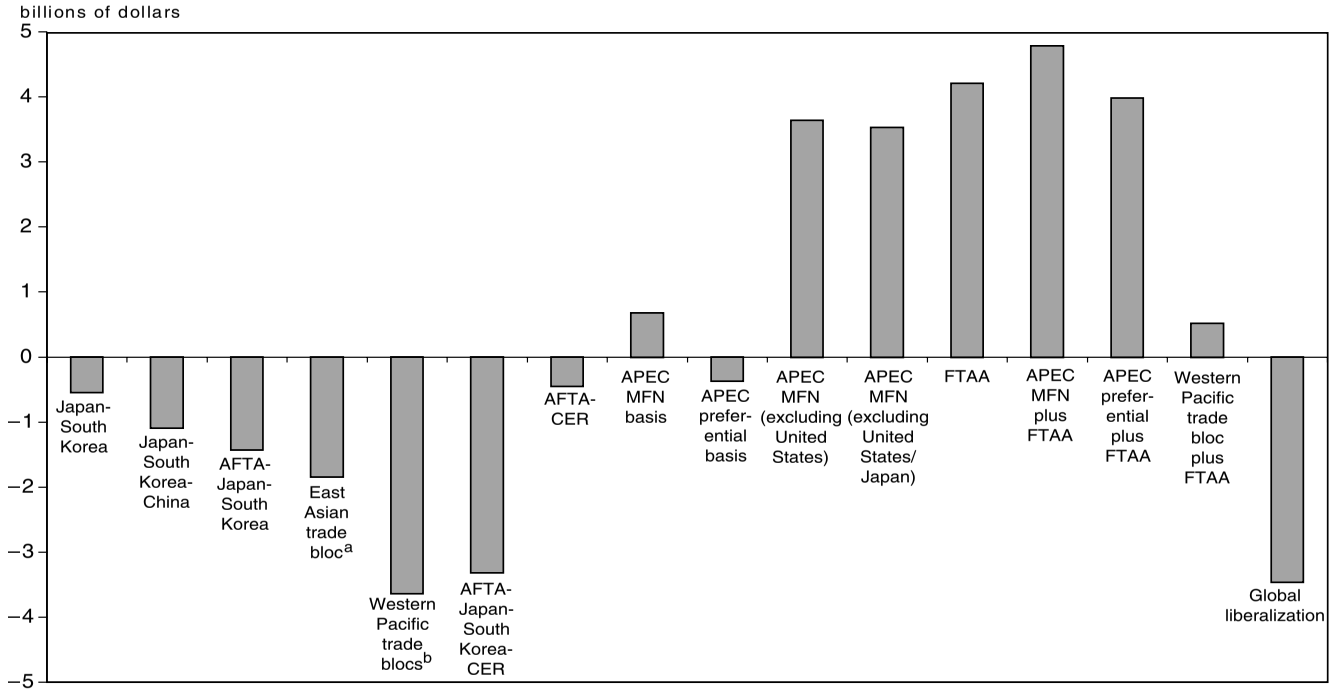
For the European Union, most East Asian bloc scenarios have negative welfare implications, as do all scenarios involving APEC preferential liberalization. Only APEC MFN liberalization leaves the European Union unscathed and able to enjoy slight welfare gains. Global liberalization is by far the most favorable option for the European Union of all those simulated. Development of large-scale preferential arrangements in East Asia, or on an APEC-wide basis, are thus likely to increase the pressure on the European Union to seek meaningful liberalization at the global or multilateral level.

For the United States, the comparison between the welfare effects of the development of an East Asian or Western Pacific trade bloc and the effects of APEC liberalization is highly suggestive. Progressively more comprehensive East Asian or Western Pacific blocs yield progressively larger welfare losses for the United States, which do not occur under either of the APEC scenarios. Although the United States gains from the FTAA, these gains are nullified if an East Asian or Western Pacific bloc goes ahead at the same time. But APEC liberalization leaves US welfare gains from the FTAA essentially intact. The emergence of an East Asian or Western Pacific trade bloc as a realistic possibility may therefore be a powerful inducement for the United States to engage constructively with APEC liberalization, and in so doing take steps to ensure that an effective APEC approach to regional liberalization provides a viable alternative.

The fact that the United State does not experience a welfare gain from global liberalization was identified above as a significant difficulty in the results from our CGE simulations. It is likely that a substantial terms-of-trade effect lies behind this result. This would not be unexpected, given the enormous size of the United States relative to other economies. It would be wrong to over-emphasize the negative sign attached to the welfare effect on the United States from global liberalization, given the small size of the effect and the degree of imprecision inherent in CGE modeling. A not unreasonable interpretation of the result would be that global liberalization has virtually no impact on US economic welfare. This would still be a problematic result, however.

There may be solid reason to believe that some of the limitations noted above in our CGE analysis may lead to a particularly pronounced understatement of positive welfare effects on the United States. First, it is possible (though not inevitable) that the inclusion of dynamic effects not cap-

## Figure 3.1 Effect of Asia-Pacific bloc formations on US welfare

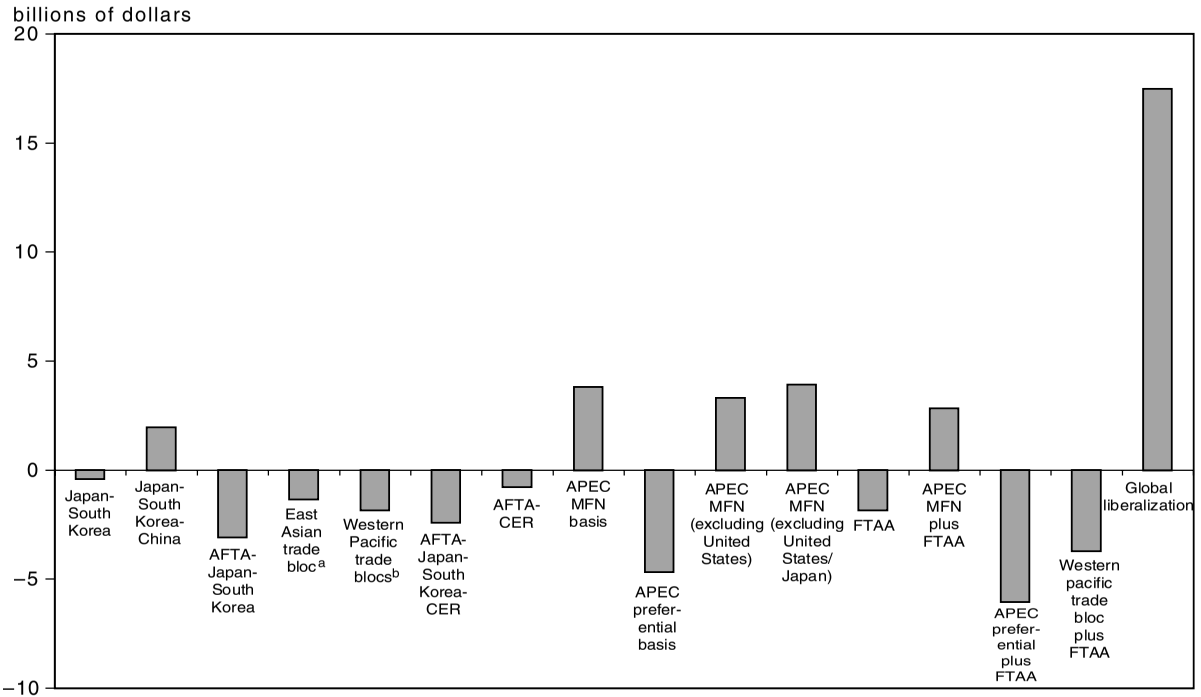



Acronym key on page 143.

a. Includes AFTA, Japan, South Korea, China.
b. Includes AFTA, Japan, South Korea, China, CER.

*Source:* Model simulations.

## Figure 3.2 Effect of Asia-Pacific bloc formations on EU welfare

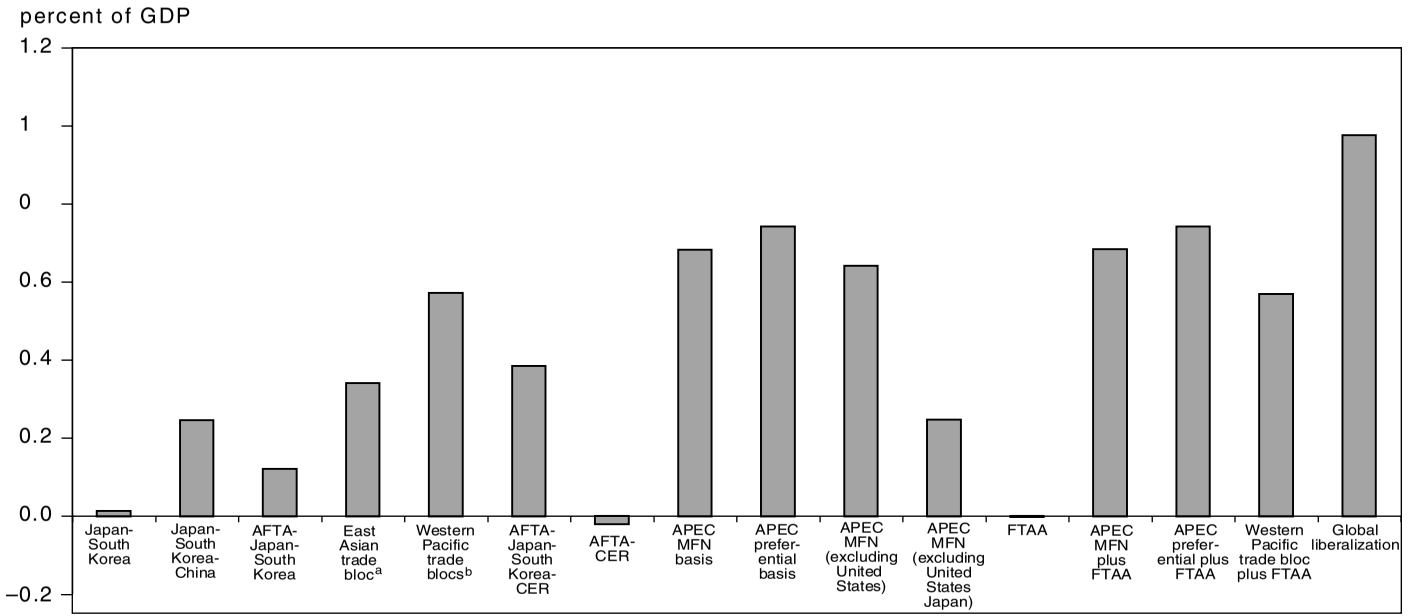



Acronym key on page 143.

a. Includes AFTA, Japan, South Korea, China.
b. Includes AFTA, Japan, South Korea, China, CER.

*Source:* Model simulations.

## Figure 3.3 Effect of Asia-Pacific bloc formations on Japan's welfare

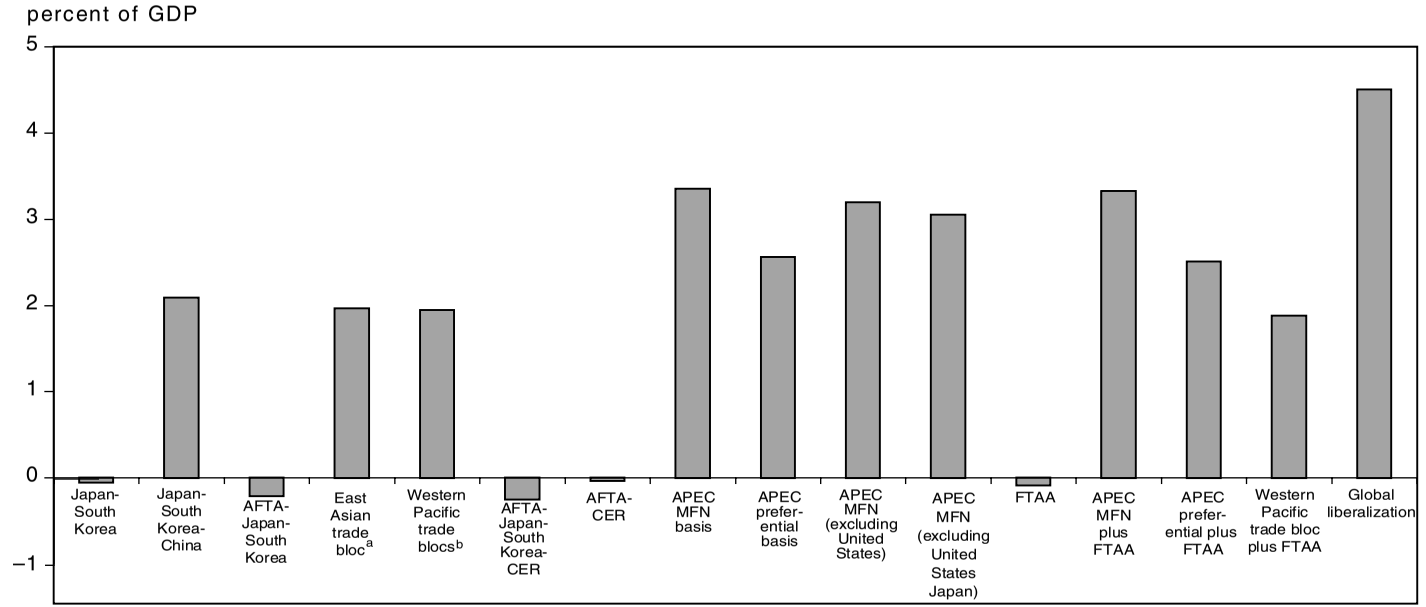



Acronym key on page 143.

a. Includes AFTA, Japan, South Korea, China.
b. Includes AFTA, Japan, South Korea, China, CER.

*Source:* Model simulations.

## Figure 3.4 Effect of Asia-Pacific bloc formations on China's welfare




AFTA = ASEAN Free Trade Area; APEC = Asia Pacific Economic Cooperation; ASEAN = Association of Southeast Asian Nations; CER = Australia–New Zealand Closer Economic Relations Trade Agreement; FTAA = Free Trade Area of the Americas; MFN = most favored nation; RTA = regional trade arrangement.

a. Includes AFTA, Japan, South Korea, China.
b. Includes AFTA, Japan, South Korea, China, CER.

*Source:* Model simulations.

tured in our simulations could yield positive effects sufficient to outweigh any unusually strong negative terms-of-trade effects. Second, the United States may well differ from many other economies in the extent to which it stands to benefit from services trade as opposed to goods trade liberalization. In this case the inability to satisfactorily model services trade liberalization may lead to an especially large systematic understatement of the potential welfare gains to the United States from global trade liberalization. More work is needed to explore these possibilities.

Even if the results obtained here are taken at face value, a basis may still be found for encouraging the United States to participate in global liberalization. To see this, it can be recalled that while regional arrangements may be at least notionally constrained to cover ''substantially all trade,'' no such constraint applies in global negotiations, where deals may be struck on the basis of achieving a balance of interests among members. Thus the potential may exist for the countries of the European Union (and perhaps other WTO members) to make concessions that may involve forgoing some potential welfare gains but that will also enable the United States to achieve welfare gains from global liberalization, thus giving it the incentive to participate at that level.

If there is a reasonable prospect that this kind of trade-off can be successfully achieved, it is not difficult to see how the European Union and the United States could be encouraged to participate in global liberalization, to avoid the less palatable consequences for them of some of the alternative developments. This would allow the conclusion to be safely drawn that all four major powers have an interest in global liberalization, irrespective of the course of regional trade liberalization in the Asia-Pacific region.

All three major APEC powers also appear to have more to gain from APEC liberalization than from other approaches to regional liberalization based on more limited groupings. A difference between them, however is that whereas China and Japan can also enjoy respectable welfare gains from the alternative options of an East Asian and Western Pacific trade bloc, these alternatives have clear negative implications for the United States. It may therefore be that it will be primarily up to the United States to take any decisive steps that might be required if APEC is to remain a viable alternative to other regional liberalization options.