

Agriculture's 'multifunctionality' and the WTO[†]

Kym Anderson*

Are the agricultural policy reforms embodied in the Uruguay Round consistent with meeting domestic policy objectives such as providing adequate food security, environmental protection and viability of rural areas? This article examines the claim that agriculture deserves more price support and import protection than other sectors because of the non-marketed externalities and public goods it produces jointly with marketable food and fibre (agriculture's so-called 'multifunctionality'). Do these unrewarded positive externalities exceed the negative externalities from farming by more than the net positive externalities produced by other sectors? To what extent are those farmer-produced spillovers under-supplied, and what are the most efficient ways to boost their production to the socially optimal levels? The article concludes that there is little trade-off required to meet domestic policy objectives on the one hand and agricultural protection reform objectives as embodied in WTO rules on the other.

1. Introduction

A major achievement of the Uruguay Round was to begin to bring more rules-based GATT discipline to agricultural trade and trade-related policies. The Round's Agreement on Agriculture (URAA) requires all (other than quarantine) non-tariff barriers to agricultural imports to be eliminated (and replaced by bound tariffs or ceiling bindings and in some cases tariff rate quotas); for bound tariffs to be scheduled for phased reductions; and for farm production subsidies ('domestic support') and export subsidies also to be reduced. Industrial countries are implementing those reforms between 1995 and 2000, while developing countries have until 2004. That URAA, together with the Agreement on Sanitary and Phytosanitary Measures (to limit the use of quarantine import restrictions to cases that can be justified scientifically), the new policy notification and review requirements, and the

[†] An earlier version of this article was originally prepared for an OECD Workshop on Emerging Trade Issues in Agriculture, jointly organised by the Agriculture and Trade Committees, OECD Secretariat, Paris, 26–27 October 1998. Thanks are due to Tim Josling and Jostein Lindland for helpful comments and to the OECD for financial support. The views expressed are the author's alone and not necessarily those of the OECD or any of its Member Governments.

* Kym Anderson, CEPR, School of Economics and Centre for International Economic Studies, University of Adelaide, Adelaide SA 5005, Australia.

Dispute Settlement Understanding (which has greatly improved the process of resolving trade conflicts), ensure that agricultural trade will be less chaotic in future than prior to the transformation in 1995 of the GATT into the new World Trade Organization (WTO).

Path-breaking though these Uruguay Round achievements have been, much remains to be done before international agricultural trade is as fully disciplined or as free as world trade in manufactures. It is true that the rate of producer assistance derived from agricultural policies in OECD countries fell in the middle half of the 1990s. However, in 1997 it still added about 50 per cent to what would otherwise be the value of farm production, and the consumer tax equivalent on farm products is about 35 per cent.¹ Since then, support levels have risen further as international food prices fell in the wake of East Asia's financial crisis. The rate of assistance to agriculture remains many times higher than that for manufacturing, as the average OECD tariff on manufactures is now less than 5 per cent. Because of this huge difference in the rates of protection between the two sectors and the modesty of the URAA reforms, it was agreed as part of the URAA to return to the multilateral trade negotiating table by the end of 1999, preparatory work for which began in 1997.

One item that has gathered considerable attention in some OECD countries, as they move into the next round of WTO negotiations on agriculture, has to do with the term 'non-trade concerns'.² The term appears in Article 20(c) of the URAA, where WTO members have agreed that, in negotiating the continuation of the agricultural policy reform process after 1999, 'non-trade concerns' will be taken into account. While not spelt out in any detail, the preamble to the URAA defines those concerns to include security of food supplies and protection of the environment. A third concern, the viability of rural areas, has also been mentioned by Norway in the past

¹ The nominal rate of assistance (NRA) can be calculated from the OECD's estimate of the producer subsidy equivalent (PSE) where $NRA = 1/(1 - PSE) - 1$. Likewise the consumer tax equivalent (CTE) can be calculated from the OECD's consumer subsidy equivalent (CSE) where $CTE = -CSE/(1 - PSE)$. Based on the PSEs estimated by the OECD (1998c), the average NRA for the OECD has fallen from 64 to 52 per cent over the decade to 1997, while the CTE has fallen from 51 to 35 per cent. About three-fifths of the NRA came from direct market price support via trade instruments in 1997, down from four-fifths a decade earlier.

² See, for example, the Chairman's report from the September 1998 analysis and information exchange meeting of the WTO's Committee of Agriculture (WTO 1998), which cites informal papers on this issue that were provided by no less than nine countries. Submissions to the WTO Committee on Trade and Environment (e.g., Norwegian Government 1999) also are relevant. Since then, the OECD's Committee for Agriculture and its Trade Committee considered a series of four comprehensive background papers on the issue (OECD 2000).

and was repeated in the Communiqué of the OECD Agriculture Ministers following their meeting in Paris, 5–6 March 1998.³ The governments discussing these three items are characterising them as providing positive externalities and in some cases public goods that are jointly produced along with food and fibre.⁴ Hence the word 'multifunctionality' has been coined to describe these features of agricultural production.

This article seeks to address three questions raised by these concerns. First, to what extent are the agricultural policy reforms embodied in the URAA consistent with meeting domestic policy objectives such as providing adequate degrees of food security, environmental protection and viability of rural areas; second, if and where the URAA reforms are countering those goals, what domestic policy actions and/or WTO rules changes are appropriate; and third, how might any such changes compromise the objective of reducing interventions in world food markets?

In the process of addressing these questions, the article examines the claim that agriculture deserves more price support and/or import protection than other sectors because of the non-marketed externalities/public goods it produces jointly in the process of producing marketable food and fibre. Do these unrewarded positive externalities exceed the negative externalities from farming by more than the net positive externalities produced by other sectors? If so, to what extent if any are those farmer-produced externalities under-supplied? And where there is under-provision, what are the most efficient ways to boost their production to the socially optimal levels?

The article begins by asking why 'non-trade' concerns are being raised in the WTO forum at this time. The next section then addresses 'non-trade concerns' in general, before attention is turned to each of the three specific concerns mentioned above.⁵ The article finishes with a summary of its conclusions. Throughout, the agricultural reforms being referred to include not

³ The Communiqué states, among other things, that: 'Beyond its primary function of supplying food and fibre, agricultural activity can also shape the landscape, provide environmental benefits such as land conservation, the sustainable management of renewable natural resources and the preservation of bio-diversity, and contribute to the viability of many rural areas.'

⁴ A positive externality is a non-marketed net benefit that farmers bestow on the rest of society. A negative externality is defined in a similar but opposite way. A public good (or service) is one which, when produced, provides benefits that involve non-excludability (that is, one cannot stop a person enjoying it) and non-rivalry (that is, its enjoyment by one person need not detract from another's enjoyment of that good or service).

⁵ Other concerns also have been raised from time to time by individual countries but, for the sake of brevity and because they worry fewer countries, they will be ignored in this article.

just import liberalisation but also cutbacks in export subsidies and in various forms of domestic support as in the URAA which, collectively, are lowering government support for farm production in protective OECD countries.

2. Why are 'non-trade' concerns being raised in the WTO at this time?

It is not surprising that the WTO is being confronted with these agricultural 'non-trade' concerns. They are, after all, simply a subset of domestic policy issues that are interfacing increasingly with international policies as the globalisation of the world economy proceeds. The very success of the GATT/WTO in reducing traditional barriers to trade, together with falling costs of transport and communications between countries (themselves partly induced by policy reforms), have raised the relative importance of domestic economic and social policies in determining the international competitiveness of different industries. Because the gradual outlawing of traditional trade measures is encouraging interest groups to seek government assistance by other (usually domestic) policy measures, the WTO is having to focus increasingly on at least the more trade-related of those domestic measures. Environmental standards and competition policy are but two recent examples. To ensure consistency across sectors, the latter domestic trade-related policy issues are best dealt with by the WTO in a general rather than in a sector-specific way. This is true also for the 'non-trade' concerns raised in this article with respect to agriculture, not least because similar issues arise to varying extents in other sectors too.

3. Some general points on agriculture's multifunctionality

The current debate over so-called 'non-trade concerns' is similar to the debate early in the Uruguay Round about so-called 'non-economic objectives' of agricultural policy.⁶ As in that earlier debate, no one is denying that national governments have the sovereign right to determine their own policy objectives or goals. Nor is it denied that there may be numerous goals that agricultural policies seek to achieve over and above the production of

⁶ The adjective 'so-called' is used because the concerns are in fact trade-related and they definitely have economic content. That earlier debate led to a thorough analysis of the issue by the OECD in the late 1980s, one outcome being a detailed paper by Winters (1990). The standard economic theory underlying the analysis of policies aimed at maximising social welfare in the presence of market failures such as externalities and public goods is covered in a 1974 book by Max Corden. That seminal book has recently been revised and updated to include, among other things, a full chapter on environment and trade policy (Corden 1997). Those studies in turn built on the pioneering work of Pigou (1932) and Meade (1955). What follows draws directly on that mainstream literature.

marketable food and fibre. The debate is rather about the means by which governments strive to achieve their goals, bearing in mind governments' international rights and obligations and possible market failures due to externalities and public goods associated with the production and consumption of agricultural and other goods and services.

3.1 What lessons can be drawn from policy theory and practice?

Both economic theory and policy practice have taught us at least six lessons of relevance to the present article. First, where there are several policy objectives, an equal number of policy instruments typically is required to deal efficiently with them. Second, the most efficient/lowest cost policy instrument or measure for achieving a particular objective (such as overcoming a market failure) will be that which addresses the concern most directly. Third, trade measures in particular are rarely the most efficient instruments for addressing 'non-trade' concerns. Fourth, trade reform will be welfare-improving so long as optimal domestic interventions are in place to deal with those 'non-trade' concerns and are appropriately adjusted to remain optimal as trade reform proceeds (Meade 1955; Corden 1997). Fifth, the extent of achievement of so-called non-economic objectives may not be as great with as without trade reform, but that is the nature of optimal trade-offs aimed at maximising national economic welfare. And sixth, whenever governments intervene in a market, even if it is to overcome a market failure, there is the risk of government failure — and that could be more welfare-reducing than the market failure the intervention is trying to offset. Government failure could occur at the bureaucratic and/or political level: it could result simply from there being insufficient information and analysis available to design an appropriate intervention (bureaucratic failure); or it could result from deliberate action at the political level aimed at rewarding particular groups covertly for their political support, even though that intervention may be costly to the community at large (Stigler 1975).

Why should governments be concerned about striving for the most efficient way of achieving society's policy objectives? Simply because resources are required to achieve those objectives. Hence the fewer resources used to achieve one goal, the more there will be available for achieving others and/or for preserving resources for future generations.

3.2 Do farmers make more of a non-marketed contribution to social welfare than other producers?

Every productive sector generates both marketed and non-marketed products. Some of those non-marketed products are considered more

desirable than others, and some are considered undesirable. Since tastes and preferences change over time and differ between countries, so too do societies' valuations of those non-marketed products. And as technologies, institutions, policy experiences and market sizes and structures change in the process of development, so will the scope for being able to market some of those previously unmarketable products that were jointly produced with each sector's main products.

For a case to be made that farming should receive more assistance from government than other sectors, it needs to be demonstrated that agricultural production not only is a *net* contributor in terms of externalities and public goods, but also is *more* of a net contributor than other sectors and especially the sectors that would expand if agricultural supports were to shrink. Demonstrating that is an almost impossible task, given the difficulties in obtaining estimates of society's ever-changing (a) evaluation of the myriad externalities and public goods generated by the economy's various sectors (the demand curve); and (b) marginal costs of their provision (the supply curve). Hence the practice by governments of intervening only in the most obvious situations where a correction is required.

3.3 Where a net non-marketed contribution is considered valuable enough to intervene, what are the most appropriate form and level of reward?

Even if a clear case could be made for an intervention, the appropriate measure is unlikely to be import restrictions or output price supports for a broad range of marketed commodities. Rather, it will be a finely tuned measure to encourage the optimal extra amount of just the public-good or external aspect that has been under-supplied (or would be under *laissez-faire*). This fine-tuning of policy instruments by a government is analogous to the fine-tuning of musical instruments by an orchestra or the sharpening of surgical instruments by a doctor: the more precisely it is done, the better will be the final outcome.

The policy task thus involves several steps: to get a sense of society's willingness to pay for the non-marketable by-product; to determine the most efficient policy instrument for encouraging farmers or others to supply that by-product for society; and then to determine the optimal level of encouragement so as to equate the marginal social benefit with the marginal social cost of that intervention, bearing in mind the risks associated with one or both forms of government failure identified above and the country's international obligations.

On the latter, nullification or impairment of trade concessions under the WTO is an obvious possibility when trade-restrictive instruments are used to achieve non-trade objectives. It is a less obvious but still very real possibility

when domestic support measures are used, in so far as those measures encourage output and hence dampen net imports of a product. The question for WTO members is: to what extent are such domestic measures to be tolerated?

With these general points in mind, attention now turns to examining the three specific 'non-trade' concerns most commonly raised by some of the more-protective OECD countries: food security, environmental protection, and the viability of rural areas.⁷

4. Food security

4.1 Isn't food security a consumer issue?

Food security typically refers to a country's capacity to ensure that everyone always has access to the minimum supply of basic food necessary for survival. That requires no more than a certain minimum level of income and savings for all households plus a well-functioning market for staple foods (and for credit). Agricultural policy measures have virtually no role in determining the income of the 90+ per cent of households that are net buyers of food in advanced industrial economies, apart from the usually negative one of requiring them to pay higher taxes to fund agricultural subsidies.

The role of OECD agricultural policies in determining non-farm households' capacity to spend that income on food typically also has been a negative one, in that agricultural policies tend to keep consumer prices of food above what they would otherwise be, via import restrictions and export subsidies. On average in OECD countries, consumers have been paying at least one-third more for their food than they would in the absence of those countries' agricultural policies (OECD 1998c).

What about the stability of consumer prices? Sometimes a dependence on food imports is considered undesirable because it could destabilise domestic food prices or quantities. With respect to prices, for example, when a country opens up to imports by moving to *ad valorem* tariffs or free trade, it will then transmit fluctuations in international food prices to the domestic market. Whether those fluctuations are greater under freer trade depends in part on other countries' insulating policies: the larger the number of countries insulating their domestic markets, the greater are international price fluctuations. By so making the international market thinner and more volatile, such policies encourage other countries to follow suit.

⁷ For a more detailed description of these and other multifunctional contributions from agriculture, see OECD (2000).

The solution to that cycle of beggar-thy-neighbour policy-making is to agree collectively to desist — which is what the URAA sought to achieve. True, the URAA will not have much of a stabilising impact this decade. This is because, even though tariffication has been achieved, the levels at which tariffs have been bound are in many cases well above applied tariffs (Ingco 1995), and many of those tariffs are specific rather than *ad valorem*. That ‘dirty’ tariffication will allow a developed country to vary its applied tariffs to achieve domestic price stability (at the expense of exacerbating international price stability) to the extent of the gap between the bound and applied rates. Over time, however, as bound rates (or ceiling bindings in the case of developing countries) are lowered and tariff rate quotas expand so as gradually to become redundant, the scope for such insulation will diminish.⁸

With respect to quantity fluctuations, one concern seems to be that with seasonal fluctuations there might be shortfalls so that rice, for example, simply cannot be purchased internationally until the next harvest. Such situations are very rare in practice, and would be even rarer if (a) more importing countries relied on international markets on a regular basis instead of only when they have a domestic crop failure; and (b) exporters refrained from using the exceptions to GATT Article XI.1 which prohibits export restrictions other than taxes. One exception is in GATT Article XI.2(a), which permits temporary quantitative export restrictions to relieve critical food shortages in an exporting country. But the URAA’s Article 12 added some discipline to that provision. Specifically, it requires that due consideration be given to the effects of such a restriction on WTO members who are food importers, that such affected members be consulted, and that the WTO be notified of the nature and duration of the restriction. Perhaps even more discipline could be added in the next WTO round. Certainly, if it were shown that longer-term customers were being served first and charged less in years of shortfall, agricultural exporting countries could be disciplined under GATT Article XIII.1 and required to provide non-discriminatory access to their basic foodstuffs. They would be more willing

⁸ Farmers may then face wider income fluctuations, either because a poor season would be less likely to coincide with higher domestic prices in the absence of insulation, or because international prices could be less predictable than protected domestic ones. However, crop insurance markets are available to cope with the former, and forward contract markets for commodities and currencies are designed to deal with the latter concern of risk-averse growers. Markets for storing food also can contribute. If some of those markets are poorly developed (e.g., because they have been crowded out by past price stabilising schemes), the first-best government action would be to assist their development (e.g., by abolishing any remaining so-called price stabilising schemes).

to comply if the more protectionist countries were willing to lower their farm price supports.

What about the risk that quantities of imported food available for consumption may fall dramatically because of war? (GATT Article XXI provides a national security exception to permit export embargoes in times of war or other emergencies in international relations.) Countries concerned about that risk can reduce it by choosing to have a diversified portfolio of foreign suppliers. The probability of *all* suppliers placing an embargo simultaneously, as in a major war, not only is very low but also is inversely related to the degree of openness. That is, the more economically interdependent the nations of the world become, the higher the opportunity cost and hence the smaller the likelihood of them going to war. This is a major, if often understated, international public good provided by the GATT/WTO, to which agricultural trade is at last beginning to contribute thanks to the URAA.

Even in the most catastrophic of cases where a country had to rely on just domestic suppliers for a period, there is substantial scope to survive. Most people in OECD countries consume far more calories and nutrients than are necessary for mere survival. Diets could be adjusted to avoid excessive caloric shortfalls, for example by preparing food differently (in particular, relying less on refined and processed food), by eating a greater proportion of each animal slaughtered, and by consuming grains and oilseeds directly rather than indirectly via animal products. Doing that for a short period of war would be far less welfare-reducing than forcing consumers to pay higher prices forever just in case there is another world war.

4.2 Don't domestic farmers contribute to food security?

Domestic farmers typically are the major suppliers of food in their country, so of course they contribute to food security in that sense. In the most catastrophic of cases where a country had to rely on just domestic suppliers for a period, farmers would contribute even more, for example by transferring some of their resources from livestock to crop production. But in an extreme embargo situation fuel and chemical imports also would halt, so overall domestic food production could shrink significantly given the role of such products in providing energy, fertiliser and pesticide inputs for agriculture. Even the skills of the farmers, having used input-intensive techniques for decades, would be debased in such an input-deprived environment. Thus national food self-sufficiency in output terms is by no means synonymous with food security. On the contrary, in some cases it could be described more accurately as an illusion, offering a false or at least exaggerated sense of security.

4.3 How best to obtain the optimal level of food security?

There is an extensive literature on means by which to provide food security.⁹ If a society were to feel food-insecure under *laissez-faire*, bearing in mind the above considerations, then it is necessary to get a sense of its willingness to pay for more security by various means, and the costs of those insurance measures. One such measure involves encouraging the holding of food stocks above those that would be commercially viable — a public good that is explicitly allowed for in paragraph 3 of Annex 2 of the URAA (the so-called ‘Green Box’ items that are exempt for the purpose of calculating the aggregate measure of domestic support to agriculture). The optimal level of encouragement is that which boosts stocks so that the marginal social benefit in terms of food security equals the marginal social cost of that intervention. Costs are non-trivial, however: storage and interest costs and the costs of spoilage and quality deterioration can amount to more than 20 per cent a year. The cost part of the calculation also would need to include the risk of government failure. If greater domestic production capability was considered by society to be one of the desirable means of boosting food security, subsidies to agricultural research and training may well be far less costly than farm product price supports (an outward shift rather than a movement along the supply curve). This is especially so if import restrictions rather than direct payments are the means by which prices are supported, since import restrictions not only support producer prices but also raise consumer prices.¹⁰ If society were to invest in more than one means of boosting food security, finding the optimal levels of those respective interventions would involve adjusting them until the marginal net social rates of return from each are equated.

⁹ See, for example, the surveys in Chisholm and Tyers (1982) and Peng, Findlay and Stringer (1997).

¹⁰ If for some reason the government was only able to use an import restriction, or felt it had to use one in addition to boosting research, the level of intervention would have to be less than if a farmer or research producer subsidy was used. This is because the by-product distortion cost to consumers from the import restriction would have to be traded off against the perceived social gain from encouraging more domestic production. Calculating that optimal second-best level of intervention is non-trivial. It varies by commodity because, among other things, it will be lower the larger the commodity’s price elasticity of demand, the smaller its price elasticity of supply, the smaller the level of self-sufficiency would be under free trade, and the smaller the net positive externality provided by producing that commodity (Britten-Jones, Nettle and Anderson 1987). If society used the self-sufficiency ratio as a metric of strategic food security, with the aim of reducing import dependence, an import tariff alone is not optimal; rather, there should be a producer subsidy as well as an import tariff (Nettle, Britten-Jones and Anderson 1997).

5. Environmental protection

Agriculture inevitably interacts in major ways with the natural environment. Both agricultural and environmental policies directly affect that interaction, as do trade and other economic policies and policy reforms (OECD 1998d). Since support to producer prices fell considerably over the ten years from 1988 to 1997, from 51 to 32 per cent on average in PSE terms in the OECD (or from 64 to 52 per cent when expressed as a nominal rate of producer assistance — see footnote 1), some countries began questioning whether further cuts are warranted because that might lead to under-provision of positive environmental externalities from farming.

Leaving aside the fact that PSEs have risen in the late 1990s, what are those positive environmental externalities from farming? To what extent are they joint products with farm outputs as distinct from being separable from agricultural production *per se*? What about agriculture's negative environmental externalities? What combination of policy measures would provide society with the optimal amounts of not only marketed farm products but also non-marketed environmental externalities?

5.1 Positive environmental externalities from farming

People raising 'non-trade' concerns with respect to agriculture and the environment acknowledge the fact that agriculture can be pollutive, but they also argue that agriculture can contribute simultaneously in positive ways to the environment (OECD 1997). They have in mind rural landscape and biodiversity issues especially.

With respect to landscape, it is argued that society gets aesthetic pleasure from seeing farmers continue to produce food and fibre domestically, reminding them of part of their cultural heritage. Would that pleasure be any less in the absence of price supports? The area farmed may decline somewhat if farm prices fell (although by much less than the numbers of farms and farmers); and a different mix of farm products may be marketed as relative prices within agriculture change. But it is not possible to predict whether the new uses for that land (for different farm activities, or for golf courses, recreation parks and the like) would be any less aesthetically pleasing than the current uses. Hence while there may be opinion surveys showing that urban people enjoy the current rural landscape, that does not rule out the possibility that those people would enjoy the public good provided by the alternative landscape even more.

If a particular landscape such as alpine pastures or stone walls have been clearly identified by society as something it is especially willing to pay to have preserved in a particular area, the question arises as to whether the

market will provide that. If enough people wanted to enjoy such scenery at close quarters, tourist facilities might be built on such farms to cater for them. That is despite the fact that scenery typically has the feature of a public good. Can a case then be made for the government paying individuals in that area to provide more of that public good in specific ways? If so, should only farmers, or anyone, be eligible to be paid for providing that public good?

In the case of alpine pastures, it may be decided that payments must be restricted to farmers because people want not only manicured pastures but also cows on those pastures rather than just native animals (although that conflicts with the objective of supporting wildlife habitats). In that case, what form and level of payment is appropriate? Supporting the price of milk or meat is not an efficient means of achieving that objective, not least because it encourages greater use of *all* inputs in *all* grazing areas rather than just a particular type of pasture management in a particular area identified for preservation.¹¹ Indeed output price-support subsidies may well be counter-productive: rational farmers if unconstrained would seek to make the most of the price support by increasing stocking rates, which may ultimately degrade rather than enhance the landscape. To avoid that would require yet another intervention, namely tying price support to a restriction on stocking rates per hectare. That would open up further scope for government failure, not least in trying to identify the optimal stocking rate for each geographic area from society's (as distinct from just the farmer's) viewpoint. Such a scheme's main beneficiaries would be employees in the bureaucracy.

With respect to biodiversity, the argument is sometimes made that cuts in farm price supports would lead to larger, more-specialised farms that would tend to use a narrower range of plant species. There may be instances where this is so, but equally there are cases where that has happened when price supports have *increased* for certain products (as, for example, in the United Kingdom after it joined the EEC in the early 1970s when farmers received higher cereal prices under the CAP). Even if habitats were in danger of being degraded as farmers adjusted to cuts in price supports, it needs to be recognised that land would become cheaper and after-tax real income of non-farm households would be greater following those cuts. Thus society would be more able to afford to provide purpose-built or restored habitats for endangered species. Only if there were no cheaper way to provide such habitats would it be appropriate to keep funding farm activities for that

¹¹ Again, if import restrictions rather than direct producer subsidies were to be used to support product prices, a lower level of intervention would be required for the reasons given in footnote 10.

ecological purpose — and even then not necessarily at current levels for each activity.

Decoupling support will almost certainly lead to a more successful outcome at lower cost in terms of achieving society's specific policy objectives. An example is paying a farmer to maintain a hedgerow, in place of supporting the price of the crop grown on the adjacent land. The former increases the probability that the farmer will continue to look after the hedge; whereas the latter, through boosting the price of land, is more likely to lead to the hedge being uprooted to provide more arable land, as happened in the United Kingdom in the 1970s.

5.2 Negative environmental externalities from farming

Agricultural production in OECD countries generates a large number of negative environmental externalities in the form of noise, air, soil, surface water, and groundwater pollution. Those types of pollution — and food safety risks — tend to be greater the greater the intensity of inputs such as fertiliser, pesticides and shedding for livestock. That intensity of land-saving input use in turn is highly correlated with the price of farm land, which is higher the more densely populated a country and the higher its supports for agricultural product prices. It happens that countries with the highest level of agricultural price supports tend to have the least arable land per capita and hence a strong comparative disadvantage in agriculture (Tyers and Anderson 1992, p. 77). Hence we observe chemical applications in countries such as Switzerland that are more than ten times that of countries such as Argentina and Australia per hectare of farmland. The cutting of agricultural protection and other forms of price support agreed to in the Uruguay Round therefore may well be consistent with improving the rural environment. This is so despite the response to those protection cuts in the form of farm production expansion in less-protected countries, because most of the expansion is occurring in countries that are using far less intensive farming methods (Anderson 1992; OECD 1998a).

Whether the domestic resources freed following a cut in farm price supports are used in ways that are more pollutive (e.g. in urban industries, with a concomitant increase in urban congestion) is an empirical question. However, even if they were to move to more-pollutive industries, that could be dealt with by having optimal urban environmental policies in place and adjusting them as circumstances change. Likewise, if the expansion of farming in less-protected countries following Uruguay Round implementation were to add to environmental damage in the rural areas of those countries, that too could be dealt with best by their appropriate environmental policy actions. This is a particular case of the general proposition that

trade liberalisation will be welfare-improving so long as optimal environmental policies are in place to address the externalities (Anderson and Blackhurst 1992).

5.3 Subsidies on farm inputs add to environmental degradation

Exacerbating the adverse environmental effects of output price support policies in some countries have been input price subsidies. It is true that in recent years OECD governments have been dismantling many of the subsidies to farm purchases of pollutive farm inputs such as fertilisers and pesticides (OECD 1998b, pp. 32–3). Some significant ones remain, however, including implicitly for irrigation water in the form of its under-pricing.

Replacing those subsidies with environmental taxes, charges (as with water used for irrigation) or other ways of internalising the negative externalities associated with their use is clearly desirable on environmental grounds. That would be consistent with the polluter pays principle, and fully GATT/WTO-legal. The level of those taxes/charges would need to be higher the higher a country's farm product price supports, other things equal. This is because the latter is equivalent to a subsidy for the use of all farm inputs, including the pollutive ones. That additional penalty tax/charge on input use could then be lowered as and when the level of output price support falls.

The URAA's 'green box' currently allows governments not to have to count, as part of their Aggregate Measure of Support, payments to farmers under environmental programs, including payments made to cover the cost or loss of income associated with complying with government environmental programs (paragraph 12 of the URAA's Annex 2). This is an area where more precision in the WTO rules might be desirable. Specifically, should the exempting of such payments when calculating the AMS be confined to practices where farmers are contributing positive environmental externalities in the course of producing food? Presumably governments have less incentive to adopt the polluter pays principle (PPP) in the agricultural sector now that the URAA allows the exemption of payments — which have become widespread in the EU (see OECD 1998b, pp. 34–6) — for adopting less-pollutive farming practices so as to reduce negative environmental externalities. An advantage of the PPP is that it is much simpler administratively: it avoids the compliance monitoring required of programs in which payments to farmers are contingent upon meeting specific reductions in environmental damage. If the PPP is seen as too harsh an imposition on farmers already hurt by cuts in price supports, an alternative or additional government initiative — taken by numerous OECD countries in recent years — involves promoting voluntary community based co-operative schemes for learning more about the environmental effects of alternative farming methods.

5.4 Is the risk of pest importation a reason to support farm prices?

A related ecological issue has to do with the risk of importing food that carries undesired exotic pests and diseases that could harm plants or animals. Since this has been an issue throughout the several millennia in which food has been traded internationally, ways to monitor and regulate that trade have been developed. Through the Sanitary and Phytosanitary Agreement, the WTO recognises the importance of maintaining those checks where they are scientifically justified.¹² So long as the restrictiveness of the quarantine regime is sufficient (many would say it is often excessively restrictive),¹³ this concern has been dealt with and, incidentally, provides domestic farmers with protection from import competition. It would thus be 'double counting' to claim this issue as a reason to further support farm product prices.

6. Viability of rural areas

Agriculture is a declining sector in relative terms in virtually all growing economies. In that respect farms are similar to textiles and clothing factories, blacksmith shops, small corner stores, and myriad other productive enterprises whose number tends to grow only slowly or even fall as a result of changes in consumer spending, the adoption of labour-saving technologies, and the exploiting of economies of scale as wages, incomes and expenditure grow. Since so many sectors are adversely affected by economic growth, general rather than sector-specific safety nets and adjustment assistance packages are the most efficient and equitable ways to compensate potential losers from economic development. Typically adjustment assistance would involve a sizeable element of support for re-training.

Adjustments that cause the rural community to shrink, including those due to agricultural policy reform, worry some societies, however (OECD 1998a). This is not only because such adjustments reduce social cohesion and employment in rural areas. It may be also because rural villages hold some nostalgic attraction for urban dwellers who may wish to visit the countryside from time to time. Or it may be that depopulation of remote areas causes a sense of military insecurity. What policy actions are appropriate in these circumstances? And how do they impact on the rural communities of other countries?

¹² Our scientific knowledge and capacity to assess those risks have never been better than now. Even so, there is much room for improvement and many continue to question the evidence that is brought to bear on cases.

¹³ For example, it may be more cost-effective to subsidise pre-shipment inspection, or research and development to cope with an imported pest, than to prevent its importation by restricting imports of the product that may carry it (James and Anderson 1998).

6.1 Is agriculture the only (or even main) economic activity in rural areas?

Certainly, farming is located in rural areas, but rural economies are not necessarily dominated by agriculture. In some (especially densely populated) OECD countries, many of their rural areas are near urban areas and/or are fortunate to have numerous non-farm economic activities. The prevalence of part-time farming and the large share of farm household income earned off the farm are testimony to the widespread existence of off-farm job opportunities. This is especially true in Japan where less than one-fifth of farm household income is earned from farming, but that proportion is less than one-half in numerous other OECD countries as well (OECD 1995). Thus general price supports for agricultural production could be a quite inefficient way to boost the relatively small proportion of left-behind regions.

If greater employment in poor rural areas is a policy objective, that goal can be met more efficiently by subsidising *all* rural employment in those few poor locations than by subsidising just farm employment (and simultaneously all other farm inputs) in *all* locations via farm output price supports. Those other employment opportunities, which might be in other primary sectors such as mining, or in manufacturing or service activities, may even be more numerous than farm jobs in those rural areas.

6.2 Are targeted supports for essential services in remote areas an option?

There may be communities in some of the more remote rural areas of less-densely populated countries, from where commuting to part-time off-farm jobs is not feasible, whose survival is at risk following a cut in farm price supports. A few areas may eventually be so de-populated that basic service industries are no longer financially viable. Protecting farmers from general price support cuts so as to reduce that prospect of implosion in just a few areas is not a very efficient way to address this concern though. If the local medical clinic and post office are all that are under threat to close in a particular town, subsidies to them alone may be all that is necessary (but even that possibility introduces moral hazard problems). Some targeted subsidies to address the issue of declining service provision in remote areas are WTO-consistent under the 'green box' of the URAA (paragraph 2(g) of Annex 2) and the WTO's Agreement on Subsidies and Countervailing Measures (Article 8.2(b)).

6.3 Regional supports in some countries can harm rural areas of other countries

Protecting farmers via price supports so as to slow the demise of rural areas in one set of countries simply ensures, through its effect in depressing

international food prices, that rural areas of other countries decline even faster. As with price-insulating policies, this can cause support programs in more and more countries to spiral upwards in beggar-thy-neighbour fashion, something that is self-defeating. Does that not suggest a collective international solution is required, namely, to not include this among the reasons to provide domestic support or import protection to farmers?

6.4 How best to obtain the optimal degree of support for rural areas?

As with the other two 'non-trade' concerns discussed above, an assessment is needed of the extent of the willingness of society to pay for the preservation of some rural areas that otherwise might implode, and of the costs of providing that preservation by various means, before the optimal assistance package can be designed. But that package almost certainly would not include the very blunt instrument of general support to prices of farm products regardless of where in the country those goods are produced.

7. Conclusion

So-called 'non-trade' concerns are becoming an issue in the WTO in numerous areas, not just with respect to agriculture. They are a direct consequence of the lowering or outlawing of trade distortions: with less natural and governmental protection from import competition and less export subsidies, domestic policies are becoming relatively more important as determinants of the international competitiveness of certain industries. Despite their 'non-trade' adjective, these concerns need to be dealt with in the WTO because they certainly can affect trade. Ideally they should be handled in the same way for all sectors (for example, under an expanded Agreement on Subsidies and Countervailing Measures), but until that is done they cannot be ignored in the up-coming agricultural negotiations that formally got under way in March 2000.

These concerns are not really new, but they are being packaged a little differently than in the past. A key question at stake is: do they require exceptional treatment or are WTO provisions sufficient to cater for them, for example via the URAA's 'green box'? The short answer based on the above analysis appears to be that WTO provisions are adequate for dealing with the main cases raised.

Some of the more specific conclusions from this brief review are worth stressing. First, several policy instruments will be necessary to address the numerous policy objectives encompassed in the 'non-trade' concerns efficiently (which means directly and precisely). General agricultural price support programs are not among the efficient measures. This is true even of

direct domestic supports, let alone indirect supports via import barriers or export subsidies (which also distort consumer prices), because — to use the surgical analogy — they are far too blunt to efficiently achieve the specific objectives involved.

With respect to food security, much more efficient policy instruments than import barriers for boosting it above that provided under free markets are subsidies to stockholding of staple foods. That is already allowed for in Annex 2 of the URAA. Import restrictions to boost self-sufficiency, far from helping, may even diminish food security for vulnerable groups struggling to pay the high price of protected domestic food. And once bound tariffs are lowered to applied rates so that there is no longer scope to raise applied rates when international prices fall, greater stability in international food markets will prevail which will boost that dimension of food security in all parts of the world.

Environmental protection has many facets and so requires a range of policy instruments. Reducing farm output price supports, as under the URAA, probably provides the single biggest potential contribution to the rural environment in agricultural-protectionist OECD countries, through lowering the level and intensity of farm production. While those supports are still in the process of being phased down, there should be additional taxes, charges or other regulations on pollution from farm inputs to ensure any extra damage caused by their encouragement via output price supports is appropriately dealt with. Such taxes are of course permitted under WTO rules. In so far as agriculture provides positive externalities or public goods, appropriate policies are de-coupled payments for their specific provision to the optimal level in each location (assuming that optimal level is above the level that would otherwise prevail, bearing in mind the marginal social cost of further provision). Since most of those goods can be provided independently of farming *per se*, de-coupling is not only possible but also desirable, because non-farmers may be able to provide some of those goods or services at lower cost than farmers. Some provision for such payments is made both in the URAA and in the WTO's Agreement on Subsidies and Countervailing Measures.

Ensuring the viability of rural areas also is a laudable goal, but again the blunt instrument of general farm product price supports is far from optimal, particularly since agriculture is not even the dominant source of income in many (particularly near-urban) rural areas. Far more appropriate are WTO-consistent targeted adjustment assistance (including re-training) packages and perhaps subsidies to the cost of capital for essential services that would otherwise be withdrawn from strategic left-behind remote areas.

In short, WTO rules and URAA reform commitments are not at all incompatible with efficient measures for addressing the so-called 'non-trade'

concerns discussed above. That is, there need be little trade-off between meeting domestic policy objectives on the one hand and agricultural protection reform objectives as embodied in WTO rules on the other. However, it needs to be recognised that some re-instrumentation of farm support measures is inevitable and is already emerging as traditional measures (tariffs, export subsidies and domestic price supports) are phased down. It is possible that some WTO members will wish to see the list of 'green box' measures expanded. Careful scrutiny of the grounds for any such additions is likely to be a high payoff activity for economic analysts and trade negotiators in the period ahead.

Both exporting and import-competing countries should welcome closer scrutiny of instruments used for addressing 'non-trade' concerns (or achieving 'non-economic' objectives, to use the 1980s' phrase). This is partly because once those superior instruments are identified and adopted at closer to optimal levels, greater food security and environmental protection will result. But perhaps equally importantly, the current blunt instruments of support to farm product prices could then be dismantled more rapidly, as there would be even less reason to maintain them. Consumers, taxpayers and exporters of non-farm products in the countries protecting farmers, together with the world's more-efficient farmers, could then join with those anxious to conserve global resources in celebrating the improvements in the management of our economy and environment.

References

- Anderson, K. 1992, 'Agricultural trade liberalization and the environment: a global perspective', *The World Economy*, vol. 15, pp. 153–71.
- Anderson, K. and Blackhurst, R. (eds) 1992, *The Greening of World Trade Issues*, Harvester Wheatsheaf, London and University of Michigan Press, Ann Arbor, MI.
- Britten-Jones, M., Nettle, R.S. and Anderson, K. 1987, 'On optimal second-best trade intervention in the presence of a domestic divergence', *Australian Economic Papers*, vol. 26, pp. 332–6.
- Chisholm, A.H. and Tyers, R. (eds) 1982, *Food Security: Theory, Policy, and Perspectives from Asia and the Pacific*, Lexington Books, Lexington, MA.
- Corden, W.M. 1997, *Trade Policy and Economic Welfare*, second edition, Clarendon Press, Oxford.
- Ingo, M. 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, DC, 26–27 January.
- James, S. and Anderson, K. 1998, 'On the need for more economic assessment of quarantine/SPS policies', *Australian Journal of Agricultural and Resource Economics*, vol. 42, pp. 525–44.
- Meade, J.E. 1955, *Trade and Welfare: The Theory of International Economic Policy*, Oxford University Press, London.

- Nettle, R.S., Britten-Jones, M. and Anderson, K. 1987, 'Optimal policy intervention to reduce import dependence', *International Economic Journal*, vol. 1, pp. 101–6.
- Norwegian Government 1999, 'Environmental effects of trade liberalization in the agriculture sector', submission to the WTO Committee on Trade and Environment, Geneva, WT/CTE/W/100.
- OECD 1995, *A Review of Farm Household Incomes in OECD Countries*, OECD/GD(95)97, OECD, Paris.
- OECD 1997, *Environmental Benefits from Agriculture: Issues and Policies (The Helsinki Seminar)*, OECD, Paris.
- OECD 1998a, *Agricultural Policy Reform and the Rural Economy in OECD Countries*, OECD, Paris.
- OECD 1998b, *The Environmental Effects of Reforming Agricultural Policies*, OECD, Paris.
- OECD 1998c, *Agricultural Policies in OECD Countries: Measurement of Support and Background Information 1998*, OECD, Paris.
- OECD 1998d, *Agriculture and the Environment: Issues and Policies*, OECD, Paris.
- OECD 2000, 'Production, externality and public good aspects of multifunctionality' (Parts 1–4), background papers for the Joint Working Party of the Committee for Agriculture and the Trade Committee, OECD, Paris, 14–16 March (COM/AGR/APM/TD/WP(2000)3).
- Peng, C.Y., Findlay, C. and Stringer, R. 1997, 'Food security in Asia', *Asia Pacific Economic Literature*, vol. 11, pp. 1–17.
- Pigou, A.C. 1932, *The Economics of Welfare*, Macmillan, London.
- Stigler, G. 1975, *The Citizen and the State*, University of Chicago Press, Chicago.
- Tyers, R. and Anderson, K. 1992, *Disarray in World Food Markets: A Quantitative Assessment*, Cambridge University Press, Cambridge.
- Winters, L.A. 1990, 'The so-called 'non-economic' objectives of agricultural support', *OECD Economic Studies*, vol. 13, pp. 237–66, Winter 1989–90 (Special Issue on Modelling the Effects of Agricultural Policies).
- WTO 1998, *Process of Analysis and Information Exchange: Chairman's Report*, Committee on Agriculture, World Trade Organization, Geneva, 1 October.