Economic Integration and Open Regionalism in APEC:
The Gains for U.S. Agriculture

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Abstract

The Asia Pacific Economic Cooperation (APEC) forum could assume a more pivotal role in the integration of the Pacific Rim, which is a market for more than 60 percent of U.S. agricultural exports. In 1994, APEC announced in its "Bogor Declaration" a plan to achieve free trade in 2010 for developed members and in 2020 for other members. Its free-trade plan calls for open regionalism, allowing benefits from trade liberalization undertaken by members to accrue not only to APEC members but to non-APEC members as well. In this paper, we analyze open regionalism in a dynamic context. Even though the gains for the United States from open regionalism are less than they would be under an exclusive free trade area, open regionalism may be preferable because it is nondiscriminatory and because it creates pressure on non-APEC economies to liberalize their policies to maintain the competitiveness of their economies. From a U.S. perspective, inclusion of agriculture is critical: more than 75 percent of U.S. welfare gains from APEC would come from agriculture, mainly due to high initial rates of protection in East Asia.

Introduction

The Asia Pacific Economic Cooperation (APEC) forum is made up of 21 diverse Pacific Rim economies (table 1), including the United States, and represents a significant regional market for U.S. food and agriculture trade. In FY 1997, the APEC region accounted for more than 60 percent of U.S. agriculture and food exports and 50 percent of imports. Over the past 10 years, APEC has accounted for practically all the growth in U.S. non-bulk exports. The region covers North America, East Asia including China, Southeast Asia, Oceania, and Chile. Russia, Vietnam, and Peru joined in 1998, increasing the membership from 18 to 21 economies.

APEC, initiated in 1989, has a relatively short history. It is an outgrowth of other loose-knit fledgling Pacific Rim institutions, the most influential being the business-oriented Pacific Economic Cooperation Council (PECC), founded in 1980 by Australia and Japan. (See box for a comparison of APEC and the WTO.)

Growth in Intra-APEC Farm Trade So Far Not Attributable to APEC

In the APEC region, intra-regional agricultural trade, a measure of integration, has grown significantly in the last 15 years. The APEC region now rivals the EU

Table 1--Factor endowment, intensity, and relative size of model regions, 1992

	USA	Canada	Mexico	Japan	Australia	Korea	Taiwan	China	ASEAN5	EU12	Rest OECD	Rest World
						Billion U.S. dollars						
GDP and trade flows												
GDP	5,671.8	572.3	327.9	3,644.9	285.4	307.3	211.5	461.2	389.9	6,616.4	900.4	3,047.7
Exports	573.8	140.0	56.2	378.4	48.7	83.4	92.0	122.0	176.0	734.0	267.6	453.5
Imports	640.5	144.0	72.7	309.5	52.8	90.2	83.3	141.3	183.2	788.8	254.4	544.6
						Percent						
Relative size in the world												
GDP	25.3	2.6	1.5	16.3	1.3	1.4	0.9	2.1	1.7	29.5	4.0	13.6
Exports	18.4	4.5	1.8	12.1	1.6	2.7	2.9	3.9	5.6	23.5	8.6	14.5
Imports	19.4	4.4	2.2	9.4	1.6	2.7	2.5	4.3	5.5	23.9	7.7	16.5
						Percent						
Trade dependence												
Exports/output	10.1	24.5	17.1	10.4	17.1	27.1	43.5	26.5	45.2	11.1	29.7	14.9
Imports/absorption	11.3	25.2	22.2	8.5	18.5	29.4	39.4	30.6	47.0	11.9	28.3	17.9
						Percent						
Share in world factor endowment												
Land	13.4	3.2	1.8	0.3	3.6	0.2	0.1	6.9	4.0	5.9	0.6	60.1
Agricultural labor	0.2	0.0	0.8	0.3	0.0	0.4	0.1	41.7	6.1	0.8	0.1	49.4
Unskilled labor	8.1	1.0	1.8	4.7	0.6	1.3	0.7	17.7	6.0	11.0	1.1	46.1
Skilled labor	15.7	1.4	1.5	4.2	0.8	0.8	0.4	23.3	3.5	13.6	2.4	32.6
Total labor	5.2	0.6	1.3	2.6	0.4	0.8	0.4	29.4	5.8	6.5	0.8	46.2
Capital	23.3	2.2	1.4	17.5	1.5	1.0	0.6	1.8	1.4	30.6	4.7	14.0
						Percent						
Factor share in value-added												
Land	0.3	0.6	2.7	0.8	1.2	5.6	1.9	7.4	6.3	0.4	0.8	2.7
Agricultural labor	1.3	2.9	4.9	2.3	1.5	5.5	4.8	17.1	7.3	3.5	2.6	7.0
Unskilled labor	33.6	33.2	12.5	41.5	34.7	35.6	45.4	17.8	17.5	39.4	29.4	27.6
Skilled labor	29.2	21.8	14.3	15.2	23.8	8.4	7.4	18.1	8.3	24.8	28.2	13.6
Total labor	64.1	57.9	31.7	58.9	59.9	49.4	57.6	53.0	33.2	67.7	60.2	48.1
Capital	35.6	41.5	65.6	40.3	38.8	45.0	40.5	39.6	60.5	31.9	39.1	49.2
						Percent						
Skill distribution of regional labor force												
Agricultural labor	2.2	3.0	28.7	5.8	4.7	22.6	12.1	65.7	48.8	5.5	5.1	49.5
Unskilled labor	66.8	72.6	59.4	77.8	72.2	67.7	76.9	26.1	45.0	72.9	62.8	43.3
Skilled labor	31.1	24.5	11.9	16.4	23.1	9.7	11.0	8.2	6.2	21.6	32.2	7.3
						US $1,000 per worker						
Annual wages												
Agricultural labor	26.6	38.0	1.6	21.1	10.0	3.3	8.5	0.1	0.4	26.1	23.8	0.4
Unskilled labor	22.0	18.0	2.0	28.2	15.4	7.2	12.6	0.4	0.9	22.3	21.9	1.6
Skilled labor	41.0	35.1	11.3	48.9	33.1	11.8	14.5	1.2	3.2	47.4	41.0	4.7
Average wages	28.0	22.8	3.0	31.2	19.3	6.7	12.4	0.3	0.8	27.9	28.1	1.2
						US $1,000 per hectare						
Average land rent	8.5	7.2	31.1	612.6	6.6	730.6	406.1	28.4	37.5	29.9	74.3	9.1
						Percent of capital stock						
Average capital return	12.1	14.6	19.3	11.2	10.2	17.3	19.4	11.4	20.5	9.7	10.2	14.3
						US $,000 per worker						
Capital (land) intensity												
Capital/labor	128.5	112.0	31.8	191.0	122.4	35.5	44.8	1.8	7.1	135.2	179.1	8.7
						Hectares per worker						
Land/labor	1.5	3.3	0.8	0.1	6.1	0.1	0.1	0.1	0.4	0.5	0.5	0.8
						Ratio						
Relative factor prices												
Rental/wage	0.4	0.6	6.5	0.4	0.5	2.6	1.6	41.3	25.6	0.4	0.4	11.7
Land rent/wage	0.3	0.3	10.5	19.6	0.3	108.5	32.9	102.5	46.7	1.1	2.6	7.5
Rental/land rent	1.4	2.0	0.6	0.0	1.6	0.0	0.1	0.4	0.6	0.3	0.1	1.6

Data source: Calculated from the 1992 multi-regional SAM estimated by the author from Version 3 GTAP database (Hertel, 1997) and additional factor endowment data collected by the authors (Wang, 1997a).

Differences and Similarities Between APEC and the WTO

While the World Trade Organization is a new institution, it is an outgrowth of an agreement reached in 1947 among 23 countries. APEC was born in 1989. Both institutions have important differences, as well as significant similarities. A major difference is the sheer size of the WTO, with 132 members, and a large permanent staff of more than 450 at its Geneva headquarters and a budget of about $80 million. APEC is a smaller regional institution, with 18 members and no significant bureaucracy, only a small secretariat in Singapore of about 30, mainly temporary staff, seconded for a few years at the expense of member governments. Its operational budget is $2-3 million, and its "headquarters" moves around the region. Much of APEC's business is handled by the country hosting the annual ministerial meeting, which rotates among members: the United States in 1993, Indonesia in 1994, Japan in 1995, the Philippines in 1996, Canada in 1997, Malaysia in 1998, and New Zealand in 1999.

The similarities may be more important than the differences. Trade negotiations in both start with a political commitment, and members must agree on principles and agendas. Consultations are undertaken to reach reciprocity (WTO) or comparability (APEC); "offers" are made in the WTO, "national action plans" are submitted in APEC. The principle of comprehensiveness, is promoted in both organizations, bringing agriculture into the WTO as well as into APEC. Flexibility is allowed through exceptions such as "blue box" policies and the backloading of textile quota phaseouts under the Uruguay Round, and allowing members to deal with sensitive sectors in different ways and at different times in APEC. Finally, the principle of most favored nation treatment is important in both. APEC adheres to the practice of open regionalism, which conveys the benefits of APEC reforms to all trading partners, making APEC's programs consistent with WTO principles.

Source: Fred Bergsten, "The Case for APEC: An Asian Push for World-wide Free Trade," in *The Economist*, Jan. 6, 1996.

with respect to intra-regional agricultural trade; 68 percent of APEC's agricultural exports in 1995 went to other members of APEC, compared with almost 70 percent in the EU, and the share has been rising steadily. But the integration so far is not attributable to the APEC institution, but instead to economic growth, policy reform, and the freer play of comparative advantage. Economic growth in the region has outpaced the world average by about 30 percent for about 10 years through 1997. The Asian financial crisis has slowed growth in the last two years, raising uncertainty about future performance. While many APEC economies around the Pacific Rim have liberalized both domestic farm policies and agricultural trade, sometimes on their own initiative, and sometimes as the outcome of bilateral, regional, or multilateral trade negotiations, the Asian financial crisis may slow some of these efforts in the short term. Examples of liberalization efforts affecting countries in the region but independent of APEC are:

- The North American Free Trade Agreement (NAFTA), signed in 1993. It will be fully implemented by 2008. Tariffs are being cut and markets opened for agriculture and other sectors. Free trade in agriculture between the United States and Mexico will be achieved by the year 2008, with most barriers removed by the end of 2003.
- Australia and New Zealand's free trade agreement, Closer Economic Relations (CER), signed in 1983. The agreement has brought limited benefits for agricltural trade because both nations have had relatively open borders for agriculture, and because their major agricultural markets are outside the region.
- New Zealand's unilateral reforms affecting agriculture and other sectors beginning in 1984. New Zealand farmers adjusted through a period of a rising currency, high interest rates, and depressed commodity prices. With the adjustment period complete, New Zealand's farm sector parameters are now largely set by the macroeconomic environment.
- The Association of Southeast Asian Nations' (ASEAN) free trade agreement signed in 1994, with a commitment to adopt a Common Effective

Preferential Tariff of 0-5 percent by 2008. The timetable later was accelerated to 2003. ASEAN includes Brunei, Burma, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. (Burma and Laos not yet members of APEC.)

- Policy reforms in China and Taiwan, in conjunction with WTO accession talks, resulted in a number of changes such as China's reducing its average tariff on agricultural goods from more than 30 percent in 1991 to 20 percent in 1997.
- Increased integration of agriculture and food trade between Hong Kong and China since Hong Kong reverted to China in July 1997.
- Implementation of the Uruguay Round Agreement began in 1995, with a 6-year phase-in period through 2000 for developed countries, and through 2004 for developing countries.
- Several bilateral agreements between the United States and Japan, Korea, and Taiwan since the mid-1980's that liberalized trade in beef, citrus, tobacco products, and other non-bulk commodities. Collectively these measures increased the value of farm exports to East Asia by other APEC economies by billions of dollars.

The Bogor Declaration of 1994

APEC could assume a far more pivotal role in future Pacific Rim integration than it has since its inception in 1989. About 6 months after the Uruguay Round Agreement was signed, APEC leaders issued their "Declaration of Common Resolve" in Bogor, Indonesia, on November 15, 1994, announcing that members would adopt the long-term goal of free and open trade and investment in the Pacific Rim region. This goal would be pursued by reducing barriers to trade and investment and by promoting the free flow of goods, services, and capital within the region.

APEC members pledged to pursue regional free trade on a most favored nation (MFN) basis and to promote the notion of open regionalism, allowing the benefits from trade liberalization undertaken by members to accrue to nonmembers as well. Developed economies would fully liberalize their economies by 2010 and other members by 2020. At the Osaka Ministerial Meeting in November 1995, APEC members reaffirmed the free trade goal, calling for comprehensive treatment, including controversial sectors like agriculture, but flexibility in dealing with various trade sectors in meeting this goal. Action plans were tabled at the Manila Ministerial Meeting in November 1996 for implementation beginning in 1997. Peer pressure is the vehicle for ensuring comparability in commitments among the 21 economies as members pursue "concerted unilateral liberalization," but in consultation with and under the scrutiny of other members. Action plans are updated and revised periodically at the annual Ministerial meetings.

With regard to agriculture, these initial action plans in some cases offered accelerated or broader implementation of commitments made under the Uruguay Round Agreement. For example, Australia agreed to complete the reduction of bound rates for agricultural products by January 1999 instead of 2000. China, not a member of the WTO but quite active in APEC, announced at the last APEC Ministerial meeting in Vancouver that it would make significant tariff cuts on industrial and agricultural products by 2005. Other economies promised to accelerate trade-facilitating measures that would enhance food and agricultural trade, such as liberalizing of foreign investment in the transportation sector (Chile) and in expediting inspection procedures for highly perishable trade (South Korea).[1]

APEC's Vision of Open Regionalism

The APEC plan for regional free trade is distinguished from other regional trade liberalization efforts by the ambiguous concept of "open regionalism," described in the APEC Eminent Persons Group's 1993 report.

[1]Unpublished memorandum by Jeff Clark, Economic Research Service, U.S. Dept. Agri., January 5, 1996.

Commissioned in 1992, the Eminent Persons Group was to "enunciate a vision for trade in the Asia Pacific region..." and described open regionalism in their recommendations to leaders on regional trade liberalization, later adopted in the Bogor declaration:

> …the [APEC] members would set a goal of achieving free trade in the region and indicate that they prefer to do so through further global liberalization but would pursue a regional path, on a GATT-consistent basis, if the favored strategy were not achievable. This would operationalize APEC's concept of "open regionalism" or "open economic association" in a new and effective manner.[2]

Open regionalism, according to the report, would "obviate any charges that [APEC] was 'going regional'," [3] a particular concern given the inconclusive status of the long drawn-out Uruguay Round negotiations at that time.

Pros and Cons of Open Regionalism

Detractors of APEC's open regionalism argue that the benefits from APEC liberalization should accrue only to members or to nonmembers who reciprocate with similar liberalization measures. According to this view, the nondiscrimination principle embedded in the open regionalism concept should be applied conditionally by APEC to avoid possible exploitation by "free riders," like the EU.[4]

Advocates of open regionalism argue that the liberalizing nation is the greatest benefactor from such action; non-APEC economies that "free ride" APEC's free trade measures by not offering reciprocal policy reform would benefit less than the member economies. Remaining distortions would hamstring nonmember countries' ability to compete and take advantage of the opportunities in APEC. Therefore, what other economies do or not do is less important than what APEC members do. The APEC forum serves to encourage members to move forward on the open regionalism agenda.

Is it naive to think that an economy will undertake liberalization without reciprocity? New Zealand did just that, unilaterally undertaking extensive agricultural policy reforms in 1984. Left to face the market, New Zealand farmers, after a difficult adjustment period, have prospered. The recent Asian financial crisis also demonstrates the importance of an economy's openness regarding trade and foreign investment. Some of the most severely affected economies in Asia now face pressure from the International Monetary Fund as a *quid pro quo* for loans to undertake banking and trade policy reforms to encourage economic recovery in a globalized world economy.

APEC's Open Regionalism in Perspective

Given APEC's controversial objective of free trade through open regionalism, we evaluate its implications for the U.S. economy and agriculture, and compare it with two alternatives: an exclusive APEC free trade area and multilateral free trade in which non-APEC economies undertake the same reform as APEC members. How does open regionalism compare with these other approaches with respect to impacts on national welfare,[5] trade creation and diversion, agricultural trade, farm income, and prices? What are the

[2]Report of the Eminent Persons Group to APEC Ministers, *A Vision for APEC, Towards an Asia Pacific Economic Community*, October 1993, pp. 27-28.
[3]Ibid., p. 28.
[4]Trade Policy Forum, *Asia-Pacific and Western Hemisphere Regional Initiatives: Cooperation for Increasing Competition, Background Paper for Experts Roundtable*, Pacific Economic Cooperation Council, 12th General Meeting, Santiago, Chile, Sept. 29, 1997, p. 17.

[5]We measure changes in national welfare by changes in household consumption, evaluated at base year prices.

impacts on APEC partners and economies outside the region? And what is the distribution of gains and losses across U.S. economic sectors in general and for agriculture in particular?

We use a recursive, dynamic, computable general equilibrium model to address these questions. The model incorporates four sources of economic growth: labor force growth, accumulation of physical capital, changes in the skill composition of the labor force, and total factor productivity (TFP) growth. The labor force growth rate is set exogenously. Capital stock in each 1-year simulation period equals the last period's capital stock plus total investment minus depreciation. No optimal behavior is assumed for investment and capital accumulation. All net investments in the previous period are assumed to become new production capital in the next period. The increase in the skilled labor force is based on the growth in the stock of tertiary educated labor in each region estimated by the World Bank (Ahuja and Filmer, 1995), which indicates changes in the numbers of those qualified for employment as professional and technical workers. TFP growth rates are obtained from econometric estimates by the World Bank (Thomas and Wang, 1993, Martin and Mitra, 1996).

In the model's base scenario, the world economic growth path from 1992 to 2025 is generated, driven by the four sources of growth and assuming full implementation of the Uruguay Round and NAFTA and that China and Taiwan do not participate in the Uruguay Round liberalization process. Domestic agricultural support in the United States is assumed to be reduced by 95 percent as a result of the provisions of the 1996 FAIR Act, and domestic support in other OECD countries and in newly industrialized Asian economies is assumed to be lowered by 40 percent.

Three other scenarios are compared with the base scenario: an APEC free trade area (FTRA); the case of open regionalism (OPEN), featuring APEC trade liberalization on an MFN basis; and global trade liberalization under which non-APEC economies undertake policy reform in the same way as APEC (FULL).

Liberalization means reducing import protection and export subsidies in the developed and newly industrialized economies of APEC (the United States, Canada, Japan, Australia, Korea, and Taiwan) to zero by 2010, and removing all import barriers in all other APEC economies (Mexico, China, and ASEAN) by 2020. China and Taiwan will not benefit from the elimination of the Multi-Fibre Arrangement since they are not members of the WTO. Protection levels decline at a constant annual rate. All exogenous forces driving economic growth are the same as in the base scenario. The only differences among the three scenarios and the baseline are changes in each country's trade policy.

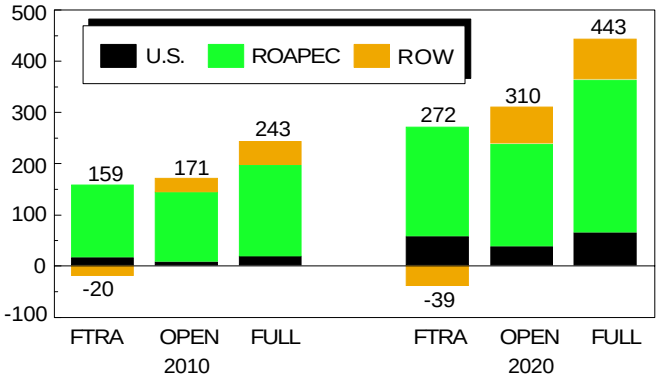
The model is a highly stylized simplification of the world economy that is far from perfect (Wang, 1997a). Liberalization of the service sector is not modeled. The size of parameters, such as elasticities of substitution and initial rates of protection, are uncertain. Therefore, the numbers reported in this paper need to be interpreted with caution: they can be viewed as indicative but not as precise forecasts.

The three scenarios revealed several important outcomes:

- ***Welfare rises regardless of liberalization approach.*** The results from the recursive dynamic CGE analysis show that with all three liberalization approaches—an exclusive free trade area, open regionalism, and multilateral free trade—the overall welfare impacts are positive. They vary somewhat in magnitude, with global gains smallest for the APEC free trade area option and largest for multilateral free trade (fig. 1). Increases in welfare in the United States and the rest of APEC from open regionalism are somewhat less than both the free trade area and multilateral options, but the differences are small (fig. 2). According to the simulation results, APEC welfare rises in the range of $144-$197 billion above baseline levels for the three options in 2010 (a 0.64- to 0.88-percent increase) and from $238 - $363 billion in 2020 (a 0.78- to 1.19-percent increase) (fig. 3). The jump between 2010 and 2020 is explained by the elimination of

Figure 1
Global economy: Welfare impacts of APEC trade liberalization

Real consumption (Billion 1992 US$)



the higher protection levels in the developing APEC economies and the liberalization-induced higher rates of economic growth from 2010 to 2020. The range of our welfare estimates ($144-$363 billion) are somewhat larger than the results ($130-$300 billion) from other APEC free trade simulations based on similar policy coverage because of the dynamic features of our model that account for the accumulating effect of rising income and investment levels from trade liberalization.[6] Nevertheless, our results show that the percentage welfare gains for APEC and the world under all three simulations are still quite modest (table 2, left panel, Real Consumption).

- ***Agriculture makes a major contribution to overall gains in all three alternatives.*** According to our simulations, agriculture contributes 55 to 70 percent of the total welfare gains from liberalizing merchandise trade in APEC. For the United States, the share is even higher at 75 to 85 percent.[7] The large share from agriculture is mainly due to high initial protection rates for food and agricultural products in East Asia. Agriculture is a major sector of unfinished business from the Uruguay Round (table 3, fig. 4). With the freer play of comparative advantage after APEC trade liberalization, more efficient resource allocation across the region would lead to significant increases in import demand for food and agricultural products, particularly in East Asia.

Figure 2
U.S. economy: Welfare gains under different scenarios

Billion 1992 US$

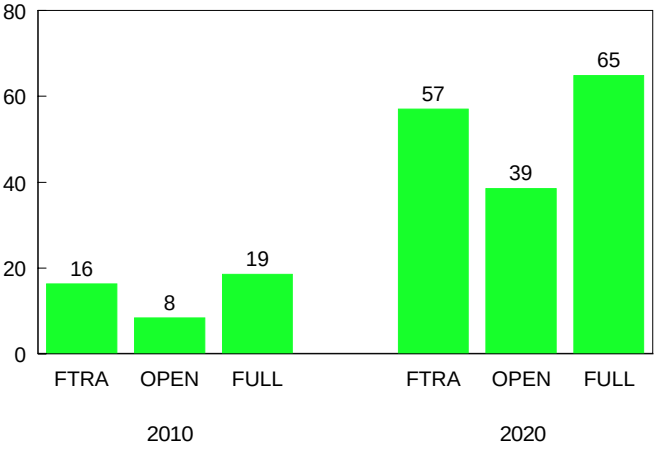
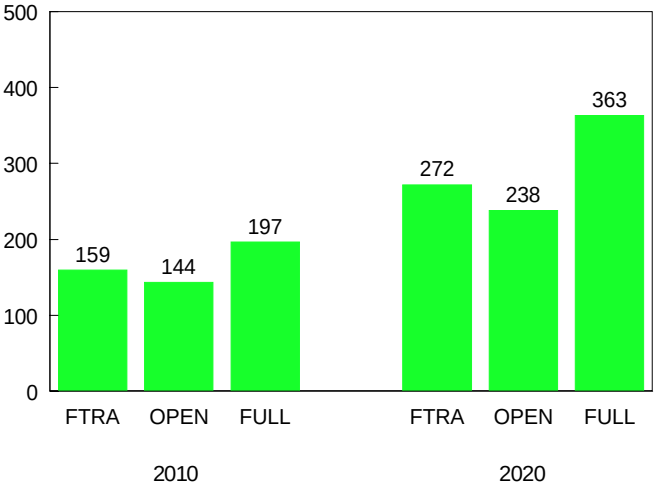


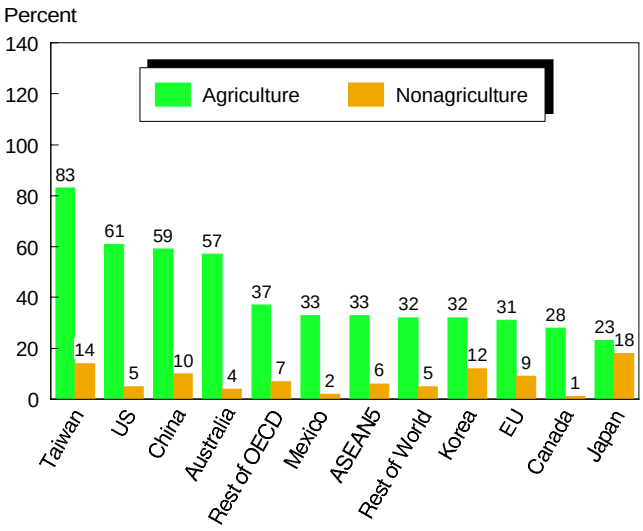
Figure 3
APEC: Welfare gains under different scenarios

Billion US$ (change from base)



[6]Peter A. Petri, "Computable General Equilibrium Studies of APEC: Preliminary Review," unpublished paper distributed at the PECC XII meeting in Santiago, Sept. 29, 1997.
[7]Based on additional simulation that decomposes the welfare contribution from agriculture.

Figure 4
Average protection rates faced by selected economies in APEC and elsewhere, post UR and NAFTA



Notes and data source: Calculated from the 1992 multi-regional SAM estimated by the authors from version 3 GTAP database (Hertel, 1997). The import protection rates for the food and agricultural sectors in China and South Asia were negative in version 3 GTAP. They reflected government consumer price subsidies on living necessities in those countries. We eliminated all negative protections and treated them as consumer price subsidies in the global SAM. Protection rates for food and agricultural sectors in China and South Asia are based on an earlier version of the GTAP database except China's crop sectors, which are tariff equivalent of non-tariff barriers based on Zhang, et al., 1997.

- ***Trade creation dominates trade diversion in three liberalization scenarios.***[8] As expected, trade diversion occurs in the case of the APEC free trade area, $107 billion in 2010 and $162 billion in 2020, but trade creation still dominates. In the case of the APEC free trade area, total real exports increase significantly for all APEC members, but decline for non-APEC economies. Economies within APEC trade more among themselves. Within APEC, trade increases 24 percent from the base scenario in 2010 and 32 percent in 2020. But trade between APEC and non-APEC economies declines by 4 and 5 percent, respectively.[9] Trade diversion is not an issue with open regionalism except for North America, which imports slightly less from non-APEC economies because the initial barriers for APEC members are somewhat higher than in the EU and other OECD economies.
- ***ROW unable to "free ride" on trade expansion from APEC's open regionalism.*** Under open regionalism, exports from non-APEC economies to the APEC region increase by just 4 and 5 percent in 2010 and 2020 ($49 and $87 billion), less than the APEC to non-APEC export expansion of 9 and 14 percent ($120 and $262 billion). Total exports from non-APEC economies would actually fall, except for slight growth in the EU (table 2, right panel, Exports). If non-APEC economies were to liberalize their markets also, then their exports would expand almost as fast as in the APEC economies. The remaining protection in the non-APEC region taxes their own production and exports, thus reducing their competitiveness in world markets under open regionalism. This would furnish an incentive for non-APEC economies to follow APEC's lead in liberalizing their own markets.
- ***U.S. agricultural exports would rise in all three cases, the least under open regionalism.*** The increase in U.S. net agricultural exports would be 18 percent higher under the multilateral option than under open regionalism, and 30 percent higher under the free trade area scenario. Australia and Canada, the other major net agricultural exporters in the APEC region, would experience a similar pattern of benefits. Net agricultural exporters outside the region would benefit from open regionalism and from multilateral liberalization even more because some important non-APEC economies have relatively more abundant agricultural land resources than APEC members in East Asia. The free trade area option would divert from exporters outside the region to APEC economies agricultural trade worth about $19 billion in 2010 and $41 billion in 2020.

[8]Trade creation is the replacement of expensive domestic production by cheaper imports from free-trade-area (FTA) members, resulting from a reduction in trade impediments among FTA members. Trade diversion is the replacement of cheaper initial imports from non-FTA members by more expensive imports from FTA members.

[9]Numbers are derived from table 5, divided by baseline numbers.

- ***U.S. agriculture would benefit from freer trade conditions regardless of approach.*** U.S. farm production and exports would expand under all three options because of the further realization of comparative advantage under freer trade conditions. All major sectors of U.S. agriculture would expand, with food grain production expanding the most, more than 20 percent in 2010 and more than 45 percent in 2020, under each of the three options (fig. 5 and table 4, right panel). Feed grain and livestock production would expand by similar rates in both 2010 and 2020. The labor-intensive textile and

Table 2--The impact of alternative scenarios on APEC trade liberalization

	Real consumption						Exports					
	2010			2020			2010			2020		
	FTRA	OPEN	FULL	FTRA	OPEN	FULL	FTRA	OPEN	FULL	FTRA	OPEN	FULL
	Percent change from base scenario											
United States	0.17	0.09	0.19	0.45	0.31	0.51	11.0	13.4	13.6	10.0	11.8	12.2
Canada	-0.01	-0.10	-0.04	0.28	0.16	0.30	1.3	2.7	2.3	0.2	1.8	1.2
Mexico	-0.16	-0.32	-0.28	-0.35	-0.60	-0.53	1.4	2.9	2.2	3.6	6.4	5.6
Japan	1.39	1.36	1.68	1.67	1.59	1.99	18.2	16.6	18.6	20.4	18.3	20.6
Australia	0.82	0.49	0.71	1.68	1.09	1.58	9.4	11.1	10.8	7.5	9.5	9.1
Korea	1.59	1.61	2.24	2.04	1.91	3.05	28.7	31.5	33.9	30.5	32.6	37.0
Taiwan	2.14	1.78	1.84	3.11	2.49	2.65	19.0	20.3	20.3	21.2	21.8	22.0
China	1.74	1.86	2.18	1.24	1.54	2.05	29.1	34.6	36.0	47.4	56.0	57.9
ASEAN5	0.23	0.08	0.85	-0.29	-0.35	1.08	6.8	9.2	10.4	17.6	21.8	24.5
APEC	0.71	0.64	0.88	0.89	0.78	1.19	14.1	16.2	17.1	19.5	22.4	23.9
EU	-0.07	0.18	0.45	-0.06	0.31	0.86	-1.8	0.7	11.8	-2.5	0.8	12.9
Rest of OECD	0.16	0.47	0.61	0.23	0.76	1.10	-1.7	-1.6	3.6	-2.9	-2.6	2.9
Rest of the World	-0.21	0.01	-0.17	-0.31	0.14	-0.51	-2.9	-0.7	16.5	-3.5	-1.0	30.9
Total	0.33	0.41	0.58	0.41	0.54	0.77	7.2	9.2	15.1	10.2	13.0	22.3

Table 3--Trade average protection rate faced by each region's exports, post UR and NAFTA

	Merchandise average			Agricultural products			Non-agricultural products		
	APEC	Non-APEC	World	APEC	Non-APEC	World	APEC	Non-APEC	World
	Percent								
United States	9.28	7.53	8.47	60.57	20.80	43.57	4.68	9.32	6.66
Canada	2.64	6.52	3.23	28.09	15.26	24.06	0.80	5.86	1.41
Mexico	3.95	4.94	4.13	32.79	31.63	32.66	2.16	6.22	2.76
Japan	16.32	14.99	15.86	22.89	25.32	23.44	17.69	17.12	17.49
Australia	16.20	8.42	13.77	57.48	17.00	43.83	3.72	6.40	4.55
Korea	11.42	17.45	13.39	32.14	19.07	29.73	12.32	19.05	14.59
Taiwan	15.71	7.87	13.78	82.67	16.15	79.23	13.81	8.65	12.53
China	12.34	10.96	11.76	59.31	19.51	43.10	9.92	13.76	11.43
ASEAN 5	7.52	12.57	9.40	32.75	27.18	30.12	5.68	13.39	8.23
European Union	7.62	9.77	8.89	30.73	25.25	27.07	9.26	11.27	10.49
Rest of OECD	7.82	3.72	4.55	36.99	31.73	33.47	6.97	3.31	4.03
Rest of World	6.42	7.08	6.77	32.17	32.93	32.67	4.96	3.54	4.23

Data source: Calculated from the 1992 multi-regional SAM estimated by the author from version 3 GTAP database (Hertel, 1997). The import protection rates for the food and agricultural sectors in China and South Asia were negative in version 3 GTAP. They reflected government consumer price subsidies on living necessities in those countries. We eliminated all negative protections and treated them as consumer price subsidies in the global SAM. Protection rates for food and agricultural sectors in China and South Asia are based on an earlier version of the GTAP database except China's crop sectors, which are tariff equivalence of non-tariff barriers based on Zhang, et al., 1997.

apparel and light manufacturing sectors would decline by about the same percentage in 2010 and 2020 under all three options.

- ***U.S. farm prices and incomes would rise.*** U.S farm prices would rise under all three options in both 2010 and 2020. U.S. farm income also rises because of both higher prices and more efficient use of production resources (fig. 6).

Figure 5
The U.S. economy: Changes in production

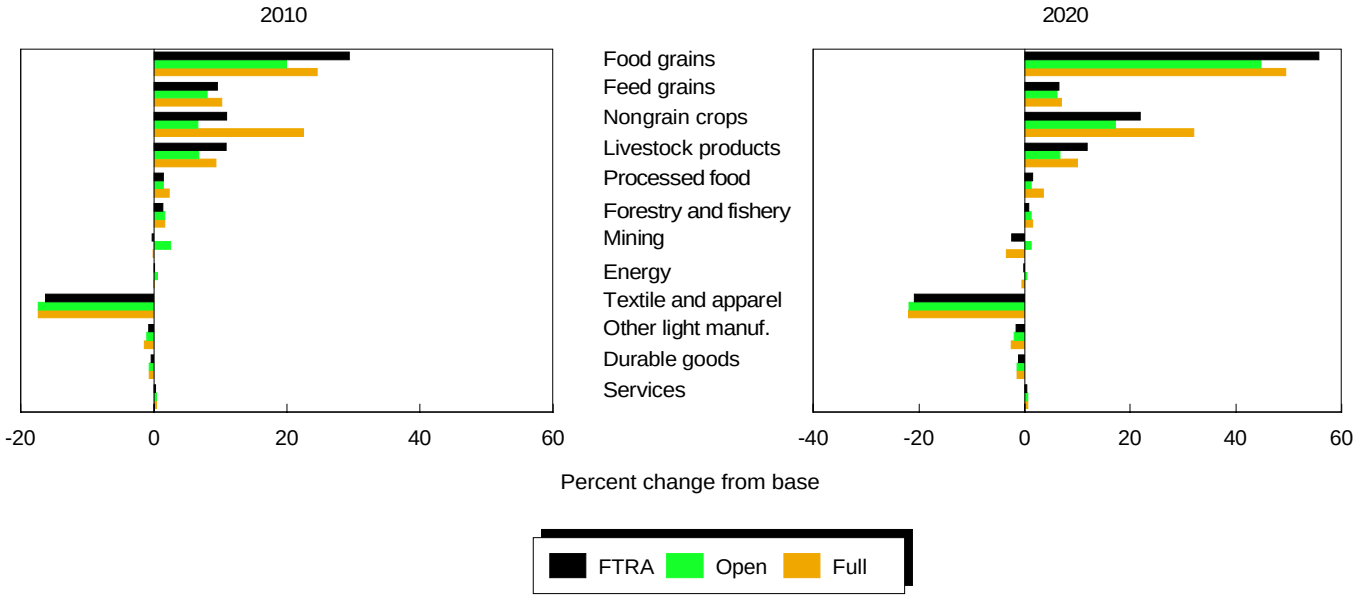
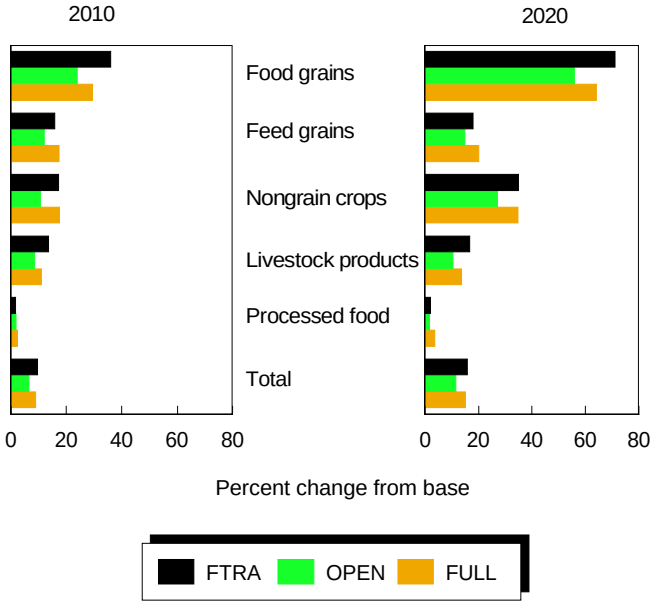


Table 4--Impact of alternative scenarios on APEC trade liberalization on structure of U.S. economy

	Real consumption						Production					
	2010			2020			2010			2020		
	FTRA	OPEN	FULL	FTRA	OPEN	FULL	FTRA	OPEN	FULL	FTRA	OPEN	FULL
	Percent change from base scenario											
Food grains	0.00	0.00	0.00	-0.73	-0.73	-0.73	29.4	20.0	24.6	55.8	44.8	49.5
Feed grains	0.00	0.00	0.00	0.00	0.00	0.00	9.8	8.1	10.3	6.6	6.2	7.1
Non-grain crops	0.20	0.61	0.54	0.03	0.43	0.37	11.0	6.7	22.6	22.0	17.3	32.1
Livestock products	-0.08	-0.03	-0.05	-0.15	-0.10	-0.11	10.9	6.8	9.4	11.9	6.8	10.1
Processed food	0.05	0.12	0.15	0.09	0.16	0.22	1.5	1.5	2.4	1.6	1.3	3.6
Agriculture	0.03	0.12	0.13	0.02	0.11	0.14	7.0	4.7	8.1	9.7	6.9	11.1
Forestry and fishery	0.21	0.15	0.29	0.59	0.43	0.69	1.4	1.7	1.7	0.9	1.3	1.6
Mining	0.00	0.00	0.00	0.00	0.00	0.00	-0.2	2.6	-0.1	-2.4	1.3	-3.4
Energy	0.05	-0.18	0.11	0.45	0.05	0.69	0.2	0.6	0.1	-0.1	0.5	-0.5
Textile and apparel	5.20	5.77	5.99	7.70	8.30	8.82	-16.2	-17.3	-17.3	-20.9	-21.9	-22.0
Other light manufactures	0.71	0.75	0.93	1.34	1.30	1.66	-0.8	-1.1	-1.4	-1.6	-2.0	-2.5
Durable goods	0.29	0.24	0.34	0.56	0.45	0.66	-0.6	-0.7	-0.7	-1.2	-1.4	-1.4
Services	-0.06	-0.19	-0.09	0.17	-0.02	0.15	0.3	0.5	0.5	0.5	0.7	0.7
Total	0.17	0.09	0.19	0.45	0.31	0.51	0.2	0.2	0.3	0.2	0.1	0.3

Figure 6
The U.S. economy: Changes in farm income



Conclusions

It may be too early to assess APEC's bold free-trade plan because of its distant target dates and uncertain implementation. However, the plan could give APEC a much more visible role in encouraging future regional integration across the Pacific Rim.

All three options raise global and U.S. welfare above baseline levels. The multilateral option is the best from both a global and a U.S. perspective. The open regionalism approach is second best for global welfare, but the least attractive for the United States. However, the differences in welfare gains for the United States from the three options are not large. The impacts of the three options on U.S. agriculture also vary, but by little.

Ironically, the economically least attractive option for the United States, open regionalism, may be the best choice when both economics and politics are considered. Economically, it provides benefits not much less than the other two options and the adjustment cost to the U.S. economy is almost the same. Politically, open regionalism has the advantage of being nondiscriminatory with regard to non-APEC members. It is a more acceptable, less threatening option from the perspective of the non-APEC world. It also has the advantage of being an agreement among only 21 parties, not 132 as would be the case for multilateral liberalization under the auspices of the WTO.

Table 5--Impact of alternative scenarios in APEC trade liberalization on U.S. food and agricultural trade

	Real exports						Real imports					
	2010			2020			2010			2020		
	FTRA	OPEN	FULL	FTRA	OPEN	FULL	FTRA	OPEN	FULL	FTRA	OPEN	FULL
	Percent change from base scenario											
Food grains	46.3	31.2	36.2	76.1	61.2	67.1	6.9	5.3	6.0	20.7	17.5	19.3
Feed grains	11.3	15.2	25.8	-2.3	6.1	9.9	-2.7	-12.8	-9.2	5.7	-10.3	-7.1
Non-grain crops	43.0	41.0	53.6	57.1	52.3	61.8	44.7	72.5	76.6	59.6	83.4	91.5
Livestock products	93.2	66.2	76.7	78.8	50.4	61.8	9.8	28.3	24.7	12.8	30.5	26.1
Processed food	9.5	11.5	17.2	9.9	9.5	24.5	6.1	6.7	11.4	12.4	11.9	18.3
Agriculture	39.5	33.6	42.9	44.2	37.0	47.3	19.3	32.4	35.1	27.1	37.7	42.2
Forestry and fishery	12.3	15.5	16.5	10.1	14.3	17.2	1.4	1.6	2.8	2.9	2.6	4.0
Mining	2.5	11.3	5.8	-1.0	10.0	2.9	2.0	-1.0	3.2	3.9	-0.1	7.3
Energy	4.4	11.1	8.5	2.1	10.1	4.7	1.9	-1.1	3.3	4.5	0.1	8.6
Textile and apparel	11.3	15.6	19.9	1.5	5.0	13.1	39.9	44.1	45.6	47.4	51.1	53.9
Other light manufactures	-0.2	0.0	-3.0	-4.8	-4.9	-9.9	9.2	10.9	12.1	13.4	14.9	17.1
Durable goods	9.8	12.4	12.3	6.3	8.4	8.3	13.4	16.2	16.9	14.9	17.1	18.8
Services	1.4	7.0	3.2	-2.2	4.9	-0.2	0.4	-3.6	-0.8	3.2	-2.1	1.5
Total	11.0	13.4	13.6	10.0	11.8	12.2	12.8	14.5	16.1	15.2	16.0	18.9

A key point is that the open regionalism scenario assumes that the rest of the world does not offer reciprocal reforms. In reality, as APEC pursues a course of open regionalism, the rest of the world would likely not stand still and "free ride," given the widespread interest of many countries to participate more fully in global markets. According to the simulation results, non-APEC economies would be unable to take advantage of free access to the APEC region because the remaining distortions in their own markets would act as a tax, limiting production efficiency and reducing exports. Non-APEC economies would have an incentive to follow the lead of APEC in liberalizing their own markets so as to remain competitive with the APEC economies. Therefore, the United States might be better off under open regionalism than our results indicate, depending on the policy response from the non-APEC world. This analysis suggests that APEC's open regionalism could very well be a vehicle for promoting not only regional but also global trade liberalization.

Finally, the results also point out the critical role of agricultural policy reforms to the overall gains in welfare in the APEC region, particularly for the United States. Without liberalization in the region's agriculture, the United States would have much less incentive to participate in APEC's overall liberalization program.

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