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AGRICULTURE AND THE WTO: NEXT STEPS

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ABSTRACT

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The potential welfare gains from further liberalizing agricultural markets are huge, both absolutely and relative to gains from liberalizing textiles or other manufacturing. The probability of the next WTO round delivering sizeable farm protection cuts would be greater if better WTO rules regarding domestic regulatory policies were introduced, as they could reduce the risk of farm trade measures being replaced with domestic agricultural assistance that may be almost as trade-distorting. The challenge for analysts is to identify and assess feasible policy packages that facilitate genuine agricultural reform rather than encourage inefficient re-instrumentation. Such assessment will require significant improvements in both analytical tools and databases.

Keywords: WTO, multilateral trade negotiations, agricultural policy reform, new trade issues

JEL codes: F13, K33, Q17, Q18

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NON-TECHNICAL SUMMARY

Great achievements of the Uruguay Round of trade negotiations (1986-93) were the start made to subjecting agricultural policies to multilateral discipline, the establishment of a General Agreement on Trade in Services, and the creation of a World Trade Organization (WTO). The Uruguay Round Agreement on Agriculture has led to the conversion of non-tariff barriers to agricultural imports into bound tariffs. Tariff bindings are scheduled for phased reductions between 1995 and 2000, as are farm production and export subsidies (with developing countries having an extra four or more years).

Much remains to be done before agricultural trade is as fully disciplined or as liberal as world trade in manufactures. Barriers to trade in agricultural products and services are several times as high as barriers to trade in manufactures. Using the global, economy-wide modeling framework of the Global Trade Analysis Project (GTAP) we show that the potential welfare gains from further liberalizing access to agricultural markets in 2005 are still huge, both absolutely and relative to gains from liberalizing textiles trade or other manufacturing. While such analysis is important and useful in motivating continued attempts to reform agricultural policies, the key challenge confronting policymakers is to overcome the resistance of politically powerful agricultural lobbies to liberalization.

A basic feature of the WTO is that negotiations are multidimensional, allowing for tradeoffs and cross-issue linkages. Such linkages are a necessary condition for moving agricultural liberalization forward. A characteristic of agricultural talks in the past—and domestic reform efforts as well—is that the potential for such linkages has not been fully exploited. Future WTO negotiations provide greater scope for the pursuit of such linkage strategies, as the agenda of the WTO is substantially larger than that of the GATT. A new round of WTO negotiations on agriculture, services and perhaps other issues is expected to be launched in late 1999. The challenge for reform-minded policymakers is to identify potential agreements that are most useful in mobilizing the required domestic political support for economic reforms.

This paper argues that the probability of the next WTO round delivering sizeable agricultural protection cuts and benefiting the world's poor (the vast majority of whom are developing country farmers) will be significantly greater if negotiations include protection cuts for other sectors—especially services—and some of the new issues on the WTO's agenda. This is not

only because this would ensure more non-agricultural groups take part in the round to counter-balance forces favouring agricultural (and other sectoral) protection, but also because services reforms are of direct interest to the agricultural sector.

A major problem confronting reform-minded policymakers is to identify and assess the usefulness of alternative policy options. In this they can be assisted by researchers. Much remains to be done by the latter: the outstanding agenda for policy-relevant research is large. The dearth of analysis that considers the issues from an economy-wide perspective greatly impedes the development of welfare-enhancing negotiating strategies. One of the major elements of the outstanding research agenda as it relates to agricultural reform efforts concerns quantification of the impact of policies towards service sectors on the farming community. Currently information on policies pertaining to the service sector for incorporated into the models used to assess agricultural reform options is far from adequate.

Enhancing competition in services may be of great importance in facilitating reform, as services frequently account for the lion's share of the value added to food products offered for final consumption. Barriers to entry in key service sectors may lead to high price-cost margins and affect the ability of farmers to confront international competition. This suggests the need for a concerted effort to collect information on prevailing regulatory regimes affecting services entry barriers, margins and market structure, as negotiators may otherwise focus too much on agricultural interventions per se and not enough on removal of those non-farm policies that are impeding the ability of agriculture to be competitive on world markets.

AGRICULTURE AND THE WTO: NEXT STEPS

Kym Anderson (University of Adelaide),
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Since the 1950s there has been substantial growth in agricultural protection and insulation in the advanced industrial economies, as well as a subsequent spread to a number of newly industrializing economies (Johnson 1973; Anderson and Hayami 1986; Lindert 1991; Tyers and Anderson 1992). By the 1980s some protectionist countries went beyond self-sufficiency to generate surpluses that could be disposed of only with the help of export subsidies. While this led to serious budgetary pressures and increasing domestic opposition to the cost of agricultural support policies, protection growth none the less continued, leading traditional agricultural-exporting countries to insist that the Uruguay Round (UR) of multilateral trade negotiations must focus on reversing this agricultural protection trend.

Many perceive one of the great achievements of the UR to be the start made to bringing agricultural policies under multilateral discipline, and the agreement to return to the negotiating table by the end of 1999.[1] The UR Agreement on Agriculture requires non-tariff barriers to agricultural imports to be converted into bound tariffs. These tariff bindings are scheduled for phased reductions between 1995 and 2000, as are farm production and export subsidies (with developing countries having an extra four or more years). The Agreement on Agriculture has altered the climate of farm policy making in both rich and poor countries. Even though Uruguay Round commitments themselves will not result in large cuts in farm protection, at least the foundation has been laid for further reforms during the next and subsequent WTO rounds.

Having said that, much remains to be done before agricultural trade is as fully disciplined or as liberal as world trade in manufactures. Trade barriers and intervention in agricultural markets remain very high and pervasive, reflecting the political power of farmers in the EU, Japan and other interventionist countries and their effectiveness in defending policies that raise domestic prices significantly above world market levels. The first part of the present paper demonstrates that there is much to be gained in terms of global economic welfare from freeing OECD agricultural trade. The gains from farm trade reform rival the gains from freeing OECD countries' trade in *all*

manufactures.

A characteristic of agricultural talks in the past—and domestic reform efforts as well—is that there has been less than full exploitation of the potential for linkages with reform needs in other areas of the economy. A basic feature of the WTO is that negotiations are multidimensional, allowing tradeoffs and cross-issue linkages to help move agricultural liberalization forward. Their under-utilization in the past reflects the relatively narrow product coverage of the General Agreement on Tariff and Trade (GATT) and the negotiating approach pursued which revolved around the reciprocal exchange of market access commitments. In particular, the multilateral process has not been used to identify and help implement domestic policy reform packages that would attenuate resistance from sector-specific interests to trade policy reform.

Future WTO negotiations provide greater scope for the pursuit of such linkage strategies, as the agenda of the WTO is substantially larger than that of the GATT. A new round of WTO negotiations on agriculture, services, probably manufactures and perhaps some new issues is expected to begin in 2000. The challenge for reform-minded policymakers is to identify potential agreements that are most useful in mobilizing the required domestic political support for economic reforms. The probability of the next WTO round delivering sizeable agricultural protection cuts and benefiting the world's poor (the vast majority of whom are developing country farmers) will be significantly greater if negotiations include protection cuts for other sectors—especially services—and some of the new issues on the WTO's agenda. This is partly because this would ensure more non-agricultural groups take part in the round to counter-balance forces favoring agricultural (and other sectoral) protection; but as well these non-agricultural reforms would lower the cost of agricultural production.

With this in mind, Section 2 of this paper examines what should be included in the agricultural negotiations of the next WTO round, while Sections 3 and 4 explore an expanded agenda that includes upstream and downstream linkages and new WTO issues. The final section draws together our main conclusions.

1. The potential gains from further agricultural policy reform

The Uruguay Round is scheduled to be fully implemented in all sectors and regions by 2005. At that time, what will be the potential for further gains from reforming agricultural markets of OECD countries compared with the gains from protection cuts in other sectors? To address that

[1] On the long history of exceptional treatment of agriculture in the GATT, see Josling, Tangermann and Warley (1996).

question, we make use of a modification of Version 3 of the global economy-wide model known as GTAP, focusing only on "traditional" trade policy instruments: tariffs, quotas and subsidies.[2]

The GTAP model and its projection to 2005

To provide a picture of how world trade might look in 2005, we use a modified projections version of the GTAP (Global Trade Analysis Project) applied general equilibrium model based in Purdue University (Hertel 1997). The GTAP model is a standard, multi-region model currently in use by scores of researchers in more than 30 countries on five continents. The data base builds on contributions from many of these individuals, as well as national and international agencies that participate in the GTAP Consortium.

Perfect competition and constant returns to scale are assumed for all sectors of each economy in the version used here. The model allows for differences in both the price and income responsiveness of demand in different regions depending on both the level of development of the region and the particular consumption patterns observed in that region. On the supply-side, differences in rates of factor accumulation within and between countries interact with different sectoral factor intensities to drive Rybczynski-type changes in the sectoral composition of output. The production system distinguishes sectors by their intensities in four primary factors of production: produced physical capital, unskilled labour, skilled labour, and primary sector-specific natural resources.

Version 3 of the GTAP framework is built on a complete set of economic accounts for 1992 for each of 30 economic regions spanning the world, and it incorporates an exhaustive description of inter-industry linkages at the 37-sector level. However, to keep the size of tables manageable, we present more-aggregated results for at most 12 regions and 5 sectors. The standard GTAP parameters used are those documented in Hertel (1997, Ch. 4), with one exception: the original values for the Armington elasticities of substitution used to specify the extent to which similar products from different countries substitute for one another have been doubled. This follows Gehlhar's (1994) study which found that the earlier elasticities used in GTAP were too small to accurately predict -- in a

[2] Version 3 suggests the average tariff in the OECD on agricultural and food imports drops because of the Uruguay Round from 48 to 37 per cent, whereas the more-recent version 4 has it dropping from 16 to 13 per cent. Given that the OECD (1998a,b) estimates of producer subsidy equivalents of OECD farm policies fall from 78 per cent in 1986-88 to 68 per cent in 1992-94 and 60 per cent in 1995, the version 4 GTAP estimates look low. As Tom Hertel has explained in an email on 22 February 1999 to GTAP users, there are several reasons for the difference. The main ones are that intra-EU trade was not excluded in the protection calculation for Version 3 and its agricultural rates are calculated at farm gate instead of at processing point prices. In addition, the Version 3 pre-UR tariffs referred to protection levels as of the late 1980s as in the Agreement on Agriculture, when international prices were well below trend. By contrast, Version 4 refers to 1995 when world prices were well above trend. This suggests Version 3 may overstate and Version 4 understate the trend level of farm protection in the mid-1990s. An additional explanation is that there had been some re-instrumentation away from border to domestic measures of farm support by 1995. As it happens, the sectoral tariff averages for non-farm products also are smaller in Version 4 than Version 3, by a similar margin, so the relative rates of

backcasting exercise -- the changes in actual trade shares observed over the 1980s. Even then the current assumed Armington elasticities may still be lower than is reasonable for the long run changes to be projected below for our ever-more integrated global economy.

Table 1 reports the assumed rates of growth in factors and real GDP (from which the implied rates of total factor productivity growth may be derived). We utilize exogenous projections of each region's endowments of natural resources, physical capital, the unskilled and skilled labor force, population, and the state of technology. These are based on combinations of historical data and World Bank projections of the growth in population, labour force, real GDP and investment, as documented in Anderson *et al.* (1997b), except that earlier-assumed growth rates for the three East Asian regions are halved for the 1998-2000 sub-period. With these assumptions the structure of the world economy is projected to change in a number of important ways. One is that the differential between the growth rates of developed and developing countries means developing countries will constitute a larger share of the global economy in 2005. Another is that the relatively high rates of savings and investment in East Asia means the capital-labour ratios and the skill levels of workers in these economies increase rapidly, creating supply-side pressures for relatively large changes in the composition of output in these economies (Krueger 1977; Leamer 1987). Taking all these things into account and starting with the 1992 baseline, the model generates a projection of the world economy in 2005 assuming no changes to existing trade and other policies.[3]

That initial base scenario is then adjusted for the Uruguay Round's implementation. Version 3 of the GTAP database provides post-Uruguay Round protection vectors (McDougall 1997), which draw heavily on the work of the World Bank (Hertel et al. 1996; Hertel 1997, chapters 13 and 14). Import tariff levels in the model are lowered, as are domestic agricultural supports and agricultural export subsidies. In addition, MFA quotas for textile and wearing apparel exports from low-cost suppliers to US and EU markets, represented as bilateral export tax equivalents in the exporting developing countries in the GTAP database (Hertel 1997, chapters 3, 15), are altered to simulate removal of MFA quotas.[4] This provides a picture of the world economy in 2005 post-Uruguay

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protection as between sectors are similar in the two versions.

[3] For example, EU eastern enlargement is not incorporated, nor any further reforms in the former Soviet Union. For a recent GTAP analysis of the former as it affects agriculture, see Jensen, Fransen and Bach (1998).

[4] See Anderson et al. (1997b) for more details. The starting point is the level of textile quotas as at 1992, which is the base year for Version 3 of the GTAP model. We assume that China and hence Taiwan will be fully integrated into the WTO by 2005 and hence, in our Uruguay Round simulation, that China reduces tariffs in accordance with its offer made to WTO member countries in late 1994 (Bach et al. 1996). On the one hand, these tariff reductions are conservative in that the offer was unacceptable to the WTO members at the time -- and much more substantial offers have been made since, especially in the middle half of 1999. On the other hand, WTO accession by China may well lower the probability of the UR Agreement on Textiles and Clothing being fully implemented and/or China's 'voluntary' export restraints on those products may be phased out over ten years rather than by 2005 as assumed in our simulations. In the case of

Round.

Welfare effects of the structure of protection in 2005

Remaining distortions to goods markets in 2005 will be significant, even assuming the Uruguay Round is fully implemented and China and Taiwan have joined the WTO by then. Clearly the agricultural (including processed food) sector will still be a major anomaly. Globally, it will have twice the import tariff average of textiles and clothing and nearly four times that for other manufactures (Table 2). The pattern of distortions will continue to differ between regions, with OECD countries subsidizing, and developing countries taxing, farm and food production and exports (numbers in parentheses in Table 2).[5]

The economic significance of these projected distortions in the different sectors depends not only on the size of ad valorem price wedges but also on the value society places on the production and consumption distortions induced by them. Those quantity distortions depend largely on the size of each sector and the importance of its products in consumption (Table 3). Six alternative scenarios are compared with the base scenario of the GTAP model projection to 2005 post-UR. All OECD countries are assumed to remove all price and trade distortions to (1) agriculture (including processed food), (2) textiles and clothing, (3) other manufacturing, and (4) all goods combined. Two subsequent scenarios are (5) all developing economies remove all price and trade distortions to their goods markets, and (6) OECD and developing economies together remove all price and trade distortions to their goods markets.[6]

If both OECD and developing countries were to liberalize all their goods markets in 2005, the model results suggest global welfare would be greater by US$260 billion per year (Table 4). As discussed further below, this is a gross underestimate of the *aggregate* gains from trade liberalization because services and government procurement policies are excluded; no account is taken of the benefits of increasing the degree of competition and the scope for scale economies; a high degree of regional and product aggregation is employed; and the dynamic effects of reform are not captured. Those omissions may not affect greatly the *relative* gains from reforming the various markets for *goods*, however, so that is what we focus on below.

Almost one-third (32 per cent) of the estimated global gains from goods trade liberalization

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Taiwan, it is simply assumed to lower all of its tariffs by 30 per cent upon acceding to WTO.

[5] On reasons for this pattern of distortions across countries, including its anti-trade bias, see Anderson (1995). As mentioned earlier, the Version 4 GTAP data base gives lower estimates of protection levels for 2005 than Version 3, but the relativities across sectors are quite similar in the two version. See Hertel and Martin (1999, Table 4).

[6] The relatively very small economies of 'Former Soviet Union and Central Europe' and 'Rest of the World' are

would come from agricultural reform in OECD countries – even though farmers in those countries contribute only 4 per cent of global GDP and less than one-tenth of world trade (Table 3). Textiles and clothing reforms appear to pale by comparison with farm reform: their welfare contribution is only one-eleventh that of agriculture's. This big difference reflects the fact that distortions to prices for agriculture are more than twice those for textiles and clothing (Table 2) and that the latter contributes only 1.5 per cent to the value of world production and 5 per cent to the value of world trade, half or less the shares for farm products (Table 3). But two assumptions made above also contribute to this result. One is that it is assumed China and Taiwan join the WTO before 2005 and enjoy the same accelerated access to OECD markets under the UR Agreement on Textiles and Clothing (ATC) as other developing countries that already are WTO members. The other crucial assumption is that OECD countries fully implement the ATC. The latter is far from certain to happen though, particularly if China were to join WTO soon and phase out its 'voluntary' export restraints (VERs) on textiles and clothing by 2005. Dropping either of those assumptions substantially reduces the estimated gains from UR implementation (Anderson et al. 1997b), and therefore increases the potential gains from textile and clothing reform in the next WTO round. Even so, agricultural protection would remain hugely more costly to the world economy than barriers to textiles and clothing trade – and are more costly even than protection to other manufactures, despite the latter having much bigger shares in the value of world production and trade than farm products.

WTO members were right, therefore, to insist that agricultural reform must continue into the new century without a pause. In particular, developing countries have a major stake in that process continuing: according to our GTAP results, the farm policies of OECD countries are almost as harmful to developing economies as their own trade-distortionary policies. OECD textiles and clothing policies also harm them greatly, but less than half as much as OECD farm policies (middle row of Table 4). OECD barriers to imports of 'Other Manufactures', by contrast, actually help developing economies. The reason is that those trade restrictions lower international prices of those products, thereby improving the terms of trade of developing countries. Welfare decomposition of the GTAP results shows that three-quarters of the loss to developing economies from OECD countries removing restrictions on their imports of 'Other Manufactures' is because of terms of trade effects (see numbers in parentheses in Table 4).

Furthermore, virtually all developing-country regions benefit in terms of real income gains from OECD agricultural policy reform. Not surprisingly, the net gains are largest for agricultural-

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assumed not to change their policies in these scenarios.

exporting Latin America and Sub-Saharan Africa. The gross gains per farm household in every developing country region are of course larger than the net national gains. Yet the loss to urban buyers of food from higher food prices is miniscule. This is because the supply response by farmers to reform is so great: the real international price of agricultural products rises only about 5 per cent when OECD farm policies and other goods markets are fully liberalized, while the volume of world trade grows more than 50 per cent (Table 5).

For the OECD economies themselves, despite the fact that agriculture and food represent only about 5 per cent of their GDP, abolishing their remaining agricultural protection in 2005 would contribute more than one-quarter of their welfare gains from liberalizing all goods trade globally—and two-fifths of the gains from liberalizing trade in all goods in the OECD alone.[7]

Notice from Table 5 that global trade would expand proportionately much more for agriculture (58 per cent) – albeit from a smaller base -- than for manufactures (20 per cent) and services (10 per cent) following full OECD goods market reform. Similar relativities apply if developing countries also remove their goods trade barriers, but in that case agricultural trade would have doubled. With that massive degree of increase, and with countries no longer intervening in the market with sporadic begger-thy-neighbour policies whenever there are fluctuations in supply at home or abroad, international prices would be far less volatile -- making the need for such insulating policies unnecessary.

The foregoing reveals the magnitude of what is at stake. The multi-regional CGE model used to assess these potential gains from liberalization is close to the cutting edge, incorporating national input-output relationships and therefore allowing interaction between countries, sectors and factor markets. However, it does not incorporate information on policies pertaining to the service sector, and therefore is not able to assess the implications for agriculture of enhancing competition in services. This is clearly an area requiring further research, as services account for much of the value added from selling food products to final consumers. Barriers to entry in key service sectors may inflate marketing margins and thereby reduce returns to farmers.[8] Until more is known about distortions in the service sectors, it is unclear how much agricultural reform interests should allocate their negotiating efforts on agricultural interventions per se relative to the removal of distortions in services that impede the ability of farmers to be competitive.

[7] By contrast, textile and clothing trade reform appears to harm OECD economies slightly. Recall that VER quotas on developing country textile and clothing exports are scheduled to be removed by 2005 under the Uruguay Round's ATC. The very considerable projected efficiency gains from subsequently lowering the remaining import tariffs on those goods in the next WTO round are just slightly more than offset by the terms of trade changes, according to the welfare decomposition results summarized in parentheses in Table 4.

What follows addresses the question how to help agriculture contribute more towards global economic growth. We address this question in three parts: what to include in the next WTO round's agricultural negotiations themselves; what other sectors to include in those negotiations that will further allow agriculture to fulfil its potential, especially in developing countries; and the relevance of "new trade agenda" regulatory issues for agriculture. The so-called "new trade agenda" revolves around policies such as setting and enforcement of product standards, state-trading, tax regimes, export controls, competition law, foreign investment rules and government procurement practices. Virtually all these issues have relevance to the agricultural liberalization agenda, but the Uruguay Round negotiations on agriculture focused only on some of them, notably production subsidies and product standards. We examine the efficacy of adding others in the next round.

2. What to include in the next set of WTO agricultural negotiations

The fact that (often discriminatory) farm export subsidies are still 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 from the base period, but for some commodities it may be only the agreed cut in the *volume* of subsidized exports (21 per cent for industrial countries, 14 per cent for developing countries) that bites because international food prices in the latter 1990s were higher than in the base period, so exportable surpluses could be disposed of with lower subsidy outlays.

The extent of reductions in tariffs by the end of the 1990s will be even more modest than for export subsidies: the *unweighted* average bound tariff cut must be 36 per cent (24 per cent for developing countries), 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 (10 per cent for developing countries).[9] 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 60 per cent above the

[8] See, for example, Gorton et al (1997) and Wei et al. (1999) for analyses of these issues.

[9] 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 it

actual tariff equivalents of the CAP in recent years, while the United States has set theirs about 45 per cent above recent applied rates – and developing countries are even more involved in the practice. Thus, for most farm products and countries, actual tariffs will provide no less protection by the turn of the century than did the non-tariff import barriers of the late 1980s/early 1990s (Ingco 1996). Binding tariffs at high levels also allows countries to vary applied tariffs below the binding 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 — and has continued to do since 1995 (Tangermann 1999). This means there will be little if any of the reduction in fluctuations in international food markets this decade that tariffication was expected to deliver.

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 at least 5 per cent by the year 2000 under a tariff quota (less in the case of developing countries). But that access is subject to special safeguard provisions, so it only offers potential rather than actual access (another form of contingent protection). Market access rules formally introduce scope for discriminating in the allocation of import quotas between countries, where within-quota imports attract a much lower tariff than above-quota imports. The administration of such quotas tends to legitimize a role for state trading agencies. When such agencies have selling rights on the domestic market in addition to a monopoly on imports of farm products, they can charge excessive mark-ups and thereby distort domestic prices easily and relatively covertly -- just as such agencies can hide export subsidies if they are given a single-desk selling monopoly. There are thus elements of quantitative management of both export and import trade in farm products now legitimized under the WTO, including scope for discriminatory distortions to trade volumes as well as prices.

The aggregate level of domestic support for industrial-country 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 had already occurred by the mid-1990s. This has been possible because many forms of support need not be included in the calculation of the aggregate measure of support (AMS), the primary one being direct payments under production-limiting programs of the sort adopted by the US and EU. A risk that needs to be curtailed is that the use of such “blue box” instruments, as with exempt “green box” instruments such as quarantine and environmental provisions, may spread to other countries and commodities as farm income support via trade and direct price support measures become WTO-illegal.

Thus, without underrating the UR achievement of establishing rules for agricultural trade, it

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would allow high protection on sensitive products to remain and it may increase the dispersion of rates.

has to be recognised that very limited progress has been made over the past five years in reducing agricultural protection and insulation from world markets. This means the first priority for the next WTO agricultural negotiations must be to further that process. That may not be as difficult to agree to now as it was when the Uruguay Round was being launched, given unilateral farm policy reforms in the United States and, to some extent, in the EU and Japan during the mid-1990s (which themselves were responses to the changed atmosphere created by the UR Agreement on Agriculture – see IATRC (1997, chapters 1, 2 and 6) and Tracy (1997)).

Nothing less than ***a ban on farm export subsidies*** is needed to bring agriculture into line with non-farm products under the GATT. With respect to domestic subsidies**,** gradual reform of policies of the US and EU, in particular the further de-coupling of farm income support measures from production as with America's FAIR Act of 1996, may allow ***removal of the 'blue box'*** in the next round of talks.[10] Then efforts to ***tighten the 'green box' criteria*** could be made, so as to reduce the loopholes they provide for continuing output-increasing subsidies, and to further ***reduce the Aggregate Measure of Support***. One of the possible benefits of getting countries to commit to reduce further their AMS is that it will encourage them to make more of their policies conform to the 'green box' criteria, the rewards for which are exemption from the AMS and avoidance of challenge (IATRC 1997, Ch. 11). That in turn makes it all the more important that the 'green box' criteria are tightened such that policy instruments so exempted do not in practice encourage further production.

The third and perhaps most important area requiring attention has to do with import market access. Tariffication has made restrictions to imports much more transparent, but the degree of 'water' currently in those tariffs exaggerates the barriers and makes most bindings ineffective. The combination of dirty tariffication by developed economies and the adoption of very high ceiling bindings by developing economies allows countries still to vary their protection as they wish in response to changes in domestic or international food markets. ***Reducing bound tariffs*** from 50-250+ per cent to the 0-15 per cent range of tariff rates for manufactures is one of the major challenges ahead. If the steady rates of reduction of the past are used, it will be several decades before that gap is closed.

At least three options for reducing bound tariffs present themselves. One is a large across-the-board tariff cut. Even if as much as a 50 per cent cut by, say, 2005 is accepted, however, that would still leave some very high tariffs. A second option is the "Swiss formula" used for

[10] The 'blue box' comprises US and EU direct payments to farmers who restrict their output or at least some inputs. These were granted exemption from challenge under the Blair House agreement to move the UR talks forward.

manufactures in the Tokyo Round, whereby the rate of reduction for each item is higher the greater the item's tariff level. This has the additional economic advantage of reducing the dispersion in rates that was introduced or exacerbated during the Uruguay Round. And a third option is the one used successfully in the information technology negotiations, namely, the "zero-for-zero" approach whereby, for selected products, tariffs are eliminated altogether. In contrast to the second option, this third option would increase the dispersion of tariffs across products, increasing the risk that resources will be wastefully diverted from low-cost to higher-cost activities. While that might appeal as a way of allowing attention to then focus on the politically difficult items such as dairy and sugar, the manufacturing sector experience with long-delayed reductions in protection of textiles and cars makes it difficult to view this option optimistically as a quick solution.

The above tariff reductions refer to above-quota imports. There is also a pressing need to focus on in-quota imports, that is, those that meet the minimum access requirements in the UR Agreement on Agriculture (generally 5 per cent of domestic sales by 2000 for developed economies). Agricultural-exporting countries are understandably reluctant to suggest ***tariff-rate quotas (TRQs) be removed or expanded***, because TRQs provides at least some market access at low or zero tariffs.[11] Nor would allowing TRQs to be auctioned be seen by all as a solution, because that would be like imposing the above-quota tariff on quota-restricted trade that the TRQ was designed to avoid.

If banning TRQs is not yet possible, the next-best alternative to is to expand them, so as to simultaneously reduce their importance, increase competition, and lessen the impact of high above-quota tariffs. One can imagine an outcome that is either optimistic or pessimistic from a reformer's viewpoint. On the one hand, the optimists would say: if the TRQs were to be increased by, say, the equivalent of one per cent of domestic consumption per year, it would not be very long in most cases before the quota became non-binding. Expanding the TRQ could thereby be potentially much more liberalizing in the medium term than reducing the very high above-quota tariffs. Such an approach may require binding within-quota tariffs at a reasonable level (such as that for manufactures), and perhaps allowing countries not to have to reduce those bound within-quota tariffs before the quota becomes redundant.

On the other hand, negotiators familiar with the tortuous efforts to reform the quota arrangements for textiles and clothing trade see the agricultural TRQs as yet another MFA: a

[11] Nearly 1,400 TRQs have been notified to the WTO so far, about 200 of which are country-specific rather than global. On the complexities of TRQs, see Skully (1999).

multilateral food arrangement![12] Since the first inception of textile quotas was around 1960, it looks like it will take fifty years or so before they are finally abolished. Is that the expected lifetime of agricultural TRQs?

Those with the more pessimistic view may argue for a more radical approach to the next round of agricultural negotiations, e.g., the total elimination of agricultural TRQs (along with export subsidies and credits) and a major reduction in bound (out-of-quota) tariffs. Their quid pro quo could be to suggest WTO give up on trying to discipline domestic farm measures other than direct output-increasing subsidies. The almost infinite scope for re-instrumentation of price-support measures makes disciplining them very difficult anyway. And, as Snape (1987) has pointed out, constraints on border measures would ensure the cost of domestic supports was exposed via the budget and thereby subjected to regular domestic political scrutiny.

3. Why agriculture needs other sectors in the next WTO round

Agricultural negotiations and supportive analytical efforts to date have focused primarily on the traditional instruments of agricultural intervention, namely border measures and producer subsidies. Yet it is well known that most of the distortion to incentives facing internationally competitive farmers stems from their own countries' non-agricultural policies (Krueger, Schiff and Valdes 1988; Schiff and Valdes 1992). Since the WTO negotiations focus on reciprocal exchange of market access concessions, export-oriented farmers have a negotiating interest not only in better access to food markets abroad but also in more competition from abroad in their own economies' markets for non-farm products. That applies not only to industrial goods but also to services.

There are at least four reasons why non-agricultural WTO negotiations are of relevance to agriculture. One is that governments of WTO members that import farm products and export non-farm goods and services will be more interested in lowering impediments to agricultural imports if agricultural-exporting members lower their impediments to non-farm imports (Grossman and Helpman 1995; Hillman and Moser 1995). The second reason has to do with the fact that many non-farm goods and services are needed by farmers as intermediate inputs or to get farm products to the final consumer. If because of trade impediments those non-farm products are more expensive than they need be, costs are raised so net farm incomes are reduced. Third, farmers compete with non-farm sectors for mobile factors of production, most notably investment funds and labour. To the extent that a country's non-farm sectors are supported by trade impediments, so its farmers can be disadvantaged by having to pay higher prices for those factors. A final reason why it is important to

[12] Credit goes to Joe Francois (1999) for suggesting that acronym.

have other sectors on the negotiating table at the same time as agriculture is that many WTO members are unable to engage in market access exchange within the agricultural sector, as they have relatively little intra-sectoral trade in farm products. For all these reasons, the probability of the next WTO round delivering further agricultural reforms and benefiting the world's poor (the vast majority of whom are developing country farmers) will be significantly greater if negotiations also seek to achieve protection cuts for other sectors, including services.

Fortunately, services are already scheduled to be on the agenda for the next Round. There is now substantial evidence that policies that reduce competition in service industries can be very costly to farmers in developing countries. Producer services, in particular, play a crucial role in the development and growth process. Losses of agricultural output due to lack of financial intermediation, poor transportation and storage facilities and substandard communication networks can be significant. For example, an empirical investigation of the determinants of agricultural output in India found that expansion of commercial bank networks and of the services they provided had a very substantial positive effect on private agricultural investment (Binswanger et al. 1993). India initiated a trade reform program that led to a decline in import weighted average tariffs from 87 per cent in 1991 to 27 per cent in 1996. However, the agricultural supply response was quite limited because of structural bottlenecks, which in turn are partly the result of a variety of policies that restrict competition in the provision of key inputs such as credit and of infrastructure services such as transport, storage, and communications (Gulati 1998). Numerous analyses come to similar conclusions. Wei et al. (1998) document the importance of ensuring competition prevails in downstream markets to allow farmers to capture a share of the benefits of price liberalization. Gersovitz (1992) analyzes the importance of transport pricing and regulation for producer surplus in agriculture. Gisselquist and Pray (1999) discuss the beneficial impact of increasing competition in upstream (input) markets on technology transfer, productivity and rural incomes. There is therefore a clear need to go beyond liberalization of trade in farm products and manufactures to reduce entry and operating restrictions in services and ensure that efficient price transmission mechanisms operate between farm, procession and retail levels. Policy makers need to focus not just on market access opportunities abroad for farmers but also on domestic policies that can adversely affect the ability of farmers to compete internationally.[13]

[13] Hoekman and Konan (1999), using a CGE model of the Egyptian economy, estimate that efforts to reduce the cost of services by eliminating barriers to entry and competition would increase GDP by over 10 percent, significantly more than what would be achieved by trade liberalization alone (abolition of tariffs).

Although emphasis should be put on services liberalization, further liberalization of manufacturing industries is also required, especially in developing countries where industrial tariff rates are still high, including on goods used as farm inputs. Reducing barriers to trade in textile products will encourage their production in newly industrializing countries. While that might be somewhat at the expense of agricultural production in those countries in so far as farm household labour is attracted to the factory, it would provide new market opportunities for agricultural exporters in other countries. The simulation results reported in Table 4 suggest that further textile reform would give a major boost to developing economies as a group (but not to the reforming OECD countries, because their efficiency gains are estimated to be more than offset by an adverse terms of trade change).

4. Agriculture and "new trade issues"

Inclusion of new trade agenda issues in the next round is considered by some developing country negotiators as undesirable because it would distract attention from the market access issues that are deemed to be of greater importance to them. However, inclusion would have the advantage that more OECD non-agricultural groups would take part in the round which could counter-balance forces favouring agricultural (and other sectoral) protection. As well, better rules on some of those new issues would reduce the risk of farm trade measures being replaced or made ineffective by domestic agricultural measures and technical barriers to trade that may be almost as trade-distorting—a risk that has grown considerably in the past year or so (Anderson 1998b; Roberts, Josling and Orden 1999).

The new trade agenda issues are highly relevant to agriculture. Indeed, some of them figured prominently in the Uruguay Round negotiations on agriculture. For example, progress was made in designing rules for the application of sanitary and phytosanitary standards, and in disciplining the ability of governments to grant agricultural production subsidies. However, disciplines are weak, country-specific, or nonexistent in many other areas. These include competition-related policy and regulation (the nexus of state-trading, export taxes and cartels, and intellectual property broadly defined to include indications of origin, breeder's rights and seed varieties), liberalization of ancillary services and input markets (distribution, marketing, use of new production technologies), and the extra-territorial application of production process standards.

The UR Agreement on Sanitary and Phytosanitary (SPS) standards requires that SPS measures be imposed only to the extent necessary to ensure adequate food safety and animal and plant health on the basis of scientific information, and are the least trade-restrictive measures

available to achieve the risk reduction desired. Although there is substantial "wiggle room" in the wording of disciplines, the dispute settlement evidence to date shows that exporting countries can succeed in obtaining rulings against the most egregious cases of protectionist abuse of standards (Roberts 1998). As is generally the case, the SPS agreement was motivated by market access concerns.

The relevance of much of the new trade agenda is that it mostly concerns *domestic* policies. For example, in some countries entry and arbitrage barriers may be significant; or state-trading entities (STEs) may have the exclusive right to import and/or to export so as to control domestic supply and distribution of agricultural commodities (Ingco and Ng 1998). India is an extreme case where there are restrictions on mobility and trade in agricultural goods, with private traders being prohibited to build up stocks in key staples or to engage in arbitrage activity across districts. In part such restrictions are enforced because of the existence of monopsony state buying agencies (e.g., in cotton).[14] The point is a general one: the positive payoff to developing country agriculture from domestic regulatory reform can be substantial (Gisselquist and Srivastava (1997). Governments therefore need to determine how multilateral negotiations on the specifics of regulatory regimes could be helpful in the pursuit of such reforms. In practice, unilateral action would be required in any event; the challenge is to use the multilateral process to support beneficial reforms.

A key question is whether rule-making efforts to accommodate the new issues be de-linked from the agricultural negotiations on border measures? A suggestion by Josling (1998) is to incorporate all the new issues as they apply to agriculture under the three headings used in the Uruguay Round Agreement on Agriculture, viz. import market access, export subsidies, and domestic support. While such an approach may be necessary if the next round is confined to just agriculture and services, or may be more expedient, it simply prolongs the day when agriculture is fully integrated with other sectors in the WTO. While that separation remains, WTO rules are less clear, and exceptional (i.e., less-liberalizing) treatment is encouraged. Hence a more generic approach to the new issues is worthy of consideration.

Such as appraisal requires finding a way to determine whether domestic policies that have detrimental effects on foreign suppliers can be justified on public interest grounds. More specifically, it can be asked whether a less trade-distorting policy instrument can be identified to achieve a particular objective at no greater cost. If so, the presumption would be that the measure

[14] India is not unusual though in effectively providing negative protection to agriculture through high levels of protection for industrial products (Pursell and Gulati 1995). Farm production in many developing countries is discouraged through non-agricultural policies such as manufacturing protectionism and overvalued exchange rates. And, within the farm sector, exporters are frequently discouraged more than farmers that compete with imports (Schiff and Valdes 1992).

should be contestable by other WTO members. Of course, making this basic economic principle operational in the international context is not straightforward, not least because there will always be differences in opinion as to whether alternative instruments are feasible. Presumably that is why to date the multilateral efforts have tended to focus on regulation of specific government policies, as with the SPS Agreement. But perhaps that is not necessary. Consider the following four sets of issues as examples.

Domestic subsidies

Agreements on subsidies (and countervailing duties) should apply to all sectors of economic activity equally. The WTO Subsidies Agreement is being reviewed in 1999. Currently, that agreement is in some ways similar to the subsidies component of the Agriculture Agreement, in that it defines a set of general "green" or non-actionable subsidies. These include support of R&D, aid for disadvantaged regions, and assistance to firms to adapt plants to new environmental measures. Disciplines in the area of services are yet to be developed; they are likely to figure on the agenda of the prospective negotiations on services. Given a general desire by WTO members to define rules of the game on subsidy practices, efforts should be made to merge the agricultural disciplines with those applying to other merchandise and to be developed for services so that a common set of rules and principles come to apply to all of these areas of domestic policy.

In one important sense the domestic subsidy provisions of the Agriculture Agreement go further than the Subsidies Agreement, in that there is an attempt to measure the degree of assistance (the Aggregate Measure of Support) and to negotiate commitments to reduce that AMS. On the one hand, joining the two agreements could lead to that quantitative approach being adopted for non-agricultural subsidies. On the other hand, experience with trying to reduce supports via that approach may be judged to be too difficult to be worth the negotiating effort. A rationale for the latter point of view is that in practice it is impossible to determine when subsidies are economically "legitimate" in the sense of offsetting market failures or being the least-cost instrument to pursue certain non-economic objectives. In any case governments and interest groups will always be able to identify instruments that are not subject to multilateral disciplines to pursue their aims. Seeking to impose multilateral disciplines is then potentially a never-ending process with uncertain benefits (Snape, 1987).

State trading and other competition policies

Since state trading was considered a relatively minor aspect of policy among the original signatories of the GATT, it is not subject to serious constraints under GATT law. Partly this reflects the fact that state trading was most prevalent in agriculture—a sector that remained largely outside the purview of multilateral discipline until the Uruguay Round. Many countries have government-sanctioned single-desk selling agencies/export monopolies for agricultural commodities, for example. With the recent start to bringing of agriculture into the WTO mainstream, the activities of such entities have now become a concern to the WTO community. In addition, with the adoption of multilateral disciplines for services (GATS), and the prospective accession to the WTO of many economies in transition, state trading has become a higher-profile issue (Cottier and Mavroidis, 1998).

Two distinct approaches currently are pursued in the WTO regarding state trading. The first is to subject the behavior of such entities to multilateral disciplines such as nondiscrimination and transparency, enforced through WTO dispute settlement (Art. XVII of GATT). The second is to negotiate on national treatment and market access on a case-by-case basis (Arts. XVI and XVII of GATS). As it stands, Article XVII is worded quite broadly and potentially covers a wide range of activities, but its disciplines are weak: STEs are to abide by MFN and not to impose price mark-ups on domestic sales that exceed the relevant tariff bindings.

In seeking to impose greater discipline on STE-type activities within the multilateral trading system, the choice is between building upon existing approaches and/or adopting new ones. There are numerous options. Whatever is done, the vigorous pursuit of a market access liberalization agenda will discipline the ability of STEs to exert their market power. If tariffs are low and have been bound, STEs will be constrained to impose mark-ups that are no higher than the bound tariff. The issue of STEs is a subset of the more general problem of dealing with the possible anti-competitive effects of entities with dominant positions or exclusive rights and privileges. In the recent WTO agreement on basic telecommunications, a set of pro-competitive regulatory principles were adopted by countries that require the establishment of independent regulatory authorities to monitor the behavior of dominant telecom suppliers and ensure interconnection on the basis of cost. Efforts to extend the reach of such principles more broadly to both STEs and other firms with exclusive rights should be pursued, with common rules applying to all such entities whatever the sector of activity in which they are engaged.

Technical standards, including SPS measures

Many countries use very blunt quarantine instruments such as import bans that excessively restrict imports well beyond what is necessary for protecting the health of their plants and animals (and citizens in the case of food safety concerns). For example, there are outright bans on imports of many products, including from agricultural-exporting countries seeking to preserve a disease-free image. The levels of protection involved are in some cases equivalent to tariffs of more than 100 per cent.[15] Without some form of notification requirement on WTO members that forces them to disclose the degree to which trade is restricted by such measures, reform in this area is likely to be confined to the very small proportion of those cases that are brought before the WTO's dispute settlement body. The resource requirements of such legal proceedings ensures the pace of reform by that means alone would be glacial.

The demand for higher quality, safer food rises with per capita incomes. However, perceptions about the safety of different foods and food production and processing methods, and conformity assessment procedures, differ greatly—even among countries with similar income levels. The WTO Dispute Settlement case between the US and EU on beef hormones showed that standards differences are difficult to resolve even with the best scientific advice. Other examples are irradiated food, cheese made from unpasturised milk, and genetically modified organisms (Mahe and Ortalo-Magne 1998, Henson 1998). Increasingly over time such issues will arise under the Uruguay Round's SPS and Technical Barriers to Trade agreements. But they will also arise in other, non-agriculture-related contexts. As with state-trading, subsidies, and competition and industrial policies more generally, here again there is a strong case for developing common disciplines for all types of products, whether agricultural or not. There is nothing special about food as compared to, say, regulation of dangerous chemicals, heavy metals, etc., all of which may enter into the production and disposal of manufactured goods. A key advantage of having a common set of rules for risk analysis and risk management is that inconsistencies in current arrangements would be removed.

Environmental standards

Attempts to "export" environmental or social standards have become particularly controversial in recent years. Agriculture's contribution to the natural environment is mostly negative. Some claim that it is adding to biodiversity and the landscape by preserving, for example,

[15] See James and Anderson (1998) and Roberts and DeRemer (1997). The latter study reports more than 300 technical barriers to imports in 63 countries that are believed to threaten, constrain or block almost US$5 billion of US farm exports.

hedgerows in Europe, but that could be done simply by paying some landowners not to destroy their hedgerows. Others in rich countries claim that farmers need to be compensated for adopting less-environmentally damaging farming practices. This pay-the-polluter idea is the opposite of the OECD-sponsored polluter-pays principle, whereby farmers would be taxed according to the extent of the damage their practices cause.[16]

Of major importance to developing country exporters of farm products is the erection of trade barriers against foreign products because of the way they are produced. Mexico won its case at the GATT against the US ban on imports of tuna that were deemed to be caught in nets unfriendly to dolphin, and the shrimp/turtle case had a similar outcome. However, both cases have made the GATT/WTO very unpopular with environmental groups. Developing countries will need to continue to argue against import restrictions being allowed on products produced by methods not liked by importing countries – otherwise there would be no end of restrictions being imposed on such grounds.[17] As with all the other issues discussed in this section, though, there is no need or rationale for agriculture-specific approaches. The issues are generic; rule-making (and opposition to certain types of rules) should also be general in nature.

5. Concluding remarks

Traditional agricultural market access liberalization should continue to be the key priority issue for multilateral negotiations. From an agricultural perspective, attention should focus also on reducing protection granted to manufacturing and services industries. Protection in those sectors bestows a significant anti-agricultural bias in many low- and medium-income economies, making it more difficult for them to benefit from the agricultural trade reform of OECD countries. Those reforms can be done unilaterally, but the WTO offers an opportunity to obtain a quid pro quo, and can be a useful instrument through which to lock in such reforms.

As far as the multilateral agricultural agenda is concerned, the focus should be on further reducing agricultural protection in industrialized countries so as to give developing country farmers better access to those markets. The next stage of agricultural reform will, however, be conducted in an environment in which globalization forces (including ever-faster international transfers of information, ideas, capital, skills and new technologies) will be having ever-stronger impacts on markets but simultaneously may trigger sporadic policy backlashes. Examples of the former forces

[16] Presumably it is rationalized as subsidizing the use of an abatement technology that provides a positive externality, but that logic ignores the source of the abated damage in the first place.

[17] See Anderson (1998a). The recent Appellate Body decision in the shrimp case appears to provide greater leeway for countries to use trade policy to enforce national norms and environmental standards.

affecting agriculture include the new genetically engineered crop seeds that are part of the biotechnology revolution in the seed and pesticide industries. Both industries are also experiencing surges in economies of scale which, together with the liberalization of the world's financial markets over the past 15 or so years, is encouraging rapid expansion of foreign direct investment by large multinational corporations. The WTO is a contributor to that expansion (e.g., in providing more secure property rights for seeds through the TRIPs agreement). The privately optimal international location of production may well change in non-trivial ways as a result, bringing forth new forces for adjustment. In stressful circumstances governments may be tempted either to embrace the forces of change and facilitate efficient and rapid adjustment to the new market-driven circumstances, or to try to resist change by turning their back on reform and intervening in those markets.

Given that attempts to reduce, let alone eliminate, traditional measures of farm protection will confront significant resistance in numerous countries, the mercantilist logic of trade negotiations requires that the agenda of the next set of multilateral negotiations include "new trade agenda" items. High-income countries are demandeurs on services, investment and competition policies, creating the potential for beneficial issue linkages and tradeoffs. Many of the new regulatory issues are not sector-specific. Any new disciplines and agreements should therefore apply across-the-board. However, care should be taken not to pursue the benefits of international agreements on too many new trade issues. From an economic development perspective the main gains to poorer countries will come from market access liberalization: reducing agricultural and textile protection in OECD countries, and reducing the anti-agriculture bias at home induced by existing protectionist and regulatory policies in manufacturing and services. Limited analytical and negotiating resources in developing countries make a number of them hesitant about a new round with lots of new issues, to say the least. But developing countries may need to agree to discuss at least some of the new trade issues if they want to ensure agricultural market access remains high on the next WTO round's agenda. The challenge is to ensure that this is consistent with (supports) domestic reform efforts that are desirable in any event.

There are clearly many challenges as well as opportunities ahead. For countries interested in seeing agricultural market reforms continue into the next century, key priorities for the rest of this decade can be summarized as follows:

- secure a consensus to launch a new round of multilateral trade negotiations at the turn of the century that is comprehensive enough to allow cross-sectoral and cross-issue tradeoffs,
- facilitate the accession of new members to the WTO, particularly those aspirants that are significant in world agricultural markets such as China, Russia, Ukraine and Vietnam,

- keep explaining why trade reforms are desirable and why they need not be a threat to food security, to food safety, or to the environment, especially if appropriate first-best policy instruments are used to address the latter concerns, and
- explore the prospects for more coalition-building among WTO members and for reducing animosity between members where that is based on incomplete or incorrect information.

Agricultural-exporting countries also have a clear, if indirect, interest in ensuring the continuation and spread of rapid industrialization in densely populated Asia and elsewhere, for that will expand those developing countries' net imports of farm products. That industrialization in turn depends heavily on advanced economies honouring and then extending their commitments to liberalize markets for labour-intensive manufactures, especially textiles and clothing. Scope may exist for agricultural exporters and textile exporters to work collectively to ensure the continuation of reform to textile and clothing trade.

At home, food-exporting countries will do themselves a favour by removing their own remaining domestic or trade policy barriers to their agricultural exports. This includes reducing any under-investment in public infrastructure in rural areas and removing policies that increase the cost of agricultural production by reducing competition in upstream and downstream activities. Facilitating adjustment by farmers to market forces will yield far greater dividends than seeking to compensate farmers for non-farm policies that reduce agricultural production and exports. Fears of agricultural sectors disappearing due to liberalization are ill founded. Instead, liberalization and complementary reforms to improve the efficiency of input and downstream markets are likely to lead to specialization in production, and may result in the emergence of new niche firms/industries emerge high value added differentiated farm products that are internationally very competitive.

More analysis that considers the above issues from an economy-wide perspective is needed. One such priority area for research concerns quantification of the impact on farmers of policies affecting service sectors. Currently no information on such policies is available in a form that is usable in models employed to assess agricultural reform options. Yet the effects of barriers to entry in key service sectors on farm production costs could be very considerable. More generally, research efforts should centre on providing decision makers with information and analysis that increases the probability that efforts are devoted to priority areas—those with the largest payoff to the economy as a whole. But there is also a need for analysis that recognizes political economy realities, and seeks to identify issue linkages that will help overcome *domestic* political economy constraints. In the case of agriculture and the next round of WTO talks, priority should be given to analysis of the role services liberalization commitments might play in supporting needed

agricultural policy reforms. This requires in the first instance a concerted effort to collect information on prevailing regulatory regimes affecting services entry barriers, margins and market structure, as negotiators may otherwise focus too much on agricultural interventions per se and not enough on removal of those non-farm policies that are impeding the ability of agriculture to be competitive on world markets.

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Table 1: Assumed cumulative (and annual 1992-1997 and 2000-2005) [and annual 1998-2000 where different] percentage changes in GDP and factor endowments for the period 1992 to 2005

Region	*Real GDP*	*Physical capital*	*Unskilled labour*	*Skilled labour*	*Population*
Western Europe	37	36	1	217	2
	(2.5)	(2.4)	(0.1)	(9.3)	(0.2)
NAFTA	40	56	18	95	15
	(2.6)	(3.5)	(1.3)	(5.3)	(1.1)
Australia and New Zealand	54	46	16	155	15
	(3.4)	(3.0)	(1.2)	(7.5)	(1.1)
Japan and Korea	44	69	-1	71	5
	(3.2)	(4.7)	(-0.1)	(4.8)	(0.4)
	[1.6]	[2.3]	[-0.1]	[2.4]	[0.4]
3 Chinas	121	201	16	103	12
	(7.1)	(10.0)	(1.2)	(5.6)	(0.9)
	[3.6]	[5.0]	[1.2]	[5.6]	[0.9]
South East Asia	118	157	30	156	22
	(7.0)	(8.5)	(2.0)	(8.5)	(1.5)
	[3.5]	[4.3]	[2.0]	[4.2]	[1.5]
South Asia	94	98	32	107	25
	(5.2)	(5.4)	(2.1)	(5.8)	(1.7)
Middle East and North Africa	55	24	49	148	44
	(3.4)	(1.7)	(3.1)	(7.2)	(2.8)
Sub-Saharan Africa	94	98	32	107	25
	(3.4)	(1.7)	(3.1)	(7.2)	(2.8)
Central and South America	58	59	32	125	22
	(3.6)	(3.6)	(2.2)	(6.4)	(1.5)
Former Soviet Union and Central Europe	10	10	8	10	6
	(0.7)	(0.7)	(0.6)	(0.7)	(0.5)
Rest of the World	37	37	36	103	18
	(2.5)	(2.5)	(2.4)	(5.6)	(1.3)

Source: Authors' modifications of Anderson et al. (1997b).

Table 2: Post-Uruguay Round tariffs (and agricultural production and export subsidies)[b], various country groups, 2005 (per cent)

Region	*Agriculture + food processing*	*Mining*	*Textiles and clothing*	*Other manuf-actures*
1.Western Europe	30 (2, 21)	0	11	4
2.NAFTA	15 (3, 2)	0	18	7
3.Australia + New Zealand	3 (0, 0)	0	25	9
4.Japan + Korea	57 (-2, 0)	3	9	4
5.China + Hong Kong + Taiwan	22 (-5, 0)	1	2	2
6.Southeast Asia (ASEAN)	19 (-3, -3)	3	15	11
7.South Asia	19 (0, 0)	8	55	29
8.North Africa + Middle East	24 (-4, 0)	19	38	24
9.Sub-Saharan Africa	13 (-1, -9)	10	18	9
10.Central and South America	12 (-1, -1)	6	27	18
11.Former SU + Central Europe	8 (0, 0)	1	6	5
12.Rest of the World	50 (-1, -7)	23	60	28
All OECD economies (1-4)	***36 (1, 7)***	***1***	***14***	***6***
All developing economies (5-10)	***20 (-2, -2)***	***6***	***12***	***11***
ALL ECONOMIES[a] (1-12)	***29 (0, 3)***	***2***	***14***	***8***

[a] Includes 'Former Soviet Union and Central Europe' and 'Rest of the World' (made up mostly of small island economies plus Turkey and tiny European, Mediterranean and East Asian economies such as North Korea and Mongolia).

[b] Production and export subsidy rates for agriculture (including processed food) are shown in parentheses in column 1.

Source: Author's calculations, drawing from the GTAP data base.

Table 3: Sectoral shares of GDP, post-Uruguay Round in 2005, and of private household consumption and of trade in 1995
(per cent)

	Agriculture + food processing	*Minerals and fuels*	*Textiles and clothing*	*Other Manufactures*	Services	**ALL PRODUCTS**
SECTORAL SHARES OF REGIONAL GDP:						
All OECD economies	5	3	0.8	19	72	100
All developing economies	19	9	4.4	16	52	100
ALL ECONOMIES[a]	8	4	1.5	18	68	100
REGIONAL & SECTORAL SHARES OF GLOBAL GDP:						
All OECD economies	4	2	0.6	15	58	80
All developing economies	3	1	0.7	3	8	16
ALL ECONOMIES[a]	8	4	1.5	18	68	100
SECTORAL SHARES OF REGIONAL HOUSEHOLD CONSUMPTION						
All OECD economies	12	0	2.6	11	74	100
All developing economies	30	2	5.7	14	48	100
ALL ECONOMIES[a]	**15**	**1**	**3.3**	**12**	**69**	**100**
SECTORAL SHARES OF REGIONAL EXPORTS:						
All OECD economies	8	3	3.5	67	18	100
All developing economies	9	14	10.3	50	17	100
ALL ECONOMIES[a]	**9**	**6**	**5.5**	**62**	**18**	**100**
REGIONAL & SECTORAL SHARES OF GLOBAL EXPORTS:						
All OECD economies	5.8	2.1	2.5	47.2	12.9	70.4
All developing economies	2.8	4.0	3.0	14.7	5.0	29.6
ALL ECONOMIES[a]	**8.6**	**6.1**	**5.5**	**61.9**	**17.9**	**100.0**

[a] Includes 'Former Soviet Union and Central Europe' and 'Rest of the World', hence is not just the weighted sum of rows 1 and 2.
Source: Anderson, Hoekman and Strutt (1999) and Hertel and Martin (1999), calculated using the GTAP data and model.

Table 4: Effects on economic welfare (equivalent variation in income) of removing distortions to various goods markets post-Uruguay Round, major economic regions, 2005[b]

(per cent, and 1992US$ billion p.a. difference from post-UR base case in 2005)

	Contribution from removing distortions in OECD economies' markets for:					
Region	*Agriculture and food processing* (per cent)	*Textiles and clothing* (per cent)	*Other Manufactures* (per cent)	**Contribution from removing distortions in all goods markets of OECD economies[c] (sum of columns 1-3) (per cent)**	**Contribution from removing distortions in all goods markets of developing economies (per cent)**	**Net benefit from removing distortions in all goods markets of OECD and developing economies ($ billion p.a.)**
All OECD	26	-3	38	**68**	**32**	**217**
economies	(-50)	(192)	(6)	**(-17)**	**(98)**	**(20)**
All developing	55	28	-29	**42**	**58**	**45**
economies	(97)	(84)	(76)	**(106)**	**(-249)**	**(-106)**
ALL	32	3	27	**62**	**38**	**260**
ECONOMIES[a]						

[a] Includes 'Former Soviet Union and Central Europe' and 'Rest of the World', hence is a little more than the sum of OECD and developing economies.

[b] Numbers in parentheses are the percentage of each result that is due to the change in the terms of trade, most of the rest being the change in allocative efficiency.

[c] Not just the sum of columns 1-3 because distortions to minerals and fuels also are removed, and there are different interactions between sectors when all goods markets are liberalized simultaneously as compared with individually.

Source: Authors' calculations using the GTAP model.

Table 5: Effects on international prices and global trade volumes of removing distortions to various goods markets post-Uruguay Round, major product groups, 2005[b]

(per cent difference from post-UR base case in 2005)

	Contribution from removing distortions in OECD economies' markets for:		
	Removing distortions in all goods markets of OECD economies[c]	**Removing distortions in all goods markets of developing economies**	**Removing distortions in all goods markets of OECD and developing economies**
International price			
Agricultural and food products	4.7	-0.7	4.3
Manufactures	-2.6	-0.9	-3.3
Services	-0.9	0.6	-0.1
International trade volume			
Agricultural and food products	58	38	100
Manufactures	20	16	36
Services	10	8	17

Source: Authors' calculations using the GTAP model.

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