AGRICULTURAL COMPETITIVENESS
AFTER THE URUGUAY ROUND

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For most of the past decade, farmers throughout the world have been eyeing the Uruguay Round of multilateral trade negotiations and wondering how their international competitiveness would be affected. With the completion of negotiations in April 1994, the subsequent ratification of the agreements in most national parliaments, and the replacement of the GATT Secretariat with the World Trade Organization from January 1995, now is an appropriate time to evaluate the outcome. Were the European and Japanese farmers' fears of decimation justified? Will Australian and New Zealand farmers be substantially better off? How significant an impact will the Round agreements have compared with other influences on agricultural competitiveness in different countries?

The process of economic growth is typically characterized by a relative decline in the agricultural sector and, after middle-income status is reached, by an absolute decline in the workforce on farms. Certainly the nature and speed of those domestic changes, and of changes in the competitiveness of each nation's farmers in international markets, are affected by changes in government policies at home and abroad; but consideration needs to be given as well to the other fundamental economic influences on the sector. These include growth at home compared with abroad in farm relative to nonfarm (a) sector-specific factors of production and (b) total factor productivity, as well as the income inelasticity of and hence slow growth in the demand for farm products.

The paper begins with a brief review of the determinants of agriculture's competitiveness in attracting/retaining resources in a growing economy in the absense of distortionary policies. It then assesses how past policy trends have distorted the pattern of production and prices. The third section examines ways in which the Uruguay Round and other policy reforms are altering those trends, and speculates on changes that can be expected in those trends over the next decade or so. The final section concludes that the Uruguay Round *per se* will have a positive but relatively minor impact on the welfare of Australasian farmers during the remainder of this decade and should be seen as only a beginning to the process of reducing the disarray in world food markets.

DETERMINANTS OF AGRICULTURAL COMPETITIVENESS

The competitiveness of a sector in attracting/retaining resources depends on the demand and supply conditions affecting its output compared with that of other sectors. Economic growth alters those conditions, as does market intervention by governments. Leaving the latter aside until the next section, it is easiest to understand the effects of economic growth on agriculture's competitiveness by first considering a two-sector closed economy producing (a) food and (b) other products. Because the demand for food is price and income inelastic, productivity growth that is equally rapid in the two sectors would cause the relative price of farm products to fall, stimulating resources to move to the nonfarm sector. If total factor productivity growth was more rapid in agriculture than in the rest of the economy,[1] that would accentuate the relative price fall and resource outflow from agriculture. As well, the faster the accumulation of sector-specific nonfarm relative to farm capital, the more that would raise in relative terms the marginal product of mobile resources in the nonfarm sector and thereby attract them out of agriculture.

Since the world is a closed economy, if this relatively slow growth in demand for farm products was not matched by equally slow growth in farm production, the relative price of farm products in international markets would fall over time, and moreso the faster the world's farm relative to nonfarm productivity growth. Mobile resources would move out of agriculture on a global scale unless new agricultural sector-specific resources such as land became available to farmers (e.g., because of deforestation), and even then the propensity to retain mobile resources in agriculture would be low because the inelasticity of demand for farm products ensures that more land in farming would result in lower food prices, ceteris paribus.

But what about in a small open national economy that can trade at the international terms of trade? Conceivably it could have sufficiently more rapid farm relative to nonfarm productivity growth and/or growth in farm-specific factors (e.g., through land clearing) than the rest of the world so as to expand the share of its resources in agriculture despite the sector's declining terms of trade. That, however, is unlikely, because a substantial share of a nation's nonfarm goods and services are nontradable internationally, and (a) productivity growth tends to be relatively slow in nontradables sectors and (b) the demand for nontradables as a group tends to have an

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[1] There is evidence in numerous countries that productivity growth appears to have been faster in agriculture than in nonfarm sectors (Martin and Mitra 1993), but measurement problems prevent a firm conclusion being drawn. Specifically, improvements are required in accounting for changes in the quality of manufactured goods and for the value society places on services that are not transacted in well-functioning markets.

income elasticity above one.[2] Hence, ever-more resources are needed to produce those nontradables as economic growth proceeds. Thus even for a small open economy with an exceptionally dynamic farm sector, retaining mobile resources in agriculture over the long term is unlikely; in fact, they will tend to be retained only in economies that are accumulating mobile and nonfarm resources relatively slowly and/or are suffering very slow productivity growth in their nonfarm tradables sectors, ceteris paribus (Anderson 1987).

This is not to say that a nation's or region's self sufficiency in farm products must fall, however. Whether an economy is more or less than fully self sufficient in farm products, and how that position changes over time, depends largely on its factor endowment ratios relative to the rest of the world's (the key determinant of agricultural comparative advantage), in addition to demand patterns and government policies which are ignored until the next section.

Perhaps the most appropriate simple model for explaining agricultural comparative cost advantage in a growth setting is that developed by Krueger (1977) and explored further by Deardorff (1984a). It is a model of two tradable sectors each using intersectorally mobile labour time plus one specific factor (land or industrial capital). Assuming labour exhibits diminishing marginal product in each sector (and assuming initially that there are no other primary products, no services or nontradables, and no policy distortions), then at a given set of international prices the real wage is determined by the overall per worker endowment of land and industrial capital. The commodity composition of a country's trade -- that is, the extent to which a country is a net exporter of agricultural or industrial products -- is determined primarily by its endowment of land relative to industrial capital compared with that ratio for the rest of the world.

Leamer (1987) suggested using a triangle as a way of summarizing the relative resource endowment ratios of different countries. In Figure 1 the three factors of production are denoted N for land, L for labour time and C for industrial capital. Rough proxies used here to represent the national ratios of farm land to labour and industrial capital to labour are total land per capita and national product per capita. (Crude those these proxies are, more sophisticated indexes do not change very much the relative positions of the country groups in Figure 1.) These ratios are measured in log terms along the LN and LC sides of the triangle, respectively, the mid-point of each being the world average which is taken as the numeraire. Thus point W represents the global average endowment of all three factors in 1991, with countries

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[2] For a recent review of estimates of income elasticities of demand for the majority of nontradables, namely services, see Falvey and Gemmell (1994).

above the LD line likely to have a comparative cost advantage in primary products, ceteris paribus.

On the assumption that the stock of farm land is fixed (or changes at the same rate in all countries), rapid growth by one country relative to others in its stock of industrial capital per worker would cause the country's location in Figure 1 to move towards point C, strengthening its comparative cost advantage in nonfarm products. The more significant are such rapidly accumulating countries in the world economy, the more their expanded stock of capital would boost the world average stock and thereby shift the location of slower-expanding economies away from C, that is, towards the LN line. In other words, economies that were expanding their stock of industrial capital relatively slowly would see their comparative advantage in farm products strengthen.

There are several ways to make Figure 1 more realistic. One is by separating out other natural resources (minerals, forests) from farm land. That, however, would require adding a third dimension, which would make the diagram more difficult to comprehend. But it follows that the more abundant a country's per worker endowment of other natural resources compared with farm land and industrial capital, the stronger will be its comparative advantage in non-agricultural primary products. That more-realistic model also offers more scope for envisaging changes in comparative advantage over time. For example, a minerals discovery or an increase in the international price of minerals would strengthen the country's comparative advantage in mining and weaken its comparative advantage in farm and other goods, ceteris paribus. It would also encourage mobile resources to move into the production of nontradables as their demand strengthened and prices rose following the mining boom, further reducing farm and industrial production (Corden 1984).[3] On the other hand, net deforestation simultaneously depletes the stock of trees and forest land and increases the potential area of farm land, thereby eventually strengthening the country's comparative advantage in agriculture, ceteris paribus.

A further concession to realism is to recognise that domestic or foreign savings can be invested to enhance the stock and/or improve the quality not only of industrial capital but also of labour[4] or natural resources, in addition to providing capital specific to the nontradables sector. Any such increase in the net stock of produced capital per worker will put upward pressure on real wages. That will encourage, in all sectors, the use of more labour-saving techniques and the development/importation of new

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[3] If the mining export boom was preceded by a boom in direct foreign investment to establish the mining operation, the relative price of nontradables (the real exchange rate) would rise even before mining exports grew (Corden 1982; Bevan, Collier and Gunning 1990).

[4] Investment in human capital will raise the productivity and hence wages of labour, but without necessarily favouring one sector more than any other.

technologies that are less labour intensive. Which type of capital would expand fastest in a free-market setting depends on their expected rates of return. The more densely populated, natural resource-poor a country, the greater the likelihood that the highest payoff would be in expanding its capital stocks for non-primary sectors. At early stages of development of such a country with a relatively small stock of natural resources per worker, wages would be very low and the country would have a comparative cost advantage in unskilled labour-intensive, standard-technology manufactures. Then as the stock of industrial capital grows, there would be a gradual move toward exporting more capital- and skill-intensive manufactures. Natural resource-abundant countries, on the other hand, would enter manufacturing at a later stage of development. Such countries would remain more than self sufficient in agricultural products for longer (although less so the greater their per capita endowment of and hence comparative advantage in minerals or other natural resources, ceteris paribus), and their first industrial exports would be comparatively capital intensive. [5]

In summary, the ability of the agricultural sector of a small open economy to retain or attract resources and improve its international competitiveness is greater (a) the faster its (and the nontradables sector's) productivity growth relative to that of other tradables sectors, compared with the rest of the world, and (b) the slower the accumulation of factors of production specific to nonfarm tradables sectors relative to those specific to agriculture, again compared with the rest of the world, and hence (c) the greater the improvement in the sector's terms of trade. With one proviso, these conditions are more likely to be met the more economic growth is concentrated in densely populated countries abroad, because there new investments tend to be channelled into expanding the stock and quality of factors of production used in non-priimary sectors. The proviso is important, however. It is that government policy intervention aimed at distorting the relative domestic price of farm products in the past has been related to that process of economic growth and structural change, a phenomenon to which we now turn.

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[5] Notwithstanding its popular media coverage, the theory of 'competitive' advantage espowsed by Porter (1990) does not supersede this theory of comparative advantage based on relative factor endowments. Warr (1994) explains why, noting that the confusion arises because while both are concerned with international competitiveness in a global context, the former applies to firms within an industry or sector (which focus on their private costs and benefits alone) whereas the latter is concerned with the competitiveness of industries and sectors from a national viewpoint, taking account of all (including social) costs and benefits. The theory of comparative advantage in its simplest form is based on numerous assumptions which, as critics never tire to point out, are unrealistic. However, the basic thrust of the theory survives when these assumptions are relaxed (Ethier 1984), and strong empirical support from a wide range of countries can be found for the theory (Balassa 1979; Anderson 1983; Deardorff 1984b; Leamer 1984).

THE INFLUENCE OF PAST POLICY TRENDS

The above inferences about the agricultural sector, and particularly about agricultural self sufficiency drawn from the theory of comparative advantage, are based on the assumption of no interference in markets by governments. But in fact most countries intervene in markets and alter incentives facing producers and consumers.

From a national viewpoint, four levels of intervention can be distinguished. One is intervention abroad that alters the relative price of farm products in international markets. Another is intervention at the national macro level to encourage savings and investment: the provision of price stability (i.e., low inflation), responsible fiscal policies, the optimal regulation of an open financial market, law and order including for the establishment and protection of property rights, the overall provision and geographic distribution of public goods such as infrustructure, and the offsetting of externalities (which again could involve sectoral or geographic biases). The third level has to do with the biasing of prices in favour of nontradables via an overvalued currency (or, less commonly, in favour of tradables via undervaluing the nation's currency -- see Corden (1981) and Corden and Warr (1982)). And the fourth level of intervention has to do with altering output and input prices within the grouping of tradables sectors so that some tradables sectors enjoy more effective assistance from the gover   ·nt than others.[6]

The fact that intervention is rampant would make it difficult to qualify the above conclusions, were it not for the fact that governments intervene in a fairly consistent fashion. Five empirical features of intervention are worth mentioning. First, policies in high-income countries tend to overprice farm relative to nonfarm products while policies in lower-income countries tend to underprice them (Johnson 1991; Bautusta and Valdes 1993). Second, the degree of overpricing (underpricing) is highly positively correlated with the degree of agricultural comparative disadvantage (advantage). These features are illustrated in Figure 2. Third, over time countries tend to gradually change their policy induced distortion pattern away from negatively to positively assisting farmers relative to other producers and from effectively subsidizing to hurting food consumers (Anderson and Hayami 1986; Anderson 1994b).[7] Fourth, much of the disincentive to agriculture in developing countries

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[6] As Corden (1994, Ch, 15) makes clear, identifying these levels helps sort out the different uses people make of the term "international competitiveness", which could apply to all sectors, to just the grouping of sectors producing tradables, or to just one or more of those tradables sectors.

[7] That transition in the intersectoral structure of distortions probably would be even greater empirically if allowance were to be made for the often long delay in adopting environmental policies that reflect society's growing concern about environmental degradation (Anderson and Strutt 1995).

comes not from *direct* underpricing but *indirectly* via manufacturing protection and overvaluation of the nation's currency (Krueger, Schiff and Valdes 1991). And fifth, most national governments have an urban bias in their provision of public infrastructure (transport, communications, etc.) and human capital (education, health, information production and dissemination, etc.), a bias which decreases but rarely reverses with economic development, especially when the quality of those investments is properly accounted for (Schultz 1980). These transitions tend to occur at a faster rate the faster an economy is growing and, in the case of relative price distortions, to reach the point of intersectoral policy neutrality at an earlier stage of economic development the weaker a country's agricultural comparative advantage, for reasons suggested in Anderson (1994a).

According to one recent set of estimates, the net effect on international prices of temperate foods of this relative overpricing in rich countries is almost exactly offset by the underpricing of those products in poorer countries (Tyers and Anderson 1992, Ch. 6). But that is less likely to be the case for edible oils and natural fibres, and it would not be the case for beverages and other tropical products not produced in high-income countries: in both of these latter cases, the underpricing domestically in developing countries dominates, causing international prices for these products to be higher than they would be under global free trade.

What is the net effect of these policy trends on agricultural self sufficiency? In recent decades the growth of agricultural protection has been sufficient to cause advanced industrial countries to switch from being less to more than fully self sufficient in an increasing number of farm products. In the early 1960s industrial market economies as a group were 99 per cent self sufficient in grains, livestock products and sugar while developing countries as a group were 103 per cent self sufficient. But by the mid-1980s those percentages were 113 and 98 per cent, respectively (with former centrally planned Europe only 94 per cent self sufficient, down from 99 per cent in the early 1960s -- see Tyers and Anderson 1992, Ch. 1). Eventually the surpluses in Western Europe could be disposed of only with the help of export subsidies. That, however, stimulated North America to defend its export markets by subsidizing its farm exports as well from the mid-1980s, a move that contributed (a) to international food prices falling by 1987 to their lowest level this century in real terms and (b) to a trebling over the 1980s in the annual global loss in real income associated with industrial country food policies (Tyers and Anderson 1992, Ch. 6). Little wonder that the idea of concluding the Uruguay Round without agreement to reduce agricultural supports was viewed as unacceptable.

EFFECTS OF RECENT POLICY REFORMS

The Uruguay Round is the international economic reform that has received perhaps the most attention in recent years. But in addition there have been numerous regional integration initiatives and unilateral reforms in former centrally planned and developing countries that are impacting on agricultural competitiveness of different countries. They are considered briefly after assessing the impact of the Uruguay Round agreements.

The Uruguay Round

In the light of the long history of agricultural protection growth, even a policy standstill would have to be described as progress, not least because it would reduce the risk of newly industrializing countries following the more advanced ones down the agricultural protection path. But in fact more (although only a little more) than a standstill was agreed to in the Uruguay Round. The GATT agreement on agricultural liberalization, to be implemented mostly between 1995 and 2000, has three main components: reductions in farm export subsidies, increases in import market access, and cuts in domestic producer subsidies. Box 1 summarizes the extent of the agreed changes for industrial countries. (For developing countries the implementation period is ten rather than six years and the extent of reform required is less.) While it is too early to estimate precisely the overall effects of the agreement -- because that depends on fine details and on the differing interpretations and re-instrumentations that will follow -- preliminary empirical estimates are beginning to appear and some broad comments are possible.

The fact that farm export subsidies are still to be tolerated continues to distinguish agricultural from industrial goods in the GATT, a distinction that stems from the 1950s when the United States insisted on a waiver for agriculture of the prohibition of export subsidies. Moreover, even by the turn of the century farm export subsidies need be only about one fifth lower than they were in the late 1980s to comply with the agreement. True, the budgetary expenditure on export subsidies is to be lowered by 36 per cent, but it is only the agreed cut in the *volume* of subsidized exports (21 per cent) that is likely to bite since international food prices are expected to be considerably higher in the implementation period than in the depressed 1986-88 base period.

A second distinguishing feature of the agricultural agreement is that it requires nontariff import barriers to be converted to tariffs. Those tariffs are then to be reduced and bound. However, the extent of tariff reduction by the end of the century is even

more modest than for export subsidies: the *unweighted* average tariff cut must be 36 per cent, but it could be less than one sixth as a *weighted* average, since each tariff item need be reduced by only 15 per cent of the claimed 1986-88 tariff equivalents. Tangermann (1994) gives the example of a country with four items subject to tariffs, three sensitive ones with 100 per cent duty rates and one with a 4 per cent duty. Reducing the three high rates to 85 per cent (a 15 per cent cut) and eliminating the 4 per cent rate (a 100 per cent cut) would give an unweighted average cut of 36.25 per cent. This would meet the requirement for an unweighted average cut of 36 per cent and minimum cuts per item of 15 per cent, but would allow high protection on sensitive products to remain and may increase the dispersion of rates.[8]

Moreover, the claimed tariff equivalents for the base period 1986-88, and hence the initial tariff bindings, are in many cases far higher than the actual tariff equivalents of the time. The European Union, for example, has set them on average at about double the actual tariff equivalents of the CAP in recent years (Table 1). This 'dirty' tariffication has two consequences. One is that actual tariffs may provide no less protection by the turn of the century than did the non-tariff import barriers of the early 1990s. Indeed in the case of the EU the final bindings for the year 2000 are about two-thirds above the actual tariff equivalent for 1989-93 (final column of Table 1). And the other consequence of binding tariffs at such a high level is that it allows countries to set the actual tariff below that but to vary it so as to stabilize the domestic market in much the same way as the EU has done in the past with its system of variable import levies and export subsidies. This means there will be less than the hoped-for reduction in fluctuations in international food markets that tariffication was expected to deliver.

It is true that some countries have agreed also to provide a minimum market access opportunity, such that the share of imports in domestic consumption for products subject to import restrictions rises to 5 per cent by the year 2000 (less in the case of developing countries) under a tariff quota. But that access is subject to special safeguard provisions, so it only offers potential rather than actual access (another form of contingent protection). Furthermore, it formally introduces scope for discriminating in the allocation between countries of these tariff quotas, and tends to legitimize a role for state trading agencies such as Indonesia's BULOG.

There are thus elements of quantitative management of both export and import trade in farm products now under the GATT, including scope for discriminatory limitations on trade volumes, rather than just limitations on price distortions. This

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[8] An increase in the dispersion of rates within the sector could itself be welfare-reducing even if the mean rate was unchanged. This is because resources (including agricultural land) can easily be switched from the now-less-protected sub-sectors (Lloyd 1974).

feature of the agricultural agreement is unfortunate, for it reduces the degree of flexibility of economies to adjust to changing market circumstances and may reduce uncertainty for some traders at the expense of greater uncertainty for others.

The third main component of the agreement is that the aggregate level of domestic support for farmers is to be reduced to four fifths of its 1986-88 level by the turn of the century. That too will require only modest reform in most industrial countries, because much of the decline in that measure of support has already occurred. Moreover, there are many forms of support that need not be included in the calculation of the aggregate measure of support (AMS), the most important being direct payments under production-limiting programs of the sort adopted by the US and EU (and likely to now spread to other countries and commodities as farm income support via trade measures becomes less of an option).

In short, the agricultural reforms agreed to in the Round involve only very modest liberalization over the next six years in industrial countries, with plenty of room (a) for disputes over compliance to the year 2000 and (b) for further reductions in the new millenium. They will accelerate agriculture's relative decline and loss of farm jobs in heavily-protected industrial countries, but only slightly. And they will boost gradually the competitiveness of farmers in countries where the international price rises are transmitted to the domestic market for farm products, although again the improvements will be only slight over the remainder of this decade. But at least agriculture is now in the mainstream of the GATT (which allowed the other agreements in the Uruguay Round to be concluded), and it has been agreed to reopen agricultural negotiations in 1999 to continue the farm reform process. Moreover, the important need to tariffy nontariff import barriers and to quantify the AMS in the interests of transparency, and to include domestic producer subsidies in the reform package, has been acknowledged and explicitly incorporated into this agreement. The new rules and obligations eventually will constrain further farm protection growth in both industrial and developing countries, thereby promising greater certainty and stability to international food markets in the future and so encouraging countries with a natural comparative advantage in farm products to exploit the new market opportunities, not least through seeking reductions in their own country's direct and indirect policy discrimination against agriculture.

The Uruguay Round was not only about agriculture of course. Manufacturing tariffs (already quite low) are to be reduced further, 'voluntary' export restraints are to be phased out, the Multifibre Arrangement is to be abolished and protection to textiles and clothing lowered, a (small) beginning is to be made to liberalize trade in services, there will be greater discipline on abuse of intellectual property rights, and much-improved dispute settlement procedures are being put in place in the new World Trade

Organization. All of these changes will boost global economic welfare substantially. Earlier GATT Secretariat estimates put the benefit at between US$200 and $500 billion per year, but for numerous reasons it will be substantially greater than that and increasing over time.[9]

Much of the benefit of the Round will accrue to developing countries, especially the more open ones. Hertel et al. (1995), for example, estimate a global welfare gain from agricultural and manufacturing trade liberalization of US$260 billion per year by 2005 (in 1992 prices), or 0.4 per cent of global GDP; but their estimate of the gain to East Asia's developing economies is a 4.7 per cent boost, primarily because of textile and clothing trade liberalization. One of the consequences of those expanded manufacturing export opportunities is that agricultural production growth in most East Asian economies is lowered by the Round -- despite farm trade liberalization in developed countries -- as more resources are attracted to textiles and clothing. This can be seen from Table 2, which shows the projected percentage changes in output between 1992 and 2005 for each sector with and without the Round, as estimated by Hertel et al. (1995).

An important point to note from Table 2 is the absense of negative numbers in column 1. That is, even in the countries reducing their agricultural protection most (the EU, Japan and South Korea), their agricultural sectors are projected to be larger in 2005 than in 1992 -- the reforms simply slow the expansion of their farm output. On the other hand, the expansion of agriculture outside Western Europe and Northeast Asia is only slightly faster than without the Uruguay Round, because the benefits from reducing agricultural protection are so widespread and the reforms are very modest.

Francois et al. (1995) also estimate the annual gain from the Round to be up to $250 billion in 1992 prices, but their model is calibrated to 1992 rather than 2005 so that gain represents up to 1.1 per cent of global GDP when increasing returns to scale and imperfect competition are assumed for the industrial sector (although when they assume constant returns to scale the gain is estimated to be only 0.55 per cent, which is close to the 0.42 per cent gain estimated by Hertel et al.'s constant returns to scale

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[9] See Nordstrom, McDonald and Francois (1994) for the earlier estimates. A series of more recent estimates provide lower estimates of global welfare gains, primarily because of the more modest agricultural reforms that are now expected thanks to 'dirty' tariffication. See, for example, Brown, Deardorff and Stern (1995), Francois, McDonald and Nordstrom (1995), Goldin and Mennsbrugghe (1995), Harrison, Rutherford and Tarr (1995), and Hertel et al. (1995). But such studies grossly underestimate the total benefits because they under-represent or ignore the effects of the Round agreements in strengthening the multilateral trading system (including the bringing of services, TRIPs and TRIMs under GATT discipline) and thereby boosting investor confidence, employment and productivity growth as well as encouraging an acceleration of the unilateral reform programs of individual countries beyond their Uruguay Round commitments. Those studies also assume the alternative scenario is the status quo, whereas it may well have been more protectionism, higher barriers around regional blocs, and sporadic trade wars with few if any winners (Harrison and Rutstrom 1991).

model -- the difference underscoring the point that market structure assumptions are critical in such modelling work). Of that global welfare gain, only one-thirtieth is attributable to agriculture, compared with one-third for other primary product reform, half for textiles and clothing, and the rest for other manufactures. For Australasia, however, half the estimated gain (of 0.5 per cent of GDP) is due to agriculture. Again East Asian developing economies are projected to gain proportionately the most (a GDP boost of 3.8 per cent per year). These big gains for East Asia are based on the assumption that MFA quotas are phased out and tariffs on textiles and clothing are lowered as agreed. Since much of that reform is to be left until the end of the 10-year implementation period, however, there is good reason to doubt that all of that liberalization commitment will be honoured.

Western European integration and CAP reform

It was much easier politically for the EU-12 to agree at the end of the Uruguay Round to limit farm exports in the latter 1990s because of the expected absorption on 1 January 1995 of at least three former EFTA countries into the EU. The reason is that the joining EFTA members would be required to lower their domestic food prices from their current very high levels to CAP levels, which is likely to switch them from being net food exporting group to being net importers of food. The trade, budgetary, and welfare effects of this can be seen from Figure 2, where ED_f and ES_e are the excess demand and excess supply of food curves for the former EFTA countries joining the EU and for the EU-12, respectively. Prior to integration, the price of food in those EFTA countries, at P_f, is well above not only the international price P_w but also the EU's CAP price level P_e, and the quantities exported are O_fQ_f from those EFTA countries and O_eQ_e from EU-12. Subsequent to integration of these countries' food markets, if P_e becomes the common internal price level then excess demand by the new members from EFTA would increase by $Q_fQ'_f$ (raising the international price to P'_w) which would eliminate their subsidized exports and cause them to import $O_fQ'_f$ (= QQ_e) from the EU-12. Economic welfare in those EFTA countries would increase by *adefg*, made up of a gain to EFTA consumers net of the loss to EFTA farmers of *cde-abc* plus the export subsidy that is no longer needed of *abfg*. Economic welfare in the EU-12 also would improve, by *stuvwx*. This is made up of two parts: the gain *stuy* from diverting some exports (QQ_e) from the international market where they received only P_w to those former EFTA countries where they receive P_e; and the gain *vwxy* from selling the rest of the EU's surplus to the rest of the world at the higher international price P'_w.

How large those changes would be is an empirical question. If the common CAP prices were to be those resulting from the MacSharry proposals, a recent empirical study suggests that by the year 2000 if all EFTA countries were to have joined the EU then, as a group, they would switch from being net food exporters to become net food importers to the extent that they would absorb about one-seventh of the volume (representing about one-quarter of the value at CAP prices) of EU-12 exports (Anderson and Tyers 1995). That is, most of the adjustment that would be required of Western Europe by the Uruguay Round agreement would be undertaken anyway if the EC-12 implemented the MacSharry proposals and EFTA countries reduced their domestic food prices to those in the reformed EU as part of joining the EU. In fact only three of the five main EFTA countries chose to join (Norway and Switzerland remaining in EFTA), but even so that EU enlargement in the latter 1990s to include three EFTA countries means the latter would, on behalf of all Western European countries, bear much of the brunt of the farm adjustment necessary to satisfy the Uruguay Round agreement.[10]

It is conceivable that the common CAP prices in an enlarged EU of 15 or more members would be higher than those suggested by the Uruguay Round agreement -- and without contravening that accord, given the large reduction in protection required in any case of the EFTA countries joining the EU. The EU ministers might choose to set CAP price levels higher for a combination of several reasons. First, a considerable proportion of the EU-12's export surplus would be sold to the former EFTA countries at internal CAP prices instead of being sold on the open market at the ruling international prices. This would reduce substantially the budgetary cost of the export subsidies necessary to dispose of the CAP-induced surpluses, and so would reduce opposition to the CAP in EU-12 countries. Second, the agricultural ministers of the former EFTA countries would be bringing to the EU's annual price-setting committee a more protectionist inclination on average than the EU-12 ministers. Third, since the high-income EFTA countries joining the EU would be required to make significant net contributions to the EU's budget, the current budgetary constraint on CAP spending would be eased even further. And fourth, the cheap-rider problem in restraining CAP expenditure would worsen because of the additional number of EU member countries.[11] Together, those changes will tend to cause the average level of agricultural protection in the enlarged EU to settle above what it otherwise would

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[10] Presumably the US, the Cairns Group and others would raise this matter under Article XXIV of the GATT when the EU notifies the World Trade Organisation of its intention to expand EU membership. But the above still applies to the extent that the matter takes time for the WTO to consider it and only partial adjustments to obligations are made.

[11] The larger the number of EU members, the more incentive each EU member country has to seek price increases for the products for which its excess supply is relatively large, and to cooperate less in policing farm supply constraints such as land set-asides in its own country.

have been in an EU of just 12 member countries. That is, if the EU is treated as a single GATT contracting party, restrictions on the quantity and value of subsidized farm exports from Western Europe are insufficient to guarantee that at least EU-12 domestic farm prices and protection levels will not rise (even though for Western Europe as a whole they are required to fall).

The NAFTA, APEC and AFTA

The integration of Mexico into the Canada-US free trade area is of much less significance to the rest of the world in a direct sense, in that the Mexican economy is so small relative to its northern neighbours. But it is worrying in an indirect sense, because it represents a decline in the US's commitment to the multilateral trading system which in turn is directing other countries' attention away from the GATT/WTO. Already Chile is expecting to follow Mexico into NAFTA next year, which will increase the incentive for other developing countries to join so as to reduce the risk of being locked out of North American markets. As more 'spokes' are added to the US 'hub', the complexity of the agreement could well escalate exponentially, in which case the likelihood of economic gains even to members, let alone to outsiders, will rapidly diminish (Anderson and Snape 1994).

APEC might be seen at first glance as a way to avoid this growth in complexity of FTAs within the Pacific basin. After all, the Heads of Government meeting in Bogor last November concluded with a pledge to move to free trade among APEC member economies by 2010. Such an extreme outcome is highly unlikely, however. The most that can be expected is for that forum (a) to facilitate trade and investment among APEC member countries, for example through the sharing of information on developments in each other's markets and policies, and (b) to provide reform-oriented governments with a little bit more of an argument in domestic policy debates as to why they cannot succumb to pressures to slow or reverse their unilateral reform programs. The latter is also enhanced in Southeast Asia by the decision to create AFTA, a free trade area among the ASEAN economies, during the next decade.

Central and Eastern Europe's transformation

As with the NAFTA, poorer countries are wanting to join the EU as well. Many of the former communist countries of Central and Eastern Europe are among those lining up. While their full membership is unlikely before the turn of the century, the most advanced of them (the Central European countries of the Czech Republic, Hungary, Poland and Slovakia) have already begun a form of associate membership

involving some preferential access to EU markets. Since the usable industrial capital stock per worker in those countries is low relative to the stock of agricultural land and other farm capital per worker, their comparative advantages during the next decade or so are likely to be in primary products and standard-technology manufactures until new stocks of industrial capital accumulate (Hamilton and Winters 1992; Anderson 1992, 1993). So it is in these product areas that access to EU markets is most sought after. While to date the EU has been resisting, at the behest of its domestic interest groups, there are serious concerns about immigration from, and/or political upheavals in, the transforming economies should those economies not begin to prosper soon.

Completely free access for Central and Eastern European farmers to EU food markets seems unlikely in the foreseeable future, if only because of its impact on the CAP budget. According to a recent simulation exercise, if just the four Central European countries were given unrestricted access to EU markets by the turn of the century at CAP prices, this could cause the budgetary cost of the CAP in the year 2000 to be enlarged by as much as one-third -- roughly offsetting the above-mentioned beneficial effect on the CAP budget of EFTA countries joining the EU (Anderson and Tyers 1995). A more likely development is that Central European farmers will be given restricted but gradually more preferential access to West European markets over time (from the current very low base), perhaps just enough to make them prefer to support rather than oppose the EU's agricultural protection policy in international fora such as the GATT -- as has been the case for the African, Caribbean and Pacific island signatories to the Lome Convention.

Even if Central and Eastern Europeans were completely denied access to EU food markets, that would not prevent developments in those transforming socialist economies from raising CAP expenditures in the medium term. This is because of their likely expansion in net exports of farm products which, along with similar expansions by the reforming developing countries of Latin America and elsewhere (see below), would add to the downward trend in real international food prices. The magnitude of this effect on the EU's budget would be smaller than if Central European farmers were given access to EU markets, but it does mean that, whether the Central and East Europeans are given access to EU food markets or not, those economies will be imposing increasing budgetary pressure on the EU to reduce its domestic farm prices. That suggests the domestic political cost to EU member governments of CAP reform would be offset somewhat by the fact that such reform would lower the incentive for farmers in the transforming economies of Central and Eastern Europe to seek preferential access to Western Europe's food markets and/or for people in those countries to migrate westward.

In the longer term if economic growth accelerates and industrial capital stocks build up for this country group, their location at EE in the Leamer triangle of Figure 1 will gradually move towards C below the LD line and their comparative advantage will change from primary products to manufactures. That is, their net imports of food would increase, and moreso the less domestic food prices are allowed to rise above international prices and toward CAP levels.

As for Russia and the former Soviet republics of Central Asia, their long-term comparative advantage in agriculture may be considered great because of their location close to N in Figure 1 (see the points RU and SC). The reason Russia is nonetheless a significant net importer of food and feed is partly because of the inefficiency of its farm sector currently. However, net imports of farm products by Russia and Central Asia could increase or decrease according to something mentioned only briefly in the above discussion of the Leamer triangle of Figure 1, namely the productivity of their mining sectors. If one were to draw a three-sided pyramid instead of a triangle for Figure 1, with the fourth point being 'known recoverable mineral resources', then these economies would be seen to be also relatively very well endowed with minerals and energy raw materials per worker (as is Ukraine). But the exploitation of their mineral resource richness (particularly via direct foreign investment) is heavily dependent on establishing clear property rights in the mining sector. Since the reforms began in the early 1990s that is something that has been as slow in coming as the privatization of farm land. During the next decade this group of economies could remain a net importer of farm products on the one hand, or on the other could become a major net exporter of them: which state eventuates depends heavily on the extent to which the lack of clarity in property rights and the price and trade distortions adversely affecting each of these two primary sectors are removed, and the relative speed with which producers respond to the changes in incentives (Anderson 1992, 1993; Roberts, Kottege and Tie 1993; Tyers 1994).

Asia's transforming socialist economies

China (CH), and other Asian communist countries (OCA) even more so, are much closer to the NL axis of the Leamer triangle of Figure 1 than Central or Eastern Europe or the CIS, indicating their lower industrial capital stocks per worker. Since China, and Vietnam some years later, began their reforms by raising agricultural prices and giving farm households greater management freedom and responsibility, it is not surprising that net exports of farm products rose initially for these transforming economies. But both are very poorly endowed with agricultural land per capita, so unless they follow the agricultural protectionist path of their Northeast Asian

neighbours they can be expected to strengthen their export specialization in industrial products into the next century and become net agricultural importers. That will happen much later for Vietnam (and later still for less densely populated Laos and Cambodia) than for more-affluent China, and more so for feedstuffs than for food staples and livestock products (which are more likely to enjoy price supports because of concerns about food security). But, given the very rapid rate of economic growth of China and Vietnam, their location in the Leamer triangle is likely to move steadily towards the Central and Eastern European points. That is, their recent increase in agricultural competitiveness will not be long-lived, especially for China and particularly if agricultural protection is avoided (see Anderson 1990 and Garnaut and Ma 1992). Deagriculturalization would be even more likely should China choose to privatize its coal and oil producing state owned enterprises and/or allow private competition in the provision of those raw materials and/or reduce restrictions on their trade so that the domestic prices of coal and oil rise to the levels in international markets.

Reforms in other developing countries

The dramatic success of East Asia's newly industrialized economies since the 1950s contrasts markedly with the generally lacklustre performances in Latin America, Africa and South Asia through to the 1980s. It was therefore inevitable that eventually countries in the latter group would see the need to shed their relatively inward-looking trade and industrial policies and anti-agricultural policies. The debt crisis of the 1980s, plus the prospect of a fairer trade deal to emerge from the Uruguay Round in agriculture and textiles, contributed to the decisions by many of these countries to reform sooner rather than later. The temptation to seek membership of NAFTA is providing a further reason to pursue liberal policies, at least in Latin America. How those changes will affect their own and other countries' agricultural competitiveness, and whether it will offset or amplify the effects of the Uruguay Round agreement, is an empirical question that cannot be answered ex ante with much certainty without using a global simulation model. Nevertheless, several qualitative points are worth making.

First, in so far as those reforms reduce the extent of agricultural taxation (as they have in not only China and Vietnam but also Argentina and Thailand, to mention just two large agricultural exporters), they will tend to offset the agricultural price-raising effect in international markets of the Uruguay Round. The reforming countries will become even more competitive in agricultural markets. A striking example is Chile: agriculture's share of Chile's merchandise exports rose from 7 per cent in 1970 and 10 per cent in 1977 to nearly 40 per cent in 1992.

Second, in so far as those unilateral reforms also apply to light manufactures, as they have in countries with policies that favoured only heavy or capital-intensive industry (including China and Central Europe), so exports of such items also will expand, and more so as the Multifibre Arrangement is phased out thanks to the Uruguay Round. The share of textiles and clothing in Thailand's exports trebled between the early 1970s and late 1980s to one-seventh, for example, and manufactures in total now account for two-thirds of the merchandise exports of that until-recently agrarian economy. Likewise, half of Indonesia's exports now come from manufactures, up from only 2 per cent in 1980. These transformations are reflected in the declining indexes of agricultural comparative advantage shown for various Asian countries in the final columns of Table 3.

And third, in so far as the opening up also extends to direct foreign investment, it could lead to mining booms in several countries that would reduce the competitiveness of those countries' farmers (as happened because of petroleum in Indonesia and seems likely to happen in Vietnam), while at the same time strengthening the competitiveness of farmers in countries where agriculture continues to dominate primary product exports.

Possible threats to the multilateral trading system

In addition to the risks of countries backpeddling in the implementation of their Uruguay Round agreements, of them resorting to antidumping and other grey area measures to offset their agreed tariff reductions, and of the rulings of the WTO's dispute settlement mechanism being ignored, there are a number of other possible threats to the GATT rules-based multilateral trading system that could have a negative impact on open economies. One has already been mentioned in connection with the NAFTA, namely the directing of attention by the US and some of its neighbours away from mulilateral and towards regional trade issues. The less 'clean' is the NAFTA and its extensions in practice, and the more Central and Eastern Europe looks to sign preferential trade agreements with the EU, the greater the likelihood of trade diversion and of excluded countries being made worse off, and of other trading blocs following suit -- the cumulative effect of which could be to undermine the effectiveness of the WTO.

A second threat is the entwining of trade policy with environmental issues. At one level the greening of world politics is simply giving industries an excuse to demand barriers to competing imports from countries with lower environmental standards, on the grounds that foreigners are underpricing their use of the natural environment -- an argument that can be shown to have little legitimacy in the absense

of international environmental spillovers (and assuming government policies reflect the shadow prices society places on environmental resources). At another level, particularly where degradation of the global commons is involved, trade policy is being called on to provide sticks or carrots to encourage participation in multilateral environmental agreements. That argument is less easily dismissed in cases where there is no cheaper means available to ensure compliance (GATT 1992). Since demands for environmental protection are income elastic and as more is learnt about global environmental problems, so the demands on developing countries to raise their standards towards the ever-rising ones of high-income countries, under threat of trade actions, are likely to grow. Whether agriculture in developing countries would be affected positively or negatively by such changes is an empirical question that is difficult to answer with confidence without a global economic/environmental model.

And a third threat to developing countries' trade is coming via the demands from the US, France and other high-wage countries for the WTO to discuss whether market access should be conditional on a higher level of labour standards in developing countries. Since there are virtually no international externalities involved in this case, it has even less justification for being on the WTO's agenda than the trade/environment issue. Nonetheless, the politics of the issue in industrial countries is such that it may well be placed there (Anderson 1995). Aggregate economic welfare in (especially poorer) developing countries is almost certain to be reduced by the imposition of such conditions on market access, but again whether that would affect the agricultural sector of poor countries positively or negatively is a moot point. If labour standards were raised much more in urban than rural areas, for example, then urban jobs growth would slow and rural jobs growth would accelerate -- but the latter may be concentrated in rural industrial activities and result in workers reducing their time spent in agricultural pursuits.

CONCLUSIONS

Clearly, there is and will continue to be a great deal of change taking place in the world economy this decade as a consequence of major international economic policy reforms, over and above the normal pressures for structural change that accompany each nation's economic growth. Most of those policy changes ultimately will boost economic growth globally and especially in the countries taking an active part in them. The Uruguay Round reforms are to include agriculture for the first time, which will help farmers in economies with an agricultural comparative advantage and below-average rates of agricultural protection. Because the agricultural reforms are expected to be modest compared with manufacturing trade liberalization, however, the

more densely populated developing countries are likely to find that the reductions in trade barriers to other products (most notably textiles and clothing) boost light manufacturing sufficiently to accelerate their agricultural sector's relative decline (see Table 2). The regionalism in Western Europe and North America will probably boost regional economic growth but may not help many outsiders. For example, the expansion of the European Union to include three former EFTA countries may result in less agricultural protection cuts in Western Europe than was being hoped for from the Uruguay Round: the new members' cuts in agricultural support will probably be partly offset by less cuts in support for farmers in the EU-12. The unilateral reforms of the former centrally planned economies could lead initially to increased agricultural competitiveness there, as happened in China and Vietnam, but the eventual outcome will depend very heavily on the extent and relative speed with which resistance to privatization, the lack of clarity in property rights and obligations, and the price and trade distortions adversely affecting not just agriculture but also mining (and other sectors) are removed. The unilateral trade liberalizations in Latin America are likely to more or less offset the small international price-raising effects of agricultural policy reform under the Uruguay Round agreement. And the hoped-for strengthening, following the Uruguay Round, of the multilateral trading system on which the small open economies depend heavily, is likely to be sorely tested during the rest of this decade -- by not only regionalism but also environmentalism and the possible use of trade policy to raise labour standards in developing countries.

Notwithstanding these developments, the best option for Australasia and other open economies continues to be to make the most of their trading opportunities by progressively removing remaining impediments to the optimal use of their own resources, and by supporting similar reforms in other countries through forums such as the WTO and APEC. Australasian farmers can be thankful that the Uruguay Round agreement has brought an end to unchecked growth of agricultural protection, but they need to be aware that the Round's positive impact during the rest of this decade will at best be a minor offset to the traditional deagriculturalization pressures associated with economic growth -- and only then if the Cairns Group is vigilant in ensuring the promised cuts in protection are implemented. Monitoring and evaluating the policy re-instrumentation that is bound to take place will be important too, in preparation for the next round of agricultural negotiations to begin in 1999. If Table 1 is any indication, it is possible we will look back then and see that the Uruguay Round barely began the process of reducing the disarray in world agricultural markets. But at least it **did** make a beginning.

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Table 1· Uruguay Round tariff bindings and actual tariff equivalents of agricultural protection, European Union, 1986 to 2000

	Actual tariff equivalents (%)		Tariff binding (%)			Col. 4 /
			Base period	Final period (using '86-88 border prices)	Proportional reduction by 2000 (%)	Col. 2
	1986-88	1989-93	1986-88	2000		
Wheat	106	68	170	109	36	1.60
Coarse grain	133	89	189	121	36	1.36
Rice	153	103	361	231	36	2.24
Beef & lamb	96	97	96	87	10	0.90
Pork & poultry	40	27	53	34	36	1.26
Dairy products	177	147	289	205	29	1.39
Sugar	234	144	297	279	6	1.94
ALL AGRIC.						
unweighted av.	**63**	**45**	**101**	**73**	**36**	**1.63**
std. devn.	**80**	**57**	**127**	**96**	**24**	**1.68**

Source: Ingco (1995).

Table 2: Projected percentage change in sectoral output between 1992 and 2005
without (upper entry) and with (lower entry) Uruguay Round liberalization
(per cent)

(a) East Asian developing countries

	S. Korea	Taiwan	China	Indonesia	Malaysia	Philippines	Thailand
Primary	65	76	121	71	102	60	95
agriculture	43	79	125	66	69	19	77
Processed food	92	94	194	111	156	73	149
	109	114	180	110	441	118	140
Other	134	143	246	79	119	79	104
primary	128	142	238	73	98	67	91
Textiles	91	178	250	126	169	74	171
	221	181	262	227	217	136	205
Clothing	67	74	225	114	196	88	168
	146	89	327	639	262	285	338
Other light	147	170	285	157	215	71	218
manufacturing	167	168	278	142	166	53	208
Transport,	117	89	237	146	132	33	152
machinery and	98	83	220	130	92	30	168
equipment							
Other heavy	141	188	315	177	154	78	194
manufacturing	143	182	301	163	262	64	195

Table 2 (continued)

(b) Industrial and other countries

	North America	European Union	Japan	Latin America	South Asia	Sub-Saharan Africa	Rest of world
Primary	23	12	30	44	63	76	14
agriculture	27	5	13	44	67	75	15
Processed food	21	8	28	48	94	81	24
	21	5	21	47	108	78	19
Other	42	24	60	76	115	43	18
primary	43	24	62	78	103	46	18
Textiles	30	11	23	53	116	75	24
	7	3	25	46	138	58	9
Clothing	22	-12	8	53	114	111	17
	-41	-60	1	42	241	30	-11
Other light	31	15	38	51	130	59	31
manufacturing	30	15	40	51	129	63	34
Transport,	60	46	30	23	126	13	27
machinery and	62	48	29	22	86	16	31
equipment							
Other heavy	42	19	42	50	131	51	28
manufacturing	41	19	43	50	102	52	29

Source: Hertel et al. (1995, Table 14).

Table 3: Agriculture's shares of GDP and merchandise exports and 'revealed' comparative advantage, various Asian countries, 1965 to 1992

	Land & GNP per cap. (1992, % of world av.)			GNP/capita growth(% pa)	Share of GDP from agric. (%)		Agriculture's share of merchandise exports(%)		Agric. comparative advantage index[a]		Agric. net export index[b]	
	Total land	Agric land	GNP	1965-1990	1970	1992	1965-69	1990-92	1965-69	1990-92	1965-69	1990-92
Japan	13	5	660	4.1	6	2	2	1	0.08	0.04	-0.89	-0.92
South Korea	9	5	160	7.1	26	8	12	2	0 60	0.17	-0.67	-0.71
Taiwan	7	5	220	7.1	16	4	39	5	1 96	0.49	0.20	-0.25
Indonesia	41	21	16	4.5	45	19	53	10	2.69	1.13	0.54	0.21
Malaysia	74	30	65	4.0	29	16	46	12	2.35	1.31	0.34	0.32
Philippines	19	16	18	1.3	30	22	49	14	2.51	1.56	0.45	0.02
Thailand	37	47	43	4.4	26	12	76	21	3.87	2.31	0.68	0.52
China	33	48	11	5.8	35	24	40	13	2.08	1.36	0.19	0.29
Cambodia	81	45	4	na	na	50	95	60	4.88	6.45	0.80	0.05
Laos	219	44	6	na	na	60	14	20	0.70	2.20	-0.95	0.12
Myanmar	44	27	<10	na	na	60	71	39	3.63	4.19	0.68	0.29
North Korea	22	10	<40	na	na	na	11	3	0.58	0.37	-0.26	-0.75
Vietnam	20	11	<10	na	na	40	20	28	1.06	3.02	-0.77	0.50
Bangladesh	5	10	5	0.7	55	34	45	9	2.29	0.99	0.13	-0.62
India	14	23	7	1.9	45	32	36	17	1.85	1.80	-0.22	0.46
Nepal	29	26	4	0.5	67	52	na	23	na	2.52	0.78	0.39
Pakistan	27	25	10	2.5	37	27	74	18	3.75	1.94	0.08	-0.09
Sri Lanka	15	15	13	2.9	28	26	96	31	4.91	3.38	0.37	0.11
WORLD	**100**	**100**	**100**	**1.5**	**8**	**na**	**20**	**9**	**1.00**	**1.00**	**0.00**	**0.00**

[a] Agriculture's share of the country's exports relative to agriculture's share of global exports, following Balassa (1965).

[b] Agricultural exports minus imports as a ratio of agricultural exports plus imports.

Source: World Bank (1994), Food and Agriculture Organisation (1994), and Council for Economic Planning and Development, *Taiwan Statistical Data Book 1993*, Taipei.

Box 1 -- Key elements of the Uruguay Round agreement on agricultural policies of industrial countries

1. Agricultural export subsidies

-- budget outlays of industrial countries to be cut by 36 per cent in value terms, and the volume of subsidized exports for each commodity to be cut by 21 per cent, over six years (1995-2000) from their 1986-90 base-period averages

... the volume reduction requirement is likely to be the more binding and the more important for most commodities, mainly because international prices are expected to be higher in the period of implementation than in the base period.

2. Agricultural import market access

-- nontariff barriers are to be converted to bound tariffs (based on the 1986-88 tariff equivalent of the existing barrier, but vaguely worded so there is ample room for dispute);

-- tariffs are to be reduced by 36 per cent on average (unweighted) over 1995-2000, with each tariff item's rate being reduced by at least 15 per cent

... but because many items have 'water' in their newly scheduled tariff, and because of the wide dispersion in those tariff rates, this may result in no more than a 15 per cent cut effectively and possibly no import liberalization at all,

... and import liberalization is further curtailed by special safeguard provisions whereby additional duties can be triggered by either a surge in the volume of imports or a drop in the international price to below a 1986-88 base price (which resembles the EC's variable levy but is worse in that it is shipment-specific and therefore discriminatory);

-- where the domestic selling price exceeds the border price, a tariff quota (with a tariff less than two thirds the normal rate) allowing minimum access of 3 per cent of the volume of domestic consumption in 1986-88 for each commodity initially, rising to 5 per cent over the six years' implementation period

... but since the commodity categories will involve some aggregation, there will again be ample scope for differing interpretations of compliance; and

-- access as of 1986-88 to be at least maintained.

3. Domestic subsidies to farmers

-- the Total Aggregate Measure of Support (AMS) is to be reduced by 20 per cent from the 1986-88 level on average

... but the averaging provision makes that easy to meet,

... and an item of domestic support are not included in the calculation of the AMS if (a) it is in the form of direct payments under production-limiting programs based on fixed areas or yields or number of livestock, or is made on no more than 85 per cent of the base production (a major and deliberate loophole), or (b) it is contributing less than 5 per cent of the value of production, or (c) it is one of the many exempt items listed in Annex 2 of the agreement.

Figure 1: RELATIVE ENDOWMENTS OF NATURAL RESOURCES, LABOUR AND CAPITAL, VARIOUS ECONOMIES, 1991[a]
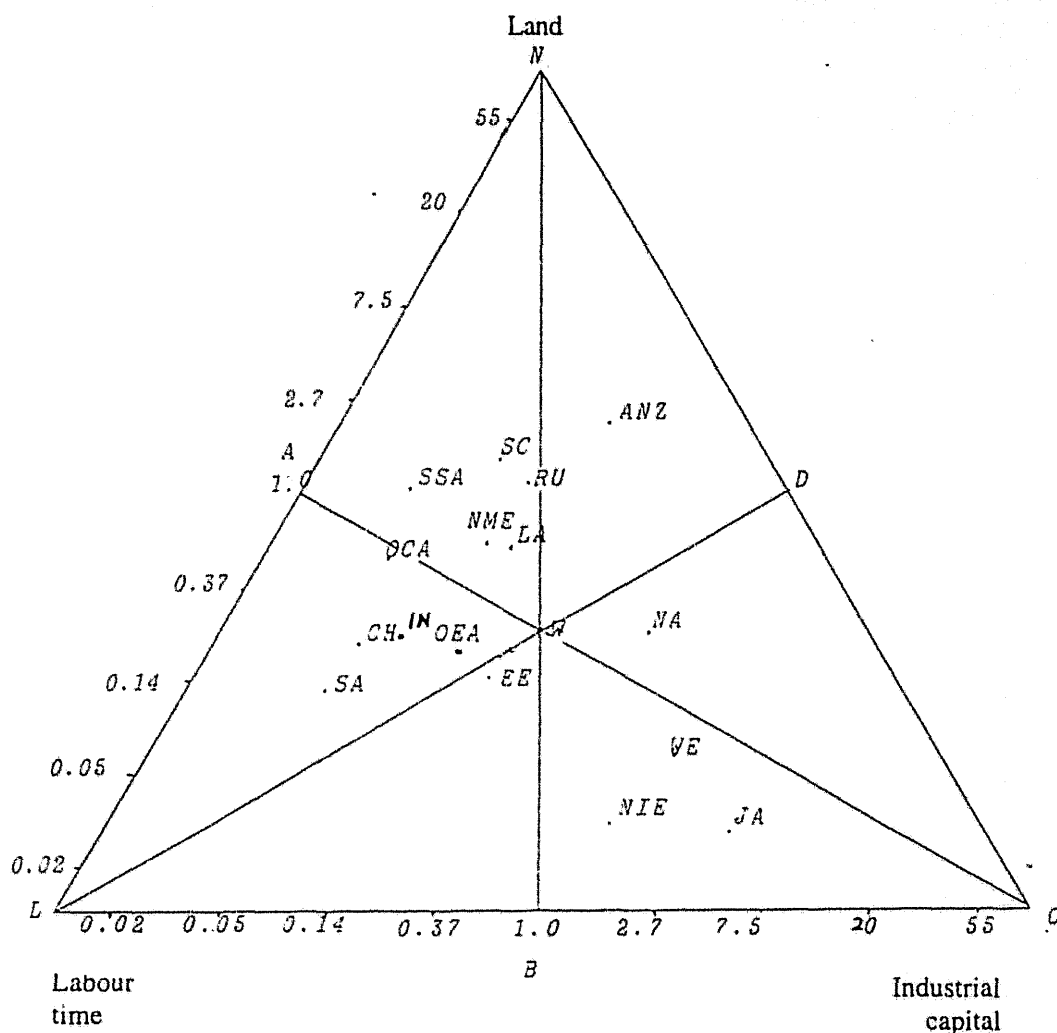
a The distance along LN from L measures land per capita as a ratio of the world average (2.5 hectares per person). The distance along LC from L measures gross national product per capita as a ratio of the world average ($4040). Both scales are in logs. Along any ray from C to the NL line the population density is constant, and similarly for rays from the other two corners of the triangle. W is the world's endowment point. Countries are represented as follows: ANZ Australia and New Zealand; CH China; EE Albania, Belarus, Bulgaria, Czech, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Moldova, Poland, Romania, Slovakia, Turkey, Ukraine, Yugoslavia; IN Indonesia; JA Japan; LA Latin America excluding Mexico; NA North America including Mexico; NIE Hong Kong, Singapore, South Korea, Taiwan; NME North Africa and Middle East; OCA Cambodia, Laos, Mongolia, Myanmar, North Korea, Vietnam; OEA Brunei, Philippines, Malaysia, Thailand, Pacific islands; RU Russia; SA South Asia; SC Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan; SSA Sub-Saharan Africa; WE Western Europe.

Source: Adapted from Leamer (1987) using data from the World Bank (1993).

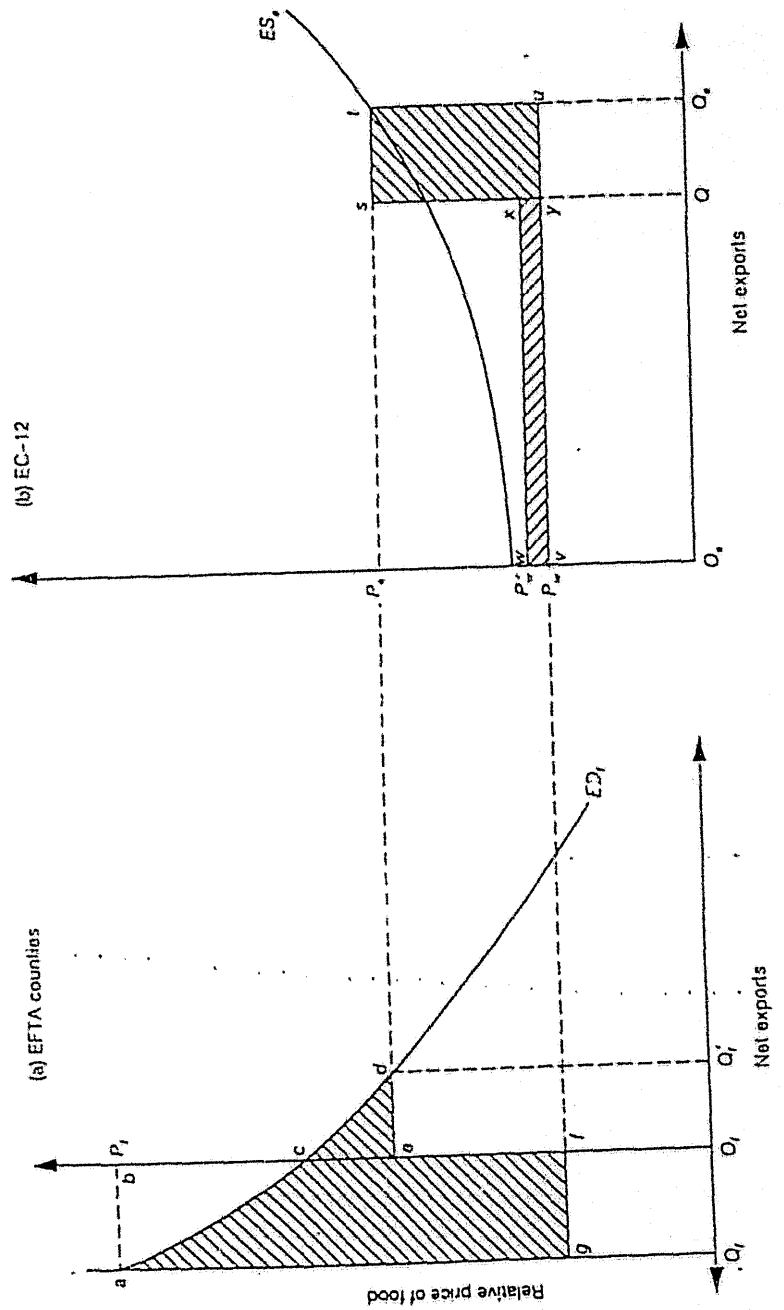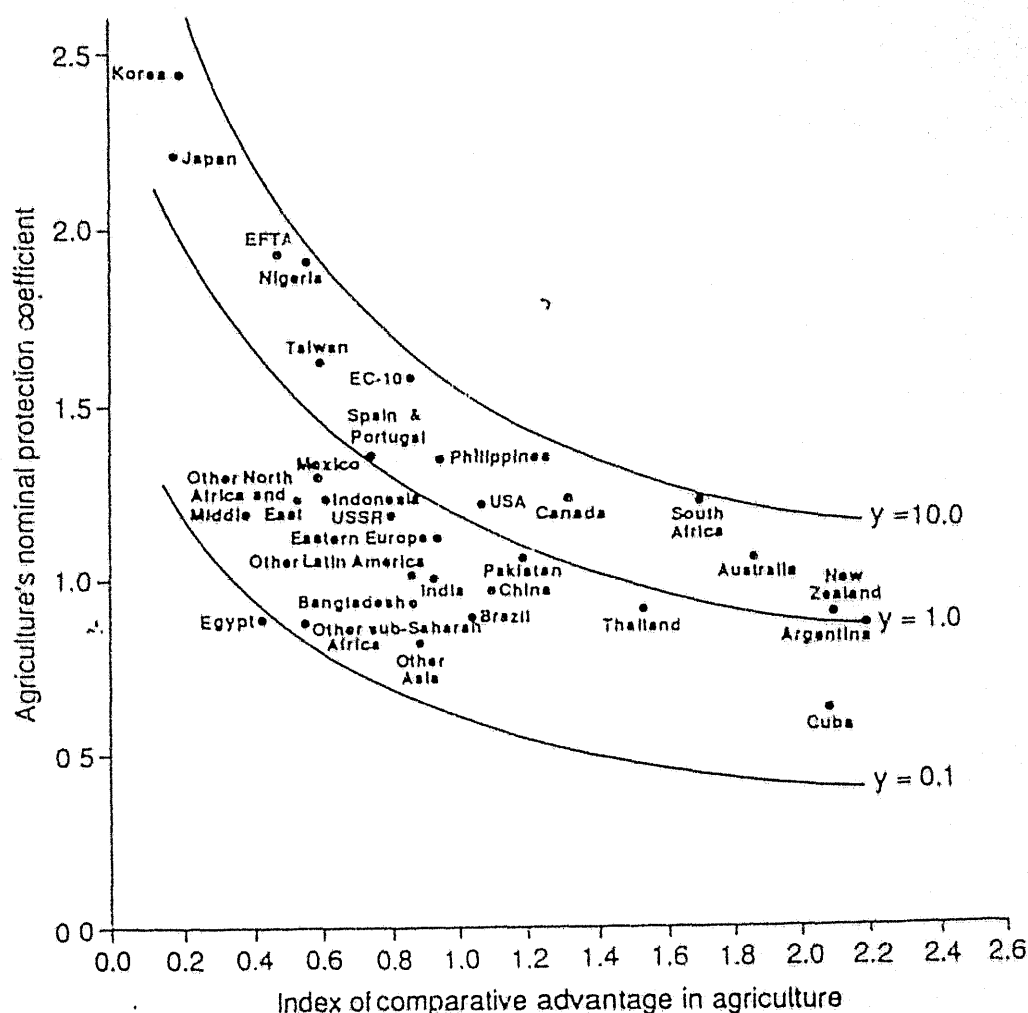Figure 2: Effects on food markets of EFTA joining the EU

(a) EFTA countries

(b) EC-12

Figure 2: Relationship between agricultural taxation/protection and a country's per capita income and agricultural comparative advantage, 1980-82[a]

REVISED Table 1: Uruguay Round tariff bindings and actual tariff equivalents of agricultural protection, European Union and United States, 1986 to 2000

	Actual tariff equivalent (%), 1989-93	Tariff binding Final period 2000(%)	Tariff binding Proportional reduction by 2000(%)	'Dirty' tariff-ication,* 1986-88	Binding 2000/ actual tariff equivalent, 1989-93
European Union					
Wheat	68	109	36	1.60	1.60
Coarse grains	89	121	36	1.42	1.36
Rice	103	231	36	2.36	2.24
Beef and veal	97	87	10	1.00	0.90
Other meat	27	34	36	1.32	1.26
Dairy products	147	205	29	1.63	1.39
Sugar	144	279	6	1.27	1.94
ALL AGRIC.					
unweighted av.	**45**	**73**	**27**	**1.61**	**1.63**
std. devn.	**57**	**96**		**1.58**	**1.68**
United States					
Wheat	20	4	36	0.30	0.20
Coarse grains	2	2	74	2.00	1.00
Rice	2	3	36	5.00	1.50
Beef and veal	2(?)	26	15	10.33	13.00
Other meat	1	3	36	0.67	3.00
Dairy products	46	93	15	1.09	2.02
Sugar	67	91	15	1.50	1.36
ALL AGRIC.					
unweighted av.	**13**	**23**	**35**	**1.44**	**1.77**
std. devn.	**22**	**35**		**1.20**	**1.59**

* Announced base tariff rate as a ratio of actual tariff equivalent in the base period.

Source: Ingco (1995).