THOMAS W. HERTEL, WILLIAM A. MASTERS AND MARK J. GEHLHAR*

Regionalism in World Food Markets: Implications for Trade and Welfare

INTRODUCTION

This paper surveys the role of regional trading groups in food and agricultural markets. It begins with a review of economic regionalism in general and then considers historical experience in food markets. After that it presents several estimates of the magnitude of regionalism's effects on world welfare, trade and the shape of the global food system in the coming decade. The aim is to address two of the most dramatic changes in agricultural markets likely to occur over the coming years: eastward expansion of the European Union and deepening of integration in the Asia–Pacific region.

It will be suggested that world food trade will become concentrated increasingly within regional zones and that trading patterns are likely to be heavily influenced by the formation of regional trade agreements (RTAs). Furthermore, changes in food trade caused by RTAs may well have large economy wide welfare effects, dominating the RTA's impact on other sectors. The key role played by food trade arises mainly from the high degree of government involvement in the sector. Changes in food trade alter the costs of intervention, which in turn changes the incentives for governments to undertake particular policies.

When RTAs are formed among countries seeking to protect a particular sector (such as agriculture in Western Europe), they tend, for a variety of reasons, to facilitate higher levels of protection than each country might have instituted individually. However, this process can also work in reverse. For example, eastward expansion of the European Union is likely to reduce Europe's level of farm protection by increasing the variety of its members, thereby making the current Common Agricultural Policy (CAP) much more costly. Similarly, negotiations of an Asia–Pacific agreement are likely to avoid regional protection because of the diversity among participants. Only if a sub-group of similar countries were to initiate separate talks might they be affected by what can be termed the 'CAP trap', or a regional decision-making structure which facilitates rent seeking by some groups while muting the countervailing power of others.

*Purdue University, Indiana, USA (Hertel and Masters) and Economic Research Service, United States Department of Agriculture, Washington, DC, USA (Gehlhar).

REGIONALISM IN THE WORLD ECONOMY

Since ancient times, alliances and conquests have led to regional integration. The resulting economic growth has then helped to motivate and finance political expansion and to promote worldwide growth. However, rivalry among competing regions can be costly. The issue has spawned a vast literature in both economics and political science, to which we cannot possibly do justice. Excellent surveys of theory and experience from an economics perspective can be found in Anderson and Blackhurst (1993), de Melo and Panagariya (1993), Baldwin and Venables (1995) and Winters (1996).

Regionalism versus globalism in trade negotiations

It can be argued that the 1947 General Agreement on Tariffs and Trade (GATT) was the first serious attempt to pursue truly 'global' liberalization, defined in Article I as the application of common trading rules to all member countries on a most-favoured-nation (MFN) basis. Through Article I, signatories pledge to extend agreements made with one partner to all other partners, so that each receives the same treatment as the most favoured nation.

From its inception, GATT recognized exceptions to the MFN principle. Article XXIV permits the formation of RTAs among members, subject to certain restrictions which have not always been strongly enforced (Snape, 1993, p. 285). The largest and most economically important example, formed within the GATT, was the European Economic Community, created in 1957 through the Treaty of Rome. Expansion of the European Community in the 1980s, followed by deeper integration to form the European Union in 1992, helped spur trade policy changes throughout the world. Fearing a protectionist 'fortress Europe', other regions responded with their own agreements, notably in North America (NAFTA), South America (MERCOSUR) and Asia (APEC). In all, the number of regional agreements under Article XXIV has more than doubled since 1990 and there were 76 which were active in 1996 (*The Economist*, 1996). There has also been an attempt to limit European protectionism through expanding the scope of GATT in the Uruguay Round to include agriculture, services and other areas of policy not formerly included, as well as establishing a more visible global institution through the World Trade Organization (WTO).

Regionalism and world welfare

The development of RTAs may or may not be in conflict with global welfare. Many studies have addressed this issue, building on Viner (1950). Perhaps the most important point from this literature for the purposes of this paper is that, while a great deal can be said about the likely impact of an RTA on its member countries, it is much harder to formalize the question of what impact it will have on the global trading system (Baldwin and Venables, 1995). The outcome is inherently ambiguous and depends on the conditions under which it

operates: using terms coined by Bhagwati (1991), RTAs can be either 'building blocks' or 'stumbling blocks' towards global liberalization.

The consensus view of trade economists is that most regional agreements formed to the present time have had largely positive effects on world welfare, with the major exception of European integration in food markets through the Common Agricultural Policy (Harmsen and Leidy, 1994). In that case, regional integration had a decisively protectionist quality from the beginning, with the CAP permitting European countries to achieve higher levels of protection from the rest of the world than would probably have been possible for each country acting alone (Winters, 1994).

The operation of Europe's CAP has imposed significant welfare costs on the rest of the world as well as on Europe itself (Kreinin and Plummer, 1992; Winters, 1995). It can be argued that the CAP's high degree of protectionism has been due to its particular decision-making structure rather than regional integration itself. Decisions are made largely by a Council of Ministers of Agriculture, with limited checks and balances from other interest groups. This situation, likened to a committee of foxes joining together to guard a common henhouse, is not a necessary feature of RTAs. Nevertheless, they may often facilitate protectionist rent-seeking, either by insulating policy makers from competing interests or by offering the pro-trade cover of regional integration.

Europe's experience suggests that treatment of agriculture and food markets is important to the overall impact of regional agreements, and also that the specific institutional structure of a regional agreement is important to its outcome. The fear that other RTAs have the potential to be highly protectionist has been highlighted by *The Economist*. In a memorable image, its cover during the week of the WTO's first Ministerial meeting on 9 December 1996 portrayed the WTO amidst 13 major RTAs as so many chefs, under the headline 'Spoiling world trade' (*The Economist*, 1996).

Although RTAs can have important effects, empirical assessments suggest that the magnitude of their impact remains far less than that of global agreements under the GATT/WTO, simply because the size and number of partners is smaller. This emerges from a comparison of Uruguay Round studies (Francois *et al.*, 1996) and those of RTAs (Srinivasan *et al.*, 1993). The relatively modest economic importance of RTAs in relation to global agreements does not, however, correspond to their relative political importance.

In practice, RTAs seem to attract a disproportionate degree of public interest, perhaps because the issues they raise are clearer to the public. This is most evident when comparing the treatment of NAFTA and the Uruguay Round in the United States. One direct measure of NAFTA's relatively greater public profile is its dominance of the 1991 congressional debate over giving 'fast-track' authority to negotiate the two agreements. Destler (1995) has suggested that that this debate focused on NAFTA, and 'with everyone's attention on Mexico, the Uruguay Round got almost a free ride'. Another measure of relative importance would be press coverage, whose attention to NAFTA is probably far greater than its economic importance alone might warrant.

Regionalism and trading patterns

The formation of regional groupings is not simply a matter of trade agreements, since they can appear for a variety of reasons, independently of RTAs. To evaluate the role of regionalism in world markets we need to review the historical evidence on regional patterns of trade (as in Lloyd, 1992, or Anderson and Norheim, 1993) and then examine alternative models of what might be causing the observed patterns.

To compare regions over a long time period, Anderson and Norheim (1993) take continents as their basic unit of observation, and focus on *extra*regional trade in order to control for differences in intraregional trade owing to differing numbers of countries on each continent. They also control for differences in continent size by considering extraregional trade as a share of world imports from that region, and adjust for openness using the region's overall trade/GDP ratio. The main finding from the resulting 'propensity-to-trade' indexes is that extraregional trade has risen along with intraregional trade, even as a share of

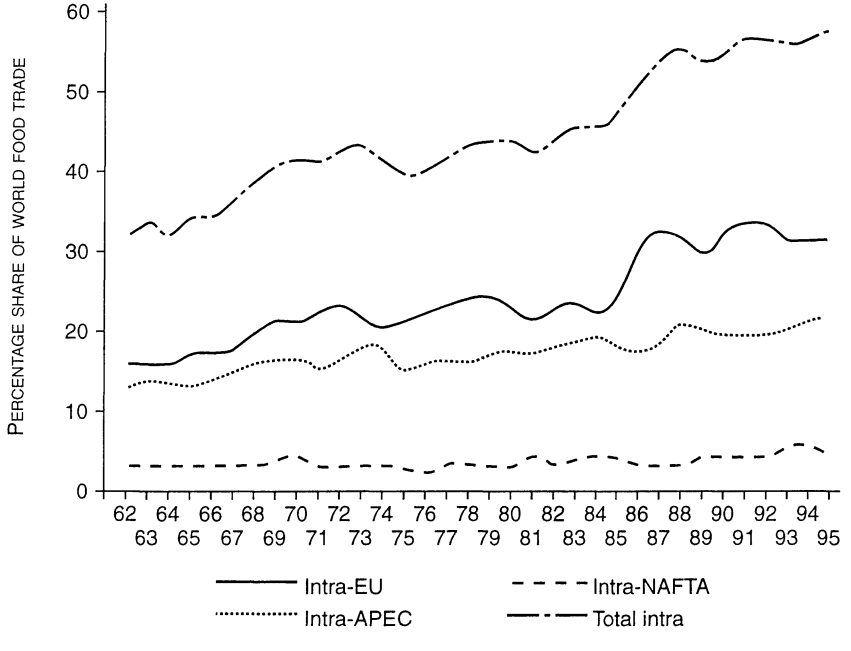

FIGURE 1 *Intraregional food trade in EU, NAFTA and APEC, 1962–95*

Note: Intra-APEC excludes intra-NAFTA.

GDP. Anderson and Norheim argue that, while 'this does not constitute proof that regional agreements benefit outsiders ... it at least throws doubt on the opposite conclusion' (ibid., p. 91).

The Anderson and Norheim propensity-to-trade indices cannot be applied to specific sectors, so to examine trends in food trade we focus on simple trade shares. We also differ from Anderson and Norheim in defining our regions in terms of RTAs (such as NAFTA) rather than continents. The focus, also, is on basic food commodities whose value-added occurs primarily on the farm (grains, oilseeds, fruits and vegetables, sugar and livestock products). This is important since 'food trade' is often defined to include processed intermediates (such as flour) and consumer-ready items (pasta), though we take the view that these items are more appropriately included in studies of industrial-product trade.

Figure 1 reports the shares of world trade in food accounted for by intraregional flows in the world's three major trading regions: EU12 (including 12 countries over the entire sample period), NAFTA (Canada, Mexico and the United States) and APEC (intra-APEC trade excludes intra-NAFTA trade). The total for these three regions now accounts for more than half of world agricul-

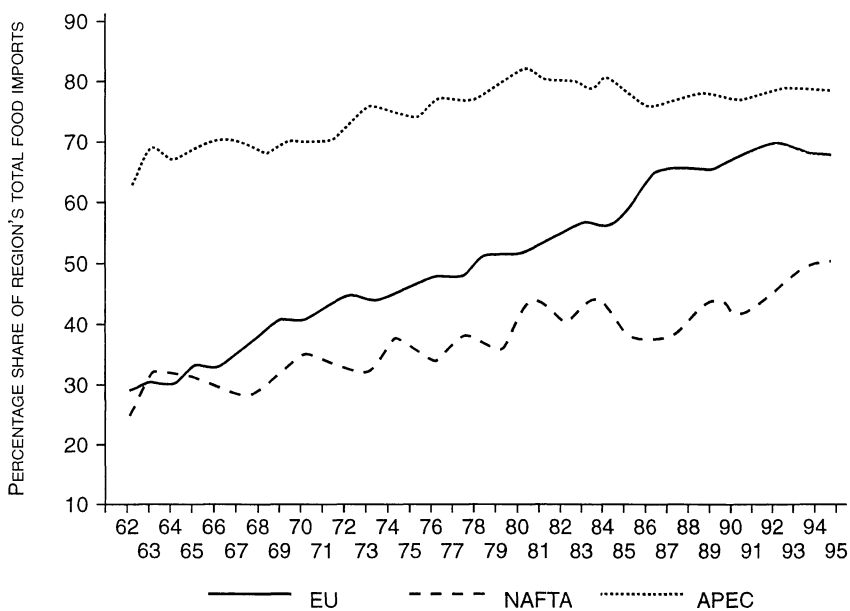

FIGURE 2 *Intraregional food imports in the EU, NAFTA and APEC, 1962–95*

tural trade, up from a third in the early 1960s. But the bulk of this increase derives from growth in intra-EU trade, which grew particularly quickly in the mid-1980s with the accession of Spain, Portugal and Greece.

A more detailed view is given in Figures 2 and 3, showing the share of each group's total imports and exports occurring within the region. On the import side (Figure 2), all three obtained an increasing share intraregionally until 1980, but Europe's increase was much greater and continued longer than the increases in APEC and NAFTA. North America's share was unchanged in the 1980s, but grew sharply in the early 1990s with the signing of the Canada–United States agreement and then NAFTA. APEC's share has remained unchanged since the late 1970s.

On the export side (Figure 3), the share staying within the region has been roughly constant for the EU, but has risen steadily for APEC since 1975 as APEC's food exporters have shifted their sales to fast-growing countries within the region. NAFTA experienced a similar increase over the same period, but from a much lower level. The sudden dip in 1995 is likely to be a transient effect of the devaluation of the Mexican peso.

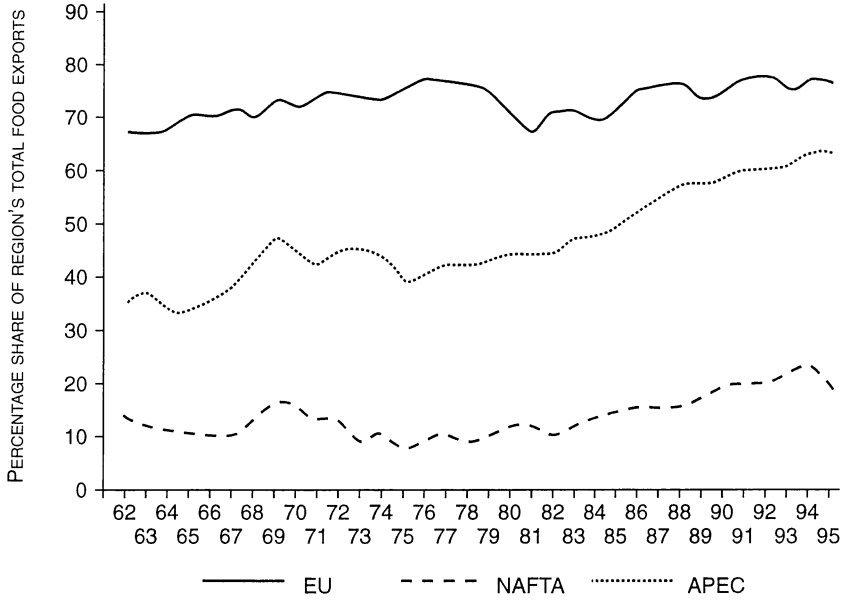

FIGURE 3 *Intraregional food exports from the EU, NAFTA and APEC, 1962–95*

Some of the variation in regional trade shares can be explained by disaggregating the regions and examining each country's trade patterns. Table 1 displays intraregional shares and the ratio of exports to imports for each region's members, using 1992 as the base year. The EU12 covers a highly diverse set of countries, including heavy food exporters (such as Ireland and Denmark) as well as importers (such as Portugal), whose trade with each other gives the region a strong *inward* orientation. In contrast, NAFTA is dominated by two heavy food exporters who sell mainly to overseas markets, resulting in a strong *outward* orientation for food trade. APEC is similar to the EU, in that it includes both positive and negative net food traders, and on average has an inward orientation. But while APEC's higher-income importers (Taiwan, South Korea and Japan) trade almost exclusively with other members, several of APEC's major exporters (such as Australia, New Zealand and Thailand) send significant shares of their produce to other regions; Chile could be considered an 'outsider', having low food trade-dependency with APEC.

Although each region's average level and trend in intraregional trade can be partly explained in terms of its members' domestic resources and policies, regional trade policies are also important. We can begin to see the impact of

TABLE 1 *Regional and total food trade by country, 1992*

Country	Import share from EU12	Export share to EU12	Exports/ imports
Ireland	85	82	4.87
Denmark	73	62	4.62
France	69	75	1.54
Netherlands	67	83	1.50
Spain	55	81	1.45
Belgium–Lux.	78	89	0.97
Greece	82	77	0.63
Germany	69	74	0.47
Italy	72	71	0.42
UK	66	75	0.40
Portugal	72	67	0.18
Total EU	70	77	0.90

Country	Import share from NAFTA	Export share to NAFTA	Exports/ imports
Canada	67	21	2.08
Mexico	77	86	0.40
USA	28	17	3.16
Total NAFTA	47	20	2.31

Country	Import share from APEC	Export share to APEC	Exports/ imports
Australia	69	62	24.20
New Zealand	69	50	21.60
Thailand	71	49	5.59
Chile	32	40	4.95
USA	58	57	3.16
Canada	81	59	2.08
China	79	65	2.07
Philippines	77	87	1.17
Taiwan	90	96	0.79
Papua N.G.	94	74	0.51
Malaysia	78	74	0.50
Indonesia	73	41	0.40
Mexico	83	92	0.40
Singapore	84	55	0.30
Hong Kong	79	70	0.08
South Korea	88	90	0.06
Japan	87	86	0.01
Brunei	94	100	0.00
Total APEC	79	60	1.32

RTAs by looking at the timing of trade-share changes, notably the rise in the share of European and North American imports sourced from within after integration episodes in each of those regions. Even more telling is the comparison between regional products, shown in Figure 4 for imports into the EU12 and APEC over the period 1975–95. Figure 4 indicates that Europe's intra-EU food imports rose sharply, while its non-food intraregional import share stayed roughly constant, whereas intra-APEC shares stayed constant for food and rose steadily for non-food. This difference is largely due to the trade policies adopted in each region. The EU's CAP offers very high barriers against non-members and preferences for members, reducing extraregional imports. The CAP effect is most graphically illustrated by the case of wheat (Figure 5): in 1975, European wheat imports were bought in roughly equal proportions from within and outside the EU12, but the extra-EU share had been almost completely eliminated by 1994. In the case of APEC, no such intraregional preferences were granted and the sourcing of agricultural imports has remained largely unchanged. In contrast, non-food imports were increasingly obtained from within APEC, as a result of increased trade in

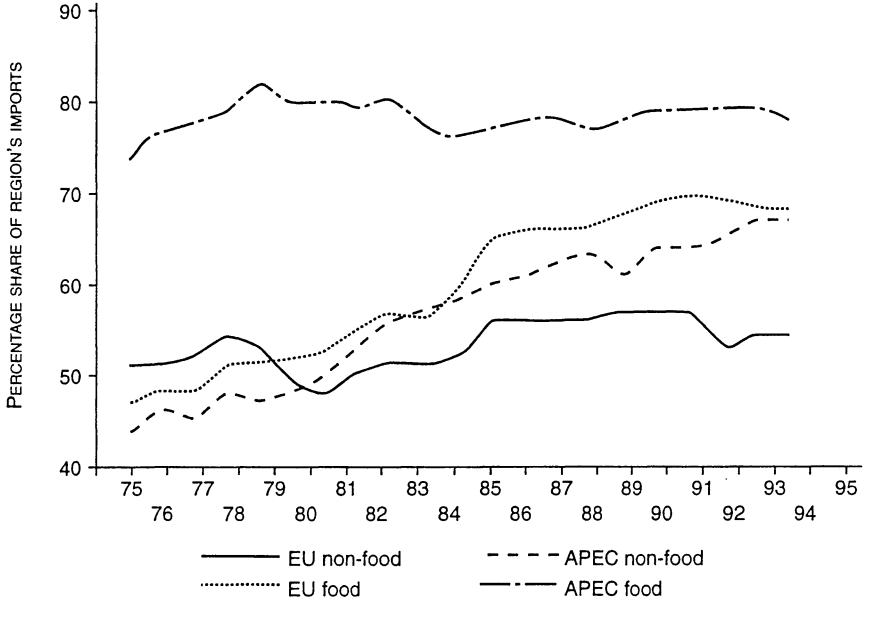

FIGURE 4 *Intraregional food and non-food imports in the EU and APEC, 1975–95*

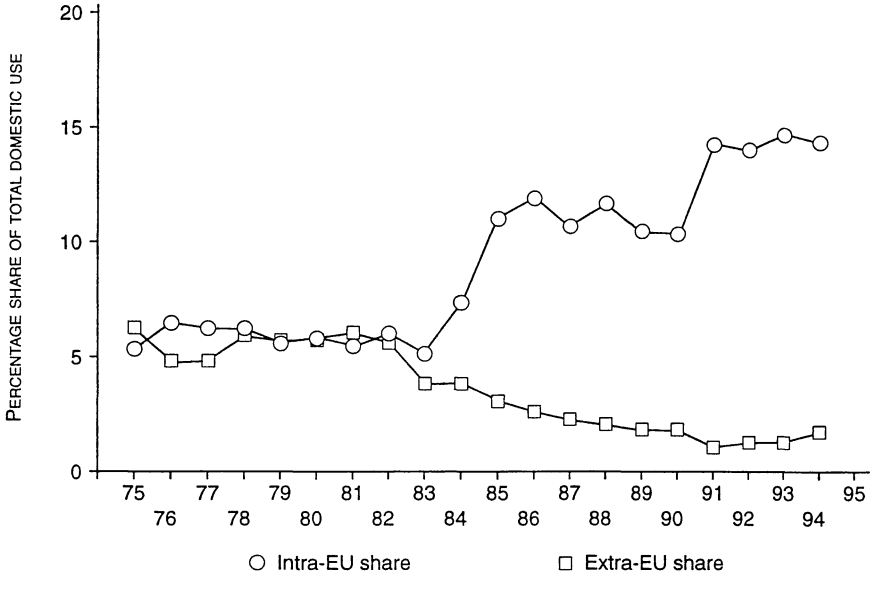

FIGURE 5 *Sources of imported wheat for use in EU, 1975–94*

Note: Domestic use = production + imports – exports.

capital goods (machinery and equipment) and consumer products (clothing, footwear and electronics) between industrialized and newly industrialized countries.

How can we systematically isolate the impact of trade policies from all of the other developments under way in the world economy? How would alternative trade policies affect trade and welfare? To address these questions formally, we turn to approaches which involve the explicit modelling of international trade.

MODELLING REGIONAL INTEGRATION

In order to assess the consequences of an RTA, it is necessary to consider what would be likely to happen in its absence: the counterfactual scenario, or what Winters (1996) calls the 'anti-monde'. To be realistic, this alternative must be based on an appropriate analytical model, including specification of the poli-

cies that would be used in place of the RTA. There are now quite a number of excellent surveys of alternative approaches for analysing RTAs, notably Francois and Shiells (1994) and Srinivasan *et al.* (1993). Rather than replicate these surveys we will summarize their key conclusions, to provide a foundation for the empirical case studies which follow later.

Alternative modelling approaches

In surveying NAFTA models, Francois and Shiells (1994) highlight three groups: sectoral econometric studies, applied general equilibrium models and linked macroeconometric models. They note (ibid., p. 13) that:

> In principle, it would be best to employ models that incorporate all three approaches. One would ideally like to specify a complete general equilibrium system based on microeconomic theory, collect time-series data on all pertinent variables in a way that satisfied all relevant accounting identities, and econometrically estimate the complete structural equation system utilizing all of the constraints and other information implied by economic theory. Relevant macroeconomic features (such as investment dynamics and the formation of expectations) should also be incorporated into the overall model structure.

Needless to say, this is not likely to be an attainable goal and researchers are forced to adopt only one of the three approaches.

At the one extreme lie the detailed econometric sectoral studies which justifiably have the greatest credibility with individual industries. As Francois and Shiells point out, the NAFTA debate stimulated a tremendous demand for this type of study and the level of detail desired by industry surpasses that which is attainable in most applied general equilibrium (AGE) models. The problem comes when one tries to add it all up to evaluate an RTA's impact on national income or factor returns. Even if similar methods are used, not all sectors will be covered and no economy-wide constraints are imposed to enforce consistency in the aggregate. Thus a survey of sectoral studies could well conclude that all sectors will contract, even though this is impossible for a region with reasonably fixed endowments and full employment. Typically, the concentrated losses in vulnerable sectors are exaggerated, while the widespread gains from access to lower-cost imports tend to be ignored.

AGE models are explicitly designed to address resource allocation across sectors, and hence capture the gains from trade which lie at the heart of most regional trade agreements. By accounting for all alternative uses of factors in the economy, they capture the essence of *comparative* advantage. Furthermore, with the addition of endogenous product differentiation, imperfect competition and scale economies, AGE models also offer some scope for capturing the impact of RTAs on intraindustry trade and the rationalization of global production within any given industry. The drawback of AGE models is that they are rarely amenable to empirical validation (for an exception, see Gehlhar, 1997), so their credibility hinges on the quality of the base data, parameters used and model structure. There is room for dispute on each count, and the economics

profession is divided as to AGEs' value in policy analysis. Their continued use is largely due to the absence of practical alternatives.

In principle, macroeconomic models could play an important role by assessing an RTA's impact on investor expectations, capital flows and, hence, exchange rates. As noted by Francois and Shiells (1994, p. 14), however, these models 'were designed for very different purposes than the analysis of multisector trade liberalization' and 'the (macroeconometric) models employed have been in use for many years, in some cases reflecting over 20 year of poorly documented, *ad hoc* evolution of their original structure'. It is possible that new global, multi-sector macroeconometric models will change this assessment, but as macro models introduce sectoral detail and multi-region AGE models introduce capital mobility, the distinction between these two approaches is likely to blur.

Srinivasan *et al.* (1993) highlight a different methodological dimension of the problem, namely whether the analysis is undertaken *ex post* or *ex ante*. All of the AGE studies done to date provide ex ante evaluations beginning in a pre-RTA world, simulating the impact of implementing the RTA in that context. Furthermore, most of these comparative static analyses are based on a state of the world economy which considerably predates the RTA itself. For example, Roland-Holst *et al.* (1994) examine the impact of NAFTA as if it had been implemented in 1988. When the key features of the database change slowly, the implementation date may not matter very much. But, as shown by Bach *et al.* (1996), structural change, combined with the presence of non-tariff barriers, can make the base year quite important. In assessing the impact of the Uruguay Round agreement, they note that there has been rapid growth in Asia, allied with increases in quota premia on restricted textiles and apparel products. The result is that a historical approach can significantly understate the gains from the agreement relative to an assessment based on projections for the world economy at the end of the Uruguay Round's ten-year implementation period.

In contrast to these *ex ante* studies, Srinivasan *et al.* (1993) refer to a number of *ex post* assessments of the quantitative effects of RTAs. They cite several econometric studies from the 1960s and 1970s which sought to assess the degree of trade diversion/creation due to RTA formation in Europe and Latin America. Unfortunately, none of these studies lent themselves to welfare analysis owing to the absence of firm microeconomic foundations. It would be very interesting to attempt similar *ex post* analysis of NAFTA, using an explicit AGE model to evaluate the accuracy of model predictions relative to observed changes. However, this type of exercise requires a very large amount of data since it is necessary to specify a fairly complete set of changes over the relevant period. This includes actual policy reforms as well as key exogenous shocks to endowments and technology. A lone attempt at *ex post* evaluation of an AGE model is offered by Kehoe *et al.* (1991) for the case of Spanish tax reform.

Decomposition of welfare effects

To ascertain what is driving welfare changes in AGE models, it is very useful to disaggregate them into their component parts. Baldwin and Venables (1995) offer a clear decomposition, grouping the possible mechanisms causing welfare to alter into a total of seven categories.

(a) In perfectly competitive world markets, an RTA may affect welfare through:
  (i) trade volumes, and hence changes in tariff revenue or quota rents;
  (ii) trade costs, and hence changes in import/export margins;
  (iii) the terms of trade, through large-country effects.
(b) In imperfectly competitive markets, the RTA may affect welfare through:
  (iv) output effects, and hence changes in producer rents;
  (v) scale effects, and hence changes in production costs;
  (vi) variety effects, where consumers value diversity itself.
(c) In the long run, an RTA may affect welfare through:
  (vii) accumulation effects, which arise from changes in the rate of investment in those cases where the social rate of return diverges from the social discount rate.

The first group of effects (trade volume, trade costs and terms of trade) are the most commonly discussed in the empirical literature and are present in virtually all AGE work on regional integration. Unfortunately, until recently no convenient mechanism existed for quantifying the changes when shocks are non-marginal, and traded goods are differentiated. The decomposition approach of Huff and Hertel (1996) provides a solution. In addition, it accounts for the impact of domestic distortions on changing welfare. The approach is particularly useful for agriculture, where domestic distortions due to tax/subsidy or regulatory policies are widespread. As a result, changes in farm output can have large effects on other sectors and on aggregate welfare. Indeed, it is the existence of domestic distortions which has caused agriculture to be such a stumbling block in the expansion of the European Union and NAFTA (Burfisher *et al.* 1994; Levy and Wijnbergen, 1994). As we will see from the empirical results, ignoring this aspect of regional integration also means missing a large part of the story on the efficiency consequences of the major prospective RTAs now under consideration.

Of the remaining welfare components the variety (vi) and scale (v) effects are the most frequently featured in RTA studies, as they appear in AGE models with monopolistic competition (Francois and Shiells, 1994). The remaining two terms are rarely mentioned, since they hinge on the analyst's assessment of pure industry profits (iv) and the divergence between the social discount rate and the return to investment (vii), which are notably difficult to measure.

EMPIRICAL CASE STUDIES

The methods surveyed above highlight the need for data-intensive analysis of the specific policy changes associated with RTAs. Here we bring these tools to bear in studies of two prospective RTAs which are expected to play an

important role in shaping future food trade: eastward enlargement of the EU, and free trade in the Asia–Pacific region.

EU enlargement

In order to assess the likely impact of EU expansion on world trade and welfare, we draw primarily on recent studies by Frandsen *et al.* (1998), Hertel *et al.* (1997) and Swaminathan (1997). Each of these examines the impact of enlarging the EU to incorporate six of the Central and Eastern European Countries (CEECs): Poland, Hungary, Czech Republic, Slovak Republic, Romania and Bulgaria. The analysis is conducted in a post-Uruguay Round (UR) environment, eliminating barriers on intra-European trade and harmonizing external barriers at post-UR, EU levels. Harmonization involves lowering CEEC tariffs on non-farm goods, while raising import tariffs and export subsidies for farm products. This results in a massive shift of resources from the non-farm to the farm sectors in the CEECs.

The main interest is in the consequences of CEEC accession for trade within the region, extraregional trade and welfare. We consider first the changes in aggregated, bilateral trade volumes reported by Hertel *et al.* By far the largest percentage increase is in CEEC–EU15 trade, which rises by about 39 per cent in the base case. All other trade flows shrink, with the exception of CEEC gross exports to non-EU regions, which rise in the wake of massive agricultural export subsidies. This suggests the possibility of trade diversion and a decline in world welfare, but in fact those authors report a worldwide welfare gain of 4.2 billion European currency units (ECUs) from integration. How does this welfare gain arise?

In contrast to the Baldwin–Venables decomposition, Hertel *et al.* take account of the presence of the distortions caused by domestic farm policies. As a result, they find that, although allocative efficiency will deteriorate in the CEECs as it becomes subject to EU levels of agricultural protection, the rest of the EU and other OECD countries benefit from replacing subsidized domestic output with imports from the CEEC. As a result, worldwide allocative efficiency and welfare improves. This highlights the critical importance of pre-existing distortions in the analysis of the global welfare effects of regional integration. This is clearly a problem of the second-best; hence simple statements about trade diversion and creation are incomplete when it comes to assessing the impact of regional agreements on global welfare.

Swaminathan uses the same basic approach to the analysis of integration, but at a more disaggregate level and with greater attention to the role of scale and varietal effects. Of greatest interest here is her decomposition of the trade volume effects of integration, as summarized in Table 2. This table is organized around bilateral trade volume changes, with rows corresponding to source regions and columns corresponding to destinations. Each cell contains entries relating to the percentage change in trade volume (Vol, with numbers reported in parentheses) and the welfare change on the exporter side (Exp) as well as the importer side (Imp) of the transaction and the sum of these two terms (Total), reported in millions of 1992 ECU.

By way of explanation, consider the entries in the cell corresponding to the CEEC7 food row and the rest of world (ROW) columns of Table 2. Here is can be seen that, as a result of integration (and subsequent adoption by the CEEC7 of EU export subsidies), the volume of food and agricultural exports from the CEEC7 to ROW rises by 164 per cent. This causes an efficiency loss of 576 million ECU in the CEEC7, since these exports are subsidized and would be more valuable in domestic uses. However, since the rest of the world taxes food imports, the volume effect at the other end of this transaction is positive. Indeed, since the latter exceeds the former, world efficiency increases as a result of this isolated transaction. In other words, CEEC farmers may not be the lowest-cost suppliers of these food exports, but they appear to be lower-cost (on average) than the domestic producers they are displacing in countries such as Japan or Korea.

This general result – a marginal increase in the efficiency of food and agricultural trade – applies across the entire first row in Table 2, with the negative CEEC export entry dominated by the positive import entry. The last group of columns reports the World total for a given row. In the case of CEEC7 food exports, the large expansion in subsidized sales reduces efficiency in that region by 752 million ECU, but the associated imports raise world welfare by almost 5 billion ECU, resulting in an overall welfare gain of over 4 billion ECU. Clearly, this is a second-best effect, illustrating the difficulty of predicting the consequences of regional integration in the absence of careful quantitative evidence.

Next, turn to the EU15 food exports row of Table 2. Sales to the CEEC7 jump by 74 per cent as a result of eliminating bilateral trade barriers. This generates a significant welfare gain on the CEEC7 side. However, there is a small loss in the EU15, since these exports were previously subsidized. Intra-EU15 barriers are zero, so there is no trade volume effect here. Finally, the efficiency gain from reducing subsidized EU exports to ROW is offset by the loss from reduced imports in ROW.

The last group of rows in Table 2 corresponds to exports from the ROW region. For food and agriculture, trade volumes fall in all three market groupings, with the largest percentage drop occurring in CEEC7. Very substantial efficiency losses follow, particularly in the case of European imports displaced by intra-EU trade. Table 2 also reports the volume changes and welfare effects for all commodities (food plus non-food manufactures and services). Comparing these entries with those for food, it is clear that the latter dominate the total efficiency effect. In the final analysis, efficiency in world trade rises by 2.4 billion ECU.

Swaminathan also finds important interactions between regional integration and domestic agricultural subsidies. Both Hertel *et al.* and Swaminathan assume that 'compensation payments' in the EU15 will not be extended to the CEECs so that expansion of lightly subsidized output in the east displaces more heavily subsidized farm output in Western Europe, thereby generating substantial efficiency gains. This outcome depends critically on the degree to which internal policies permit the adjustment called for by regional integration. It is ultimately a question of how agricultural policy is implemented. Frandsen *et al.* (1998) explore this issue in greater depth, going well beyond

TABLE 2 *Trade volume effects on world welfare due to EU enlargement, millions of 1992 ECU (% change in trade volume in parentheses)*

	CEEC7				EU15				ROW				WORLD			
	Vol.	Exp.	Imp.	Total	Vol.	Exp.	Imp.	Total	Vol.	Exp.	Imp.	Total	Vol.	Exp.	Imp.	Total
CEEC7																
Food	(10.3)	–4	7	3	(415.2)	–172	3 514	3 342	(164.2)	–576	1 394	818	(27.7)	–752	4 915	4 163
All	(–3.6)	–4	–25	–29	(42.0)	–135	3 743	3 607	(4.3)	–576	1 042	466	(0.7)	–715	4 760	4 044
EU15																
Food	(74.1)	–10	238	228	(–1.9)	0	–2	–2	(–2.1)	325	–305	20	(–1.7)	315	–70	246
All	(35.7)	–4	606	602	(–0.1)	0	–2	–2	(–0.2)	319	–286	34	(–0.0)	314	318	634
ROW																
Food	(–22.1)	–10	–138	–148	(–4.0)	–25	–1 463	–1 488	(–0.3)	32	–421	–389	(–0.3)	–4	–2 021	–2 025
All	(0.7)	–8	–130	–138	(–0.4)	–2	–1 625	–1 627	(–0.0)	49	–405	–355	(–0.0)	39	–2 160	–2 120
Total		–17	451	434		–137	2 115	1 978		–208	351	145		–362	2 918	2 556

Source: Swaminathan (1997).

the simple *ad valorem* representation used by others. In particular, they introduce export restrictions on grains, in line with the UR agreement, along with production quotas for dairying. As a result, EU15 agriculture is less flexible in its adjustment to a post-integration environment and there is less potential for efficiency gains to occur. Furthermore, the compensatory payments currently made to EU15 farmers are extended to the CEECs. The effect is to make integration even more distorting for the new eastern members of an enlarged Union and there could be a small decline in world welfare.

Asia–Pacific economic cooperation (APEC)

Apart from Europe, the largest regional integration effort on the horizon is the proposal for free trade in the Asia–Pacific region (APEC), initiated in Bogor, Indonesia, in November 1994. The specific proposal was to eliminate all trade barriers in the APEC region on an MFN basis. The timetable is more rapid for the advanced economies (2010) with a longer period of adjustment for the developing countries (2020).

While the principle of 'open regionalism', or non-preferential trade liberalization, has been reaffirmed from time to time, the fact remains that, as a large region, APEC has the potential to extract sizeable terms of trade gains from the rest of the world if members chose to proceed on a preferential basis. An early comparison between these two approaches to APEC liberalization is offered by Young and Huff (1997). They find that the world welfare gain would jump by 31 per cent under MFN liberalization and that, while APEC gains would be higher under preferential free trade, the non-APEC region would then suffer a substantial welfare decline. A third alternative would be global liberalization, which could yield even larger gains to APEC members (Lewis *et al.*, 1994).

The potential terms of trade gains from preferential liberalization have not been lost on participants in the negotiations. Indeed, Adams *et al.* (1997) note that Australia, recently a strong advocate of universal free trade, has now itself indicated it is prepared to consider membership of an APEC free trade area with external barriers. The authors rework the Young–Huff study at a far greater level of commodity disaggregation (37 sectors rather than 3) and show that the measured gains from preferential free trade in APEC generally increase with sectoral detail. However, the main contribution of their study is to explore the possible impact of APEC on long-run GDP, through increased investment. They find that this effect is quite dramatic in the case of the smaller APEC economies owing to the tendency for current trade policy to levy relatively high tariffs on imported capital goods. Under free trade, their price would fall, thereby raising the expected return on new investment and luring additional capital into the region. For Thailand and the Philippines, real GDP increases by nearly 40 per cent under the long-run APEC scenario.

Anderson *et al.* (1997) explore the impact of MFN liberalization by APEC countries in a post-Uruguay Round setting. Their focal point is 2005, the year when the UR agreement is due to be fully implemented. From that base, they assume that APEC liberalization would not fully eliminate the remaining barriers, but only reduce their level by 50 per cent. Of particular interest are their

findings with regard to regionalization, summarized in Table 3. The first scenario presented there refers to the base year for their study (1992), in which 64.7 per cent of APEC trade was intraregional. The comparable figure for East Asia alone was 38.5 per cent. The authors then project their model forward to the year 2005 – first without the UR reforms and then with them, including accession of China and Taiwan in the UR system. The rise in intraregional trade purely as a consequence of rapid economic growth in the APEC region is quite striking. Indeed, in East Asia the projected share of intraregional trade jumps from 38.5 per cent in 1992 to 46.1 per cent in 2005, with no change in trade policies (that is, the absence of the UR). However, this growth in the share of intraregional trade does not mean that trade with the rest of the world is declining. Indeed, as seen from the latter two columns of this table, even the share of extraregional trade in GDP is rising over this period. Economic growth and structural change are simply forcing the region to become more reliant on trade. This general tendency is further reinforced by the Uruguay Round.

TABLE 3 *Regional trade shares for Asia in 1992 and projections for 2005*

	Percentage share of total trade that is intraregional		Extraregional (intraregional) trade percentage of regional GDP	
	East Asia	APEC	East Asia	APEC
1992	38.5	64.7	11.1 (7.0)	5.0 (9.2)
2005 no UR	46.1	67.8	11.7 (10.0)	5.3 (11.2)
2005 UR	46.5	67.5	13.5 (11.7)	6.1 (12.6)
2005 UR/APEC	47.6	69.1	14.5 (13.1)	6.3 (14.1)

Source: Anderson *et al.* (1997).

Table 3 also shows that the 50 per cent MFN cut in post-UR protection in the APEC region boosts the share of intraregional trade in total trade by about 1.5 percentage points. However, it also increases extraregional trade – particularly in the case of East Asia. In sum, the work of Anderson *et al.* suggests that the share of total trade that is intraregional will continue to rise in the APEC region. As a result of increased openness, the importance of extraregional trade – relative to GDP – will also rise, unless the region reverts to preferential trade liberalization. In addition, the study highlights the key role of food and agricultural liberalization in an overall APEC scenario. Including agriculture as an equal partner in post-UR cuts boosts the global trade gain by one-fifth and causes farm and food trade to be 18 per cent higher in 2005 than would be the case without further liberalization.

CONCLUSIONS

International trade is becoming more regionalized. Our review of recent history indicates that the share claimed by intraregional trade in the EU, NAFTA and APEC has been increasing for food and non-food products alike. However, this does not mean that the global trading system is failing. As shown by Anderson and Norheim (1993), extraregional trade has, by and large, weathered the formation of regional trading blocks. Increased openness to trade in general has resulted in increases in extraregional trade as a share of GDP. The one notable exception has been in the EU, where the Common Agricultural Policy has created a strong tendency to substitute intraregional imports for extraregional ones – in some cases nearly eliminating the latter altogether.

But what does the future hold? In an effort to say something about this, we review several *ex ante* studies of two important current regional integration initiatives. We begin with the question of EU enlargement to include six of the Central and Eastern European economies (CEECs). Here a key question is how domestic agricultural policies will be extended to the new entrants. This is an area which authors writing on regional integration have largely ignored. In their excellent survey of the economic effects of RTAs, Baldwin and Venables (1995) abstracted from domestic policies altogether, yet, in the case of agriculture, these programmes are often at the centre of the debate over integration.

If EU15 producer subsidies are not extended to the CEECs, it appears that the potential for integration to lead to global welfare gains is quite good. This is because one of the primary effects of integration is to substitute low-cost CEEC agricultural output for higher-cost EU15 produce. In addition, the subsidized CEEC food exports displace relatively higher cost domestic production in East Asia and, together, these two positive forces dominate the negative trade diversion caused by displacing low-cost supplies of food from the rest of the world (Hertel *et al.*, 1997; Swaminathan, 1997).

If the CAP were to be fully extended to the CEECs and if EU15 producers were to avoid full adjustment to the new entrants' comparative advantage in agriculture, the CAP would become much more expensive. Indeed, it seems unlikely that such a scenario would be sustainable, particularly in light of UR commitments made by the CEECs. In this case, we believe that enlargement will require reform of the CAP itself. When viewed as a package, EU enlargement coupled with CAP reform is expected to be beneficial for global trade and welfare.

What about APEC? Clearly, there is less of a political mandate for establishing an RTA in the Pacific Rim. Indeed, we find that the region has become increasingly integrated in the absence of any formal agreement, and projections to 2005 indicate that this trend is likely to continue over the next decade, with increases in the share of intraregional trade as a consequence of economic growth and structural change. This is also the region making the deepest cuts in protection under the Uruguay Round, which adds to the general trade expansion. However, this increasing intraregional trade share does not appear to come at the expense of extraregional trade, which is also projected to rise relative to GDP over the coming decade.

If APEC liberalization does become more than a talking point in the region, two key issues will arise from the perspective of global trade and welfare. First, will liberalization be on an MFN or a preferential basis? The former will be supportive of the trend towards increasing extraregional trade, while the latter would threaten to reverse this. Second, will agriculture be included on an equal basis in the liberalization agreement? Or will it be relegated to a slower timetable, or left out altogether? In the latter case, the global benefits from APEC liberalization would be greatly diluted (Anderson *et al.*, 1997).

A remote but dangerous possibility would be for a sub-set of APEC governments to seek agricultural protection through a CAP-type structure of their own. Experience with the CAP suggests that, should regional protection instruments be developed, the resulting protection levels could well be quite high. The likely candidates to join a farm-trade block would be the higher-income or rapidly growing countries where agricultural adjustment is most painful, beginning with Japan, Korea and Taiwan and possibly extending to Malaysia, Indonesia and elsewhere. Ultimately, it would be up to foreigners and non-farm interests within these countries to oppose such a move, in the name of further growth. So far the prospects for APEC avoiding the 'CAP trap' remain good, but increasingly persuasive global AGE models will be needed to ensure that RTAs remain beneficial building blocks of the global economy, rather than costly stumbling blocks.

REFERENCES

Adams, P., Huff, K., McDougall, R., Pearson, K.R. and Powell, A. (1997), 'Medium- and Long-Run Consequences for Australia of an APEC Free-Trade Area: CGE Analyses Using the GTAP and Monash Models', mimeo, Centre of Policy Studies, Monash University.

Anderson, K. and Blackhurst, R. (eds) (1993), *Regional Integration and the Global Trading System*, New York: St Martin's Press.

Anderson, K. and Norheim, H. (1993), 'Is World Trade Becoming more Regionalized?', *Review of International Economics*, **1**, 91–109.

Anderson, K., Dimaranan, B., Hertel, T.W. and Martin, W. (1997), 'Economic Growth and Policy Reform in the Asia–Pacific: Trade and Welfare Implications by 2005', *Asia–Pacific Economic Review*, **3**, 1–18.

Bach, C.F., Dimaranan, B., Hertel, T.W. and Martin, W. (1996), *Growth, Globalization and the Gains from the Uruguay Round*, Policy Research Working Paper 0–1170, Washington, DC: World Bank.

Baldwin, R.E. and Venables, A.J. (1995), 'Regional Economic Integration', in G. Grossman and K. Rogoff (eds), *Handbook of International Economics, Vol. III*, Amsterdam: Elsevier.

Bhagwati, J.N. (1991), *The World Trading System at Risk*, Hemel Hempstead: Harvester Wheatsheaf.

Burfisher, M.E., Robinson, S. and Thierfelder, K.E. (1994), 'Wage Changes in a US–Mexico Free Trade Area: Migration vs. Stolper-Samuelson Effects', in J.F. Francois and C.R. Shiells (eds), *Modeling Trade Policy: Applied General Equilibrium Assessments of North American Free Trade*, New York: Cambridge University Press.

de Melo, J. and Panagariya, A. (1993), *New Dimensions in Regional Integration*, Cambridge: Cambridge University Press.

Destler, I.M. (1995), *American Trade Politics*, 3rd edn, Washington, DC: Institute for International Economics and New York: The Twentieth Century Fund.

The Economist (1996), 'Spoiling World Trade' and '*All* free traders now', 7 December, 15–16 and 21–3.

Francois, J.F. and Shiells, C.R. (1994), 'AGE Models of North American Free Trade', in J.F.

Francois and C.R. Shiells (eds), *Modeling Trade Policy: Applied General Equilibrium Assessments of North American Free Trade*, New York: Cambridge University Press.

Francois, J.F., McDonald, B. and Nordstrom, H. (1996), *A User's Guide to Uruguay Round Assessments*, Staff Working Paper RD-96-003, Geneva: World Trade Organization.

Frandsen, E.F., Bach, C.F. and Stephensen, P. (1998), 'European Integration and the Common Agricultural Policy', in M. Brockmeier, J.F. Francois, T.W. Hertel and P.M. Schmitz (eds), *Economic Transition and the Greening of Politics: Modelling New Challenges for Agriculture and Agribusiness in Europe*, Kiel: Vauk.

Gehlhar, M. (1997), 'An Evaluation of Growth and Trade Patterns in the Pacific Rim: An Evaluation of the GTAP Framework', in T.W. Hertel (ed.), *Global Trade Analysis: Modeling and Applications*, New York: Cambridge University Press.

Harmsen, R. and Leidy, M. (1994), 'Regional Trading Arrangements', in IMF (ed.), *International Trade Policies: The Uruguay Round and Beyond, Volume II: Background Papers*, Washington, DC: International Monetary Fund.

Hertel, T.W., Brockmeier, M. and Swaminathan, P. (1997), 'Sectoral and Economywide Analysis of Integrating Central and East European Countries (CEE) into the European Union (EU): Implications of Alternative Strategies', *European Review of Agricultural Economics*, **24**, 359–86.

Huff, K. and Hertel, T.W. (1996), 'Decomposing Welfare Changes in the GTAP Model', Technical Paper No. 5, Purdue University, Centre for Global Trade Analysis, West Lafayette.

Kehoe, T.J., Polo, C. and Sanchez, F. (1991), *An Evaluation of the Performance of an Applied General Equilibrium Model of the Spanish Economy*, Working Paper 480, Minneapolis: Federal Reserve Bank of Minneapolis.

Kreinin, M. and Plummer, M. (1992), 'Effects of Economic Integration in Industrial Countries on ASEAN and the Asian NIEs', *World Development*, **20**, 1345–66.

Levy, S. and S. Wijnbergen (1994), 'Agriculture in the Mexico–US Free Trade Agreement: A General Equilibrium Analysis', in J.F. Francois and C.R. Shiells (eds), *Modeling Trade Policy: Applied General Equilibrium Assessments of North American Free Trade*, New York: Cambridge University Press.

Lewis, J.D., Robinson, S. and Wang, Z. (1994), 'Beyond the Uruguay Round: The Implications of an Asian Free Trade Area', *China Economic Review*, **6**, 35–50.

Lloyd, P.J. (1992), 'Regionalization and World Trade', *OECD Economic Studies*, **18**, 7–43.

Roland-Holst, D.W., Reinert, K.A. and Shiells, C.R. (1994), 'A General Equilibrium Assessment of North American Economic Integration', in J.F. Francois and C.R. Shiells (eds), *Modeling Trade Policy: Applied General Equilibrium Assessments of North American Free Trade*, New York: Cambridge University Press.

Snape, R.H. (1993), 'History and Economics of GATT's Article XXIV', in K. Anderson and R. Blackhurst (eds), *Regional Integration and the Global Trading System*, New York: St Martin's Press.

Srinivasan, T.N., Whalley, J. and Wooton, I. (1993), 'Measuring the Effects of Regionalism on Trade and Welfare', in K. Anderson and R. Blackhurst (eds), *Regional Integration and the Global Trading System*, New York: St Martin's Press.

Swaminathan, P.V. (1997), 'Regional Integration in the Presence of Monopolistic Competition: Implications for Enlarging the European Union', PhD dissertation, Department of Agricultural Economics, Purdue University, West Lafayette.

Viner, J. (1950), *The Customs Union Issue*, New York: Carnegie Endowment for International Peace.

Winters, L.A. (1994), 'The EC and Protection: The Political Economy', *European Economic Review*, **38**, 596–603.

Winters, L.A. (1995), 'Regionalism and the Rest of the World: Theory and Estimates of the Effects of European Integration', mimeo, Washington, DC: World Bank.

Winters, L.A. (1996), *Regionalism versus Multilateralism*, Policy Research Working Paper No. 1687, Washington, DC: World Bank.

Young, L. and Huff, K. (1997), 'Free Trade in the Pacific Rim: On What Basis?', in T.W. Hertel (ed.), *Global Trade Analysis: Modeling and Applications*, New York: Cambridge University Press.

DISCUSSION REPORT SECTION IV

Ewa Rabinowicz (Sweden)[1] expressed her belief that most economists now take the view that 'institutions matter', though this has to be coupled with serious questions about exactly *how* they matter and whether it is possible to choose between alternative sets of arrangement. The subject can quickly become something of a mystery. In the light of this, she wanted to make it clear that the discussion of 'institutions' as a leading part of the conference programme was something that she greatly welcomed. The really difficult issues need more discussion rather than less, even when the results might be rather unsatisfactory.

That brought her to the paper on transformation by Schmitz and Noeth. She could hardly differ from them in their view that institutions matter. Furthermore, she also believes that the institutional vacuum has, most probably, contributed to the economic problems experienced during transition in Central and Eastern Europe and in the former Soviet Union. However, she was worried about the precise components that make up the 'vacuum' (if it can be put in that way). It is well known, from the various writings of Douglass North, that 'institutions' consist of formal rules, informal constraints (norms of behaviour, conventions and self-imposed codes of conduct) and the enforcement characteristics of both. Institutions are not organizations, which is a point about which the authors are very well aware.

The difficulties are then obvious. For example, what is the state of contract law and are firms still as bad in complying with contracts as they were in 1990/91? Schmitz and Noeth provide little evidence. Furthermore, on a slightly different tack, Rabinowicz pointed out that several CEECs, most notably Hungary, made attempts to introduce partial market-oriented economic reforms during the late stages of the socialist period. The institutional vacuum was perhaps far from being uniform between the countries. The obvious question, therefore, is whether the countries which have performed better are also those where the vacuum was less prominent. Without controlling for the influence of other factors, and without an attempt to link directly some measures of the degree of institutional deficiency to performance, the issue of how much institutions matter cannot be explored. She realized that this was a highly critical remark, but it was being made to emphasize the complexities involved in institutional analysis.

Rabinowicz also expressed disappointment with the second part of the paper. It is easy to show that the evolution of agrarian structures has been profoundly different in different countries, for instance in the Czech Republic and Albania. The development has also varied between sub-sectors in agricul-

[1]Swedish University of Agricultural Sciences, Uppsala.

ture. It is a challenge to understand why. Yet the authors make no attempt to use the models presented to predict or to explain what actually is happening in the agricultural sectors mentioned. This lack of linkage between the models and the actual development constitutes a major weakness of the paper. Moreover, only a comparative static exercise is provided. In the simple models used, there is not much which can evolve during the process of transition! Thus the models are not well suited to analysis of the *process* of transformation in agriculture. The paper does not offer us much understanding of fundamental questions such as why agriculture is still organized in collective forms, whether it will continue to be so in the future and, in particular, why the degree of decollectivization differs so dramatically between the countries. This is linked to 'politics' or 'political economy', which have affected the design and the outcome of the process of privatization. Explanation of restructuring is almost incomprehensible without taking into account the political forces which have shaped the process. There is a borderline here between *institutional economics* and *political economy* which needs much more clarification and investigation.

Mahabub Hossain (Bangladesh)[2] was impressed by Ke's excellent account and qualitative evaluation of recent agricultural policies and institutional change in China and of the prospects for sustaining food security in the early 21st century. There is no doubt that many of the reforms introduced qualify as *institutional* innovations. That is particularly true of the Household Responsibility System, which triggered rapid growth in agricultural productivity in the early 1980s. It is now proceeding further since the government has extended tenure of the contracted-out public land to individual farmers for another 30 years. All of that has been accompanied by many other changes which are strengthening the operation of markets and reducing the role of the central government. International trade in grains is still under strict control (which may be sensible, given the recent fluctuations in the world market) though there is a problem since it is subject to lack of coordination among different ministries and state trading agencies involved in the decision-making process.

According to Mahabub Hossain, China has earned the world's acclamation for its ability to feed over one-fifth of the global population with only one-fifteenth of the arable land. The question is whether that can be sustained into the 21st century. Reverting to the food security theme, he offered a number of comments to suggest that China might become less outward looking in agricultural trade issues than others have inferred. As in the cases of Japan and South Korea, China might keep strict control over its domestic market and in its international trade in grain in order to manipulate the key relationship between prices in general and agricultural prices. That has great political significance. It may only provide food surplus countries with the minimum access to its grain market agreed in trade negotiations, to keep its important trade partners happy.

The third paper in the section (Hertel, Masters and Gehlhar) dealt with the major trade policy issue of the growth of regional blocks through regional

[2]International Rice Research Institute, Manilla, Philippines.

trade arrangements (RTAs). *Dieter Kirschke (Germany)*[3] opened the discussion on the work of colleagues whom he described as 'masters of the art' of equilibrium modelling, always capable of producing competent analysis and comment. Having said that, however, he added that the whole arena is one which is becoming stylized and far from exciting. This could be arising because we know so much about trade liberalization, in the broadest sense, and fully appreciate that it can be welfare enhancing. Any move towards regional integration is likely, therefore, to have similar effects, since it is usually a further step along the path of liberalization (trade creation dominates over trade diversion). If transition countries come to share in such moves, through expansion of the European Union, they are almost certainly going to benefit. As for global welfare, that, too, might increase if the pressure of budget costs cuts down average protection of agriculture in an enlarged Union. Kirschke's comment was 'hopefully the authors are right', though he then noted that work on applied general equilibrium models must be understood to be appreciated. A conditional assumption can be fed in and results emerge. The danger lies in looking at the results and forgetting the assumption.

From what he described as his somewhat cynical stance, he then went on to plead for greater realism in modelling. For example, the drift of EU agricultural policy is now towards sharp reductions in policy-determined prices towards compensatory factor-tied subsidies. This is an adjustment which does not necessarily amount to liberalization, yet it is one which needs thorough analysis.

Kirschke also made comments about methodology. General equilibrium models are powerful, but other techniques of analysis can be equally useful. There was a discussion of the point by Hertel, Masters and Gehlhar, though they seemed dismissive of anything else. In their conclusions they appeared to be positively euphoric in selling their technique as the means of ensuring beneficial progress in trade organization. That is surely an overoptimistic view of the persuasive powers of applied general equilibrium models – they are simply models, they are not policies.

[3]Humboldt University, Berlin.