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**AGRICULTURE AND THE
NEXT ROUND OF WTO NEGOTIATIONS**

**Kym Anderson, Erwidodo,
Tubagus Feridhanusetyawan and Anna Strutt**

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between

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**Lead institution: CIES • University of Adelaide • Adelaide • SA 5005 • Australia
Telephone (61 8) 8303 4712 • Facsimile (61 8) 8223 1460 • email: cies@economics.adelaide.edu.au
Homepage: <http://www.adelaide.edu.au/cies/>**

**CASER/CSIS/CIES/ANU
joint research project on**



Policy analysis of linkages between Indonesia's agricultural production, trade and environment

Rapid economic growth in Indonesia has been accompanied by significant structural changes, including for its agricultural sector and its unique natural environment. Recently questions have been raised about the impact of Indonesia's agricultural, industrial, trade and environmental policies on sustainable rural development. The nature of interactions between the economic activities of different sectors and the environment are such that an intersectoral, system-wide perspective is essential for assessing them. An international perspective also is needed to assess the impact on Indonesia of major shocks abroad, such as the implementation of the Uruguay Round agreements, APEC initiatives, or reforms in former centrally planned economies. There is increasing pressure on supporters of liberal trade to demonstrate that trade reforms at home or abroad affecting countries such as Indonesia will not add to global environmental problems (e.g., deforestation, reduced biodiversity). Again, this requires system-wide quantitative models of the economy and ecology, because typically there are both positive and negative effects at work, so the sign of the net effects ultimately has to be determined empirically.

To begin to address these issues, the Australian Centre for International Agricultural Research (ACIAR) has generously provided funds for a collaborative 3-year project (to mid-1999) involving the University of Adelaide's Centre for International Economic Studies (CIES) as the lead institution, Bogor's Centre for Agro-Socioeconomic Research (CASER) which is affiliated with the Ministry of Agriculture, Jakarta's independent Centre for Strategic and International Studies (CSIS), and the Economics Division of the Research School of Pacific and Asian Studies (RSPAS) at the Australian National University in Canberra. Being based on Indonesia with its rich diversity of environmental resources (and on which there are relatively good data) and its rapid economic growth, the project could also serve as a prototype for similar studies of other developing countries in Southeast Asia and elsewhere.

The key objective of the project is to assess the production, consumption, trade, income distributional, regional, environmental, and welfare effects of structural and policy changes at home and abroad particularly as they will or could affect Indonesia's agricultural sector over the next 5-10 years. Among other things, the analysis will focus both on the effects of economic changes on the environment, and on the impacts on Indonesia's agricultural production and trade of resource and environmental policy changes. The implications of regional and multilateral trade liberalization initiatives and Indonesia's ongoing unilateral trade reforms will be analysed, along with other potential domestic policy changes and significant external shocks such as the entry of China and Taiwan into the World Trade Organization. The analysis will draw on and adapt computable general equilibrium (CGE) models such as the national INDOGEM Model (built as part of an earlier ACIAR project) and the global GTAP Model.

The project is being undertaken in close collaboration with the Indonesian Ministry of Agriculture and ministries involved in trade, planning, and the environment. A Research Advisory Committee has been established to encourage close collaboration of representatives from those and other ministries.

ACIAR INDONESIA RESEARCH PROJECT

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**Kym Anderson, Erwidodo,
Tubagus Feridhanusetyawan and Anna Strutt**

Centre for International Economic Studies and
School of Economics
University of Adelaide
Adelaide SA 5005
Australia

Ph: (61 8) 8303 4712
Fax: (61 8) 8223 1460
Email: kym.anderson@adelaide.edu.au

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**The authors are from, respectively, the School of Economics and Centre for International Economic Studies at the University of Adelaide, Australia; the Centre for Agro-Socioeconomic Research in Bogor, Indonesia; the Centre for Strategic and International Studies in Jakarta, Indonesia; and the Economics Department, University of Waikato in Hamilton, New Zealand.

SUMMARY

To what extent should the new round of WTO negotiations on agriculture and services, expected to be launched in late 1999, simply focus on traditional market access issues in those two highly protected sectors rather than also include market-opening in other sectors and negotiations on so-called “new trade agenda” items? We argue in this paper that while agricultural market access negotiations should be given high priority, the probability of the next WTO round delivering sizeable farm protection cuts will be significantly greater if other goods markets are also liberalized and at least some of the new issues are included. This is not only because the inclusion of other sectors and issues would ensure non-agricultural groups take part in the round to counter-balance forces favouring agricultural protection. We also argue that rule-making efforts to accommodate the new issues should be de-linked from the agricultural market access negotiations, notwithstanding the temptation simply to slot those affecting agriculture into the three negotiating modes used in the Uruguay Round (market access, export subsidies, and domestic support).

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

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Contact author:

Kym Anderson

School of Economics and
Centre for International Economic Studies
University of Adelaide
Adelaide, SA 5005 Australia
Tel: (61 8) 8303 4712
Fax: (61 8) 8223 1460
kym.anderson@adelaide.edu.au

AGRICULTURE AND THE NEXT ROUND OF WTO NEGOTIATIONS

There is a mixture of views within East Asia about agricultural trade reform and hence about its inclusion in the Uruguay Round agreements. On the one hand, governments in the wealthier densely populated countries are under pressure to continue to protect their farmers from import competition and to be seen to be providing an adequate degree of food security. In the countries with a stronger comparative advantage in agricultural products, on the other hand, governments are keen to secure more access to markets for their farmers' exports.¹ This difference of views within East Asia surfaces periodically in APEC as well as WTO fora. Since it is mirrored in other parts of the world too, agriculture is guaranteed to be a controversial part of the next round of multilateral trade negotiations, just as it was in the previous round.

Given the high degree of distortion in world food markets that existed in the 1980s, every impartial observer agrees that one of the great achievements of the Uruguay Round (UR) was to start to bring agricultural policies under GATT discipline, and to agree to return to the negotiating table by the turn of the century.² Following the signing of the UR accord in 1994, non-tariff barriers to agricultural imports have been tariffed and bound and the tariff bindings are scheduled for phased reductions. As well, farm production and export subsidies also are being reduced, mostly between 1995 and 2000 (with developing countries having an extra four or more years). That UR Agreement on Agriculture, together with the SPS Agreement (to limit the use of quarantine import restrictions to cases that can be justified scientifically as a risk to human, animal or plant health) and the Dispute Settlement Agreement (which has greatly improved the process of resolving trade conflicts), hopefully means that agricultural trade will be less chaotic in future than prior to the formation in 1995 of the new World Trade Organization (WTO). Much remains to be done, however, before agricultural trade is as fully disciplined or as liberal as world trade in manufactures.

¹ The recent financial crisis in East Asia has strengthened the agricultural comparative advantage of several developing countries in the region, as capital withdrawal has effectively 're-agriculturalized' these economies somewhat (Anderson and Strutt 1999).

² On the long history of exceptional treatment of agriculture in the GATT, see Josling, Tangermann and Warley (1996).

This paper has four main parts. It first explores empirically the scope for further gains from liberalizing agricultural markets in OECD countries, both absolutely and relative to the welfare gains from cutting those countries' barriers to imports of textiles and other manufactures. Section 2 explores what is likely to be included in the next agricultural negotiations. The paper then asks if the likelihood 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) would be significantly greater if negotiations include protection cuts for other sectors and at least some of the new issues on the WTO's agenda. Section 4 examines whether rule-making efforts to accommodate new issues should be de-linked from the agricultural negotiations on border measures, rather than simply included under the three headings used in the Uruguay Round Agreement on Agriculture (import market access, export subsidies, and domestic support). The latter approach may be more expedient, but it prolongs the day when agriculture is fully integrated with other sectors in the WTO. In the final section of the paper we list the next steps needed, as we see it, to maximize the chances through WTO disciplines of keeping the agricultural reform process going.

1. The potential gains from further agricultural policy reform

The post-1950s period saw substantial growth in agricultural protection and insulation in the advanced industrial economies and its subsequent spread to newly industrializing economies (Johnson 1973; Anderson and Hayami 1986; Lindert 1991; Tyers and Anderson 1992). That tendency accelerated in the 1980s to the point where 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. Traditional agricultural-exporting countries thus insisted that the Uruguay Round of multilateral trade negotiations must focus on reversing this agricultural protection trend. The Round's Agreement on Agriculture that resulted from that effort has altered the climate of farm policy making, to the point where reforms in OECD countries—e.g., attempts to shift from price and trade measures to more direct forms of farm income support—have laid the foundations for reducing international price-depressing assistance to farmers.

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? That question has been addressed in a recent paper that make use of the global economy-wide model known as GTAP. Anderson, Hoekman and Strutt (1999) use Version 3 of GTAP to project the world economy to 2005 following full implementation of the Uruguay Round. Their estimates of the extent of distortions to world trade that will remain in 2005 is given in Table 1, assuming China and Taiwan have joined the WTO by then. According to those estimates, the agriculture and processed food sector will still be a major anomaly. Globally, it has twice the import tariff average of textiles and clothing and nearly four times that for other manufactures. At the same time, significant distortions to farm production and exports will still be in place if no further policy reforms occur. The pattern of distortions will still differ between regions, with the numbers in parentheses in Table 1 showing OECD countries subsidizing, and developing countries taxing, farm production and exports.³

What is the economic significance of these projected distortions in the different sectors? That depends not only on the size of those 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 value of production of each sector and the importance of its products in consumption. Table 2 provides an indication of the relative importance of the various sectors in regional and world production, consumption and trade.

Consider first the effects of removing distortions to OECD country markets for (1) agriculture and processed food, (2) textiles and clothing, (3) other manufacturing, and (4) all goods combined, and then for (5) all developing economies' goods markets, and finally for (6) all OECD and developing economies' goods markets together.⁴

The welfare consequences of these alternative comparative static scenarios are summarized in Table 3. If both OECD and developing countries were to liberalize all their goods markets in 2005 post-UR, these results suggest global welfare would be greater by US\$260 billion per year.⁵ Almost one-third (32 per cent) of the estimated global gains from

³ Version 4 of the 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 3). On reasons for this pattern of distortions across countries, including its anti-trade bias, see Anderson (1995). There are of course many other distortions to markets that are not captured in Table 1, the most notable being those affecting services trade and government procurement. Until estimates of the extent of those latter distortions are available for a wide range of countries, however, their magnitude or effects cannot be compared with those that are captured in Table 1.

⁴ The relatively very small economies of 'Former Soviet Union and Central Europe' and 'Rest of the World' are assumed not to change their policies in these scenarios.

⁵ This is a gross underestimate of the *aggregate* gains from trade liberalization for several reasons: because

goods trade liberalization are estimated to 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 (see Table 2).

Textiles and clothing reforms appear to pale by comparison with farm reform: their welfare contribution is only one-eleventh that of agriculture's. The reasons for this big difference are several. One is that distortions to prices for agriculture are more than twice those for textiles and clothing, according to Table 1. Another is that the latter products contribute 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 2). But two assumptions made by the modellers 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 (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 the WTO soon and be given more access to textile markets in the next five years. Dropping either of those assumptions reduces very substantially the estimated gains from Uruguay Round implementation (Anderson et al. 1997b), and therefore would raise the potential gains from textile and clothing reform in the next WTO round. Even so, agricultural protection would remain far more costly to the world economy than barriers to textiles and clothing trade – and 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.

The WTO membership was right, therefore, to insist that OECD agricultural reform must continue into the new century without a pause. Developing countries have a major stake in that process continuing: according to the above GTAP results, the farm policies of OECD countries are almost as harmful to developing economies as their own trade-distortionary policies. Certainly OECD textiles and clothing policies harm them greatly, but less than half as much as OECD farm policies (middle row of Table 3). Barriers to OECD 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

services and government procurement policies are excluded; because no account is taken of the benefits of increasing the degree of competition and the scope for scale economies; because of the high degree of regional and product aggregations in the version of the model used; and because the dynamic growth-enhancing consequences of reform are not captured. Those omissions may not distort greatly the estimated *relativity* of the gains from reforming the various markets for goods, however.

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 the raised international price of these products (see numbers in parentheses in Table 3).

Furthermore, Anderson, Hoekman and Strutt (1999) find that each of the major developing-country regions benefits in terms of real income gains from OECD agricultural policy reform. The net gains, on a per capita per year basis, range from \$1 in South Asia to \$4 in Southeast Asia, \$6 in Sub-Saharan Africa, and \$30 in Latin America. The gains per farm household in those regions would be many times greater, however, after consumers losses are subtracted from the net national gains.

Even 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 more than two-fifths of the gains from liberalizing trade in all goods in the OECD alone.⁶

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

Given the enormous potential for gains from farm trade liberalization, there is great pressure from farm-exporting countries to ensure further substantial agricultural reforms occur in the next few years. Japan and Korea, however, remain reluctant to embrace further reform. The European Union, too, is finding it difficult to get a consensus for more than modest reform of its Common Agricultural Policy under its Agenda 2000 (on which its WTO negotiating position will be based -- see Tangermann 1999).

How should the next round of agricultural negotiations proceed? The fact that (often discriminatory) farm export subsidies are still being 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

⁶ 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 replaced by OECD import tariffs on those goods by 2005 under the Uruguay Round's ATC. The very considerable projected efficiency gains from subsequently lowering those tariffs in the next WTO round are just slightly more than offset by the rise in the international price of those goods, according to the welfare decomposition results summarized in

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 are now higher than in the base period, so exportable surpluses can be disposed of with lower subsidy outlays.

The extent of reductions in bound tariffs by the end of the decade will be even more modest than for export subsidies: the *unweighted* average 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).⁷

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 actual tariff equivalents of the CAP in recent years, while the United States has set theirs about 45 per cent above recent rates – and developing countries are even more involved in the practice (Ingco 1995, 1996). ‘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 late 1980s/early 1990s. 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 -- and has continued to do since 1995 (Tangermann 1999). This means there has been little if any of the reduction in fluctuations in international food markets this decade 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 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

parentheses in Table 3.

⁷ 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 would allow high protection on sensitive products to remain and it may increase the dispersion of rates.

only offers potential rather than actual access (another form of contingent protection). As well, 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. Perhaps even more importantly, 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 third main component of the Uruguay Round agriculture agreement is that the aggregate level of domestic support (AMS) 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 in the AMS had already occurred by the mid-1990s. This has been possible because there are many forms of support that need not be included in the calculation of the AMS, the most important 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 developed countries and other commodities as farm income support via trade and direct domestic price support measures become WTO-constrained.

Given the limited progress over the past five years in making agriculture more market-orientated, 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 -- at least to some extent -- in the EU and Japan during the mid-1990s (IATRC (1997, Chs. 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*, an early decision needs to be taken as to whether to strengthen or abandon the attempt to constrain domestic policies under the WTO. Even though a plausible case can be made for the latter

(Snape 1987), the Cairns Group may well decide to pursue the former. The ‘blue box’ items, containing the US and EU direct payments to farmers who restrict their output or at least some inputs, were granted exemption through to 2003 from challenge under the Blair House agreement as a way of moving the Uruguay Round talks forward. But with the policies of the US and EU gradually being reformed for internal reasons in recent years, and in particular with the further de-coupling of farm income support measures from production as with America’s FAIR Act of 1996, it may be possible to **remove the ‘blue box’** in the next round of talks. 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 are not in practice encouraging 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. Getting those bound tariffs down from 50-250+ per cent to the 0-15 per cent range of tariff rates for manufactures is the challenge 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 tariffs on farm products 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 manufactures in the Toyko 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 out-of-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 the *tariff-rate quota (TRQ)* be removed, because the TRQ provides at least some market access at low or zero tariffs⁸. Nor would allowing TRQs to be auctioned be seen by all as a solution, because that would be like imposing the out-of-quota tariff on quota-restricted trade that the TRQ was designed to avoid.

Perhaps the best alternative to banning TRQs 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 out-of-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.

Negotiators familiar with the tortuous efforts to reform the quota arrangements for textiles and clothing trade, on the other hand, see the agricultural TRQs as yet another MFA: a multilateral food arrangement!⁹ 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. If that is the expected lifetime of agricultural TRQs, a strong case could be made by the Cairns Group and others for the total elimination of agricultural TRQs (along with export subsidies and credits) and a

⁸ 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).

⁹ Credit goes to Joe Francois for suggesting that acronym.

radical reduction in bound (out-of-quota) tariffs. The quid pro quo could be to give up on trying to discipline farm domestic supports: the almost infinite scope for re-instrumentation makes that 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.

The above agenda for those seeking more liberal agricultural markets will be resisted by those seeking a continuation of special favours for protected agricultural sectors. The latter are forming coalitions with other groups to find reasons/excuses for not lowering trade barriers and/or to lobby for interventions abroad that would raise their competitors' costs. The key issues being raised by these groups that are likely to be more prominent in the next WTO negotiations than in the Uruguay Round, are discussed below. In assessing the implications of these priorities for farm and trade policies, the following should be kept in mind: that where there are several policy objectives, typically an equal number of policy instruments is required to deal efficiently with them; that the most efficient policy instrument for achieving a particular objective will be that which addresses the concern most directly; that trade measures in particular are rarely the most efficient instruments for addressing non-trade concerns; and that trade reforms will be welfare-improving so long as optimal domestic interventions are in place to deal with those non-trade concerns.¹⁰

The claim is often made that a high level of food self-sufficiency is necessary before a nation feels food-secure. This is inconsistent with the usual definition of food security though, which is that everyone always has access to the minimum supply of basic food necessary for survival. Lower rather than higher consumer prices for food would by that definition boost the number of food-secure people, suggesting *lower* import barriers and export subsidies should be called for.

However, becoming more dependent on food imports does raise questions about the preparedness of exporters to always supply foreign markets. For that reason, food importers may call for stronger disciplines on the exceptions to GATT Article XI.1 which prohibits export restrictions other than export taxes. For example, GATT Article XI.2(a) permits temporary quantitative export restrictions to relieve critical food shortages in an exporting country. True, the URAA's Article 12 added some discipline to that provision, requiring that due consideration be given to the effects of such a restriction on WTO members who are food

¹⁰ What follow draws on Anderson (1998b).

importers, that such affected members be consulted, and that the WTO be notified of the nature and duration of the restriction. Even more discipline could be called for in the next WTO round. For example, if it were shown that in the past longer-term customers were being served first and charged less in years of shortfall, agricultural-exporting countries could be asked to cease that practice and instead provide non-discriminatory access to their supplies of basic foodstuffs at all times.

In addition to concerns about food security, there are also concerns about food safety. 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. These differences can be exaggerated when groups with an economic interest in trade restrictions join forces with extremist lobby groups pushing for excessive food safety measures. The rapid rise in media hype over genetically modified products (GMPs) is a clear case in point: it has fueled consumer concerns in Western Europe to such an extent that this issue may well be on the agenda for the next agricultural negotiations in some form. Developing countries' farmers are concerned for different reasons: because intellectual property protection in their country is so poor that producers of GM seeds may not sell the new varieties to them, causing their agricultural comparative advantage to diminish; and because some high-income countries may erect barriers to prevent GMPs originating in developing countries from penetrating their markets. For the sake of farmers and consumers everywhere, and to reduce uncertainty for R&D firms seeking to invest further in GMPs, it is imperative that rules and standards governing trade in GMPs be clarified.

3. Why agriculture needs other sectors and “new trade agenda” issues in the next round

The probability of the next WTO round delivering significant agricultural reforms and thereby benefiting the world's poor (the vast majority of whom are developing country farmers) may well be greater if negotiators include protection cuts for other sectors and perhaps some of the new issues on the WTO's agenda. (Services are already scheduled to be on the agenda for the next Round.)

Textile reform should be included, not least to reduce the likelihood that OECD countries renege on current obligations under the Uruguay Round's Agreement on Textiles and Clothing. The above simulation results suggest that further textile reform would give a

major welfare boost to developing economies. It would boost the manufacturing exports of the most densely populated of Asia's developing countries. But since they in turn would then import more farm products, reductions in textile barriers indirectly also boosts the farm sectors of other countries.¹¹

In return for reducing barriers to agricultural and textile markets in rich countries, developing countries would be leant on to liberalize their manufacturing and services markets and their government procurement procedures. The welfare gains to developing country agriculture (and the overall economy) from such non-farm policy reform could well be as large those countries' gain from farm policy reform by OECD countries. This is because of the direct impact those reforms would have on developing countries' farm input costs and the cost of services required to market their farm outputs, as well as the standard indirect general equilibrium effects on the cost of mobile labour and capital of reducing assistance to highly protected non-farm sectors.

As for new trade agenda issues, their inclusion in the next round is considered by some (including East Asian developing country) negotiators as undesirable because it would distract their attention from the current agenda items. On the other hand, however, their inclusion would have the advantage that more 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 decline in traditional trade barriers will cause attention to focus increasingly on the trade-impeding effects of domestic regulatory regimes. This is what has given rise to the so-called “new trade agenda.” It revolves around policies such as the setting and enforcing of product standards, state-trading, subsidy regimes, export controls, competition law, and government procurement practices. Such policies can effectively distort competition, even if applied on a nondiscriminatory basis.

Virtually all these new issues have relevance to the agricultural liberalization agenda. The Uruguay Round negotiations on agriculture focused only on some of them, notably

¹¹ Similarly, if China were to be admitted to the WTO, and in the process restrained from raising protectionist barriers to farm imports and given more access to US and EU textile markets, the agricultural sectors of other East Asian countries would benefit (Anderson et al. 1997a,b).

production subsidies and product standards. In the Uruguay Round progress was made in designing rules for the application of sanitary and phytosanitary standards (SPS), and disciplining the ability of governments to grant agricultural production subsidies. However, disciplines are either weak, country-specific or nonexistent in many other areas, including the extra-territorial application of production process standards and competition-related policy and regulation. The latter include the nexus of state-trading, export taxes and cartels, and intellectual property (broadly defined to include indications of geographic origin, traditional expressions, breeder's rights and seed varieties).

While attempts to discipline and regulate the use of domestic subsidies under GATT auspices have been pursued for decades with little success, somewhat greater progress was made in the Uruguay Round with sanitary and phytosanitary (SPS) standards. The SPS Agreement seeks to ensure that any SPS measures are 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 "wobble room" in the wording of disciplines, consultations between WTO members are leading to conflict resolution in numerous cases. 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). A problem that confronts developing countries in this area, however, is that they may find it difficult to satisfy partner countries that their domestic institutions can be trusted to enforce the required standards. Alternatively, such institutions may not be able to perform testing and certification functions effectively without imposing significant burdens on trade.

The focus of GATT/WTO negotiations has always been on increasing the contestability of markets by reducing/eliminating discrimination against foreign products and producers. One way to apply this rule of thumb to the new trade agenda is to seek to extend the reach of the non-discrimination principle to issues such as subsidies, competition legislation, foreign investment regimes, and government procurement practices. In all these areas governments are currently free to pursue discriminatory policies, and often do.

Liberalizing foreign investment and extending the national treatment principle to foreign suppliers of goods and services would have a significant impact in terms of "leveling the playing field". An open investment regime in general, complemented by a commitment to apply national treatment to the supply of service sectors in the GATS context would go a long way in making markets more contestable. Investment liberalization is already on the agenda of

the GATS for service sectors, as nations can make specific commitments on market access and national treatment for foreign providers who seek to establish a “commercial presence”, that is, to engage in foreign direct investment (FDI). This approach could be extended to investment more generally, including in agriculture where restrictions are often very severe (e.g., in Indonesia).

4. Why “new trade agenda” issues for agriculture should be treated generically

Should 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. Thus a more generic approach to the new issues should be entertained.

Conceptually, the matter is relatively clearcut: what is required is a determination as to 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 more-efficient, less trade-distorting policy instrument can be identified to achieve a particular objective. If so, the presumption would be that the measure can be contested. Of course, making this basic economic principle operational in the international context is not straightforward, not least because in practice measures may be pursued because a nation has the power to influence the terms of trade in its favour, and because there will always be differences in opinion as to whether alternative instruments are feasible or not.

Snape (1987) has argued that, with respect to subsidies, governments should be left free to pursue whatever domestic policies they wish -- an argument that can be extended to regulatory policy more generally. A rationale for this argument 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, and that governments and interest groups will always be able to identify instruments that are

not subject to multilateral disciplines to pursue their aims. The result of pursuing multilateral disciplines is then a never-ending process with uncertain benefits.

This argument is unlikely to be acceptable to policymakers, however. If negotiations on domestic policies are to be pursued, though, a strong case can be made that specific rules just for agriculture are not necessary. Consider four sets of examples.

Domestic subsidies

Agreements on subsidies (and countervailing duties) should apply to all sectors of economic activity equally. The WTO Subsidies Agreement is supposed to be reviewed in 1999. Currently, that agreement takes a similar approach to the Agriculture Agreement and defines a set of general non-actionable subsidies. These include support for research, aid for disadvantaged regions, and assistance to firms adapting plants to new environmental measures. Disciplines in the area of services are yet to be developed and are likely to figure on the agenda of the prospective negotiations on services. Given a general desire by WTO members to define clearer rules 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 emerge.

Competition policies, including state trading

Similar arguments apply to competition policies. For example, many countries have government-sanctioned single-desk selling agencies/export monopolies for agricultural commodities, and the activities of such entities have become a concern to the international community. State trading was considered a relatively minor aspect of policy among the original signatories of the GATT, and is not subject to serious constraints under GATT law. Partly this reflects the fact that it was most prevalent in agriculture—a sector that remained largely outside the purview of multilateral discipline until the Uruguay Round. However, with the re-introduction of agriculture in the WTO, 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 that is part of the much bigger complex of policy questions to do with the conditions of competition in markets.

Two distinct approaches currently are pursued in the WTO regarding state trading (Hoekman and Low 1998; Ingco and Ng 1998). The first is to subject the behaviour 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. Specifically, STEs are simply to abide by MFN and not to impose price mark-ups on domestic sales that exceed the relevant tariff bindings.

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 behaviour 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.¹² 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 expense of such legal proceedings and the time involved in concluding each case ensures the pace of reform by that means alone would be glacial.

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 differences of opinion on standards are difficult to resolve even with

¹² 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.

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 or heavy metals which may enter into the production and disposal of manufactured goods.

Environmental standards

Attempts to "export" environmental or social standards have become particularly controversial in recent years. Agriculture's contribution to the natural environment is most probably negative in a net sense. Some claim that it is adding to biodiversity and the landscape by preserving, for example, 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.¹³

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, but 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 (Anderson 1998a). As with all the other issues discussed in this section, 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.

¹³ 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.

5. Final Remarks

Traditional agricultural market access liberalization should continue to be the key priority issue for developing countries. From an agricultural perspective, attention should focus also on reducing protection granted to manufacturing and services industries in developing countries themselves, as 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 export 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 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. The current East Asian financial crisis reminds us that 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 should

include “new trade agenda” items. High-income countries are demanders 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 at least to the levels applied to other manufactures, and reducing the anti-agriculture bias in developing countries induced by their own 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.

There are clearly many challenges as well as opportunities ahead. For Cairns Group members and other developing countries interested in seeing agricultural market reforms continue into the next century, their 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,
- ensure all the main forms of distortions to agricultural markets are high on the negotiating agenda, to minimize the possibility that reforms in one area are offset by policy re-instrumentation to trade-distortive support measures not yet disallowed,
- 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. That will enhance their chance of gaining further market openings following the next WTO Round.

As for densely populated food-importing developing countries, the idea of them following the steps of more-industrial economies, in the sense of protecting their farmers increasingly from import competition as economic growth proceeds, is no longer a long-run option under the WTO. The economically superior option, of facilitating adjustment by farmers to market forces, will yield far greater dividends -- and yet will not lead to the feared disappearance of their agricultural sectors. Indeed it is likely to lead to specialization in production that may even see some new niche firms/industries emerge with high value added differentiated farm products that are internationally very competitive.

References

- Anderson, K. (1995), "Lobbying Incentives and the Pattern of Protection in Rich and Poor Countries," *Economic Development and Cultural Change* 43(2): 401-23, January.
- Anderson, K. (1998a), 'Environmental and Labour Standards: What Role for the WTO?', Ch. 8 in *The WTO as an International Organization*, edited by A.O. Krueger, Chicago and London: University of Chicago Press.
- Anderson, K. (1998b), 'Domestic Agricultural Policy Objectives and Trade Liberalization: Synergies and Trade-offs', COM/AGR/CA/TD/WS(98)101, in Proceedings of the OECD Workshop on Emerging Trade Issues in Agriculture (Paris, 25-26 October 1998), published on the OECD's website at www.oecd.org/agr/trade/.
- Anderson, K., B. Dimaranan, T. Hertel and W. Martin (1997a), 'Asia-Pacific Food Markets and Trade in 2005: A Global, Economy-Wide Perspective', *Australian Journal of Agricultural and Resource Economics* 41(1): 19-44, March.
- Anderson, K., B. Dimaranan, T. Hertel and W. Martin (1997b), 'Economic Growth and Policy Reforms in the APEC Region: Trade and Welfare Implications by 2005', *Asia-Pacific Economic Review* 3(1): 1-18, April 1997.
- Anderson, K. and Y. Hayami (1986), *The Political Economy of Agricultural Protection*, Boston, London and Sydney: Allen and Unwin.
- Anderson, K., B. Hoekman and A. Strutt (1999), 'Agriculture and the WTO: Next Steps', paper presented at the Second Annual Conference on Global Economic Analysis, Valby, Denmark, 20-22 June.
- Anderson, K. and A. Strutt (1999), "Impact of East Asia's Growth Interruption and Policy Responses: The Case of Indonesia", *Asian Economic Journal* 13(3), September (forthcoming).
- Henson, S. (1998), 'Regulating the Trade Effects of National Food Safety Standards', COM/AGR/CA/TD/TC/WS(98)123, in Proceedings of the OECD Workshop on Emerging Trade Issues in Agriculture, Paris, 25-26 October, <http://www.oecd.org/agr/trade/>.
- Hertel, T.W., and W. Martin (1999), 'Developing Country Interests in Liberalizing Manufactures Trade', paper presented at the CEPR workshop on New Issues in the World Trading System, London, 19-20 February.
- Hoekman B. and P. Low (1998), "State Trading and Access to Markets: Alternative Approaches to Rule Making for Entities with Exclusive Rights," in P. Mavroidis and T. Cottier (eds.), *State Trading in the Twenty-first Century*, Ann Arbor: University of Michigan Press.
- IATRC (1997), *Implementation of the Uruguay Round Agreement on Agriculture and Issues for the Next Round of Agricultural Negotiations*, Commissioned Paper No. 12 on Bringing Agriculture into the GATT, Department of Agricultural and Applied Economics, University of Minnesota, St. Paul MN, October.
- Ingco, M.D. (1995), 'Agricultural Trade Liberalization in the Uruguay Round: One Step Forward, One Step Back?' supplementary paper prepared for a World Bank Conference on *The Uruguay Round and the Developing Countries*, Washington, D.C., 26-27 January.
- Ingco, M.D. (1996), 'The Uruguay Round and the Least-Developed Low-Income Food-Deficit Countries', paper presented to the Inter-Agency Meeting of the World Food Situation and Net Food-Importing Countries, the World Bank, Washington, D.C., 18-19 December.

- Ingco, M.D. and F. Ng (1998), "Distortionary Effects of State Trading in Agriculture: Issues for the Next Round of Multilateral Trade Negotiations," Policy Research Working Paper 1915, World Bank, Washington, D.C..
- James, S. and K. Anderson (1998), 'On the Need for More Economic Assessment of Quarantine Policies', *Australian Journal of Agricultural and Resource Economics* 41(4): 525-44, December.
- Jensen, H.G., S.E. Fransen and C.F. Bach (1998), 'Agricultural and Economy-Wide Effects of European Enlargement: Modelling the Common Agricultural Policy', mimeo, University of Copenhagen, November.
- Johnson, D. G. (1973), *World Agriculture in Disarray*, New York: St. Martin's Press.
- Josling, T. (1998), 'The Uruguay Round Agreement on Agriculture: A Forward Looking Assessment', COM/AGR/CA/TD/WS(98)100, in Proceedings of the OECD Workshop on Emerging Trade Issues in Agriculture, Paris, 25-26 October, <http://www.oecd.org/agr/trade/>.
- Josling, T., S. Tangermann and T.K. Warley (1996), *Agriculture in the GATT*, London: Macmillan and New York: St. Martin's Press.
- Lindert, P.H. (1991), 'Historical Patterns of Agricultural Policy', in *Agriculture and the State: Growth, Employment and Poverty*, edited by C.P. Timmer, Ithaca: Cornell University Press.
- Mahe, L.P. and F. Ortalo-Magne (1998), 'International Co-operation in the Regulation of Food Quality and Safety Attributes', COM/AGR/CA/TD/TC/WS(98)102, in Proceedings of the OECD Workshop on Emerging Trade Issues in Agriculture, Paris, 25-26 October, published on the internet at <http://www.oecd.org/agr/trade/>.
- Roberts, D. (1998), 'Implementation of the WTO Agreement on the Application of Sanitary and Phytosanitary Measures: The First Two Years', Working Paper #98-4, Department of Applied Economics, University of Minnesota, May.
- Roberts, D, T. Josling and D. Orden (1999), 'A Framework for Analysing Technical Trade Barriers in Agricultural Markets', Technical Bulletin No. 1876, Washington, D.C.: US Department of Agriculture, March.
- Roberts, D. and K. DeRemer (1997), 'Overview of Foreign Technical Barriers to U.S. Agricultural Exports', ERS Staff Paper No. 9705, Washington, D.C.: U.S. Department of Agriculture, March.
- Skully, D. (1999), 'The Economics of TRQ Administration', IATRC Working Paper #99-6, St Paul: University of Minnesota, May.
- Snape, R.H. (1987), 'The Importance of Frontier Barriers', Ch. 15 in *Protection and Competition in International Trade: Essays in Honour of W. M. Corden*, edited by H. Kierzkowski, Oxford: Basil Blackwell.
- Tangermann, S. (1994), 'An Assessment of the Uruguay Round Agreement on Agriculture', paper prepared for the OECD's Agriculture Directorate, Paris.
- Tangermann, S. (1999), 'The European Union Perspective on Agricultural Trade Liberalization in the WTO', paper presented at the University of Guelph, February.
- Tracy, M. (1997) (ed.), *Agricultural Policy in the European Union and Other Market Economies*, Brussels: Agricultural Policy Studies in association with AGRA FOCUS.
- Tyers, R. and K. Anderson (1992), *Disarray in World Food Markets: A Quantitative Assessment*, Cambridge and New York: Cambridge University Press.

Table 1: Post-Uruguay Round tariffs (and agricultural production and export subsidies)^b, various country groups, 2005

(per cent)

<i>Region</i>	<i>Agriculture + food processing</i>	<i>Mining</i>	<i>Textiles and clothing</i>	<i>Other Manuf- actures</i>
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
<i>All OECD economies (1-4)</i>	<i>36 (1, 7)</i>	<i>1</i>	<i>14</i>	<i>6</i>
<i>All developing economies (5-10)</i>	<i>20 (-2, -2)</i>	<i>6</i>	<i>12</i>	<i>11</i>
<i>ALL ECONOMIES^a (1-12)</i>	<i>29 (0, 3)</i>	<i>2</i>	<i>14</i>	<i>8</i>

^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 are shown in parentheses in column 1.

Source: Anderson, Hoekman and Strutt (1999), drawing from the GTAP data base.

Table 2: Sectoral shares of GDP, post-Uruguay Round in 2005, of private household consumption in 1995, and of trade in 1997
(per cent)

	<i>Agriculture + food processing</i>	<i>Minerals and fuels</i>	<i>Textiles and clothing</i>	<i>Other Manufactures</i>	Services
<u>SECTORAL SHARES OF REGIONAL GDP:</u>					
<i>All OECD economies</i>	5	3	0.8	19	72
<i>All developing economies</i>	19	9	4.4	16	52
<i>ALL ECONOMIES^a</i>	8	4	1.5	18	68
<u>REGIONAL & SECTORAL SHARES OF GLOBAL GDP:</u>					
<i>All OECD economies</i>	4	2	0.6	15	58
<i>All developing economies</i>	3	1	0.7	3	8
<i>ALL ECONOMIES^a</i>	8	4	1.5	18	68
<u>SECTORAL SHARES OF REGIONAL HOUSEHOLD CONSUMPTION</u>					
<i>All OECD economies</i>	11	0	^b	18	71
<i>All developing economies</i>	30	1	^b	24	45
<u>SECTORAL SHARES OF WORLD TRADE:</u>	9	9	5	57	20

^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.

^b Included with 'Other Manufactures'.

Source: Anderson, Hoekman and Strutt (1999) and Hertel and Martin (1999), calculated using the GTAP model.

Table 3: 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	<i>Agriculture + food processing (per cent)</i>	<i>Textiles and clothing (per cent)</i>	<i>Other Manufactures (per cent)</i>	Contribution from removing distortions in all goods markets of OECD economies (sum of columns 1-3) (per cent)	Con rem in a of d eco
All OECD economies	29 (-50)	-3 (192)	42 (6)	68 (-37)	
All developing economies	44 (97)	21 (84)	-23 (76)	42 (75)	
ALL ECONOMIES^a	32	3	27	62	

^a Includes 'Former Soviet Union and Central Europe' and 'Rest of the World', hence is not just 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.

Source: Anderson, Hoekman and Strutt (1999), using the GTAP model.