The Impact of
Agricultural Trade Liberalisation on
Developing Countries

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Foreword

With the next round of WTO negotiations under way, agriculture is once again under the international spotlight. Now, more than ever before, developing countries, which constitute the largest group within the WTO, are likely to insist on their interests being given greater recognition. The part played by these countries in these negotiations will be critical to applying additional pressure for more open and less distorted world markets.

An important element of progress is that there is a better understanding of the specific characteristics and concerns of developing countries as they apply to agricultural trade reform. This will provide a greater appreciation of how the impacts of trade liberalisation may differ both between developing countries themselves and between developing and developed countries.

In this study, an assessment is made of such issues, including outlining the major domestic factors, trade policies and likely impediments in developing countries to achieving more open and efficient world agricultural markets. It is concluded that there are substantial global gains from further agricultural liberalisation, with considerable benefits accruing to developing countries, and the prospect of even greater gains likely if protection levels in manufacturing industries are also lowered.

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Executive Director

July 2000
Acknowledgments

The authors wish to thank Vivek Tulpulé, Roger Rose and Ray Trewin for their advice and assistance in the preparation of this report. The authors also extend their thanks to government and industry officials and researchers in a number of developing countries who provided valuable input and information for this report.

ABARE also thanks AusAID and the Tourism Secretariat of Argentina for the photographs used on the cover.
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Summary

Agricultural trade reform is now under the international spotlight with negotiations taking place within the World Trade Organisation (WTO). More than any time previously, developing countries, which constitute the largest group within the WTO, are likely to insist on their interests being given greater recognition. However, some developing countries have expressed ambivalence toward reform unless there is commitment to greater openness from developed countries. While acknowledging the benefits from trade liberalisation, some are concerned about its impact on their ability to meet food security objectives. They are also concerned about limitations in their capacity to compete on an equal footing with developed countries. Equally, they have expressed concerns that adjustment costs from liberalisation could be high, particularly if it means losing preferential access to key developed country markets.

Although these concerns are understandable, substantial gains are obtainable for developing and developed countries alike from more open and less distorted markets in both agriculture and other activities. The evidence is clear that countries with the most open economies have experienced the most rapid growth, with greater gains arising from both specialisation and greater openness to advances in ideas and technology.

The largest distortions in world markets for agricultural products arise from developed country protectionism that is both costly to developed economies and imposes substantial costs on developing countries as a group. If those distortions are to be addressed, it is important that developing countries exert as much pressure as possible to liberalise trade and to reduce market distorting subsidies.

Significant global gains from reform

There are significant gains to the world economy from further agricultural trade liberalisation. It is estimated that global gains from a further 50 per cent reduction in agricultural support levels alone would amount to a US$53 billion increase in global gross domestic product in 2010, relative to the case where no change in policies occurred (the reference case). Nearly US$40 billion of these benefits would go to developed countries, which is
understandable given that the highest levels of market distorting support is in those countries. Still, developing countries would benefit by around US$14 billion in 2010. These estimates do not take account of the dynamic gains that arise from greater competition, innovation, improved management and greater technological advances that are known to arise from greater openness. For many countries, these gains are likely to be as great as or greater than those that arise directly from liberalisation.

The effects of agricultural trade reform in developed countries on developing countries as a group would include much larger market access than currently, higher market prices for the larger amounts imported, and less competition from subsidised products from developed countries on world markets. Overall, developing countries as a group would produce and export more agricultural products and their incomes would rise because they would be able to realise their comparative advantage in agriculture to a greater extent.

The gains would be greatest in the developing countries that are either producing or could produce items that are currently most heavily supported in the developed countries, or substitutes for them. The gains would be greatest in livestock and temperate agricultural products such as grains and oilseeds or in tropical products such as cane sugar and some oilseeds, fruits and vegetables that are close substitutes for such products. There would also be potential gains in agricultural processing industries where support in developing countries is less than in developed countries.

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*Source:* GTEM simulations.
All countries gain additional gross domestic product from internal reforms to agriculture that allow resources to flow to more profitable uses. Whereas most countries will benefit from more open markets, there are some agricultural importers that could face higher internal prices for agricultural imports that could reduce their terms of trade. If however, a wider ranging set of negotiations could result in liberalisation for other sectors as well, there should be greater opportunities for all to benefit.

Global gains much larger if manufacturing is also liberalised

The global gains in gross domestic product from liberalisation of both manufacturing and agricultural industries are estimated to be nearly twice those from agricultural liberalisation alone. All major regions of the world that were analysed would obtain a marked increase in gross domestic product, with global gains in 2010, relative to the reference case, being US$94 billion compared with $53 billion from agricultural liberalisation alone. Most (around three-quarters) of these additional gains would go to developing countries. The reason for this is that countries with relatively high manufacturing protection achieve much greater gains in real gross domestic product from comprehensive liberalisation. These countries are primarily developing countries and include Indonesia, the Philippines, India, China and many in Latin America and Africa.

If dynamic gains from more open markets for both agricultural and manufactured products are incorporated into the analysis, the global benefits from such liberalisation increase substantially to an estimated US$123 billion in 2010 (relative to the reference case), with more than half of these gains going to developing countries. Developing countries stand to gain more than developed countries from these dynamic effects because previous levels of adoption of technologies have often been lower, giving greater potential for advancement.
Labor standards and openness of economies

A key impact of liberalisation in most developing countries is higher wages as many such countries have a comparative advantage in labor. The wage increase is accentuated when liberalisation is extended to manufacturing and developing countries’ exports of manufacturing products increase. The estimated increases in real wages in most developing countries underlines the importance of opening markets, for improving labor standards. The result highlights the inherent negative effects that demands by developed countries for developing countries to raise their labor standards would have if implemented through trade sanctions.

If such sanctions were actually implemented, developing countries (and some developed countries) would likely be far worse off compared with the impact from trade liberalisation. An analysis has been carried out to quantify the effects of restricting imports from developing countries on these grounds. It is estimated that an additional 10 per cent tariff on all exports from developing countries would reduce world gross domestic product by US$37 billion in 2010, relative to the reference case, with all developing countries being worse off and a number of major developed countries, including the United States and Australia, also losing.

Impact of preferential access arrangements

Some developed countries have provided preferential market access to particular countries for commodities like sugar, bananas and beef, with such access being mainly provided to developing countries. Those preferences impose costs on producers in other countries, many of which are developing, that are excluded from preferential arrangements. That having been said, the arrangements also confer some benefits on countries receiving preferential treatment.

The provision of preferences to specific countries arises from past trading and colonial associations and constitutes a form of aid through special trade privileges. However, it is very inefficient, being directed at specific sectors in supplying countries, thereby orienting economic activities toward those receiving the preferences. It has entrenched dependence on the supported activities and not addressed major areas of need in the supplying countries. Furthermore, there are currently substantial pressures for change to sugar support policies within the United States and the European Union, with current arrangements being unsustainable, especially in the United States.
For sugar, two preferential arrangements stand out as being distorting to world markets for sugar. They are the provision of largely exclusive preferential access to the EU market from the African, Caribbean and Pacific (ACP) countries and India, and tariff quota restrictions by source for sugar imports into the United States.

It is estimated that liberalisation of sugar in major developed sugar importing countries, Mexico and China, and with it, elimination of the EU and US preferential access arrangements, would provide substantial net economic benefits to developing countries as a group. The economies of the developing countries currently supplying sugar to the EU and US markets would benefit in aggregate by around US$1.1 billion from substantial trade liberalisation in sugar alone. These benefits result from higher world prices and an expansion of world trade. The gains from improved conditions in world sugar markets more than offset the reduced price premiums received by those who had preferences.

With the current pressures for change in support policies in the European Union and especially the United States, there is a real prospect of developing countries losing a substantial part of their preferential access. Furthermore, unless there is liberalisation, they would not obtain the higher prices for exports that would result. The potential losses if nothing is done underscores the importance for developing countries of reforming sugar markets worldwide.

More efficient ways of providing aid
Some small countries highly dependent on preferential access to the European Union and the United States sugar markets may lose from liberalisation. However, the aid from the European Union and the United States could be reoriented to make it more beneficial to the recipient countries than the current commodity specific aid-through-trade. For example, with sugar liberalisation the EU and US economies would obtain estimated economic gains of US$1.1 billion in 2010 (relative to the reference case). However, some
small countries with preferences would lose around US$0.3 billion. The gains to the EU and US economies far outstrip the losses to those that depend on preferences, providing a potential for reorientation of aid to make it more effective.

**Important differences between developing and developed countries**

The characteristics of developing countries suggest that the nature of the effects of trade liberalisation are likely to differ from those on developed countries, particularly in relation to the potential adjustment costs. There are two distinctions between developed and developing countries that suggest different implications for adjustment resulting from agricultural trade liberalisation. First, producers in some developing countries, especially those with a narrow industrial base, may have fewer adjustment options compared with those in developed countries. Second, developing countries do not have the range of social safety nets that are available in developed countries to ameliorate the short term impacts of agricultural adjustment.

**Some critical issues for developing countries**

It is important to appreciate that developing countries constitute a wide and disparate group in terms of agricultural resources, economic structures, stages of economic development and levels of income. Consequently, the impact of liberalisation for agriculture alone or for a wider range of products will differ greatly between countries in the group. The differences between those with and without trade preferences are an example.

Nevertheless, the policy interventions observed in developing countries appear largely to arise from efforts to manage several issues that they have in common. These include concerns about food security, the need to generate government revenue and develop their agricultural and industrial potential. Often efforts to meet one of these objectives can conflict with the others. For example, taxing agricultural exports for revenue purposes can reduce agricultural production and food security. Because of the pervasive degree of intervention in many developing countries, the impact of liberalisation on differing groups is very difficult to ascertain.

In countries where production and consumption are not sufficiently large to markedly affect world prices, the policy that best enables resources to flow to their most efficient uses is trade liberalisation with governments only
intervening where markets are operating inefficiently. Only then can the benefits from specialisation be realised. However, for such an efficient outcome to be obtained, it is necessary for the market signals to be clearly transmitted to producers and consumers. In some developing countries, institutional and infrastructural shortcomings in such areas as property rights, credit markets and telecommunications, irrigation, roads and storage facilities impede ready responses to market signals from liberalisation. Trade liberalisation is a necessary but not sufficient condition for nurturing economic growth in developing countries. Trade liberalisation works best if complemented by socioeconomic policies and a strong network of institutions that also support the transition to a more market responsive economy.

Making the negotiations work

To obtain commitment by both developing and developed countries to trade liberalisation in the WTO negotiations, the agenda, process and outcomes must reflect the balance the interests of all members — the cloth must be designed to fit all parties.

Levels of agricultural support and market distortions continue to be extremely large especially in the developed countries and the needs for trade liberalisation are as great today as they were in the mid-1980s when agriculture was finally given prominence in multilateral trade negotiations. Developing countries had some impact in the Uruguay Round for agriculture, including pressure exerted by the Cairns Group where the collective efforts of a number of small countries enabled a significant group to negotiate in concert.

The current negotiations provide further opportunities for developing countries to be more active in the WTO to achieve greater recognition of their interests. However, such recognition is likely to be possibly only if they are collectively willing and better able than in the past to pursue more open trade. It is also clear that many developing countries have policy mixes that are not always conducive to obtaining the benefits from more open markets. In order to achieve those benefits, it is necessary to engage constructively in the negotiations to find common ground whereby all participants can benefit.
Introduction

Developing countries now account for roughly three-quarters of the members of the World Trade Organisation (WTO) and are playing an increasingly active and powerful role in global trade debates. Multilateral trade negotiations on agriculture commenced recently under the mandate outlined in article 20 of the WTO Agreement on Agriculture (1995). The key objective of these negotiations is to reduce the negative effects of government intervention in agricultural markets to generate global economic gains. The focus in this study is on the issues facing developing countries during these talks.

The current negotiations continue a process of multilateral trade reform in agriculture started in 1986 with the Uruguay Round. Key outcomes for agriculture from that round were the Agreement on Agriculture and the Agreement on Sanitary and Phytosanitary Arrangements. For the first time, these agreements placed the agricultural policies of WTO member countries under international disciplines. The Agreement on Agriculture in particular is aimed at limiting export subsidies, increasing market access, improving market transparency and reducing the market distortions resulting from subsidies.

The Uruguay Round concluded in 1994 and was significant in that it set the foundation for reducing deeply entrenched agricultural protectionism in both developed and developing countries. However, the implementation of the agreed reforms is expected to generate only modest benefits (Hoekman and Anderson 1999). World markets for agricultural products are still characterised by high levels of policy induced distortions that impede the benefits that countries can obtain from specialisation and trade (Roberts et al. 1999). Indeed in 1998 and 1999 support to agriculture in OECD countries returned to the historically extreme levels of the mid-1980s despite several years of implementation of Uruguay Round reforms. If real gains from trade liberalisation are to be achieved, substantial progress toward greater reform must be made in the current negotiations.

As the world enters this new round of agricultural trade negotiations, most developing countries recognise the need to ensure that the framework developed in the Uruguay Round can be used for further reforms to obtain greater economic benefits from freer trade. However, the immense diversity that characterises developing countries as a group also implies that different
developing countries are likely to have divergent interests in the negotiations (Valdés and McCalla 1999). On this basis, the implications of a broader round of trade negotiations beyond agriculture and services are considered here.

Given the significance of the group as a proportion of WTO membership, it is imperative that the issues affecting developing countries are better understood both by developing countries.

The developing country grouping consists of highly heterogeneous countries, designated as ‘developing’ in the WTO on the basis of self-selection. Developing countries differ in many ways, including their income levels, output structures, and trade profiles (see figures A–E). There are 64 developing countries that are net food importers: 48 are designated by the United Nations as least developed, and 16 are low and middle income developing countries.
Composition of merchandise exports, low and middle income regions, 1998

Composition of merchandise imports, low and middle income regions, 1998

Major destinations for merchandise exports from developing countries, 1998
countries. Of the 48 countries designated as least developed countries, 29 are WTO members.

In addition, the patterns of agricultural policies vary widely across developing countries (Binswanger and Deininger 1997). While the extent of the sectoral bias against agriculture has declined in recent years, agriculture in general remains effectively taxed relative to other sectors, particularly the manufacturing sector, in a number of developing countries. Irrespective of whether agriculture is taxed or not, many developing countries also tend to have a policy bias within agriculture favoring specific agricultural subsectors relative to others. The relatively high levels of protection and/or government regulation applying to food products are particularly notable.

To a large extent, the diversity across developing countries explains the divergent trade interests and mixed support for further agricultural trade liberalisation. While there are substantial global gains on offer to developing countries from agricultural liberalisation alone, not all countries are likely to benefit. Those that may not benefit include countries that rely heavily on preferential access arrangements to particular markets at supported prices as a major source of agricultural and export earnings and countries that are net agricultural importers. In the case of least developed countries, that are totally exempt from WTO commitments, the main concerns relate to access to adequate levels of food aid and the provision of technical and financial assistance to support agricultural development.

Notwithstanding these differences, developing countries share a number of common interests (Krueger 1999). Given the size of their economies, developing countries have limited unilateral bargaining power in international trade relative to the large developed trading nations. As such, it can be argued that developing countries have a greater need for a well functioning trading system than do larger countries. In addition, because their economies are relatively small, developing countries are highly dependent on global economic growth and trade for their own individual economic growth.

Developing countries clearly have a considerable stake in ensuring an open multilateral trading system. However, it is also important to consider that trade liberalisation is but one of a number of policy reforms that can have profound implications for them. Others, such as reforms to institutions that affect the efficiency with which markets operate and improvements to infrastructure, may need to be carried out in conjunction with trade liberalisation to maximise economic benefits.
Policies affecting agriculture in developing countries

Traditionally, agriculture in developing countries has played a central and multifaceted role in providing food, creating employment and raising government revenue. To a large extent, these attributes shaped the nature and scope of government intervention in agriculture over recent decades. In particular, agricultural policies in developing countries were designed to achieve multiple and often conflicting objectives, ranging from promoting agricultural sector growth and pursuing an export oriented strategy, to ensuring food security and raising tax revenue. These objectives were typically pursued through a myriad of policy measures in the form of price controls, crop area targets, controls on imports and exports, subsidies on inputs, taxes on outputs and marketing controls. However, agriculture in developing countries has fared relatively poorly compared with other sectors. With most developing countries embracing import substituting industrialisation as their development strategy, many governments implemented sectorally biased policies that favored the manufacturing sector.

The intention in this chapter is to analyse the effect of recent policy directions affecting agriculture in developing countries, both from an intersectoral perspective and from the viewpoint of agriculture specific policies.

Intersectoral issues

Agriculture is central to economic development and growth in many developing countries. However, with a focus on import substitution and industrialisation, government policies in many developing countries have tended to discriminate against the rural sector in the past (Krueger, Schiff and Valdés 1988). Several explanations have been advanced in the literature in an attempt to rationalise why so many developing countries adopted growth reducing agricultural policies (Binswanger and Deininger 1997; Anderson 1995).

Many of these explanations relate to the political environment within which pressure groups form and interact, and the relative ability of these pressure groups to influence the policy formation process. In particular, it is argued that the costs of collective action by farmers in developing countries are much higher than those incurred by urban lobby groups because of the higher transport and communication costs in rural areas. As an economy develops,
these costs tend to fall more for rural than for urban areas. As a consequence, the policy bias against agriculture tends to weaken with development.

While the literature points to the reasons for the policy bias against agriculture receding as economic development occurs, disincentives to agricultural production and trade are still inherent in the policies of many low and middle income economies. In many developing countries, agriculture is taxed relative to other sectors through industrial protection, macroeconomic policies and suboptimal investment in rural infrastructure and extension services, and to a lesser extent through more direct measures such as export taxes.

**Direct taxes**

**Export taxes**

Export taxes on specific agricultural and food products are used by some developing countries, although to a lesser extent now than in the past. An export tax, by reducing exporters’ returns, restricts exports and depresses internal market prices. It is equivalent to a tax on domestic production and a subsidy on domestic consumption. Such a tax can be expected to reduce exports by reducing production and increasing domestic consumption at the same time.

If an exporting country has market power that can enable it to influence prices in the world market, it can be shown that, at least in theory, this country’s terms of trade and welfare can be improved through an optimal export tax. This arises because a country that is large enough to exert market power through its policies that affect international prices can increase profits by restricting exports below what would be offered in a competitive market. This scenario is unlikely to apply to most developing countries for most agricultural products. And yet agricultural products in some developing countries are subject to export taxes. Several reasons have been advanced from why this is the case (Devarajan, Go, Schiff and Suthiwart-Narveput1996). In some countries, export taxes on farm products are used as an indirect for of protection to downstream processing industries (for example, palm oil in Malaysia, oilseeds in Argentina) or as a means of keeping food prices low for domestic consumption. In other cases, taxes on agricultural exports provide a convenient means of raising taxation revenue in countries with otherwise inadequate tax administration. There may also be food security considerations. The export taxes can help maintain domestically produced supplies within a country’s borders although they also reduce production. The balance between the export reducing effect and the production
discouraging effect would determine whether the taxes actually increased available supplies of the domestically produced product.

Developing countries have few low cost taxing options. Low incomes and the relatively large size of informal, barter and in many cases subsistence sectors of the economy limit the potential tax base. Poor financial infrastructure raises collection costs even in the formal sector. It is obviously easier to collect taxes at a central point, such as a port, than at various points of production or distribution. Irrespective of the rationale for export taxes, it is clear that export taxes create significant distortions by providing a disincentive to produce agricultural products not only for export but also for domestic use.

Export taxes have not been significantly incorporated into multilateral agreements on agriculture thus far. However, some countries, in particular Japan, are expressing concerns about potential disruption to import availability as a result of countries’ export taxes. It is in the interests of food importing countries generally to ensure as far as possible that supplies are not restricted through such taxes. It is also in the interests of exporting countries that their supplies to particular markets not be disrupted by such measures as export taxes. In principle these taxes can be as distorting and disruptive to export supplies as import taxes are to import demand.

**Indirect taxes**

In comparison to direct taxes, indirect taxes through industrial and macroeconomic policies have been shown in the past to impose a more significant burden on agriculture relative to other sectors in developing economies (Schiff and Valdés 1998). In a study of eighteen countries, Krueger, Schiff and Valdés (1988) found that the impact of indirect taxes on agriculture through measures such as industrial protection and overvalued exchange rates was three times that of direct taxes on agriculture. Over the past fifteen years, many developing countries have undertaken structural adjustment reforms that have reduced this level of indirect taxation. Nonetheless, industrial policies, macroeconomic factors and suboptimal investment in rural infrastructure and research and extension services continue to impart some degree of anti-agricultural bias in a number of developing countries.

**Industrial protection**

A common thread across the intersectoral policies adopted by developing countries is the higher nominal rate of tariff protection applying to manu-
factured goods relative to primary commodities (figure F; World Bank 2000). For developing countries as a group, tariffs and other duties and charges averaged 30 per cent for all manufactured goods compared with 22 per cent for agricultural materials (Ng and Yeats 1999). Within manufacturing, the subsectors afforded the highest protection are typically labor intensive industries such as textiles, clothing, footwear, leather, wood and paper manufactures. The countries where this bias in favor of industry is most notable tend to be net agricultural exporters or countries that have a comparative advantage in agriculture (such as Argentina, India and South Africa).

While developing economies tend to protect manufacturing more than primary commodities, and agricultural materials in particular, tariffs and nontariff barriers for food tend to be at least as high as for manufactured products in general (Ng and Yeats 1999). While this may hold on average, there is considerable evidence of wide differences in levels of support between different types of food and between different regions. In South and South East Asia for example, protection for basic foods such as rice, sugar and in some countries maize tends to be high whereas for many other agricultural commodities support is low or negative.

Another feature of the tariff structure in some developing countries is that tariffs tend to escalate with the degree of processing (table 1). This feature is particularly pronounced for subsectors such as textiles (in South Africa, Egypt, Nigeria, Mexico) and food, beverages and tobacco (in India, Uruguay)
where the average most favored nation (MFN) tariff rate on raw materials is considerably lower than the average tariff rate on final products. The higher protection provided to semiprocessed and fully processed goods relative to agricultural raw materials in these countries can be expected to reduce both the relative incentive to invest in the production of agricultural commodities, and the resources available for this investment.

While nominal tariffs provide some indication of the level of protection granted to specific sectors, these measures do not fully capture the extent of distortions resulting from sectorally biased policies because they do not take into account the impacts of nontariff barriers. An examination of the pattern of sectoral protection in eighty developing countries revealed that nontariff barriers in these countries tend to apply at least as frequently to primary products as to manufactures. The only exceptions to this pattern were middle income African countries (Ng and Yeats 1999).

Some care is required when interpreting conclusions based on frequency, as they do not provide any information on the significance of these measures in terms of their impacts on resource allocation.

**Exchange rate policies**

In addition to industrial policies, there are broader policies that indirectly influence the incentives for agriculture relative to other sectors (Schiff and Valdés 1998). Historically high levels of tariff and nontariff barriers for ‘infant’ manufacturing industries discouraged imports of manufactured products and resulted in currencies being overvalued. The higher supported internal prices for manufactured products and the stronger currencies discriminated against sectors other than manufacturing, including agricultural products both for domestic sales and export.

By the mid-1980s most developing countries had adopted trade reforms that removed the antiexport bias to a large extent. These changes were occurring at a much quicker pace in the newly industrialised economies of East Asia.
(Leung 1995). Nevertheless, overvalued exchange rates can still be observed in Sub-Saharan Africa (Collier and Gunning 1999) and North Africa (DeRosa 1997). Similarly, the currencies of many Asian economies were generally perceived to be overvalued prior to the sharp depreciations that occurred in mid to late 1997 and early 1998 during the Asian financial downturn (OECD 1999a).

Clearly, trade policy is but one factor influencing the real exchange rate. The real exchange rate is also determined by other domestic policy factors such as exchange and capital controls, and monetary policies, and external factors including productivity changes and technological development.

While the post downturn depreciation of currencies in South East Asian countries can be expected to enhance the competitiveness of agricultural exports from those countries, the evidence to date suggests that exports have not expanded as much as envisaged in view of the extent of the currency depreciations (OECD 1999a). This can be partly attributed to a fall in global consumer demand arising from lower world economic growth in 1998. In addition, credit and other production constraints at the domestic level, including those caused by the 1997 El Niño drought in South East Asia, limited the supply response in the short term. In the long term, the prospects for a sustained recovery of agriculture in these countries will depend importantly on future policy developments. Market liberalisation that enables countries to respond more effectively to market signals as well as improved provision of rural infrastructure and research and extension policies that foster long term productivity improvement will be critical.

**Pro-urban policies**

The general bias against agriculture through industry and macroeconomic policies tends to be reinforced by pro-urban policy biases in many developing countries that discourage investment in rural infrastructure and education.

The adequacy and efficiency of rural infrastructure vary across developing countries. However, many developing countries share some common characteristics in terms of the lack of adequately maintained rural roads connecting farms to markets and ports, poorly developed telecommunications infrastructure and inadequate water supply facilities. For example, in India, Pursell and Gupta (1998) estimate that the cost of storage, marketing and shipping of wheat from Punjab to Bombay is only slightly lower than the cost of shipping wheat from US Gulf of Mexico ports to India. Similarly, in the Philippines, inadequate road transport systems impose a major constraint
on agricultural productivity and growth (East Asia Analytical Unit 1998a). Without efficient transport and telecommunications that link rural producers to domestic and global markets, the prospects for agricultural growth remain limited in many developing countries.

Deficiencies in agricultural research and extension services have also been highlighted as an important factor contributing to the low productivity growth in agriculture in some low income countries. While yields of staple crops have more than doubled in Asia and Latin America since the 1950s, only modest increases have occurred in Africa (World Bank 1999b). Part of this stagnation is attributed to the knowledge gaps that remain in Africa because of poor agricultural research, and deficient extension services for transferring knowledge to producers and enabling them to apply that knowledge to their individual circumstances. For example, in Tanzania where agriculture accounts for over half of gross domestic product and yields have remained low, improved channels for agricultural research and extension services are viewed as vital to raising agricultural productivity (World Bank 1999a).

More generally, the empirical evidence suggests that the social rates of return from investment in basic education and agricultural research and extension are relatively high in developing countries (Anderson 1999).

Agricultural policies

Just as the nature and extent of the cross sectoral policy bias against agriculture varies across developing countries, the patterns of agricultural policies also differ significantly at least across groups of developing countries. In broad terms, there was a trend toward agricultural trade liberalisation in most developing regions during the 1990s, a trend driven more by unilateral reforms than by the Uruguay Round. In some instances such reforms have been made voluntarily in the interest of greater efficiency in the economy. In others, they have been in response to conditions attached to World Bank and International Monetary Fund (IMF) programs.

However, there are still large differences across developing countries in the extent of liberalisation undertaken, and the level and distribution of existing protection. An overview of agricultural trade policies in terms of border measures and domestic support arrangements across major developing country regions is provided below.
**Border measures**

**South Asia**

In South Asian countries where population densities are often high, where there is considerable poverty in some regions and there is a history of periodic regional food shortages, a major factor that has driven agricultural trade policies has been food security. Key considerations have been the availability of adequate supplies and the desirability of low prices, especially for food for the most vulnerable. On the import side, a perception of food security as being largely synonymous with high self-sufficiency contributed to the imposition of high tariffs and extensive quantitative restrictions on imports of essential food crops in an attempt to foster import substitution. Similarly, on the export side, extensive controls were applied primarily to staple crops such as rice, wheat and coarse grains to keep domestic prices below world prices. These controls effectively acted like an export tax (discussed earlier), except that the government did not collect any tax revenue.

While trade policies in South Asian countries have clearly followed a more liberal trend over recent decades, the removal of trade barriers affecting agriculture has been far less pronounced than overall trade liberalisation. Moreover, the extent of liberalisation in agriculture varies quite considerably across South Asian countries, with India and Pakistan pursuing more restricted trade regimes than other countries in the region such as Sri Lanka and Bangladesh (Athukorala 1999).

While applied tariffs on most agricultural goods have fallen since the early 1990s, these tariffs remain relatively high for commodities classified as ‘essential’, such as edible oils and oilseeds. Notably, most South Asian countries have set very high ceiling bindings ranging from 100 to 300 per cent for most products under their Uruguay Round commitments, which places India, Bangladesh and Pakistan with the highest bound rates among WTO members. By placing a WTO binding on a tariff, a member undertakes not to apply an actual tariff for that item above the bound level. These bound rates are important insofar as they provide ample flexibility to adjust applied tariffs in the future. Further, imports of agricultural products particularly in India are by and large subject to quantitative restrictions, with around 55 per cent of agricultural products subject to import licensing requirements (WTO 1998, *Trade Policy Review*).

It appears that more progress has been achieved on the export side in recent years, again to varying degrees across the region. Most South Asian countries
have, to a large extent, removed export controls on agricultural commodities. However, export restrictions still apply for commodities such as sugar, oilseeds and cotton in India (WTO 1998, Trade Policy Review) and cotton in Pakistan (Faruquee 1995).

**South East Asia**

The South East Asian developing countries appear more committed to an open agricultural trade regime and have clearly moved toward freer markets over the past decade than have countries in South Asia. Tariffs on agricultural imports are relatively low and nontariff measures have been cut back to a significant degree. Impetus for these changes has come in part from requirements attached to IMF funding packages and also has taken place in the context of regional economic integration largely driven by ASEAN Free Trade Agreement (AFTA) efforts to foster economic growth in the region.

Despite this general observation, there is significant variation in agricultural trade policies across South East Asian economies. Malaysia’s agricultural trade policies are on the whole liberal in terms of tariff and nontariff measures, except for relatively high specific duties applying to some ‘sensitive’ products including rice, tropical fruit and tobacco (WTO 1997, Trade Policy Review; Tengku 1998). However, further tariff cuts were announced in late 1999 and most of these high tariffs are expected to be reduced to 0–5 per cent by 2003. On the export side, a notable feature of Malaysian agricultural trade policies is the imposition of export taxes on palm oil to encourage domestic processing.

Similarly, agricultural trade policies in Indonesia have been deregulated substantially since the onset of the financial downturn in late 1997. Agricultural tariffs have been reduced significantly, with an average of 4.7 per cent in 1998 and BULOG’s monopoly rights on trade of all commodities have been removed with the exception of rice (WTO 1998, Trade Policy Review). The elimination of local content schemes has also been a feature of recent policy developments in Indonesia. In particular, the local content requirements affecting dairy products were removed in 1998. Indonesia regulates the exports of numerous agricultural commodities including rice, soybeans, wheat, sugar, live cattle and selected fish. In 1999, around 18 per cent of agricultural production was subject to export controls (Erwidodo 1999). The increased use of this particular restriction in recent years goes against the overall trend and is attributed to the Asian financial downturn and currency depreciation, and mounting concerns about rising inflation,

In comparison to Malaysia and Indonesia, agricultural trade policies in the Philippines tend to be less liberal. Notwithstanding the clear progress made in recent years toward a more market responsive agricultural sector, ‘picking winners’ strategies, whereby support is provided to activities that are considered likely to succeed, persist. In stark contrast to the situation of many developing countries, the effective rate of protection for agriculture and related processing activities in the Philippines is higher than for other sectors (WTO 1999, *Trade Policy Review*). Support to farming in the Philippines is based primarily on restrictions to imports through tariff quotas, with in-quota tariffs reaching 50 per cent for sugar and abovequota tariffs of up to 65 per cent for the same commodity. A striking feature of the Philippine’s agricultural trade policies is the antiexport bias resulting from relatively high protection to import competing food crops such as rice and corn. Such support retains resources in import competing activities that might otherwise be used for agricultural products for export.

Before the Uruguay Round, the Thai agriculture sector was characterised by a wide array of policy measures designed to raise domestic prices above world prices for key agricultural products such as soybeans, dairy products and certain tropical products. While Thailand is committed to reducing average tariffs on agricultural products from a pre-Uruguay Round rate of 49 per cent to 36 per cent by 2004, the applied tariff rates on a number of key agricultural products are well below the bound rates (Poapongsakorn and Santanaprasit 1999). This is the case for corn, low fat milk powder, potatoes and soybean cake. Thailand also maintains relatively high bound tariff rates of 65 per cent for sugar and 60 per cent for tobacco leaves. In general, the Uruguay Round commitments have not had a significant impact on Thai agricultural imports for several reasons (Poapongsakorn and Santanaprasit 1999). First, Thailand has a strong comparative advantage in a number of agricultural products. Second, for products where Thailand does not have a comparative advantage, both tariff and nontariff barriers remain high. Finally, market access commitments remain low relative to production and domestic consumption levels.

**Africa**

In line with the general trend toward liberalisation, agricultural production and trade regimes in countries of Sub-Saharan Africa were liberalised to some extent in the 1990s. These liberalisation efforts were implemented...
mainly through structural adjustment programs that African countries agreed to undertake in order to secure analytical and financial support from the World Bank and other donors. However, because these reforms were not carried out in the context of multilateral trade negotiations and therefore are not ‘WTO-bound’, policy reversals are possible, as supported by the accumulated evidence to date (Oyejide 1999).

Around 65 per cent of all African countries are classified as least developed by the United Nations. In the Uruguay Round, the least developed countries were not required to undertake any liberalisation commitments. Accordingly, many African countries have made few commitments to reduce applied protection. Most Sub-Saharan African countries selected ceiling binding tariff levels ranging from 100 to 600 per cent, and only 18 per cent of countries opted for ceiling bindings in the 30–40 per cent range. Collier and Gunning (1999) found that tariffs and export taxes have been higher in Africa than in any other region in the world, with a major reason being that there is a lack of other sources of tax revenue to fund the expansion of the public service.

Recent data on applied tariffs for a comprehensive range of African countries are not available. However, a study by Ng and Yeats (1999) drawing on 1987 and 1994 UNCTAD data, determined that the average for tariffs and other charges on all primary products in low income Sub-Saharan Africa was 34 per cent, with an average of 42 per cent for foodstuffs and 30 per cent for agricultural raw materials. Ng and Yeats (1999) also point to the high frequency of nontariff barriers affecting agricultural commodities in these countries, with quantitative restrictions being the most widely used nontariff measure. Collier and Gunning (1999) make the point that these quantitative import restrictions did not actually yield tax revenue and were apparently put in place because of difficulties in controlling import demand under fixed exchange rate regimes for countries with few government reserves.

North African developing countries have also tended to have a significant bias against agriculture for the most part, yet have enforced high rates of protection for food reflecting their position as net food importers (DeRosa 1997). Nonetheless, Egypt in particular has implemented policy reforms since the mid-1980s that have led to a more open trading regime for agriculture. The average tariff on agricultural imports was 18.5 per cent in 1998, and most import bans relating to agricultural products appear to have been removed (WTO 1999, Trade Policy Review).
Africa is more heavily dependent on agricultural exports than any other developing region and yet agricultural trade policies in African countries inherently discriminate against exports. Ng and Yeats (1996) point to the high tariffs on key inputs including agricultural raw materials and crude fertilisers that place domestic producers at a substantial cost disadvantage relative to other agricultural exporters. In addition, several African countries (for example, Tanzania and Nigeria) impose export taxes or maintain export prohibitions on agricultural commodities to encourage local processing or ensure self sufficiency in their home markets.

**Latin America**

The process of agricultural trade liberalisation gained momentum in Latin America in the late 1980s, with the extent of liberalisation ranging from substantial in many countries including Chile and Argentina to low in some of the smaller countries of the Caribbean (Cafferata and Valdés 1999). In some cases, regional trade agreements have supplemented these unilateral trade reform programs, as in the MERCOSUR agreement between Argentina, Brazil, Paraguay and Uruguay, and the North American Free Trade Agreement (NAFTA) between Canada, the United States and Mexico.

As a result of these reforms, applied tariffs for agricultural products are relatively low for the region, with an average of 15 per cent. However, this level of aggregation clearly masks the wide regional differences across Latin American countries and the substantial dispersion around the average tariff in individual countries (Cafferata and Valdés 1999). For example, there is an average applied tariff rate on agricultural products of 4.5 per cent in Argentina and 22 per cent in Mexico. In addition, applied tariffs on crops in Mexico range from 0 to 260 per cent while the tariff on livestock products in Ecuador ranges from 0.5 to 50.5 per cent. In Peru, around 300 agricultural products have attracted bound tariff rates of 20 per cent since 1997, although some basic food products such as milk, sugar, maize, rice and sorghum also have a 5–10 per cent surcharge on imports (WTO 2000, *Trade Policy Review*). In most cases, applied tariffs are below bound tariffs by a wide margin, meaning that negotiated reductions in bound tariffs might have limited direct effect on actual trade. Under such conditions the main benefits of agreeing to bindings at low tariff levels are in limiting the degree to which applied tariffs could be increased.

The significance of nontariff barriers in Latin America was also reduced substantially in the 1990s, particularly in countries such as Argentina and Chile that also undertook major tariff reductions over that period (Finger...
and Schuknecht 1999). Peru also has low nontariff barriers overall, but retains local content requirements and procurement policies as part of the government’s nutritional program (WTO 2000, *Trade Policy Review*). For countries where the incidence of nontariff barriers is still relatively high, tariff-quotas and variable levies and nonautomatic licences are the most commonly used measures (Cafferata and Valdés 1999).

Latin America’s agricultural exports are largely free from government intervention. The Cairns Group of agricultural exporters, of which Argentina, Brazil, Uruguay, Chile, Colombia, Guatemala, Costa Rica and Bolivia are in Latin America, in particular tend to have no direct subsidies on exports of agricultural commodities. Further these countries typically have minimal export licensing requirements and only use export taxes on a temporary basis primarily for domestic supply reasons. For example, Brazil uses export taxes sporadically to inhibit maize flour exports (WTO 1997, *Trade Policy Review*). Even though discriminatory export charges are prohibited for agricultural commodities under NAFTA, Mexico is permitted to impose export taxes on selected basic foodstuffs under certain conditions (WTO 1997, *Trade Policy Review*). Peru is another country in the region that also applies limited direct government support to agricultural exporters (WTO 2000, *Trade Policy Review*).

**Domestic support**

Traditionally, governments in most developing countries have tended to subsidise agricultural inputs, including fertiliser, irrigation, seeds, electricity and credit, as a way of partly offsetting the bias against agriculture caused by export taxation and industry policy. This form of support appears to be largely for reasons of administrative convenience and also because reduced input costs enable farmers to produce at prices that are constrained by social objectives.

The role of domestic producer support policies assumed added significance for the predominantly agrarian economies in South East Asia and South Asia in an attempt to counteract the rapid decline in world prices of agricultural products in the 1980s (Bautista 1993). Equally, a number of developing countries concerned about ensuring access to basic food by a growing population have typically used consumption subsidies to keep food prices down. Today, a wide array of domestic support arrangements continues to feature in the agricultural policies of many developing countries.
On the production side, these support arrangements are often said to be designed to provide economic, social, technical and administrative assistance to agricultural producers (as is the case in developed countries also) and include:

- **Market price support**: measures that create a wedge between domestic prices received by producers and world market prices. These measures include tariffs, import quotas, administered prices and trade licensing arrangements.

- **Output subsidies**: payments to producers based on production of a specific commodity or group of commodities. Quantities on which payments are made may be either limited or unlimited.

- **Income support**: direct payments to producers without constraints or conditions to produce specific commodities, or to use specific inputs.

- **Input subsidies**: explicit and implicit payments to producers that reduce the cost of specific fixed or variable inputs.

- **General services**: measures that reduce costs to producers in the long term but that are not directly receivable by producers (for example, research and advisory services, training services and infrastructure services).

- **Regional assistance programs**: payments limited to producers in specific regions considered to be disadvantaged on the basis of neutral and objective criteria clearly spelt out in law or regulation.

In the WTO Agreement on Agriculture that was concluded in 1994, it was agreed that for developed countries there would be a 20 per cent reduction in domestic support measures that were not exempt from reduction commitments. The commitments for developing countries were two-thirds of those for developed countries, resulting in an undertaking to reduce domestic support by 13.3 per cent. Also it was agreed that the reductions would be over ten years rather than six. The reductions in domestic support apply for agriculture as a whole and not for individual commodities, although countries report levels of individual commodity support to the WTO.

There are some forms of support that it was agreed would be exempt from any reductions. These include a range of government services (such as research, training, infrastructure services, stockholding for food security objectives and domestic food aid), decoupled direct payments (such as decoupled income support, income insurance, disaster relief and regional assistance programs), support through investment aids, payments under
environmental programs and payments under regional assistance programs. These exemptions are sometimes called ‘green box’ exemptions. Measures involving direct payments under production limiting arrangements that conform to certain criteria are also exempt and are sometimes called ‘blue box’ exemptions.

For developing countries, there were some important additional exemptions from cuts in domestic support. These included policies to encourage agricultural and rural development such as generally available investment subsidies, agricultural input subsidies to low income and resource poor producers, and support to producers to encourage diversification from growing illicit narcotic crops.

Another special provision affecting developing countries in a different way from developed countries is what is termed the de minimis provision. Under this provision countries are enabled to provide nonexempt domestic support up to a given percentage of the value of total production, without such support being subject to reduction commitments. For developed countries, the percentage agreed was 5 per cent of commodity specific support and also 5 per cent of non commodity specific support. For developing countries these de minimis exemption percentages are 10 per cent each for both commodity and non commodity specific support. Government outlays on domestic producer support in developing countries have tended to be below the de minimis level because of budgetary pressures.

Indicative general patterns of domestic support in developing countries and selected large developed countries are given in table 2. It shows the aggregate measurement of support (AMS) which is the level of domestic support that is subject to reduction commitments. It can be seen that in general the AMS levels for developing countries are far lower than for most of the developed countries shown. It should be noted, however, that AMS levels are not a consistent measure of market distorting domestic arrangements. This is particularly the case when comparing levels between developing and developed countries because of the wider range of exemptions permitted for developing countries.

It is evident from this table that some developing countries, notably India and to a minor degree, Pakistan, have negative AMS levels, implying that in these countries agricultural producers receive administered prices that are below world market prices. The commodities that are most affected are basic foodstuffs such as rice and wheat, reflecting food security considerations.
While product specific support is negative, non product specific support in both countries is positive, although not of sufficient magnitude to fully offset the former. In India for example, non product specific support is quite significant and accounted for 7.5 per cent of agricultural gross domestic product in 1995-96. The bulk of this support was provided through electricity, fertiliser and irrigation subsidies.

While the aggregate measurement of support tends to be relatively low for most developing countries, an important issue is whether the nature of the domestic support provided distorts agricultural incentives in these countries. Typically, product specific support in developing countries is not evenly distributed across all agricultural commodities. Instead, developing countries tend to target their support to only a subset of commodities, with adverse implications for the allocation of resources within agriculture. In countries where price support is provided, it tends to be allocated to traditional crops such as rice and sugar. In the Philippines, for example, domestic price support in 1997 was provided exclusively for rice and corn.

There is some evidence that government intervention in the rice and corn industries has had a negative impact on the allocation of agricultural land and labor. In particular, agriculture in the Philippines has not diversified away from these traditional crops that have relatively low returns per hectare and in which the Philippines has limited comparative advantage, hence constrain-
ing the growth of agricultural output value and rural incomes (East Asia Analytical Unit 1998a).

As for non product specific support, a key feature of the support provided to farmers in developing countries is the dominance of input subsidies over other forms of support such as direct income support. Many developing countries subsidise certain agricultural inputs. These subsidies can apply to traded inputs such as fertiliser, electricity and seeds, and nontraded inputs through under cost recovery of operations and maintenance costs for irrigation systems and interest rate subsidies on credit. In many cases, input subsidies are granted as partial compensation for the policy bias against agricultural production (WTO, Trade Policy Review, various).

However, from the perspective of efficient resource allocation, the provision of subsidised inputs distorts incentives by encouraging the above optimal use of these inputs, and in some cases without achieving the intended outcomes. For example, in Pakistan, the provision of farm machinery at subsidised prices has been found to have greater labor displacing than output enhancing effects (Faruquee 1995).

Other recent policy directions

As noted earlier, there has been an overall movement toward agricultural liberalisation in the majority of developing countries since the early 1990s. This trend has been characterised to a large extent by autonomous tariff reforms and a marked decline in the incidence of nontariff barriers. Nonetheless, many developing countries continue to maintain significant discrepancies between bound and applied tariff rates, which would allow them to increase applied rates in the future within the WTO framework. In fact, there have been notable instances where applied rates have been increased. For example, India markedly increased its applied duties on sugar in 1999 and 2000, but maintains them within its bound rates (International Sugar Organisation 2000).

In addition, there are other trade related policies that are emerging that have the potential to slow down the momentum of multilateral trade liberalisation. A major one of these has been the proliferation of regional trade agreements. A range of other related issues is discussed in chapter 6.
Regional trade agreements

Recent trade policy developments indicate an intensification of the pace and scope of regionalism, with over 100 regional trade agreements notified to the WTO as of June 1998 (WTO 1998). Developing countries have participated increasingly in the spread of these regional agreements, and currently many developing countries are part of one or more regional trading arrangements (Foroutan 1998). One of the main economic factors driving this trend is the perception that economies of scale can better be achieved on a regional than on a national scale. Equally important are nontrade concerns such as regional security. The degree to which this proliferation of regional trade agreements is significant in terms of shaping intrabloc trade patterns varies considerably across regional trading blocs (table 3).

Did the Uruguay Round change agricultural trade policies in developing countries?

The Uruguay Round was clearly a watershed in bringing agriculture under the WTO framework for the first time and strengthening developing countries’ participation in multilateral trade negotiations. By setting the foundation for increased market access, reductions in domestic support and export subsidies, the Agreement on Agriculture provided the opportunity to significantly alter the patterns of agricultural policies in both developed and developing economies.

While developing countries in general were subject to special and differential treatment through lower disciplines and a longer time horizon for implementing reforms, developing countries (other than the least developed countries) made the following commitments as part of the agreement:

Market access
- tarification of nontariff barriers (expressing all tariff and nontariff barriers in terms of tariff equivalents);
- binding of all tariffs and tariff equivalents;
- reduction of tariffs by 24 per cent over ten years;
- provision of minimum access at 2 per cent of 1986–88 consumption, rising to 4 per cent at the end of the implementation period;

Domestic support
- reduction of the aggregate level of trade distorting domestic support by 13.3 per cent over ten years;

Export subsidies
- reduction of expenditure on export subsidies by 24 per cent and quantity of subsidised exports by 14 per over ten years.
Despite these commitments, the Uruguay Round has not had a profound effect on developing countries’ agricultural trade policies to date for a number of reasons. Importantly, Ingco (1997) points to how the effectiveness of these commitments has been hampered by the way in which the market access commitments were implemented. In particular, the tariff equivalents of existing nontariff barriers were established as the wedge between domestic prices and ‘reference’ prices based on world prices in 1986–88. Those were years of low world prices for many agricultural commodities, implying that the wedge would be large in most cases. In addition, some countries interpreted the tariffication procedures in a way that resulted in highly inflated tariff equivalence, so-called ‘dirty tariffication’.

Many developing countries also took the option that was permitted of nominating ‘ceiling bindings’ instead of converting nontariff barriers to tariff equivalents. In many cases these ceiling bindings were well above the applied rates of protection. This is particularly evident for many developing countries in Africa and South Asia that opted for relatively high ceiling bindings (over 100 or 200 per cent), compared to developing countries in Latin America and East Asia that committed to bind tariffs at relatively low levels (less than 30 per cent). This difference between bound and applied tariff rates is very important in a negotiating sense as the negotiations apply to bound rates only. If, through agreement, bound rates are reduced but they remain above the applied levels, there is no real reduction in the barriers to trade.

Similarly, agreed reductions in domestic support have not led to significant policy changes in most developing countries for two main reasons. Under the de minimis clause, developing countries are allowed to exclude from reduction commitments product specific support that does not exceed 10 per cent of the gross value of production of the product concerned, as well as nonproduct specific support that does not exceed 10 per cent of the total value of agricultural production. Reflecting financial constraints, government outlays on domestic producer support in developing countries tend to be below the de minimis level.

Further, exemptions from the reduction commitments can be claimed for support measures that are considered to have no, or at most minimal, trade distorting effects. Exemptions can also be claimed for a range of programs including those targeted at rural development and those providing assistance to producers in disadvantaged regions.

As for export subsidies, these measures are not as widely used in developing countries as in some developed countries, primarily because of budgetary constraints.
The enthusiasm for regional trading arrangements appears to stem partly from the greater ease of negotiating economic benefits for members than may be possible in multilateral negotiations. Deep cuts are easier to negotiate in a small forum, particularly if the members share similar standards and values. Even so, one of the factors that can make regional arrangements easier to negotiate is that like minded members of the limited groups can sometimes obtain benefits at the cost of nonmembers with whom they do not have to negotiate.

Greater gains are likely to be made through the formation of trading blocs where there are substantial differences in resource endowments and industry structures. For this reason, integrating economies at dissimilar levels of development might ultimately be more rewarding. Developing countries are often keen to join a group with developed country members, primarily because of the improved market access.

### Selected regional trade agreements involving developing countries

<table>
<thead>
<tr>
<th>Regions</th>
<th>Regional groups</th>
<th>Exports within group as a share of total exports, 1997</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>Common Market for Eastern and Southern Africa</td>
<td>8.3</td>
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<tr>
<td></td>
<td>(COMESA)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Economic Community of West African States (ECOWAS)</td>
<td>9.7</td>
</tr>
<tr>
<td></td>
<td>Southern African Development Community (SADC)</td>
<td>11.4</td>
</tr>
<tr>
<td></td>
<td>West Africa Economic and Monetary Union (WAEMU)</td>
<td>11.0</td>
</tr>
<tr>
<td>Latin America</td>
<td>Latin American Integration Association (ALADI)</td>
<td>17.2</td>
</tr>
<tr>
<td>and the Caribbean</td>
<td>Andean Group</td>
<td>10.1</td>
</tr>
<tr>
<td></td>
<td>Central American Common Market (CACM)</td>
<td>13.0</td>
</tr>
<tr>
<td></td>
<td>Caribbean Community (CARICOM)</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td>Southern Common Market (MERCOSUR)</td>
<td>25.4</td>
</tr>
<tr>
<td>Middle East and</td>
<td>Association of South East Asian Nations (ASEAN)</td>
<td>22.2</td>
</tr>
<tr>
<td>Asia</td>
<td>Bangkok Agreement</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>South Asian Association for Regional Cooperation (SAARC)</td>
<td>3.9</td>
</tr>
<tr>
<td>High income</td>
<td>North American Free Trade Agreement (NAFTA)</td>
<td>49.1</td>
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<tr>
<td>and low and</td>
<td></td>
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<tr>
<td>middle income</td>
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<tr>
<td>economies</td>
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</tr>
</tbody>
</table>

*Source: World Bank (1999b).*
Nonmembers may be directly affected in several ways by the formation or enlargement of a regional trading arrangement. Those currently exporting to member countries may lose their markets if other members are given preferential access. This trade diversion effect is most feared by excluded countries. Where the countries forming the bloc are small, there would be no change in world prices and nonmembers would lose from the diversion of trade only to the extent that their exports were shut out of the enlarged market and if there were higher costs of exporting to alternative markets.

However, in the case where the trading bloc is large on a world scale, world prices may increase following the removal of high tariffs by countries within the trading bloc, especially if barriers against imports from third countries are reduced at the same time, offsetting to some extent the trade diversion effects. As a result of the conditional nature of the effects of these associations, changes in trade flows are not a reliable indicator of the welfare effects of regional agreements. In addition, faster growth within the region may lead to an expansion of export markets, thereby improving the situation of nonmembers for items for which they may still have access to the group.

The overall economic impact of regional integration depends on the balance between various factors. The size and direction of effects on individual member countries will depend on the initial trade pattern and the breadth and depth of the reductions in trade barriers. Nonmembers are likely to be adversely affected by the formation of a discriminatory trade bloc through trade diversion effects. However, increases in economic growth attributable to the trade bloc could increase demand for goods and services from all countries, including nonmembers, in the long term provided sufficient access to the group remains. If border protection throughout the member countries were reduced to the level of the member country with the lowest protection, nonmember regions would typically benefit from such an enlargement. Finally, regional trading blocs could under some conditions act as building blocs toward a more liberal global trading system. If regional integration leads to further multilateral liberalisation and the members extend their reductions in barriers to trade to nonmembers as well as members, additional benefits will follow.

Clearly, from a global perspective, the welfare benefits of regional trade liberalisation are likely to be less than those that would occur under effective multilateral trade liberalisation. Under the latter, there would be no potential for losses from shifts in trade away from efficient producers outside the regional trading bloc to higher cost producers within the bloc. The formation
of regional trading areas can also divert efforts away from the process of multilateral trade reform. In fact it is the greater ease with which agreement can be reached with smaller regional groupings that provides much of the incentive for countries to pursue regional integration often with greater vigor than multilateral reform.

The empirical evidence on the debate on the relationship between regionalism and multilateralism is not conclusive. For example, Foroutan (1998) found some evidence that countries that belonged to an effective regional grouping liberalised their trade regimes the most in the past decade. However, his study also pointed to examples of countries that liberalised but did not belong to any regional arrangements and countries that belonged to effective regional trading arrangements but did not liberalise.

Regional trading arrangements are likely to remain an integral part of the multilateral trading system. It is the nature of individual schemes that determines whether they hinder or enhance welfare and global trade. Trade blocs based on open regionalism, that involves member countries lowering barriers to members and nonmembers alike, are likely to be globally beneficial. It is a role of the WTO to establish and enforce a set of rules that ensures as far as possible that if countries form discriminating trading blocs, they do so in a manner that improves welfare for both members and nonmembers.
Developed country policies, trade policy reform and developing countries

Introduction

While there is substantial intervention in agriculture in many developing countries, for most countries the average level of support to agricultural producers is low. This contrasts with the situation in many developed countries. In particular, support to producers is high in the developed countries of North East Asia (Japan and the Republic of Korea), western Europe and, for some commodities, North America.

Agricultural support is provided in three main ways — through restricting or taxing imports, through domestic support in the form of government payments and provision of subsidised government services, and through export subsidies. Such policies in developed countries have been shown to have marked effects on world agricultural markets and therefore the economies of developing countries.

In this chapter, the broad implications of agricultural policies pursued in developed countries for developing countries are examined. There is some

Estimated nominal rates of agricultural protection, OECD countries

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<tr>
<td>%</td>
<td>70</td>
<td>60</td>
<td>50</td>
<td>40</td>
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<td>10</td>
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a Estimates are for 24 OECD countries that include the 15 EU members, Switzerland, Norway, Iceland, Turkey, Canada, the United States, Japan, Australia and New Zealand. The estimate for 1965–74 was derived from a comparison of data from Tyers and Anderson (1992) with OECD data for later years. As the OECD introduced a new method of calculation, 1998 data were rebased on a value basis to be comparable with previous data.
focus on the implications of the provision of trade preferences to particular developing countries.

Developed country agricultural support

Over the long term, agricultural support has been increasing in developed countries, partly because the international rules agreed for agriculture under the GATT/WTO multilateral system have been weaker than for other activities, in particular manufacturing.

Support levels in the developed OECD countries peaked in the period 1986–88 (figure G). They have remained very high by any previous standard since, although they subsided somewhat during a period of relative market buoyancy from 1995 to 1997. Following that period, support has been rising once more — under the influence of depressed world prices linked to flagging world demand during the Asian currency upheavals and appreciating currencies in some developed countries, in particular the United States. By 1999, support to agriculture in 24 OECD countries (the EU15, Switzerland, Norway, Iceland, Japan, the United States, Canada, Australia, New Zealand and Turkey) had risen to 66 per cent of the unsupported value of production. This is approximately the same level as in the period of extreme support in 1986–88. In US dollar terms, support in OECD countries reached US$339 billion in 1999 (OECD 2000).

In mid-2000, the US Congress voted a much increased package of

<table>
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<th>4 OECD countries: Nominal rate of assistance to agricultural producers</th>
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<tr>
<td>Nominal rate of assistance a</td>
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<tr>
<td>1998       1999       %       %</td>
</tr>
<tr>
<td>Australia        7          7</td>
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<tr>
<td>Canada           21         24</td>
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<tr>
<td>Czech Republic   26         33</td>
</tr>
<tr>
<td>European Union   82         95</td>
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<tr>
<td>Hungary          15         24</td>
</tr>
<tr>
<td>Iceland          206        217</td>
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<tr>
<td>Japan            160        182</td>
</tr>
<tr>
<td>Korea, Rep. of   129        285</td>
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<tr>
<td>Mexico           21         29</td>
</tr>
<tr>
<td>New Zealand      1          2</td>
</tr>
<tr>
<td>Norway           200        219</td>
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<tr>
<td>Poland           30         33</td>
</tr>
<tr>
<td>Switzerland      230        276</td>
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<tr>
<td>Turkey           57         57</td>
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<tr>
<td>United States    28         32</td>
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<tr>
<td>OECD average b   59         66</td>
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</table>

a The nominal rate of assistance is defined for the purpose of this table as the level of support to producers (support through prices above world prices plus budget support) divided by the value of production at world market prices multiplied by 100. b OECD average for Australia, Canada, European Union (EU15), Iceland, Japan, New Zealand, Norway, Switzerland, Turkey and the United States.


Trade liberalisation and developing countries
Agricultural support levels in large developed countries, 1999
Percentage nominal rate of assistance

<table>
<thead>
<tr>
<th>Product</th>
<th>United States</th>
<th>Japan</th>
<th>European Union</th>
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<tbody>
<tr>
<td>Wheat</td>
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<td></td>
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<tr>
<td>Maize</td>
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<td></td>
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<tr>
<td>Other grains</td>
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<td></td>
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<tr>
<td>Rice</td>
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<td></td>
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<tr>
<td>Oilseeds</td>
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<td></td>
<td></td>
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<tr>
<td>Sugar</td>
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<td></td>
</tr>
<tr>
<td>Milk</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Beef and veal</td>
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<td></td>
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<tr>
<td>Pig meat</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Poultry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheep meat</td>
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<td></td>
<td></td>
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<tr>
<td>Wool</td>
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<td></td>
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<tr>
<td>Eggs</td>
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emergency support following large packages in both 1998 and 1999. Support levels also increased markedly in 1999 in the European Union, Japan and the Republic of Korea because of continued low world prices and maintenance of support prices. Consequently, developed country support increased to near record levels in 1999. Continuation of low world prices for many agricultural products and the marked increase in US support in 2000 suggest that support in 2000 in developed countries overall will remain at very high levels.

A wide range of support levels for agriculture exists in the OECD developed countries. They are the highest in Switzerland, Iceland, Norway, Japan, the Republic of Korea and the European Union; intermediate in the United States and Canada; and lowest in New Zealand and Australia (table 4). Assistance levels for major commodities are shown for the largest OECD economies in figure H as nominal rates of assistance, which indicate support as a percentage of the unsupported value of production.

**How developed country support affects developing countries**

*Effects of developed country agricultural support*

The support provided to agriculture in developed countries reduces their agricultural imports, in many instances lowers domestic consumption, increases their production of agricultural commodities and increases subsidised exports. This combination of factors acts to depress world market prices for many agricultural commodities.

In developed countries, support is provided largely through measures that insulate their producers and consumers from world market price fluctuations. Consequently the incentives for producers and consumers in those countries to respond to world market signals are either eliminated or markedly reduced. The lack of responsiveness of production and consumption in these countries increases the variability of world prices and shifts the need to respond to world market signals more onto the industries in countries that have low agricultural support (Tyers and Anderson 1992). Unstable world prices impose a greater risk on developing countries because many cannot afford the costs of long term market insulation (Winters 1994).

Agricultural support in developed countries affects developing countries through reducing access to markets, increasing competition on world markets
from subsidised products and depressing and destabilising world market prices. These effects are generally negative for agricultural exporting countries because of the consequent depressed and unstable prices for their products and the limited and often uncertain access to markets. Many of these exporters are developing countries.

As shown in chapter 4, the economies of many developed countries would clearly benefit as a result of agricultural trade liberalisation. For the high support countries of western Europe, East Asia and for some commodities, North America, agricultural liberalisation would reduce agricultural support, directing resources more into activities that are profitable without support. This would increase the efficiency of resource allocation in the economy, providing higher aggregate incomes.

There are also large potential gains from agricultural trade reform to developing countries, estimated at US$14 billion by 2010 from a 50 per cent reduction in agricultural support levels (see chapter 4). As a group, developing countries benefit from greater access to world markets at higher and more stable market prices. Overall, developing countries as a group would produce and export greater quantities of agricultural products and their incomes would rise because they would be able to realise their comparative advantage in agriculture to a greater extent.

However, the increases in world prices will have different implications for different countries depending on whether they are net exporters or importers (Hertel et al. 1999). Nevertheless, greater price stability is expected to benefit both net exporters and net importers.

A general characteristic of impacts from developed country liberalisation is that the gains would be greatest in the developing countries that are either producing or have the capacity to export items that are currently most heavily protected or supported in the developed countries, or goods that are substitutes for such products. Such industries include livestock and temperate agricultural products such as grains and oilseeds or in tropical products such as cane sugar and some oilseeds, fruits and vegetables that are close substitutes for such products.

With the opening of markets and reductions in support for processed agricultural products in developed countries, there would also be potential gains in the processing industries in instances where support in developing countries has been less than in developed countries. Generally, there would be
fewer gains in economies where agriculture is oriented toward tropical products for which markets in developed countries are more open, such as coffee, tea, cocoa and some tropical fruits.

The possibility of terms of trade losses from agricultural trade liberalisation to some agricultural importing economies arises because world prices, and thus prices of agricultural imports, are likely to rise as a result of trade liberalisation. In countries where protection is low and reductions in domestic price support are not significant this world price increase would raise prices faced by domestic consumers. Domestic producers would gain in this scenario and would expand agricultural production. The net impact on economies would depend on whether the positive price incentive to producers provided by the higher world price can offset any losses to consumers. For example, some countries with substantial agricultural resources and low levels of government support could change from being agricultural importers to net exporters given higher world prices.

More generally, the impact of trade liberalisation on price signals in food importing countries will depend on a range of factors including the interaction between any consumer subsidies with trade policies. Such issues are considered in chapter 5.

A second issue for agricultural importers is that the increases in aggregate world incomes that arise from agricultural trade liberalisation would increase demand for goods and services produced or provided by agricultural importing as well as other developing countries. This would provide additional opportunities for nonagricultural industries as well as agricultural industries.

It should be noted that agricultural importers, almost by definition, will have a comparative advantage in nonagricultural activities and would be more likely to benefit substantially from more general trade liberalisation than from liberalisation for agriculture alone (see chapter 4). If liberalisation were extended beyond agriculture to other activities in which agricultural importing countries have a comparative advantage and in which support is high elsewhere, such as in clothing and textiles, there can be direct gains from more comprehensive liberalisation. In addition, the opening up of economies to trade can provide obvious benefits to consumers in terms of wider choice and variety, and induce economic gains through enhanced competition and dynamic effects that are conducive to innovation, productivity enhancement and economic growth. Estimates of these gains are provided in chapter 6.
Preferences and aid-through-trade

The developed countries that gain the most from trade reform, in particular the European Union and the United States, are most prominent in providing preferential access to their markets to specific countries for specific agricultural products. Examples are preferences to African, Caribbean and Pacific (ACP) countries for sugar, bananas and various categories of meat into the European Union and sugar into the United States. It should be noted, however, that such preferences are not confined to developing countries. New Zealand, for example, obtains preferential access for significant quantities of butter and sheep meat into the European Union while Australia retains some access for meat to the European Union and for sugar to the United States.

Special and differential treatment for developing countries is a feature of the WTO Agreement on Agriculture that was negotiated in the Uruguay Round and is not related in any way to preferential access arrangements such as the Lomé Convention and other arrangements discussed in this chapter. Special and differential provisions include smaller reductions in tariffs over a longer implementation period for developing countries than for developed countries; lesser cuts in their aggregate measurement of support and a higher threshold of de minimis exemptions for commodity specific and agriculture wide support from agreed support reductions (WTO 1995).

Preferential access into developed countries with high internal prices provides a price premium to the countries receiving access. The premium equals the difference between the world price and the domestic support price in the developed country. Sales by developing countries on world markets receive the lower world price. With agricultural liberalisation in developed countries, there would be three impacts:

- reduced market price support in the developed country would reduce the price premium to developing countries receiving preferential access;
- reduced preferential access would reduce returns from high priced markets and would lower market distortions and discrimination between WTO members; and
- liberalisation globally would increase prices available to developing countries on the portion of their exports sold on world markets.

The net impact on a developing country would depend on the intensity of these effects. For example, for some economies that have had only a relatively small proportion of exports sold with preferences at prices above world
prices, there could be marked gains from trade liberalisation. As will be shown later, in aggregate, developing countries that are currently exporting sugar to the main preferentially supplied markets (the European Union and the United States) would obtain substantial gains in export revenue and economic benefits from trade liberalisation. However, there would be losses to some small countries that currently focus their exports on the European Union because most of their exports are directed to that preferential market. The same applies but to a lesser extent to countries supplying the United States.

The provision of preferences can be effective in maintaining the dependence of the economies of supplying countries on the preferential items and in obtaining their support for obstruction of agricultural trade liberalisation through negotiations in international forums. It makes countries receiving the preferences dependent on and beholden to the countries providing the preferences as they are always subject to the threat that they could be removed.

There is a possibility that countries that currently provide preferences could, in future, eliminate those preferences and allow competition from other suppliers while maintaining the same limits on total imports. Such a change could reduce incomes in countries that initially had preferential access but would increase incomes in other supplying countries by more, thereby increasing aggregate world income. This is shown in appendix C.

It may also be observed that the advantages to particular suppliers or countries from preferential access are at a cost to the economies of other potential suppliers. Often the other potential suppliers are also developing countries, as is largely the case with sugar. Some large Latin American and Asian sugar producing counties have very limited access to major developed country markets that have preferential access arrangements for imports. For example, ABARE has estimated that Brazil’s sugar exporters would gain an estimated US$383 million a year and Thailand’s an estimated US$175 million a year if the US sugar market alone was completely liberalised (Sheales, Gordon, Hafi and Toyne 1999).

The provision of trade preferences is effectively a form of aid-through-trade. However, it is a very inefficient form of providing aid because it is focused on providing support to a particular economic activity and is not targeted to identified areas of need. It also creates dependence. The amounts received from preferential access arrangements are to some countries a large part of their total exports and production. Also, the products receiving the preferences are often important in the overall economies of the supplying coun-

*Trade liberalisation and developing countries* 41
tries. This is especially so, for example, with sugar exports from small countries with preferential access to the EU market and/or the United States. For example, the great bulk of sugar exports from Mauritius is exported under such arrangements to the European Union. On the other hand, the United States has, with a few notable exceptions that are discussed later, tended to provide preferential access to its sugar market to relatively small proportions of supplying countries’ production and exports.

An idea of the importance of preferential sugar exports to the European Union and the United States in the exports and in the overall economies of some small sugar producing countries that have preferential access, and for which a large proportion of their sugar exports is to these markets, may be gained from table 5.

<table>
<thead>
<tr>
<th>Value of sugar exports to the United States and European Union</th>
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<tr>
<td>Share of merchandise exports</td>
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<td>%</td>
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<tr>
<td>Dominican Republic</td>
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<td>Fiji</td>
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<td>Guyana</td>
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<td>Jamaica</td>
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<tr>
<td>Mauritius</td>
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Sources: International Monetary Fund (2000); FAO (1999).

According to a study by the Commonwealth Secretariat (1997), most small states in the British Commonwealth are highly export oriented, ‘with exports accounting for well over 50 per cent of gross domestic product in the majority of these countries.’ In agriculture, sugar and bananas are important export commodities for these small states. Textiles and garments are often also significant export commodities, while for some, tourism and mining are important sources of foreign revenue. That study highlights both the limit-
ing nature of trade preferences and the degree of dependence on them as follows (p. 35):

‘In brief, not only has trade flowed to markets where preferences exist, but its growth has been determined by the nature of the preferences extended. While this does more to preserve the past than to promote the future, it must be acknowledged that for many small states commodity exports are the bedrock of the economy and an indispensable base for successful diversification. Proposals to phase out preferences are therefore alarming for many small states without significant compensatory measures being agreed.’

**Reorienting aid-through-trade**

There is strong evidence to suggest that the economies of countries currently receiving commodity specific trade preferences could gain more than at present if support were reoriented in more efficient ways. In that way there would be net gains overall and every economy would benefit.

As can be seen from the modeling results in chapter 4 and estimates for sugar reported later in this chapter, the economic gains from agricultural trade liberalisation in the major developed countries would far outweigh any losses elsewhere. This outcome allows for the possibility of reorienting aid from aid-through-trade to aid in other more beneficial forms. For example, Borrell (1999) estimated that it cost EU consumers $5.30 for every dollar of aid provided through banana preferential access arrangements. Borrell’s example highlights that achieving international transfers by allocating trade preferences can lead to a channeling of funds to groups other than those producing specific commodities in developing countries.

In practice, the process of reorienting aid that is currently provided through preferential trade would involve transfers of taxpayers’ funds. This may involve increasing aid budget costs and funds may not always be forthcoming. Nevertheless, there are currently instances where substantial funds are provided from aid budgets to meet the costs arising from preferences to developing countries. In the European Union, for example, export subsidies are being paid from the aid budget on an amount of sugar that is exported from the EU that is equivalent to preferential imports from the African, Caribbean and Pacific countries under the Lomé Convention (Agra Europe 1999, p. 12-6). This aid could be reoriented to provide substantial immediate benefits to countries receiving trade preferences funded through the EU aid budget.
If countries agree to withdraw preferences, how should the aid implicit in the preferences be supplied to the directly affected supplying countries? One obvious approach would be to provide governments of the affected countries with cash grants. Alternatively the aid could be program based. In the short term, attention could be focused on capacity building or on the resources, in particular labor, released as a result of the discontinuation of preferences.

Of course, the most appropriate ways of using the reoriented aid would depend on each country’s particular circumstances. In many instances, well targeted general and communications infrastructure and education programs could be efficient uses of the funds that would facilitate development in as nondistorting a manner as possible. Such programs can help absorb labor and other resources released from the industry that had preferential support.

Longer term attention could be focused on the development and advancement of activities that were profitable continuously without government assistance. Provided the payments were applied in programs that were relatively market neutral, market forces would be the prime determinant of efficient resource use.

**WTO rules and preferential arrangements**

Nondiscrimination in trade ranks along with more open markets in the original stated objectives of the GATT/WTO system. In the preamble to the original General Agreement on Tariffs and Trade, it was stated that the agreement was to contribute to the objectives of raising living standards, ensuring full employment, growing incomes, full use of resources and expanding production and exchange through substantial reductions of tariffs and other barriers to trade and to the elimination of discriminatory treatment in international commerce (WTO 1995).

The provision of preferences, whereby products from particular countries obtain more favorable conditions for access to particular markets than others, amounts to institutionalisation of one major form of discrimination in trade. Yet, even under the arrangements that have applied in the GATT and WTO system, preferences remain widespread. In fact, even in its attempt to increase market access through the use of tariff quotas to assure current access, increase minimum access and expand access generally, the WTO Agreement on Agriculture might be considered to abet the management of markets in ways that often sustain and institutionalise preferences. Not only are country
based preferences an important feature of trade in several major agricultural products such as sugar, bananas and beef, but they also form the very basis for discriminatory regional trading blocs. Both are accommodated within the GATT/WTO framework subject to acceptance that they meet specified conditions and are ratified by the membership.

Irrespective of the fact that preferential trade arrangements result in a less efficient use of resources globally and that they reduce economic gains from specialisation and trade, trade preferences are a widespread fact of life. As well as providing a means of regional economic integration, preferences are often a historical legacy whereby some countries maintain preferential access to particular supplying countries, such as former colonies, over others. This provision of preferences takes place both between developing countries and between developed and developing countries.

Reflecting the pragmatic nature of the GATT/WTO, the issue of preferences has been accommodated, despite preferences being a means of trade discrimination.

In 1971, a Generalised System of Preferences for developing countries advanced by UNCTAD (United Nations Commission on Trade and Development) was adopted. This provided for a margin of preferences in the form of lower tariffs on goods from developing countries than rates applying to other members that would normally be subject to tariffs at the common most favored nation rate. Although the large reductions in tariffs that have occurred since then have reduced the significance of preferences under the Generalised System, it remains an important plank in the trade policies of many developing countries (Goode 1998).

Article XIII of the General Agreement on Tariffs and Trade 1994, covers nondiscriminatory administration of quantitative restrictions. It indicates that there must be no prohibition or restriction of imports from any state or territory unless like products from all third countries are similarly prohibited or restricted. However, it is then provided that if countries restrict access of a particular product, they should aim at a distribution of trade approaching as closely as possible the shares of various member suppliers that would apply in the absence of the restrictions.

Nobody really knows what the shares of various suppliers would be in the absence of the restrictions. Consequently, this provision has the effect of permitting — even entrenching — the provision of preferential access that
has been established. In fact, there were, and continue to be, many very important instances where imports into major importing countries are allocated, either formally or less formally, between specific countries while excluding others. These measures cover imports from both developing and developed countries.

Examples of developed country support systems incorporating preferential arrangements

There are many examples of preferential access for specific products from designated countries to developed countries. In some instances such as with the Lomé Convention between the European Union and African, Caribbean and Pacific (ACP) countries that were mainly former colonies of EU members, there is a comprehensive agreement institutionalising preferences across a wide range of commodities. The agreement provides very specific arrangements that integrate the conditions for entry and pricing of specific commodities such as sugar with domestic support arrangements.

Similarly, US preferential arrangements for sugar imports are effectively integrated with domestic support arrangements.

In the following, two examples of how developed country policies affect the trade of developing countries are examined. They are sugar preferences and links to trade liberalisation and EU banana imports.

Sugar preferences and links to liberalisation

The market for sugar is one of the most highly distorted of all commodity markets. It is characterised by high levels of government intervention to support domestic industries and national measures to regulate both quantities and prices for amounts that are traded. One particular aspect of this government intervention — preferences on access to major developed country markets — is focused on here. Primarily the European Union and the United States provide those preferences.

World trade in sugar currently fluctuates around 36 million tonnes (raw equivalent) a year, which is almost 30 per cent of total world production. About three-quarters of world production is cane sugar produced in tropical and subtropical areas and a quarter is beet sugar produced primarily in temperate northern hemisphere countries.
Most of the world’s cane sugar is produced in developing countries, the only major developed country producer being Australia. The largest single producing countries are Brazil and India but there are many other major producing areas in South and Central America, South East Asia, the Caribbean, Indian Ocean and Pacific islands and Africa.

Support for national sugar industries is high in many countries, particularly in the beet sugar producing countries of Europe, North America and some in North East Asia. The European Union has the world’s largest sugar beet based industry. It is highly supported, with internal prices for most production being greatly above world market levels. The high internal prices have encouraged production and restricted consumption, and the European Union has become a major exporter of beet sugar. However, it has retained significant imports of raw cane sugar, primarily from former colonies of member states. It is these imports that enter under preferential arrangements, primarily under the Lomé Convention between the European Union and former colonies of members in the ACP countries.

The United States also has high support for its domestic sugar industry, which is a composite cane and beet based industry. Over the past few decades, support to the industry has been through maintaining internal prices substantially above world market prices, with the high internal prices being ensured by restricting supplies through import controls. As well as the high prices encouraging domestic production of sugar, they have resulted in the development of a major high fructose corn sweetener industry that now supplies about half of the country’s caloric sweetener requirements.

The combination of high and inflexible internal support prices, associated rising domestic sugar production and competition from substitutes has resulted in US imports declining from around 4 million tonnes a year in the early 1980s to around 2 million tonnes a year in recent years. The United States made a minimum access undertaking in its schedule for the WTO Agreement on Agriculture to import 1.139 million tonnes a year under tariff quota arrangements (Young 1994). In 1999-2000 imports have declined to around this commitment level under pressure from high domestic supplies that have placed pressures on internal prices.

The present high domestic supplies that are depressing US imports are being encouraged by changes in US agricultural policies generally in recent years. Under the 1996 Federal Agricultural Improvement Reform (FAIR) Act, previous support payments for grains (that compete for land with sugar) were
replaced by ‘production flexibility contract payments’. Whereas support was previously linked to areas actually planted, the FAIR Act payments are determined from historical bases and farmers do not need to plant the grain crops to receive them. As a result, some farmers are able to receive their FAIR Act payments and, in response to the high supported prices for sugar relative to alternative crops, switch land into sugar production.

As with the European Union, the United States has provided preferential access to its sugar market to particular supplying countries.

**Details of EU sugar support and import arrangements**

The European Union supports its sugar industry through a two tier system of production quotas (A and B quotas) receiving supported prices, with open ended production allowed beyond the quotas. The quantity produced beyond the quotas is termed C sugar and must be exported without assistance. The bulk of production is in the A quota category (11.98 million tonnes white equivalent), receiving intervention prices that have averaged above two times world market prices over time. About a fifth of total quota production is B quota sugar (2.61 million tonnes) which is subject to levies that make its effective price considerably lower than for A sugar. Apart from C sugar, considerable quantities of quota sugar are exported, and the European Union has become a major net exporter of sugar.

Overall, EU sugar production in recent years has averaged around 18.5 million tonnes raw equivalent (17 million tonnes white equivalent) a year while its exports have been around 5.8 million tonnes. Its share of world exports has been about 16 per cent of total world exports, making it the world’s second largest exporter after Brazil.

At the same time the European Union has been importing around 1.8 million tonnes raw value a year. These imports have been mainly raw cane sugar from ACP countries and India for refining. Imports are controlled within levels determined by an annual balance sheet process. This is done to ensure the smooth operation of its domestic support arrangements along with honoring commitments to import at least 1.3 million tonnes a year (white sugar equivalent, or 1.4 million tonnes raw equivalent) under the Lomé Convention. The current allocation of this sugar is shown in table 6. Since 1995 when Finland joined the European Union, an amount of 85 600 tonnes (raw equivalent), which represents the commitments that Finland had to supply its refineries, is also permitted entry — this additional sugar is primarily from Brazil and Cuba.
The ACP preferential imports are allocated to specific countries that receive the equivalent of the EU internal supported price for sugar. Under the balance sheet arrangement, quantities beyond the ACP minimum and the special amounts for Finland have been imported in recent years, average imports from 1996 to 1998 being 1.86 million tonnes raw equivalent (1.71 million tonnes white equivalent). The additional imports have been primarily from the ACP countries and India at special preferential rates.

Under the WTO Agreement on Agriculture, the European Union is able to export an equivalent amount of quota sugar to that imported under the Lomé Convention from these countries with the aid of export subsidies. Those subsidies are financed through the EU aid budget (Agra Europe 1999, p. 12-6).

**Details of US sugar support and import arrangements**

US support arrangements include internal prices that are underwritten by a loan rate arrangement that is intended to prevent the internal price for sugar from falling below a stable administratively set level of US18 cents a pound for raw cane sugar and US22.9 cents a pound for refined beet sugar. The internal supported price for raw cane sugar has been about 80 per cent above world market prices over the past decade. The high support prices can only be sustained by restricting and regulating imports, competition from which would otherwise reduce internal prices to around world market levels. In the 1996 US farm bill, it was stipulated that the US sugar arrangements should be at no cost to the budget. That is, domestic consumers fund the support through prices that are maintained at around the support levels by limiting competition from imports.

However, as indicated above, tariff quota access of 1.139 million tonnes a year was negotiated in the WTO Agreement on Agriculture and this puts a
Access to the market is closely controlled and although the US commitment is for global access, imports have been allocated among supplying countries. Most of the allocations are to developing countries, primarily in the Caribbean and Central America, although one developed country, Australia, has some access. Initial allocations for raw sugar tariff quotas for 1999-2000 are shown in table 7.

Currently there are many uncertainties about how market access arrangements to the United States will develop, at least in terms of access levels for countries that have been supplying that country. In 2000-01, access of Mexican sugar to the US market will increase from a current level of 25 000 tonnes to 250 000 tonnes under the North American Free Trade Agreement (NAFTA), which could place pressures on access by other suppliers generally. After 2007-08, Mexico’s entire surplus sugar would become eligible for shipment to the United States (Sheales et al. 1999). In recent years, Mexico’s exports have averaged more than 800 000 tonnes a year, so there is potential for a large proportion of quantities from current suppliers to be displaced.

**Impact of support and preferential arrangements for sugar**

The main market distortions from the EU and US support arrange-
ments come from the increase in domestic production driven by the high support prices for sugar, the encouragement of substitutes in the United States, and to some extent the reduced consumption resulting from the high supported domestic prices.

In the case of the European Union, the preferential entry arrangement amounts to the extension of the high levels of EU support for sugar to that part of the sugar industry in other countries that is permitted access to the European Union. For several of the ACP countries that have preferential access to the EU market, a large part of their supplies is directed to the European Union. Consequently, they have become dependent on continuation of the support arrangement for maintaining their current levels of both production and returns. Some of these same countries also have some access to the US market.

The effects of the EU sugar support and trade arrangements are negative for sugar producers outside the European Union that do not have this access to the EU market. The arrangements depress and destabilise market prices obtainable, while lack of access to the EU market restricts market opportunities. It has been estimated that unilateral elimination of EU support for sugar combined with complete liberalisation of barriers to imports would increase world market prices for sugar by 19 per cent (Sheales et al. 1999, p. 42).

The countries that obtain the benefits of preferences to the US market are largely Caribbean and Latin American suppliers and the Philippines. Australia obtains a small direct benefit from its limited access to the US market. However, the direct benefits from the arrangements need to be set against the costs arising from the extent to which the support arrangements have reduced US and world import demand and prices. These impacts have been highly negative for countries that do not have access to the US market and even negative for many of the countries that have relatively limited access to that market (Sheales et al. 1999).

The support and market access arrangements for both the United States and the European Union have become entrenched in recent decades — for the United States since the early 1980s and for the European Union since the 1960s. However, a number of forces are now operating that are likely to make present arrangements unsustainable or that at least may lead to major changes. For the United States, the pressures for policy changes arise from surplus domestic production, associated downward internal price pressures and the need to accommodate imports from Mexico under NAFTA. For the
European Union, changes will be inevitable from expansion of the Union to incorporate eastern European countries. Some of those countries, in particular Poland, are already significant exporters of sugar.

In an environment where major changes to both US and EU sugar policies are likely or certain to occur, the position on market access for many of the suppliers to those countries also becomes uncertain. The current situation in the United States in particular holds many uncertainties for supplying countries. The internal US supply situation could result in surpluses being exported, such as through aid, with possible displacement of commercial sugar supplies, depressing world prices further. Access by present suppliers to the US market other than Mexico also appears far less certain than previously. This is a critical issue for these countries.

Under these conditions, there is a danger that some of the internationally most destructive effects of the present support arrangements in the United States and the European Union could be exacerbated. Unless policies in these importing countries are significantly liberalised, there is prospect of them further depressing world prices for sugar and further reducing access by present suppliers. Such developments would be harmful to many developing country exporters.

A notable feature of US sugar import arrangements is that except for a small number of supplying countries, including in particular the Dominican Republic, Panama, Ecuador, Honduras and Peru, exports to the United States represent relatively small proportions of their total exports and production. Virtually all exports by the Philippines and a large proportion from Argentina have also been to the United States, but exports by these countries have constituted relatively small proportions of their production. In volume terms, the US market is proportionately small for most external suppliers, with the notable exceptions of those mentioned above.

In an analysis by Sheales et al. (1999), it was estimated that simultaneous elimination of government intervention in sugar production and trade by the European Union, the United States, Mexico, Canada, China, Japan and Korea would increase world market prices by 41 per cent. Such an analysis encompasses most of the distortions to world markets for sugar, although India also intervenes substantially to insulate its large sugar industry and Brazil’s policies on fuel ethanol can also have substantial implications for world prices for sugar.
Estimated impacts of arrangements

Further analysis of the interactions of liberalisation with the preferential access arrangements of the European Union and the United States was carried out to ascertain the implication for the various developing countries that have been supplying these markets. This analysis is based on actual access and prices in the second half of the 1990s and does not take account of the dynamic factors mentioned earlier that are currently exerting pressures for change on the US and EU arrangements.

As data on internal prices in supplying countries were limited, such analyses required assumptions on prevailing internal prices to producers and consumers in each of the supplying countries. Three such sets of assumptions were used — average prices for exports, world market prices, and prices equal to those obtainable from the lowest price export market to which the country supplies. The main estimated effects of the assumed liberalisation when compared with situations that prevailed in the second half of the 1990s include the following.

• The developing countries that currently supply either or both the European Union and the United States with imports would obtain a total of US$2.4–2.7 billion (in 1998 US dollar values) more in export earnings for sugar than under present arrangements. Such gains would occur after the liberalisation had been fully implemented and production, consumption and prices had responded fully to it. The gains arise primarily from the increase in world market prices that can be obtained for exports by developing countries on quantities that did not have access to either the EU or US markets and growth in import demand from areas where support had been high. These gains are estimated to exceed any losses in returns from those markets by countries that have had preferential access.

• The net economic benefits from production and consumption of sugar in the developing countries that supply the European Union and the United States would increase in total by approximately US$1.1 billion a year as a result of the liberalisation.

• The economies of the European Union and the United States would benefit in total by US$1.1 billion a year as a result of the liberalisation, with the European Union accounting for approximately 85 per cent of those benefits.

• While the economies of developing countries that are supplying the European Union and the United States would benefit substantially in
aggregate from the liberalisation, some would gain, some would be marginally affected and some would lose. Those that gain would experience enhanced national income benefits of around US$1.4 billion a year while those that would lose would experience combined losses estimated to be US$270–300 million a year.

• Brazil would be by far the largest single economic gainer from the liberalisation, but other developing countries that would gain markedly would include Thailand, South Africa, Colombia and Guatemala. Smaller, but still significant gainers would include El Salvador, Bolivia and Nicaragua.

• Based on this analysis, which does not take account of the present pressures for change in the United States and the European Union, a number of countries were found to be only marginally affected by the liberalisation. This group comprises countries for which the results were so small that effects of data errors could make the results misleading. These countries could be made better or worse off by such a liberalisation relative to the situation that prevailed in the second half of the 1990s, but the margin would be small. Such countries include Costa Rica, Ecuador, Honduras, Madagascar, Malawi, Mozambique, Panama, Peru, Tanzania, Zambia and Zimbabwe.

• The countries estimated to have the largest economic losses relative to the size of their sugar industries are Mauritius, Guyana, Jamaica, the Dominican Republic, Swaziland, Fiji, Trinidad and Tobago, St Kitts Nevis, Belize and the Philippines. However, any loss to the Philippines would depend on domestic support arrangements that could be reformed along with the liberalisation induced increase in world prices to reduce present penalties on consumers from high tariffs.

• The developing countries that would gain the most from liberalisation are mainly relatively large producers with only small proportions of their current production and exports being supplied to the European Union and/or the United States with the aid of preferences. Such countries would obtain higher prices from the world market for the bulk of their production from the liberalisation and would lose little from the removal of preferential access to developed country markets.

• Those most likely to lose are countries that export primarily to the European Union and/or the United States with preferences, which would face lower prices for their exports to those destinations after the liberalisation. However, they would be able to obtain higher prices than previously from other markets.
The countries that would lose from trade liberalisation for sugar alone are primarily the small ACP countries that supply the European Union, some of which also provide quantities to the United States and other markets. However, losses would also be likely for the Dominican Republic, whose exports are heavily oriented toward the US market.

It is estimated that for the developing countries that would lose as a result of trade liberalisation and discontinuation of preferences to the European Union and the United States, about three-quarters of the losses would arise from EU liberalisation. This is primarily because the EU preferential market is the dominant outlet for those countries.

The economic benefits to the EU and US economies as a result of the sugar liberalisation are estimated to be US$980 million and US$160 million a year respectively. These amounts total well in excess of the losses to the developing countries that could lose as a result of liberalisation. The gains to the EU economy are estimated to be about four times the losses to the preferential developing country suppliers that lose from EU liberalisation. The gains to the US economy would be about twice the estimated losses to the developing countries that lose from US liberalisation.

The EU gains from liberalisation include savings to EU taxpayers, conservatively estimated to average US$360 million a year, from funding the export subsidies on the quantity of EU sugar exported that is equivalent to imports from ACP countries and India. This amount alone more than covers the losses that those countries could face as a result of trade liberalisation.

Under such conditions, some of the countries that have been estimated to lose from liberalisation of the US and other markets may lose even more if liberalisation and the associated increase in world prices does not occur. Also, countries that are estimated to be little affected by liberalisation could lose if liberalisation does not occur.

**EU bananas**

The EU discriminatory import arrangement for bananas is perhaps the most publicised example of distorting preferential arrangements by developed countries as they affect developing countries. The European Union, which does not produce significant quantities of bananas itself relies on imports for its supplies. It has had a bimodal arrangement for imports whereby preferential access has been provided to former colonies (ACP countries) and overseas territories on imports into the United Kingdom, France, Italy, Portugal...
and Spain (Borrell 1999). The arrangement is supposed to provide aid to producers in the preferred supplying countries in the form of higher prices.

**Impact of support and preferential arrangements for bananas**

The support has been provided through restricting quantities to specific EU member markets through a system of licensing, but as Borrell (1999) has estimated, most of the resulting increase in prices to EU consumers has gone to EU importers. As stated earlier, he estimated that it cost EU consumers $5.30 for every dollar of aid provided through this arrangement to preferred suppliers. He also showed that the industries in the countries with preferential access were high cost producers on a world scale and had become dependent on the aid, even though it had been provided in an inefficient manner.

Apart from the EU consumers who were big losers from the arrangement, there are significant losses to banana producing countries that are excluded from particular EU markets. These are primarily low cost Latin American producing countries that would face higher import demand and obtain higher prices for their exports if the EU arrangements were liberalised (see appendix C).

Borrell showed that there are much more efficient ways for the European Union to provide support to the banana industries in the developing countries that currently have preferential access to EU markets — through tariffs alone at reasonable levels rather than quotas. He also concluded that a well designed program of aid not linked to the production or supply of bananas would be more beneficial to the economies affected than the present ‘aid’ that is tied to trade in bananas. It would be much less distorting to markets and would not impose most of the present costs on efficient banana producers and on the world economy.

The EU support arrangements for bananas were the subject of a complaint brought before a WTO panel jointly by Ecuador, Guatemala, Mexico and the United States. That panel found against the European Union in 1997. The European Union has since been making various changes to its banana trading arrangements to meet the requirements arising from the findings. However, as at mid-2000, the changes made had not been acceptable to the complainants.
The gains from trade liberalisation

In chapters 2 and 3 a broad description of policies affecting agriculture in developing and developed countries was provided. In this chapter, the potential gains from reforms to these policies are estimated. Trade liberalisation for agriculture alone will result in changes in incentives within the economy that will differ from those that would result if liberalisation were to occur across a large number of sectors. To illustrate this, analysis is undertaken of liberalisation covering both agriculture and manufacturing.

Analysis using a model of the world economy

The analysis reported in this study is based on simulation results from ABARE’s Global Trade and Environment Model (GTEM). GTEM is a multi-region, multisector and dynamic general equilibrium model of the world economy. It is derived from the MEGABARE model (ABARE 1996) and GTAP model (Hertel 1997). The model code is available on ABARE’s website (www.abareconomics.com) and a nontechnical description is provided in appendix B.

GTEM is an appropriate framework for analysing complex trade policy issues because it takes into account the interaction between different sectors in each major economy and between economies. The model provides estimates of the impacts of policy changes on key economic variables. These include trade and investment flows between regions, the prices of consumer goods and inputs into production, sectoral and regional output and, ultimately, regional income and expenditure.

GTEM utilises version 4e of the GTAP database. The standard GTAP database has been modified to improve the representation of the economic structure and policies in the 1995 base period (see appendix A).

Country and commodity aggregation

The coverage of regions and commodities that are used in the model in this study is shown in box 2. This coverage has been disaggregated to represent key commodities and groups of commodities and a wide range of countries and regions.
### Region and commodity coverage of GTEM

<table>
<thead>
<tr>
<th>Regions</th>
<th>Commodities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Paddy rice</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Wheat</td>
</tr>
<tr>
<td>Japan</td>
<td>Coarse grains</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Vegetables, fruit and nuts</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Oilseeds</td>
</tr>
<tr>
<td>Philippines</td>
<td>Sugar cane, beet</td>
</tr>
<tr>
<td>Thailand</td>
<td>Other crops</td>
</tr>
<tr>
<td>China</td>
<td>Live cattle and sheep</td>
</tr>
<tr>
<td>India</td>
<td>Live pigs and poultry, hides and skins</td>
</tr>
<tr>
<td>Canada</td>
<td>Raw milk</td>
</tr>
<tr>
<td>United States</td>
<td>Wool</td>
</tr>
<tr>
<td>Argentina</td>
<td>Ruminant meat products (beef and sheep meat)</td>
</tr>
<tr>
<td>Brazil</td>
<td>Nonruminant meat products</td>
</tr>
<tr>
<td>Rest of Latin America</td>
<td>Vegetable oils and fats</td>
</tr>
<tr>
<td>European Union (15)</td>
<td>Dairy products</td>
</tr>
<tr>
<td>Africa</td>
<td>Processed rice</td>
</tr>
<tr>
<td>Rest of World</td>
<td>Sugar</td>
</tr>
<tr>
<td></td>
<td>Other food products</td>
</tr>
<tr>
<td></td>
<td>Beverages and tobacco</td>
</tr>
<tr>
<td></td>
<td>Textiles</td>
</tr>
<tr>
<td></td>
<td>Manufactures</td>
</tr>
<tr>
<td></td>
<td>Motor vehicles</td>
</tr>
<tr>
<td></td>
<td>Services</td>
</tr>
<tr>
<td></td>
<td>Energy</td>
</tr>
</tbody>
</table>

China includes Hong Kong. Rest of Latin America includes Mexico, Chile, Central America, Venezuela, Colombia, Rest of Andean Pact, Rest of South America and Uruguay. The Rest of World includes the Republic of Korea, Singapore, Chinese Taipei, Sri Lanka, Rest of South Asia, Central European Associates (including Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia, Slovenia), the former Soviet Union, Turkey, Rest of Middle East and other countries not specified here. The Rest of World region also includes developed countries of the EFTA region (including Norway, Iceland and Switzerland). Textiles include wearing apparel and leather products. Manufactures include wood products, paper products and publishing; petroleum and coal products, chemicals, rubber and plastic products; mineral products; metal products; nonferrous metals, ferrous metals and transport equipment nec, electronic equipment, machinery and equipment nec and manufactures nec. Services include electricity, gas and water distribution, construction, trade and transport, financial, business and recreational services, public administration and defence, education and health, and dwellings. Energy includes coal, oil, gas, minerals nec, forestry and fishing. See McDougal et al. (1998) for definitions.
In the commodity coverage, eleven are primary agricultural goods and eight are processed agricultural products. The commodity aggregation chosen emphasises the role of the agricultural sector in both developing and developed countries and the importance of this sector in multilateral negotiations. The coverage also includes textiles and motor vehicles as separate sectors, reflecting high levels of protection in these sectors in some countries, as well as other manufacturing.

It should be noted that the specific aggregation chosen could hide potentially important trade effects in specific commodities and countries, and thus some care needs to be taken in interpreting the results.

**Basic principles: gains from trade liberalisation**

The arguments in favor of trade liberalisation are based on two fundamental ideas in trade theory. One is that the size of the global economy is maximised when each country focuses on producing and exporting goods and services that they can produce and deliver most efficiently, and importing goods and services that are produced less efficiently domestically. The second key idea is that a world trade system that is undistorted by government intervention will deliver price and profit signals that lead them to allocate production resources to generate a globally efficient pattern of production. Put another way, when comparative advantage is the sole basis of trade, the allocation of resources cannot be altered in any way that improves the economic wellbeing of all countries in the trading system (Caves and Jones 1985).

The world economy, however, is characterised by government intervention, often in favor of inefficient sectors where countries do not have a comparative advantage, in both developed and developing countries (Anderson and Hayami 1986; Krueger, Schiff and Valdés 1988). This intervention moves productive resources away from their optimal uses, resulting in higher costs of living, lower incomes and sluggish economic growth (OECD 1993). Once the distorting policies are in place it is often politically difficult to have them removed (Anderson 1998).

Under these circumstances, trade liberalisation and more generally the removal of market distortions can be expected to translate into higher economic growth performance than would otherwise be the case.
This proposition is supported in a number of empirical studies that have established a positive relationship between trade liberalisation and economic growth (Brandão and Martin 1993; Sachs and Warner 1995; Rutherford and Tarr 1998). For example, Sachs and Warner (1995) found that during the 1980s, countries with liberal trade regimes had average growth rates in gross domestic product per person that were 2.45 percentage points higher than countries with trade barriers. Also, Krueger (1995) has attributed the strong growth experienced in East Asian economies before the financial crisis of 1997 largely to their outward looking policies.

Among the key roles that trade plays in promoting economic growth are to assist in increasing savings and investment by raising income levels, transferring technology and accumulating physical capital (Wacziarg 1998), and to encourage structural adjustment and innovation (OECD 1993). For developing countries, openess has been more successful in promoting economic growth and improving economic wellbeing at the national level than foreign aid and inward looking policies like the import substitution strategies that became popular after the Second World War (Krueger 1995). While other factors such as efficient financial markets, macroeconomic discipline, and good governance are important, the role of trade has been clearly demonstrated to be vital for economic growth.

Another important finding in the literature is that countries can benefit from unilaterally reducing their own trade barriers without waiting for others to open up their markets. Within a unilateral setting, the most important effect of liberalisation occurs as market forces take a greater role in allocating scarce resources to their most profitable uses and competition compels firms to innovate and adopt cost saving measures. These factors act to increase national income.

The above assessment assumes that a country cannot exercise any market power to influence world prices. However, if a country’s contribution to world production, trade and/or consumption of specific products is large enough, it may be able to use tariffs or export taxes to exercise its market power to influence the price received for exports or paid for imports. If it is a large market, it can reduce world import demand through tariffs or other border measures, thereby reducing import prices. If it is an exporter it can tax or restrict exports, thereby raising prices for its export products. By so doing, it may be able to increase its own level of incomes (Root 1990). While, in principle, a large country may be able to obtain benefits in terms of higher incomes through applying optimum tariffs or taxes, any such gains are at a
greater cost to other trading nations. They reduce the efficiency of resource use and overall levels of income globally. One of the benefits of the multilateral system as it operates through the WTO is that it constrains the extent to which countries with market power could apply such measures at the expense of others.

If many countries simultaneously employ what they consider to be optimum tariffs or export taxes, this could leave most, if not all, countries in a trading system worse off (Anderson 1999). Furthermore, any benefits that are thought to be derived from such measures may be more apparent than real, in the long run. They encourage the development, production and distribution of competitive substitutes domestically where tariffs are used to restrict imports, and they increase competition from other suppliers of the same product on the world market if export taxes are used (Roberts et al. 1999). In most cases, developing countries do not have the market power to influence their terms of trade (Anderson 1998). Under these conditions, the best option to maximise economic benefits is to liberalise all sectors.

If trade liberalisation is undertaken at a multilateral level, gains are likely to be reinforced by enhanced market access, providing countries with opportunities to expand trade, take advantage of any economies of scale, and diversify their product range. These factors are important for some developing countries, particularly where domestic markets tend to be small and there are limited diversification options. Consumers in countries that had applied protective mechanisms would also gain as reduced protection and removal of trade barriers reduces domestic prices. Also importantly, greater openness can be expected to increase choice as more products from different sources are allowed access to previously restricted markets.

Reference scenario
Before simulation of any policy changes can be undertaken, it is necessary to construct a baseline or reference case scenario to project likely levels of output, trade, protection and other variables in the absence of the policy changes. This scenario projects the situation in the absence of any further multilateral trade reform beyond that agreed in the Uruguay Round.

The reference case provides a benchmark against which alternative reform scenarios can be compared and is projected for the period 1995–2010. The reference case contains projections for population, gross domestic product
(GDP) and agricultural policies as they are expected to evolve given the implementation of agreements from the Uruguay Round.

Some judgment is required in projecting agricultural support levels, because these may vary with market conditions and the way in which policy reforms under the Uruguay Round have been and will be implemented. In general, relatively shallow cuts in agricultural support levels from the 1995 base period have been assumed, because to date there is little evidence that much reduction in support has actually occurred (Roberts et al. 1999). Nominal rates of assistance for agriculture in OECD countries at the beginning of the Uruguay Round implementation period in 1995 averaged 60 per cent (OECD 1998, p. 38). Latest figures for 1999 suggest a significant increase to around levels in the mid-1980s, which were the highest in at least the past half century (Roberts et al. 1999). Several factors contribute to a lessening of the impact of Uruguay Round reforms.

**Tariffs and border support**

First, the scheduled reductions in the Uruguay Round Agreement (as outlined in chapter 2) were based on ‘bound’ rates or statutory maximums, which in many instances exceeded actual applied rates at the beginning of the implementation period. Under these conditions the agreed changes in such rates may reduce actual tariffs by less than agreed reductions in bound rates and, in some instances, applied rates may not be reduced at all. Furthermore, the reforms require reductions in unweighted averages for each country’s agricultural products, suggesting that high tariffs on some products like sugar, rice or dairy products can be maintained by making substantial reductions on tariff lines in which there is little trade. Finally, protection levels in the base period were very high, implying that many countries need do nothing to meet their reduction commitments.

The instigation of tariff rate quotas to replace nontariff barriers ensured minimum access levels for some commodities, but tariffs on overquota imports are often prohibitive. For example, overquota rice imports into Japan attract a tariff of 341 yen a kilogram which is equivalent to US$3200 a tonne at mid-2000 exchange rates, while beef imports into the European Union draw a 12.8 per cent *ad valorem* tariff plus a specific tariff of 1768 ECU (US$1690) a tonne. In many cases the quotas were set to allow imports to rise to 5 per cent of consumption in 2000. Although these minimum access provisions led to some improvement, on the whole there remains much to be done in removing border protection.
Rather than reduce all 1995 tariffs by 36 per cent from the 1986–88 average with minimum cuts for individual items of 15 per cent (developing country cuts are two-thirds of these), as agreed under the Uruguay Round, reductions in tariffs over the baseline are based on judgment using available information on applied rates in 1995 and likely rates in 2000. This involved almost no change in tariff rates in Australia and New Zealand, reductions in rates for Japanese rice, wheat and sugar, increases for Canadian wheat, coarse grains, beef and dairy products, increases for US dairy products and sugar, and increases for EU wheat, coarse grains, live cattle and rice. Support has actually risen for some of these products because 1995 protection levels were rather low at a time of high world prices.

Switch to domestic support

One change observed over the base period is the switch to forms of domestic support that were exempted from cuts under the WTO Agreement on Agriculture. Forms of domestic support that are deemed to have few or minimal trade distorting effects are exempt from reduction commitments. This has encouraged a switch from direct output and input related subsidies and export subsidies to direct income support. For this reason, for most countries it is assumed that there are no reductions in domestic support over the baseline.

Export subsidies

A similar approach applies to export subsidies. In the European Union, these have largely been replaced with direct domestic compensation payments. This maintains production distorting effects but eludes reduction commitments. The United States also provides direct payments for farmers producing for export. The agreed 1986–90 base period also allows scope for increases in subsidised exports in some cases. In other instances unused credits from earlier years are carried forward to allow greater subsidised volumes in future years. For these reasons exports subsidies have not acted as a constraint in the baseline.

The pattern of protection

The general pattern is that developed countries have high rates of protection on agricultural products that they produce themselves, particularly for dairy and sugar, ruminant meats (excluding beef in the United States, which is lightly supported) and cereals. Rice, which is thinly traded on world markets,
is the most highly protected of the major crops in OECD countries, reflecting the protective measures taken in Japan and Korea. There is also significant support in the European Union and the United States. Lightly protected products produced in developed countries include pig and poultry meat and wool. Notably, protection on tropical products such as coffee, tea and rubber tends to be small, reflecting the lack of industries in major developed countries to protect. The most significant exception to this generalisation is sugar, as cane sugar grown in many developing countries is substitutable for beet sugar produced in the predominantly temperate climates in developed countries.

Partial agricultural liberalisation scenario

To assess the economic effects of continuing agricultural liberalisation alone, a further 50 per cent reduction in tariff equivalents, domestic support and the value of subsidised exports in all countries over and above the agreed Uruguay Round commitments is simulated. It is assumed that the reductions are phased in evenly over six years from 2005. This is in contrast to the Uruguay Round agreement where developing countries negotiated to phase in reduced commitments over ten years. Results focus on the impact of the reforms on gross domestic product, terms of trade and trade in different products.

Importantly, it is assumed here that reductions in support have an immediate effect — there is no ‘water’ (unused capacity) in the tariff, implying that tariffs are fully reflected in internal prices. Also, it is assumed that surplus rents are dissipated before quantity changes occur. ABARE’s results may overstate the impact of reform to the extent that these assumptions are not realistic.

Measures of economic gains and losses

The estimated overall economic impacts of a 50 per cent agricultural trade liberalisation alone are presented in table 8. The first point to note is that the global impact and the impact on all regions is positive. Global gains in gross domestic product amount to $53 billion in 2010 (in 1995 dollars), relative to the reference case.

The distribution of gains between countries depends on trade flows and the depth of reductions. Bearing in mind that the bulk of the market distorting protection is in the European Union, Japan and, to a lesser extent, the United States, it is not surprising that many of the gains (around $40 billion) are in
these countries. Developing countries benefit by nearly $14 billion in 2010, with gross domestic product in all regions expected to rise.

**Terms of trade**
The terms of trade capture changes to relative prices facing different countries. They increase if export prices rise relative to import prices and decline if import prices rise relative to export prices. Agricultural exporting countries are likely to obtain the greatest benefits among developing countries from increased terms of trade with agricultural liberalisation alone. This is because world market prices are likely to rise with the reduction in market distorting domestic and export subsidies and increased levels of market access that increase world import demand. Brazil, Thailand and Argentina are all agricultural exporters and obtain terms of trade benefits relative to the reference case.

Agricultural importers are most prone to any adverse effects from partial agricultural liberalisation because of rising prices of agricultural imports. Japan is the most adversely affected by movements in its terms of trade, reflecting its high reliance on agricultural imports and a severe land constraint in agricultural production. Developing countries are generally less adversely affected than Japan. Although some depend substantially on imports of agricultural products, many have substantial land and other agricultural resources, production from which is likely to expand with increased world prices. In this context, countries that have experienced negative terms of trade effects from agricultural liberalisation alone are generally those that have a comparative advantage in nonagricultural products. Their economies are likely to obtain greater benefits from a more comprehensive round of trade liberalisation.

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**Impact of a 50 per cent agricultural liberalisation on gross domestic product and terms of trade, 2010**

<table>
<thead>
<tr>
<th>Changes relative to the reference case</th>
<th>Real gross domestic product</th>
<th>Terms of trade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>US$m</td>
<td>%</td>
</tr>
<tr>
<td>Africa</td>
<td>479</td>
<td>0.08</td>
</tr>
<tr>
<td>Argentina</td>
<td>312</td>
<td>0.08</td>
</tr>
<tr>
<td>Australia</td>
<td>189</td>
<td>0.04</td>
</tr>
<tr>
<td>Brazil</td>
<td>1447</td>
<td>0.16</td>
</tr>
<tr>
<td>Canada</td>
<td>66</td>
<td>0.01</td>
</tr>
<tr>
<td>China</td>
<td>2570</td>
<td>0.18</td>
</tr>
<tr>
<td>European Union (15)</td>
<td>28310</td>
<td>0.25</td>
</tr>
<tr>
<td>India</td>
<td>894</td>
<td>0.19</td>
</tr>
<tr>
<td>Indonesia</td>
<td>64</td>
<td>0.03</td>
</tr>
<tr>
<td>Japan</td>
<td>8980</td>
<td>0.14</td>
</tr>
<tr>
<td>Malaysia</td>
<td>467</td>
<td>0.35</td>
</tr>
<tr>
<td>New Zealand</td>
<td>264</td>
<td>0.32</td>
</tr>
<tr>
<td>Philippines</td>
<td>208</td>
<td>0.24</td>
</tr>
<tr>
<td>Thailand</td>
<td>505</td>
<td>0.23</td>
</tr>
<tr>
<td>United States</td>
<td>1830</td>
<td>0.02</td>
</tr>
<tr>
<td>Rest of Latin America</td>
<td>329</td>
<td>0.03</td>
</tr>
<tr>
<td>Rest of World</td>
<td>6360</td>
<td>0.15</td>
</tr>
<tr>
<td>Total</td>
<td>53249</td>
<td>0.14</td>
</tr>
</tbody>
</table>

*Source: GTEM simulations.*

---

*Trade liberalisation and developing countries* 65
General equilibrium models of the world economy such as GTEM are able to capture the impacts of policy changes on large numbers of economic variables. These include producer and consumer prices, sectoral and regional output, trade and investment flows and regional income and expenditure levels. The estimated impacts of policy changes, such as tariff and subsidy reduction measures, on economic variables are expressed as the percentage deviations between the equilibrium levels of those variables in the reference case and their equilibrium levels in the policy simulation.

For example, the impact of trade and investment liberalisation on the level of gross domestic product in an economy can be identified by comparing the growth in GDP in the policy simulation against GDP growth in the reference case, as illustrated in the diagram below.

To provide a numerical example, consider that reference case GDP at 2010 is projected to be $100 billion (distance $ab$). Following the introduction of reforms, GDP at 2010 is projected to be 110 billion dollars (distance $ac$). This corresponds to the 10 per cent increase in GDP from the reference case (distance $de$). Hence the effect of trade liberalisation in this example would be to increase GDP by 10 per cent compared with the reference case projection for 2010.
Trade impacts

In general, trade liberalisation for agriculture alone results in higher production and exports by countries that have had relatively low levels of support and protection. For those that have higher levels of support, agricultural liberalisation would place downward pressures on agricultural production and on subsidised exports, while imports would tend to increase. Resources currently used in agriculture would flow more to other activities. Broadly, liberalisation constrains production in the European Union and Japan and for some commodities in North America, and provides greater market access opportunities for exporters including those in many developing countries.

In the following individual commodity summaries, broad trends in changes in values of export and imports for specific commodities by major trading countries are outlined relative to the reference case. In the framework used, changes in the values of exports and imports are modeled, reflecting the real world situation where countries are often both exporters and importers.

Rice

Developing countries tend to be grain importers rather than exporters. The exception to this is rice. Perhaps the most significant change in the grains market is the opening up of the rice markets in Japan and Korea (Korea is aggregated into the Rest of World region). Rice is not widely traded internationally in comparison with other grains, and slight changes in the balance between production and consumption in one country can significantly influence trade flows.

With liberalisation, rice imports to Japan more than double relative to the reference case, with much of the increase in Japanese imports being drawn from China, the United States and some for Australia where Japonica rice, which is favored by

<table>
<thead>
<tr>
<th>Processed rice: Changes in trade from a 50 per cent reduction in agricultural support, 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in value relative to the reference case</td>
</tr>
<tr>
<td>%</td>
</tr>
<tr>
<td>Africa</td>
</tr>
<tr>
<td>China</td>
</tr>
<tr>
<td>European Union</td>
</tr>
<tr>
<td>Indonesia</td>
</tr>
<tr>
<td>Japan</td>
</tr>
<tr>
<td>Malaysia</td>
</tr>
<tr>
<td>Philippines</td>
</tr>
<tr>
<td>Thailand</td>
</tr>
<tr>
<td>United States</td>
</tr>
<tr>
<td>Rest of Latin America a</td>
</tr>
</tbody>
</table>

a Includes Mexico, Chile, Central America, Venezuela, Colombia, Rest of Andean Pact, Rest of South America and Uruguay.

Source: GTEM simulations.
Japanese consumers, is grown. The higher general demand for rice internationally is also reflected in greater values of exports by other major trading producers such as Thailand and Viet Nam. Major changes in values of exports and imports from 50 per cent agricultural liberalisation relative to the reference case are shown in table 9.  

Wheat
Agricultural liberalisation results in increased values of exports from all major wheat exporting countries except the European Union, where lower support results in both a reduction in exports and an increase in imports relative to the reference case (table 10). Within the developing countries, there would be marked increases in the values of wheat exports from Argentina and India. The more open markets would result in increases in imports by many countries including Brazil, Japan, China and South East Asian countries. The value of imports of wheat into Africa and India would also increase but only marginally.

Coarse grains
Reductions in support for coarse grains in the European Union and Japan decrease production and increase imports in these countries, and increased supplies, relative to the reference case, from the United States, Canada and several developing countries fill the void (table 11).

<table>
<thead>
<tr>
<th>Wheat: Changes in trade from a 50 per cent reduction in agricultural support, 2010</th>
<th>Change in value relative to the reference case</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exports</td>
</tr>
<tr>
<td></td>
<td>%</td>
</tr>
<tr>
<td>Africa</td>
<td>5</td>
</tr>
<tr>
<td>Argentina</td>
<td>20</td>
</tr>
<tr>
<td>Australia</td>
<td>15</td>
</tr>
<tr>
<td>Brazil</td>
<td>10</td>
</tr>
<tr>
<td>Canada</td>
<td>22</td>
</tr>
<tr>
<td>China</td>
<td>52</td>
</tr>
<tr>
<td>European Union</td>
<td>–10</td>
</tr>
<tr>
<td>India</td>
<td>38</td>
</tr>
<tr>
<td>Indonesia</td>
<td>7</td>
</tr>
<tr>
<td>Japan</td>
<td>17</td>
</tr>
<tr>
<td>Malaysia</td>
<td>8</td>
</tr>
<tr>
<td>Philippines</td>
<td>11</td>
</tr>
<tr>
<td>Thailand</td>
<td>11</td>
</tr>
<tr>
<td>United States</td>
<td>8</td>
</tr>
</tbody>
</table>

Source: GTEM simulations.

<table>
<thead>
<tr>
<th>Coarse grains: Changes in trade from a 50 per cent reduction in agricultural support, 2010</th>
<th>Change in value relative to the reference case</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exports</td>
</tr>
<tr>
<td></td>
<td>%</td>
</tr>
<tr>
<td>Africa</td>
<td>19</td>
</tr>
<tr>
<td>Argentina</td>
<td>12</td>
</tr>
<tr>
<td>Canada</td>
<td>22</td>
</tr>
<tr>
<td>China</td>
<td>42</td>
</tr>
<tr>
<td>European Union</td>
<td>–40</td>
</tr>
<tr>
<td>Japan</td>
<td>8</td>
</tr>
<tr>
<td>Philippines</td>
<td>24</td>
</tr>
<tr>
<td>Thailand</td>
<td>6</td>
</tr>
<tr>
<td>United States</td>
<td>43</td>
</tr>
</tbody>
</table>

Source: GTEM simulations.
The United States remains the dominant world exporter. Argentina is the major developing country coarse grain exporter, while Thailand, China and Africa all export some quantities. Argentina increases its exports of coarse grains moderately, but Chinese exports increase significantly from a relatively low base.

On the import side, Japan which is currently the world’s largest single market for coarse grains, increases the value of its imports moderately while China becomes a much larger market. Tariff reductions in the Philippines also drive a significant increase in imports from a low base.

**Oilseeds, vegetable oils and fats**

Oilseeds and vegetable oil industries are important agricultural activities in a number of developing countries. Major examples include palm oil industries in Malaysia and Indonesia, soybeans in Brazil and soybeans and sunflowers in Argentina, and coconut oil in the Philippines and Indonesia. Groundnuts are an important crop in China, India and in some African countries including Nigeria and Senegal but most production is for internal use. There are also very large oilseeds industries in developed countries, particularly soybeans and to a lesser extent, peanuts, sunflower and cottonseed in the United States, rapeseed and sunflower seed in Europe and rapeseed in Canada.

The range of uses of oilseeds is wide including direct use for food (peanuts, soybeans) and for crushing to produce vegetable oils for edible and industrial use and meals for stockfeed.

Levels of government support vary between countries, with substantial support provided for rapeseed, sunflower seed and olive oil in the European Union, and for peanuts in the United States. There is also some assistance provided for soybeans in the United States. Generally, support for vegetable oilseeds industries in developing countries has been low.

The effects of the 50 per cent agricultural trade liberalisation would be to increase trade markedly relative to the reference case. The

<table>
<thead>
<tr>
<th></th>
<th>Exports</th>
<th>Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>European Union</td>
<td></td>
<td>83</td>
</tr>
<tr>
<td>Japan</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>United States</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

*Source: GTEM simulations.*

*Trade liberalisation and developing countries*
European Union would experience some reduction in its exports of oilseeds which are relatively minor, and become a much larger importer while the United States, which is by far the world’s largest exporter would increase the value of its exports only to a small degree (table 12). Japan, which is also a major importer, would increase the value of its imports somewhat. Much of the increase in exports is expected to be supplied by developing countries both in the form of oilseeds and vegetable oils (tables 12 and 13).

Sugar
Sugar is one of the most highly protected products, with substantial distortions to markets in both developing and developed countries. Trade liberalisation would result in marked reductions in subsidised EU production and exports, and large increases in import demand by other major importing countries including the United States and Japan. The growth in import demand would be met primarily by increased production and exports by developing countries as a group and by Australia, the only major developed country exporter. Although developing countries as a group would increase their exports markedly, there would be substantial differences between countries according to whether they currently have preferential access arrangements with major developed country importers, in particular the European Union and the United States.

A more detailed analysis of the impacts of trade preferences for sugar and the impact of liberalising the industry is provided in chapter 3.

Dairy
The dairy industry in most countries is protected, with output subsidies on raw milk production (which is largely nontraded) and border protection on dairy products. In general, developing countries are not significant exporters of dairy products, but many restrict imports, as do most developed countries. The high levels of protection imply that there is considerable scope for benefits from reform.
In the European Union, however, the reduction in border measures would not fully erode the quota results available to producers and so raw milk production is assumed to remain constant in the simulation.

In response to the various reforms, farm level milk production would be reduced marginally in North America and in Japan, while the opening of markets where imports are currently suppressed would increase imports greatly relative to the reference. The largest expected increase would be in Japan, the United States and Canada, and there would be some increase in EU imports (table 14). It is estimated that the value of exports would increase in all major dairy exporting countries with the largest percentage growth being in New Zealand and Australia, but appreciable increases would also occur in the United States.

**Ruminant meat**

Falling beef production in the European Union and Japan, where current levels of support are high, drives the major changes occurring in the ruminant meat sector in response to liberalisation. This leads to large increases in imports and, in the case of the European Union, some reduction in exports as well relative to the reference case (table 15). Production in the United States is relatively unchanged, but both its exports and imports increase markedly, reflecting both freer access to the US market itself and increased demand for US exports.

---

### Dairy products: Changes in trade from a 50 per cent reduction in agricultural support, 2010

<table>
<thead>
<tr>
<th>Change in value relative to the reference case</th>
<th>Exports</th>
<th>Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>-18</td>
<td>58</td>
</tr>
<tr>
<td>European Union</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Japan</td>
<td></td>
<td>99</td>
</tr>
<tr>
<td>New Zealand</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>18</td>
<td>56</td>
</tr>
<tr>
<td>Rest of Latin America a</td>
<td>23</td>
<td></td>
</tr>
</tbody>
</table>

*a Includes Mexico, Chile, Central America, Venezuela, Colombia, Rest of Andean Pact, Rest of South America and Uruguay.

*Source:* GTEM simulations.

---

### Ruminant meat products: Changes in trade from a 50 per cent reduction in agricultural support, 2010

<table>
<thead>
<tr>
<th>Change in value relative to the reference case</th>
<th>Exports</th>
<th>Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>121</td>
<td>19</td>
</tr>
<tr>
<td>Argentina</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>144</td>
<td></td>
</tr>
<tr>
<td>European Union</td>
<td>-8</td>
<td>62</td>
</tr>
<tr>
<td>Japan</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>United States</td>
<td>28</td>
<td>35</td>
</tr>
<tr>
<td>Rest of Latin America a</td>
<td>110</td>
<td></td>
</tr>
</tbody>
</table>

*a Includes Mexico, Chile, Central America, Venezuela, Colombia, Rest of Andean Pact, Rest of South America and Uruguay.

*Source:* GTEM simulations.
with liberalisation abroad. Argentina, Brazil and the Rest of Latin America are the biggest developing country exporters, and their exports approximately double in value, reflecting both stronger world import demand and close market links to the European Union. Exports from Africa are also estimated to more than double.

**Nonruminant meat**

As well as the United States and the European Union being major exporters of pig and poultry meat, there are several developing countries that have become major exporters, with Thailand, China and Brazil being the largest. Globally, the main importers are Japan, China and the Rest of Latin America. Generally, this sector is less protected than beef.

Trade liberalisation leads to little change in production and processing of pig and poultry meats in most countries. However, increases in demand from falling tariffs raise export prices in the major exporting countries and increases import volumes. The United States would markedly increase its exports to both Japan and China relative to the reference case. Major gains are also made in the value of developing countries exports, with the main increases being from Thailand, China and Brazil (table 16).

| Nonruminant meat: Changes in trade from a 50 per cent reduction in agricultural support, 2010 |
|--------------------------------------------------|--------------|-------------|
| Change in value relative to the reference case | Exports | Imports |
| Brazil  | 37 |  |
| China  | 31 | 25 |
| European Union  | 5 | 9 |
| Japan  | 20 |  |
| Thailand  | 34 |  |
| United States  | 22 |  |

*Source: GTEM simulations.*

**Comprehensive liberalisation leads to greater global gains**

It is important that all countries, both developed and developing, are able to benefit from multilateral trade liberalisation and reform. To do this, multilateral trade liberalisation must cover a wide range of sectors. Trade liberalisation and reduction of market distorting domestic support policies provide benefits to economies by redirecting resources away from industries or activities that have been highly supported toward those that are less supported and are intrinsically more efficient. It results in adjustment pressures that reduce the relative size of the supported activities while increasing the relative size of the more efficient sectors.
Many countries enter multilateral trade negotiations with large distortions in their economies as a result of high support in some sectors. It is important to them and to the success of the negotiations that the package of reforms that can be agreed results in growth in their more efficient sectors that exceeds the relative contraction of the supported activities.

Because of the diversity in levels of support for different sectors in different countries, it is desirable that the multilateral trade liberalising reforms be much more broadly based than just for agriculture. Under such conditions all countries have opportunities to benefit from liberalisation in commodities and activities where they do have a comparative advantage. For many developing countries, one such area is clothing and textiles (Anderson 1998), but there are also many others including industrial products and services, with degrees of comparative advantage in these various sectors varying widely between countries in this diverse group.

Analysis of trade liberalisation for agriculture alone on a global scale results in benefits to the great majority of economies, be they developed or developing. Also, in principle, if trade liberalisation were extended to cover a wide range of sectors in all economies, it could be expected that even more would gain. The reason is that full liberalisation enables each country to obtain a more efficient allocation of resources than can occur when there are policy induced market distortions.

Modeling more comprehensive liberalisation

To assess some of the possibilities of more comprehensive liberalisation, a simulation was undertaken involving a 50 per cent reduction in all countries in the textile, motor vehicle and other manufacturing sectors in addition to agriculture. As previously, the reductions were phased in over six years from 2005 to 2010.

The gains in gross domestic product from liberalisation of both manufacturing and agricultural industries are compared with those for agriculture alone in table 17. All regions obtain marked increases in gross domestic product. Global gains are US$94 billion compared with $53 billion with agricultural liberalisation alone. Countries with relatively high levels of protection in the manufacturing sector compared with agriculture achieve much greater gains in real gross domestic product from comprehensive liberalisation relative to the reference case. These countries includes Indonesia, the Philippines, India, China and the Rest of Latin America. At first glance, it
seems that developing countries are likely to obtain greater gains from comprehensive liberalisation than from agricultural reform. Around US$30 billion of the additional US$40 billion gains accrue to developing countries.

Terms of trade effects
While the extension of reforms to include manufacturing leads to marked increases in gross domestic product in all regions, terms of trade effects vary between regions and in many of the developing countries are negative relative to the reference case. When interpreting changes in terms of trade, it is important to appreciate how they are represented in GTEM. Prices for exports are measured at the ‘free on board’ (fob) level while import prices include ‘commission insurance freight’ (cif). With liberalisation of commodities that incorporate a substantial proportion of imported inputs, reductions in tariffs through liberalisation will enable producers in a country to export the final products at lower prices. Consequently, the process of liberalisation itself can result in a reduction in the price of export items that incorporate a large proportion of imported inputs. If the country that is exporting such items is

### Comparison of the impact of 50 per cent agricultural liberalisation and comprehensive liberalisation, 2010, relative to the reference case

<table>
<thead>
<tr>
<th></th>
<th>Annual increase in real GDP</th>
<th>Change in terms of trade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agricultural US$m</td>
<td>Comprehensive US$m</td>
</tr>
<tr>
<td>Africa</td>
<td>479</td>
<td>2 059</td>
</tr>
<tr>
<td>Argentina</td>
<td>312</td>
<td>450</td>
</tr>
<tr>
<td>Australia</td>
<td>189</td>
<td>381</td>
</tr>
<tr>
<td>Brazil</td>
<td>1 447</td>
<td>3 910</td>
</tr>
<tr>
<td>Canada</td>
<td>66</td>
<td>324</td>
</tr>
<tr>
<td>China</td>
<td>2 570</td>
<td>15 840</td>
</tr>
<tr>
<td>European Union (15)</td>
<td>28 310</td>
<td>32 210</td>
</tr>
<tr>
<td>India</td>
<td>894</td>
<td>3 570</td>
</tr>
<tr>
<td>Indonesia</td>
<td>64</td>
<td>701</td>
</tr>
<tr>
<td>Japan</td>
<td>8 980</td>
<td>11 800</td>
</tr>
<tr>
<td>Malaysia</td>
<td>467</td>
<td>992</td>
</tr>
<tr>
<td>New Zealand</td>
<td>264</td>
<td>294</td>
</tr>
<tr>
<td>Philippines</td>
<td>208</td>
<td>1 245</td>
</tr>
<tr>
<td>Thailand</td>
<td>505</td>
<td>1 122</td>
</tr>
<tr>
<td>United States</td>
<td>1 830</td>
<td>3 300</td>
</tr>
<tr>
<td>Rest of Latin America</td>
<td>304</td>
<td>1 492</td>
</tr>
<tr>
<td>Rest of World</td>
<td>6 360</td>
<td>14 620</td>
</tr>
<tr>
<td>Total</td>
<td>53 249</td>
<td>94 310</td>
</tr>
</tbody>
</table>

Source: GTEM simulations.
also an importer of agricultural commodities for which prices rise with trade liberalisation, it can experience a decline in its terms of trade that is associated with the liberalisation itself.

For most developing countries, substantial quantities of inputs are imported for use in manufacturing industries and reductions in tariffs on imported inputs would reduce input costs, making their manufactured exports more competitive. The implications of this greater competitiveness for the economic wellbeing of the people in these countries depends on the effects on the price of factors of production especially labor. If real wage rates rise the liberalisation will provide the greatest benefit to those countries with a comparative advantage in labor.

To illustrate the effects on input costs including real wage levels, examples for India, China, the Philippines and Malaysia with agricultural liberalisation alone and with liberalisation of manufacturing as well, relative to the reference case, are shown in table 18.

These examples illustrate the nature of the effects of liberalisation on different types of developing countries. In countries that are agricultural importers — for example, Malaysia — the effects of agricultural liberalisation alone would result in a decrease in the terms of

| Effect of liberalisation on key variables in selected countries, relative to the reference case |
|---------------------------------|---------------------------------|
|                                | Agricultural | Comprehensive |
|                                | liberalisation | liberalisation |
| % change | % change | % change | % change |
|------------------|---------------|---------------|
| **India**        |               |               |
| Terms of trade   | -0.17         | -1.68         |
| Export price index | -0.06         | -1.43         |
| Import price index | 0.11          | 0.26          |
| Input prices a   |               |               |
| Textiles         | -0.01         | -0.05         |
| Manufacturing    | 0             | -0.7          |
| Motor vehicles   | 0             | -1.17         |
| Real wage rates  | -0.02         | 0.92          |
| **China**        |               |               |
| Terms of trade   | -0.27         | -0.12         |
| Export price index | -0.04         | 0.31          |
| Import price index | 0.24          | 0.43          |
| Input prices a   |               |               |
| Textiles         | 0.10          | -0.69         |
| Manufacturing    | 0.33          | 0.53          |
| Motor vehicles   | 0.33          | -1.21         |
| Real wage rates  | 0.32          | 1.53          |
| **Philippines**  |               |               |
| Terms of trade   | -0.40         | -1.59         |
| Export price index | -0.06         | -1.07         |
| Import price index | 0.35          | 0.53          |
| Input prices a   |               |               |
| Textiles         | 0.35          | -3.70         |
| Manufacturing    | 0.59          | -3.51         |
| Motor vehicles   | 0.53          | -3.42         |
| Real wage rates  | 0.57          | 3.63          |
| **Malaysia**     |               |               |
| Terms of trade   | -0.15         | -0.82         |
| Export price index | 0.10          | -0.38         |
| Import price index | 0.25          | 0.44          |
| Input prices a   |               |               |
| Textiles         | -1.33         | -2.35         |
| Manufacturing    | -1.30         | -0.97         |
| Motor vehicles   | -1.38         | -2.00         |
| Real wage rates  | -2.84         | 0.68          |

*With reduced barriers to trade after liberalisation.*

Source: GTEM simulations.
trade, with import prices rising and export prices declining slightly. If they
remain net importers, this is likely to result in a decline in the terms of trade.
Whether this is accompanied by an increase or a decrease in the demand for
and price of labor will depend on the contribution of agriculture in the econ-
omy and changes in competition for resources between agricultural and other
industries. If there is sufficient expansion in some agricultural activities from
liberalisation to increase demand for labor, real wages in the economy, includ-
ing in manufacturing industries, will rise.

When the manufacturing sector is also liberalised, it is observed that the
terms of trade decline even further in most cases, with a much larger reduc-
tion in export prices relative to import prices for all of the countries in table
18. General levels of import prices increase including those used as inputs
for the manufacturing industries. However, with the reductions in barriers
to trade including tariffs, prices paid by most manufacturing industries for
inputs decline. This enables these developing countries to become more
competitive in export markets, which also expand because of trade liberal-
isation in the manufacturing sector.

Reflecting this greater competitiveness, the demand for labor and real wage
rates in the economy rise relative to the reference case, providing increased
employment and wage benefits. This general pattern applies to the four coun-
tries examined, although there are some differences observed arising from
structural differences in their economies. For example, all four countries
experience increases in real wages as a result of the combined effect of agri-
cultural and manufacturing liberalisation. If the liberalisation is confined just
to agriculture, real wages would increase in China and the Philippines, be
largely unchanged in India and fall in Malaysia. Consequently, it may be
concluded that broader liberalisation will provide benefits to people in devel-
oping countries from greater demand for labor, which could lead to either
or both higher real wages and increased employment.
Developing country concerns about trade liberalisation

There is acceptance of the benefits of trade liberalisation, but varying degrees of commitment by developing countries to continue down the trade reform path (UNCTAD 1999a–g). Why is it that the efficiency gains from removing market distortions are acknowledged, yet considerable reluctance to pursue such gains remains? As discussed in chapter 3, commitment to reform has fallen partly in response to the lack of significant reductions in agricultural support provided in many developed countries.

Developing countries, acknowledging disparities in support both within agriculture and between sectors, recognise that there are gains to be had from domestic reform. However, there is reluctance to significantly reform highly protected industries on the basis of the perceived high economic, social and political costs.

Developing countries have a number of additional concerns about the impact and process of trade liberalisation. These include concerns that some sectors and groups will lose from trade liberalisation; liberalisation will result in adjustment pressures that developing countries are unable to cope with (UNCTAD 1999b); the impact of higher world prices for food security; the use of nontariff barriers by developed countries against developing countries; tax revenue implications of reforming agriculture (OECD 1993); technical limitations in developing countries; and the coverage of the negotiations. The purpose in this chapter is to discuss these reservations and analyse their significance in relation to the prospects for further trade reform.

For strong commitments to be made by developing countries in the agenda and outcomes of the new WTO negotiations, any agreement will need to take account of their specific concerns. The process will need to be designed to suit all parties as decision making within the WTO context is on a consensus basis. With about three-quarters of total membership, developing countries are by far the largest single group in the WTO. The objectives of these economies and the interests of their people, will need to be reflected as much as those of developed countries if consensus is to be reached.

As mentioned in chapter 1, the economic structures of developing countries differ from those of developed countries. In particular, for most developing
countries, agriculture has a far greater economic significance as a source of income, employment and foreign exchange. However, as in developed countries, there is considerable disparity in developing countries between support levels provided to different agricultural industries — some are heavily taxed while other are highly protected, with the incidence of the intervention varying widely between commodities within countries. These wide disparities in support to different commodities within countries can result in entrenched positions of vested interests in industries with high support. Such interests, if they are influential, can make it difficult politically to achieve trade liberalising reform. However, the disparities are indicative of a potential to achieve marked gains in economic efficiency and in incomes if reforms are made to reduce them. Further, given the extensive differences that exist between developing countries in the extent and type of support provided to and taxes imposed on the agriculture sector, the impact of trade reform on consumers, producers and taxpayers is likely to vary enormously.

It is also important to put the following discussion in a broader context. Any analysis of agricultural trade reform needs to be considered in relation to trade reform in other sectors, the domestic policy context and, in many countries, institutional reforms (chapter 6). The combined effects of these are likely to have a far greater impact than the removal of agricultural support measures. For example, Tyers and Anderson (1992) quote a World Bank study of eighteen developing countries that found that industrial protection and exchange rate policies are likely to impose far greater disincentives to food production than any incentive effects provided through agricultural support.

**Taxpayers and tax revenue**

As discussed in chapter 2, import tariffs represent a relatively cost effective means of collecting taxes in developing countries. Governments of developing countries have expressed concern that the reduction or removal of this avenue will have a significant effect on their ability to raise revenue. The implications for taxpayers in developing countries from trade liberalisation are likely to vary significantly depending on a number of key variables.

Where national governments currently apply high tariffs on selected agricultural commodities, there are a number of possible effects from liberalisation. One possibility is that consumers (as taxpayers) in those countries will gain because they no longer have to pay the extra cost impost of the tariff that provides revenue to the government. That is, the incidence of taxes on them would fall. However, if governments were concerned to safeguard
the tax revenue base, alternative and additional forms of taxation could be required. It is important to note that the extent of the effects on government revenue depends on applied tariff rates at the time of reductions as opposed to the bound rate (which in many cases is significantly higher), the extent of the tariff cut and the nature of other relevant policy changes. Reductions in bound rates where they are well above applied rates might have little or no effect either on tax revenues or on the efficiency of resource use.

Estimates of the importance of trade taxes in government revenue vary considerably. Matusz and Tarr (1999, p. 27) cite World Development Report figures which show that in 1985, explicit trade taxes accounted for 38 per cent of total tax revenues in low income developing countries and 19 per cent in middle income developing countries. By comparison, Rodrik (1992) estimates that trade taxes constitute around 15 per cent of government revenue in developing countries on average, and more than 20 per cent in Africa. Ebrill, Stotsky and Gropp (1999) estimate that trade taxes in African countries accounted for around 5.5 per cent of gross domestic product in 1995. These figures can be compared with a 1990 estimate of collected trade taxes in developed OECD countries averaging 0.6 per cent of gross domestic product. Given these differing estimates, there is uncertainty about the extent of the loss in tax revenue that is likely to arise from trade liberalisation in developing countries.

However, any decrease in government revenue needs to be weighed up against the potential savings from the reduction and/or removal of a wide range of agricultural support measures provided by developing country governments. Explicit support from subsidies on such inputs as fertiliser and credit, payments to maintain producer incomes and subsidies to consumers to maintain low food prices also make up a sizable portion of government spending. For example, maize related subsidies paid to Zambian farmers accounted for nearly 20 per cent of the national budget (Seshamani 1998). In Malaysia, price support and fertiliser subsidies cost the government around RM 500 million (US$131 million) a year (Tengku 1998). In addition, producers in many developing countries who do not currently pay the economic cost of water used for irrigation purposes also effectively use government funds through implicit water subsidies.

The revenue implications of trade liberalisation are generally uncertain (Ebrill, Stotsky and Gropp 1999, p. 2) and any one of a number of outcomes is possible depending on initial conditions in each country and the nature of the policy changes introduced. They may entail modifications in complex tariff
structures and quantitative restrictions and have complex interactions with domestic taxes’.

It is not always the case that reducing import tariff rates will reduce revenues from imports of agricultural products. That will depend on the incidence of tariffs in the first instance, the extent of the reduction and, importantly, the responsiveness of consumption and imports to the reduction in prices that accompanies the lower tariffs.

In some instances, demand for imports may increase sufficiently as tariff rates fall to increase tariff revenue, although this could happen within a limited range of price changes. Matusz and Tarr (1999, p. 29) quote studies carried out on trade reform in Ghana, Kenya, Senegal and Malawi, which found that there was not a significant loss of revenue as a percentage of gross domestic product. They state that this may occur because developing countries have traditionally relied heavily on quantitative restrictions on imports. ‘Government revenue actually increases when quantitative restrictions are converted into their tariff equivalents’. If tariff rates are so high initially as to be virtually prohibitive, they will generate little or no revenue; reductions of the tariffs to more moderate levels will increase the quantity of imports, and the greater quantity effect will raise government revenues.

Broadly, it should be appreciated that in developing countries where tariffs on imports and/or taxes on exports are important for revenue raising there will be tradeoffs between loss of government revenues and the benefits from trade liberalisation. Lower import and export taxes will provide greater economic efficiency and higher living standards. However, where countries have relied heavily on such taxes, which are inefficient because they induce market distortions, they may need to replace them by alternative forms of revenue raising. In determining the most appropriate forms, both the efficiency of revenue collection and efficiency of resource allocation effects need to be fully taken into account.

**Will producers and consumers win or lose from trade liberalisation?**

The impact of trade liberalisation on producers and consumers in developing countries will vary significantly between countries. It is expected that the average world prices of major agricultural commodities would be higher than otherwise as subsidised production and exports fall. The effect in developing countries, however, is likely to vary among countries and commodities
and will depend largely on the competitiveness of agricultural industries and the nature and level of existing agricultural support measures. Producers in both importing and exporting developing countries are likely to benefit from somewhat higher agricultural prices. Also, as discussed in chapter 4, some food importing countries could become exporters and obtain terms of trade gains.

**Policy combinations make the outcome of liberalisation unclear**

At first glance, the impact of agricultural trade liberalisation on developing countries appears reasonably clear cut. Producers in countries that are net exporters and producers in zero and low tariff importing countries will earn higher incomes as average world prices for major commodities increase; consumers will have to pay higher food import prices, with those likely to be most affected being in least developed countries and net food importing developing countries; and producers of food who have been highly protected and cannot compete on international markets will be increasingly faced with a number of adjustment options.

As noted in chapter 3, in reality the impact of trade liberalisation for developing countries is considerably more complex, with the nature and extent of the gains likely to vary far more than the above statement would suggest. The outcome will depend on the level of existing support provided to agriculture (and other sectors) in each country and the extent to which policies cause domestic prices to differ from world prices. In many instances, there is a range of domestic and international polices used at any one time, which send distorting and frequently conflicting signals to producers and consumers. For example, the government in Pakistan controls both producer and consumer prices (Akhtar 1998, p. 1) — ‘farmers receive considerably less than the world prices of cotton and rice, but on the other hand, sugarcane is highly protected. Similarly, the government forced domestic support prices of wheat below the border price by subsidising imports’. Without empirical analysis of various commodity arrangements, it is extremely difficult to determine the net effect of trade liberalisation in any one country. Further, there will be different outcomes if only agriculture is liberalised rather than if more comprehensive multisector reform is pursued (see chapter 4).

It is reasonable to assume that for net agricultural importers in developing countries the removal of support elsewhere could increase the average prices for imported commodities such as rice, sugar, wheat and maize. However,
the extent to which consumers actually pay higher prices will depend also
on internal policies that affect market prices and the quantities of these
commodities that are available. A number of tariffs, tariff quotas, tariff esca-
lation policies and import controls may also be in place affecting the price
of these commodities.

Tariffs on agricultural commodity imports have the effect of raising the
domestic price that people pay for food. As a result, consumers in the coun-
tries that have imposed them would gain from lowering or removing them.
At the same time, many countries also have import restrictions aimed at
managing domestic food supplies and prices with a view to supporting domes-
tic producers. Such arrangements can be in conflict with policy objectives
such as ensuring low prices for consumers where there are concerns about
food security.

Effects of import monopolies
In many countries, import monopolies are used as a means of implementing
restrictive import policies designed to support and protect domestic indus-
tries. Such institutions are common in developing countries, often in the form
of state trading enterprises. Governments may also use import licensing to
achieve much the same effect. The key responsibilities of state trading organ-
isations are usually to control imports and domestic prices of major foods.
‘These agencies typically use trade as a means of managing domestic supplies
and, therefore, of maintaining domestic prices at desired levels’ (Tyers and
Anderson 1992, p. 70). Many of these institutions also have procurement,
distribution and marketing tasks. Examples include the Food Corporation of
India, which has sole authority for intervention purchases of domestic produc-
tion of grains and exclusive rights to import; the National Logistics Agency
of Indonesia (Bulog) and Bernas, the Malaysian privatised state enterprise
of the National Paddy and Rice Board, both of which have monopoly rights
over rice imports; and the National Food Authority of the Philippines, which
has control over the import and distribution of rice and corn.

The functions that these organisations perform are frequently seen as serv-
ing social, economic and political goals, particularly in supporting the
incomes of many producers and controlling food prices for consumers. It is
unclear, however, whether such arrangements provide net national economic
and social benefits. For example, policies that provide income support to
producers must be at the expense of taxpayers and/or consumers and will
usually involve some efficiency losses for the economy. Taxpayers are worse
off because government revenue is taken up that may be more efficiently
used elsewhere. ‘Such agencies often receive special privileges and facilities from the government including subsidies to cover deficits on price payment guarantees to producers, tax advantages, transportation and interest rate subsidies’ (Ingco and Ng 1998, p. 12).

Collier and Gunning (1999) refer to various inefficient monopoly arrangements in several African countries that add further costs. These include the periodic banning of private trading, often associated with ethnic minorities and the banning of private interdistrict trading in food in Kenya. ‘Where government marketing monopolies were focused on ensuring the food supply to urban areas, this provision discouraged farmers from specialising in non-food export crops, since they could not rely on being able to buy food locally’ (p. 12). While producers usually gain from such arrangements, the economy is worse off overall because resources are diverted away from activities that are profitable without government support.

In instances where the domestic price of a commodity is above the world price as a result of import controls, consumers will also be worse off. In reference to price intervention policies in the Philippines, David (1999, p. 28) states that higher food prices have adverse distributional effects ‘because a greater majority of the rural and urban poor are net buyers of highly protected food commodities.’

Currently, some developing countries are trying to increase competition from imports in their markets. One of the reasons for this is to provide cheaper inputs to food processing and manufacturing industries or, for example, in the case of Thailand, cheaper animal feed as an input to intensive livestock production. It is important to emphasise that whatever form these arrangements take, the critical factor is that there should be greater competition to supply goods. Transferring the ownership of import monopolies from the public to the private sector alone will not ensure that consumers will benefit from access to goods at world prices. Private monopolies can be just as harmful to the efficient operation of markets as public ones. Depending on the policy objectives of the original state trading monopolies and the incentives facing the private monopolies, the change of ownership may merely result in a transfer of the economic rents from public to private hands.

Poapongsakorn and Santanaprasit (1999, p. 22) refer to problems stemming from agricultural import restrictions and monopoly arrangements in Thailand. These include the quota allocation criteria for commodities such as powdered milk and potato seeds that discriminate against new importers in favor of
the ‘large and most favored importers’ and gives rise to rent seeking behavior from politicians, relevant authorities and large firms.

While it is difficult to ascertain the net effect of arrangements such as these, it is reasonable to assume that their removal would involve the loss of economic rents to a small yet politically powerful minority. However, there are benefits to the economy overall from more competition in the import and distribution of commodities resulting in lower prices and more variety to consumers and processors.

Inconsistency between income support and price control measures
As observed in the section on policy combinations, there is a potential contradiction between policies that are used to increase returns to producers and those that are used to keep prices down for consumers. While such inconsistencies may be observed, there are often reasons why countries would prefer to produce some commodities at higher cost rather than import them.

The situation with Indonesia with rice since the onset of the Asian financial downturn in 1997 is an example. It is clearly important that Indonesian authorities would wish to ensure adequate supplies of staple foods at a time when consumers have suffered marked reductions in income. However, with the financial downturn, pressures were placed on Indonesia’s foreign reserves, curtailing the country’s ability to purchase the goods that were needed when shortfalls resulted from a domestic drought. While importing more to address the shortfall in supplies, substantial input subsidies were maintained. Support is still provided by way of fertiliser and credit subsidies (Supermarket to Asia Limited 1998).

Also, depending on the form of support used, support for the production of farm commodities can be at a direct cost to domestic consumers as well as a cost to industries that are using those commodities as inputs. An example is for sugar in the Philippines. David (1999) maintains that high protection of the Philippine sugar industry not only hurts consumers who have to pay approximately double the world price for sugar, but also the food processing industry, which accounts for more than 20 per cent of manufacturing value added and 40 per cent of employment.

At the same time as measures are taken to support production of some commodities, many developing countries have in place price control arrangements of major food staples such as rice, wheat and maize to maintain internal prices to consumers at below world market levels. These policies are
largely justified on the grounds of ‘food security’ and as a means of keeping the cost of food down. For example, Egypt has a system of subsidising prices of wheat and flour to consumers and in Pakistan the government has at times reduced wheat prices to below the border price by subsidising imports.

When a country uses a mixture of support for production and policies to reduce domestic prices to consumers, there can be a conflict between policy objectives. The outcome can be highly inefficient in economic terms. The value of the resources used for production will be greater than obtaining the same quantities from the world market at world market prices. Also, depending on how they are structured, use of consumer subsidies can be a relatively blunt instrument to secure food supplies for those for whom food is not accessible or affordable — the low prices can provide an unwarranted windfall for people who are not in need and who have higher incomes.

While it is clear that policy combinations that include such things as blanket input and consumption subsidies are inefficient, the alternatives to meet local needs more efficiently through targeting needy groups may require administrative structures and costs, which could explain at least partly why countries use the measures in an untargeted manner.

Given the complexity of the interaction of policies and the uncertainties that would accompany a change to liberalised markets, there is perhaps an understandable reluctance to change from established intervention policies. It should be recognised that in some areas in developing countries, limitations of infrastructure and operation of markets could impede the benefits that arise from trade liberalisation. Under such circumstances, reform of institutions and development of infrastructure go hand in hand with overcoming the inefficiencies from present highly interventionist policies. This is discussed in greater detail in chapter 7.

**Impact on producers who do not trade**

In countries where most agricultural activities are in subsistence production and where there is little commercial farming, governments may consider that few benefits may arise for their agricultural producers from trade liberalisation. In some of the least developed countries, most or many rural producers or consumers have limited access to markets to buy and sell traded goods (for such reasons as geographic isolation or lack of access to credit). According to the World Bank (1994a) most of the income of poor farmers comes from nontraded agricultural products either consumed by the household or sold locally.
Subsistence farmers will not be directly affected by trade liberalisation if they do not participate in a market for traded goods with links to international markets. However, if trade liberalisation increases prices for the products that they have produced for subsistence and for other agricultural products, it can result in greater development of commercial production.

What may have seemed hardly relevant because of a lack of commercial production could become much more relevant as commercial production becomes a more realistic alternative. The development of commercial agriculture can depend not only on the impact of liberalisation on market prices, but also on the availability or development of institutions and infrastructure that support commercial agriculture. Examples include credit facilities, infrastructure (such as storage and handling and transport capacity) and the development of market based commercial trading and processing.

The costs of adjusting

While support for agriculture in developing countries is low on average compared with many developed countries and the sector overall stands to gain from trade liberalisation, ‘sensitive’ agricultural industries that receive disparately high levels of protection are likely to be negatively affected. Governments and farmers in these industries have expressed concern about the social, economic and political ramifications of a significant and/or rapid reduction in agricultural support. For example, there are concerns in Malaysia about the effects of the removal of agricultural support on the well being of rice and tobacco growers, many of whom are aging, poor, small farmers. ‘Withdrawing support to these sub-sectors will seriously affect the income of small farmers and can lead to serious socio-economic and political implications’ (Tengku 1998, p. 99).

The Malaysian government has varied its approach to rice policy over the years between efforts to liberalise the industry at the same time as trying to maintain changing targets for self-sufficiency (Tan Siew Hoey 1999). With the onset of high import costs during the Asian currency upheavals, the orientation of policy recently has been toward ensuring a level of self sufficiency and controlling prices for low income consumers. The government is attempting to liberalise the rice industry, which is currently highly regulated, but is doing so only gradually.

As discussed in chapter 4, there are considerable potential net benefits to the vast majority of developing countries from agricultural trade liberalisation,
but in order to realise the benefits for countries overall, there are often adjustment costs in particular sectors and regions.

**Important differences between developing and developed countries**

The nature, extent and duration of the adjustment process and the associated costs involved in removing agricultural support in developing countries are likely to differ from those in developed countries. Numerous developing countries have expressed a range of concerns specific to them. These include the potential negative effects on meeting food security objectives, particularly in the least developed countries and net food importing developing countries: concerns relating to the costs and difficulties of participating in the WTO process and implementing its outcomes; and the threat to the continuation of special and differential treatment if trade is liberalised without special consideration of their vulnerability.

There are two other critical distinctions between developed and developing countries that suggest somewhat different implications for adjustment resulting from agricultural trade liberalisation for industries that receive high levels of support.

First, many producers in developing countries could have fewer adjustment options than producers in developed countries. Reasons include the fact that there are often lower education and skill levels affecting peoples’ ability to obtain employment in other sectors, much lower levels of control over resources including land, capital and credit to produce alternative agricultural crops and at times restricted mobility of farm labor. These factors emphasise the importance of governments having policies aimed at facilitating and promoting structural adjustment (OECD 1993).

Second, developing countries do not have the wealth and resources to fund the range of social safety nets such as payments to displaced producers and support for retraining that can support them in transition to new occupations. Such safety nets are available in developed countries to ameliorate short term adjustment impacts. Consequently, lowering tariffs or other forms of support on selected agricultural industries may result in considerable job losses and ‘there is [no] public safety net to catch them as they fall’ (Stiglitz 1999, p. 2).

These differences represent an important element for future agreement between WTO members in ensuring that ‘the cloth is cut to fit’ — that the
specific characteristics and concerns of developing countries are taken into account. In the words of Stiglitz (1999, p. 3), trade liberalisation ‘must be balanced in agenda, process and outcomes.’

That said, it is also equally important to point out that adjustment pressures from trade liberalisation are likely to vary significantly between developing countries. Reasons include: the initial level from which protection is being reduced; the number of industries and farmers affected; the agronomic options for alternative agricultural activities; the overall ‘investment climate’ in each country; and the flexibility of labor markets, including how relative wages and conditions are determined between sectors within an economy.

In addition, Matusz and Tarr (1999, p. 7) refer to evidence that adjustment occurs over several periods, with adjustment costs progressively declining. ‘On the other hand, the benefits of liberalisation do not decline and are likely to grow over time as the economy grows.’ Therefore, it is important to bear in mind that while people from supported agricultural sectors are likely to face adjustment costs, the process of development of other activities that are more profitable without support can often absorb people and resources that are displaced, creating overall economic benefits. At the same time there are clearly needs for measures that can assist people in the process of change that will ultimately benefit societies.

At an even broader level, there are forces for adjustment affecting people in every country that go beyond trade liberalisation. That is, the nature of dynamic societies and economies means that there are continual changes that operate within them — with changes providing opportunities and outcomes, many of which are positive. In the case of agricultural trade liberalisation, adjustment pressures can stem from the liberalisation’s impact on the pace and direction of change, but it does not alter the fundamental aspects of progressive change in societies. People do adjust and other revenue raising methods can be devised, but there can be costs and social disruption in the process. The more successful economies tend to be those that accommodate and adjust to changes designed to obtain the benefits from openness on a continuing basis (Krueger 1995).

**Costs of not liberalising may be even higher**

The most obvious cost of not liberalising would be the forgone benefits from liberalisation. These benefits can be large and they can increase over time, especially in a rapidly changing, increasingly globalised environment where
economies can obtain many benefits from adjusting their resources to newly emerging technologies and market opportunities. Failure to adjust can result in economies falling behind others and not realising their own potential (Anderson 1999). If the policies become institutionalised, then both the resource misallocation and adjustment costs are likely to be higher in the future if at some later stage a country has no option but to liberalise.

Stiglitz (1999) argues that the cost of not liberalising is higher for developing countries because these countries cannot afford the costs of inefficient resource allocation and the nonrealisation of dynamic economic gains that come from embodied technology, new inputs and innovation that accompanies openness to trade. For example, Ng and Yeats (1996) examined Sub-Saharan Africa’s declining share in world trade since the mid-1950s. They found that a major contributing factor was the extensive use of trade barriers in Africa, which were much higher than those in developing countries that achieved relatively high export growth rates.

Adjustment costs and options are likely to vary significantly

There is considerable evidence to suggest that farmers in developing countries have varying abilities and options to mitigate the effects of reductions in agricultural support. For example, Killick (1993, p. 333) refers to evidence that households headed by women are particularly at risk because women ‘have often had fewer educational opportunities, are confined by cultural mores and active discrimination to less lucrative work, sometimes face legal or customary restraints on the ownership and inheritance of wealth, and are discriminated against in the provision of government services.’

Adjustment also arises for other reasons

Farmers in many developing countries are also currently facing simultaneous adjustment pressures from a multitude of domestic microeconomic and macroeconomic policy changes over and above the impact of trade reform. Consequently, it can be misleading only to consider the effects of trade liberalisation in isolation. These pressures for social as well as economic adjustment clearly place strain on societies and can result in a demand for arrangements to ease the costs of change. The Asian Development Bank in referring to the impact of the Asian financial upheaval demonstrated that informal (social) safety nets provide inadequate protection. ‘While social support systems in the region have been strengthened significantly, much more remains to be done. As these economies move forward, institutional
arrangements must be found to better protect the most vulnerable and least well off” (Asian Development Bank 2000, p. 11).

While it is important that social systems be adapted to the changing requirements arising from economic adjustment pressures, it is also important that economic adjustments should not be impeded because they are critical for ongoing wealth creation. Where there are inadequate social safety nets, the most desirable approach is to improve the provision of social services rather than to try to impede desirable industry adjustment. Safety nets can maintain resources in sectors that require adjustment.

Similarly, there have been problems in the implementation of major policy shifts affecting agricultural industries that have increased adjustment costs. For example, Seshamani (1998, p. 547) refers to the speed with which policy changes were announced and introduced in Zambia. The removal of both fertiliser subsidies and government funding of food distribution institutions, the corresponding reliance on the private sector to take up this role and the speed with which these changes were introduced created significant information lags. ‘All of these left the main actors in agricultural production, particularly the small producer, totally bewildered and incapable of adjustment.’ In this instance, there was criticism that the policy was implemented before it was established that there was sufficient capacity and willingness in the private sector to distribute food, particularly to some rural areas. A range of land and credit factors that may also impede adjustment are discussed in chapter 7.

**Labor mobility**

The reduction or removal of support for particular agricultural industries is likely to displace some farmers from their occupations. Concern has been expressed that if the liberalisation process is ‘rushed’, an insufficient number of new jobs will be created quickly enough in other activities and many of those affected do not have the financial resources to sustain them nor have access to sufficient social support in the meantime. Consequently, the extent of the impact will depend on the ability of rural societies’ informal kinship support systems or similar systems to sustain those affected.

There has been a virtually universal trend that as the economies of countries have developed, the proportion of the population employed in agriculture has steadily decreased. ‘The increase in the demand for labour outside agriculture, the shift in comparative advantage from agricultural to other sectors, and the introduction of labour-saving technological change in agriculture —
all of which are correlated with economic development — typically cause an outflow of labour from agriculture’ (OECD 1999a, p. 43). Many developing countries are struggling with the rapid urbanisation associated from this development process highlighting the need for public safety nets (World Bank 1999a).

If large proportions of a country’s agriculture have been taxed more heavily than other sectors and reduction or removal of agricultural taxes is a part of the liberalisation process, trade reform may generate greater resource use in agriculture, including additional employment. The removal of protection from some sectors and of the effective taxation of others will mean that resources used in agricultural industries will be used more efficiently than in the past. It is quite likely that efficient agricultural industries will be able to expand and maintain resources in the sector although there will be adjustment of labor and other productive factors out of industries that were previously supported. In many instances, the adjustment between agricultural activities can take place with few if any adjustment costs, if farmers’ resources of land, equipment and labor can be readily adapted.

For all the pressures for displacement that accompany industry adjustment, there is evidence that the processes are being managed successfully in various developing countries. Considerable labor adjustment has in fact taken place in Brazilian agriculture in response to a range of government policy reforms. Over the period 1985–95, employment in the sector as a percentage of total employment fell from 44 per cent to 26 per cent (OECD 1999a, p. 53) in response to government policy changes and a growing demand for labor in expanding sectors during that time. For example, reductions in credit subsidies to agriculture led to a fall in the level of ‘credit to rural areas in support of agricultural policies from US$31.8 billion in 1987 to US$8.9 billion in 1995’ (OECD 1999a, p. 50). Combined with an increase in the demand for labor in other expanding sectors, there has been a substantial shift of labor out of agriculture. While substantial change has occurred, the processes of adjustment that have accompanied it have not always been smooth in Brazil or in many other developing countries. Many people are being displaced from employment for considerable periods and there are many instances when infrastructure has been unable to keep pace with rising urban populations.

The ability to shift out of agriculture if adjustment pressures are in that direction is a key factor. ‘The major resource of the poor is their own labour’ (Matusz and Tarr 1999, p. 24). ‘Incentives to leave agriculture are affected
by the ability of farm labour to adapt to nonfarm activities, the low level of
eduction of the rural population, and by the costs of intersectoral mobility’
(OECD 1999a, p. 52). In Malaysia, for example, options to facilitate the move-
ment of rice and tobacco producers into other areas/sectors are limited given
that many of these farmers are aging. Also, retraining programs can be diffi-
cult to implement successfully, particularly if the opportunities are in non-
agricultural sectors and are only available in other regions (Tengku 1998).

The OECD further points out that the mobility of farm labor has been
impeded by a combination of poor physical and educational infrastructure,
housing problems and, in some cases, government imposed costs or admin-
istrative restrictions. For example, until 1986, it was impossible for rural
people in China to become registered as urban citizens. Under these arrange-
ments, rural people were not allowed access to food subsidies, social secu-
rity benefits and housing. Consequently, there were risks involved with
moving to urban areas and trading off the benefits of a ‘surrogate’ social
security system where the land allocation system provided a base level of
income and food (OECD 1999a).

Sources of income
Farmers in developing countries as well as elsewhere already manage the
risk of income variability from change in their farm production and product
prices by diversifying their sources of income. Reardon (1997) quotes a
number of studies that found that the share of nonfarm income in African
and Asian farm household income is substantial. ‘The share of income earned
in the nonfarm sector ranges from 22 to 93 per cent of total rural incomes in
Africa (cash and in-kind income) with the average over 25 case studies being
45 per cent’ (p. 737). He cites Chuta and Liedholm (1990) who estimated
that 20–45 per cent of full time employment of rural households is under-
taken in small nonfarm firms, and 30–50 per cent of rural incomes is from
these sources.

The World Bank (1994a, p. 167) estimates that crops grown for sale (as
opposed to home consumption) vary in importance for poor farm households
in Sub-Saharan Africa. They account for 45 per cent of total income in the
forest of Côte d’Ivoire, 35 per cent in the Gambia, but less than 15 per cent
in Kenya, Malawi, Rwanda and parts of Ghana and Madagascar. ‘The major-
ity of poor farmers’ incomes come from non-traded food products (either
consumed by the household or sold locally).’ Significantly, off-farm income
is also an important component of farm household income, accounting for
at least 20 per cent of total income in nearly all countries studied and for
more than a third of total income in many areas. David (1999) makes the point that in the Philippines, for rice and corn producers (who have considerable protection from imports), returns from growing these crops are not the major source of current and potential income of farm households.

This diversification of income sources for rural families in developing countries is part of an almost world wide phenomenon, one of the most extreme examples of which is Japan. There, in 1997, 82 per cent of farm household income was derived from nonagricultural activities, predominantly from wages and salaries earned by part time farmers at alternative employment in their local towns and cities (Ministry of Agriculture, Forestry and Fisheries 1998). Similarly, ‘[European] farm households earn a larger part of their income from nonfarm as opposed to farm activities’ (Mahé and Ortalo-Magné 1999).

**Concerns about food security**

Food security has long been a key priority for the vast majority of developing countries. The definition of food security from the 1996 World Food Summit is ‘when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life’ (FAO 1996a). A large number of developing countries perceive liberalising agricultural markets as a threat to their ability to achieve this objective (Tengku 1998; UNCTAD 1999b,c,d).

There is concern that the least developed countries and net food importing developed countries in particular will struggle to be able to afford the expected price increases for major agricultural staples such as rice and maize. Such price increases could be expected as liberalisation would increase market access and import demand while export supplies from countries with high support would be lessened.

**World food production is not the problem**

World food production has been outstripping population growth (Aziz 1990; Mitchell, Ingco and Duncan 1997) and there has been a long term trend of declining food prices in real terms. Yet more than 800 million people around the world are considered to be food insecure (Pinstrup-Anderson 2000). There are very significant problems of access to and affordability of food.

Part of the difficulty is that much of the increased production has been occurring in developed countries, where both production and marketing have been
heavily subsidised, while the vast majority with food problems are in low income countries (US Department of Agriculture 1999b). The increase in food production in developed countries has driven long term world commodity prices lower than they would have otherwise been.

The majority of developing countries that rely heavily on agricultural exports for foreign exchange have found their export earnings dwindling (Aziz 1990) as they have difficulties in competing with supported products, so global liberalisation would be advantageous to them. As a result, ongoing depressed world prices dampen the incentive to invest in agriculture in developing countries. Where these countries are net importers, the depressed prices constrain production and maintain dependencies on imports. The problem is further exacerbated by the tendency of many developing countries to tax their efficient and protect their inefficient agricultural industries (Krueger, Schiff and Valdés 1988). With lower domestic production and incomes, the capacity of these countries to access world food supplies is further diminished.

Food security or self sufficiency

It is important to distinguish between food security and self sufficiency — two concepts that mean quite different things but are all too frequently interpreted to be interchangeable. Here, the latter term refers to a country’s ability to meet domestic food demand from domestic production. David (1999), refers to this confusion in relation to efforts to achieve rice and corn self sufficiency in the Philippines, the outcome of which is quite different from the goal of food security, benefiting all people, particularly the poor. She observes that the objective of food security is only meaningful at the household level, aiming ‘to ensure that for all households, particularly the rural and urban poor households, food is available at prices they can afford’ (David 1999, p.4).

Some countries place a high degree of importance on achieving and maintaining a high level of self sufficiency as a matter of food security policy. For example, Malaysia has traditionally pursued a policy of achieving a specific degree of rice self sufficiency. Its Third National Agricultural Policy is encouraging ‘a new round of import substitution deemed necessary to encourage domestic food production’ (Malaysian Ministry of Agriculture 1999). The intent is to expand domestic production to lessen dependence on food imports, the price of which rose considerably as the currency depreciated during the economic downturn that commenced in 1997.
Self sufficiency policies are, however, likely to make many of the people they are designed to protect, worse off. Farmers who receive support will benefit. But overall incomes will be reduced, so it is likely that many people who are already poor (both rural and urban) and food insecure will become even less secure. This becomes even more apparent if support to producers is provided through increasing internal prices for food.

David (1999, p. 4) points out that ‘increasing agricultural price protection will not lead to overall food security. High food prices hurt the food security of the large majority of the poor, including fisherfolks, non-rice and corn farmers, landless rural households and urban households who are net buyers of food and for whom the cost of food constitutes a high proportion of their total expenditures.’ Access to affordable food is less likely and people are consequently less food secure, not more.

Some examples of this price impost are: in Malaysia, over the period 1994–96, the wholesale price of rice ranged from 62 to 89 per cent above the world price (Tengku 1998, p. 86); and in the Philippines, the domestic price of sugar has been at least double the world price for nearly twenty years (David 1999, p. 46). These increased prices make it more difficult for many poor people to afford adequate supplies of such foods. So while self sufficiency might be sustained or increased, food security can be reduced. The level of self sufficiency can be increased where there are high support prices, because those prices reduce consumption.

Chand (1998) maintains that India will be better off in its efforts to achieve food security by removing quantitative restrictions on imports and allowing competition from private importers. State agencies with virtual monopolies have caused considerable hardship for domestic consumers at some times and for some commodities. Whereas some developing countries may maintain prices to consumers at below world market levels, others have levels of support that are often high. For some commodities, Chand (1998 p. 21) observed that ‘experience shows that the state agencies often fail to get the signal on soaring domestic prices on time and augment the supply with considerable delay. It costs a country more in terms of lower incomes and less foreign exchange by pursuing self sufficiency, making it in fact, harder, not easier to achieve food security.’

Unrestricted access to imports would increase food availability and help prevent soaring food prices, increasing food security by increasing both the physical and economic access to food.
Improving access and affordability

Access to food is a function of effectively operating markets, distribution networks, proximity to a range of sources, a reasonable and reliable system of infrastructure, peace and order, government policies and, most importantly, income. To enhance people’s ability to increase their access to available food supplies, it is necessary for many people in developing countries to increase their incomes so that they can afford it. A far better way to achieve this aim than pursuing self sufficiency objectives would appear to be by allowing efficient agricultural sectors to make the most of their comparative advantage on more open world markets. In particular if they are taxed, removing the taxes would be positive in this respect. As discussed in chapter 7, there are also a number of domestic policy reforms that will work toward this purpose.

Rosen and Deepak (1999) forecast that global market liberalisation will lead to a considerable increase in export growth because import demand will increase. The benefits from this growth will be an increase in commercial import capacity from higher foreign exchange earnings and net credit flow. The extent to which this growth affects food security of people in various countries will depend on whether more people have access to and can afford sufficient food supplies. Facilitating export growth in efficient industries (be they agricultural or otherwise) by removing distorting support policies in other industries provides an essential (and potentially growing) source of foreign exchange.

If agricultural markets alone are liberalised, the ability of developing countries to obtain affordable world food supplies will vary, depending on whether individual countries have traditionally been net food importers or not and their overall ability to purchase or produce food supplies. In turn that ability will depend on their competitiveness on world markets for nonagricultural products as well as agricultural products.

Stability

Political, social and economic stability can markedly affect rates of income growth and levels of food security.

Internal stability, whether from civil strife, political uncertainty or climatic or environmental damage, can affect not only the production of food, but also the ability of people to obtain food and of markets to function well. Paarlberg (2000) observes that violent internal conflict is increasingly the
most important nonmarket source of food insecurity, followed by other factors such as nonaccountable governments and natural disasters. Strife through long lasting civil wars has been common in Sub-Saharan Africa, causing countries to suffer food insecurity. By destroying infrastructure and halting transport, civil wars have reduced economic activity and domestic food production as well as disrupting market channels.

Stable countries can be affected by the instability of neighbors. Regional instability has been found to have as detrimental an effect on economic growth as internal instability (Chua and Ades 1993). Regional instability can adversely affect a country’s ability to trade, especially for countries surrounded by neighbors experiencing civil strife and/or at war. Apart from the adverse effects on trade, regional strife can also make a country less attractive to investors even if there is internal stability. This lack of investment can adversely affect market development, economic growth and, through these, food security.

As has been seen in Sub-Saharan Africa and Asia, otherwise stable countries surrounded by unstable countries tend to become havens for refugees. Large influxes of refugees can cause food security problems for the host country as the country’s food requirements rise without there being an increase the ability to either produce or purchase the food. Refugees are also more prone to food insecurity than others. Of the 32 million victims of disaster in Africa in 1994, for example, two-thirds were victims of human caused disasters (FAO 1996b).

Wider international instability can also have adverse effects on market development and the ability to obtain sufficient food. Countries can face instability of trade and international relations arising from a dispute with one or more countries. Some examples of this type of international instability has been the economic sanctions by the United Nations against Iraq and those against South Africa by a large number of countries.

Many of the problems of instability in developing countries that adversely affect economic development and food security have their roots in historical, political and cultural differences. Although some of the problems are deep seated, even intractable, the pursuit of more stable conditions is important if goals of higher incomes and greater food security are to be attained (Roberts et al. 1996).
**Least developed and net food importing countries**

These countries have been less able than agricultural exporters to capture the benefits of agricultural trade reform. They are less able to trade off higher food import costs against the benefits that some countries can obtain by having large agricultural exporting industries that can take advantage of higher world prices. Another reason why the least developed countries are less able to capture the gains from agricultural trade liberalisation is that the crops that many of these countries have a comparative advantage in producing (primarily tropical crops such as coffee and nuts) already have relatively low rates of protection in major markets.

Food security continues to be a highly significant issue in Sub-Saharan African countries, particularly given ‘the slow growth of food production and the sluggish performance of exports’ (Rosen and Deepak 1999, p. 29), and the major ongoing health problems. An increase in the trade performance of these countries will be important to advancing their abilities to achieve food security. Over and above trade liberalisation, another essential element to improving food security in developing countries relates to how efficiently the domestic economies of these countries’ operate. Irrespective of progress, or lack thereof, in liberalising agricultural trade, there are a multitude of domestic impediments in many developing countries that are detrimental to many peoples’ ability to obtain or afford sufficient food supplies. In addition to stability issues, Zeller and Sharma (2000) refer to a number of other key domestic policy instruments for achieving long term food security. These include the transfer of technology and investments in agricultural research and infrastructure, combined with the provision of social services, such as health and education. Issues such as these are discussed in detail in chapter 7.

Many net food importing countries would, however, be able to capture the greater benefits (and hence higher incomes) from a broader round of trade liberalisation. Many of these countries have significant nonagricultural sectors (such as motor vehicles, textiles and other manufactured industries) that currently receive relatively high rates of protection compared with their agricultural sectors and those industries in developed countries. The removal or reduction of such support measures would increase incomes through improved resource allocation and provide potential benefits to domestic consumers from cheaper imports.
Participating in the WTO process

Implementation and participation constraints
Many developing countries are worried about their abilities to implement the outcomes of the Uruguay Round Agreement on Agriculture and to participate in the WTO ‘process’ (Michalopoulos 1999; Parris 1999; UNCTAD 1999e,f). This affects their abilities not only to fulfil commitments to the Agreement on Agriculture, but also to implement the numerous associated arrangements affecting trade in such matters as intellectual property, technical barriers, antidumping and sanitary and phytosanitary conditions.

Most developing countries individually lack negotiating capacity and bargaining power (Panagariya 1999b). For example, 19 out of 42 African countries have no trade representative in Geneva, while on average, OECD countries have nearly seven officials per country (Stiglitz 1999). Similarly, in the use of dispute settlement mechanisms, developing countries lack sufficient legal and technical professionals to represent their cases, nor do they have the funds to pay for these services from elsewhere.

The broad range of the examples above only scratches the surface of the nature and magnitude of such problems. They do, however, emphasise the real need for balance both within the coverage of the trade negotiations and in the process involved in meeting the needs and abilities of both developing and developed countries. As Stiglitz (1999, p. 4) says ‘the power imbalances at the bargaining table are exacerbated by the imbalance of the consequences.’ A lack of willingness by developed countries to address this imbalance can be construed as an unwillingness to truly liberalise trade.

Use and potential abuse of nontariff barriers
A threat to further reform lies in the apparent increase in the use of nontariff barriers when tariffs are reduced. For example, a number of developing countries have expressed concerns that the actions of some developed countries serve to maintain restrictions into their markets through the use of quarantine and antidumping measures (Poapongsakorn and Santanaprasit 1999; Parris 1999).
A distinction needs to be made between the genuine difficulties that developing countries face in complying with various WTO arrangements and complaints by developing countries that access to developed country markets has been denied on the basis that their products do not always meet legitimate and reasonable specifications for standards of imports. At times, this division appears unclear. As will be discussed later in the chapter, an attempt has been made in the WTO Agreement on Sanitary and Phytosanitary measures to address the issue of countries using quarantine measures as an economic barrier to trade. Although, like all negotiated outcomes, that agreement is a compromise, it does represent a step toward limiting the unwarranted use of standards as nontariff barriers.

**Antidumping provisions**

One of the major concerns of some developing countries is that they believe that they are disadvantaged in pursuing antidumping and countervailing cases against other countries. There is a perception that ‘the lack of resources available to small and medium enterprises in developing countries, and indeed their governments, to defend themselves against such legal action’ (Parris 1999, p. 25) disadvantages them in their ability to obtain fair outcomes. However, several analysts have observed that developing countries are rapidly learning to use antidumping and countervailing measures as ‘thinly disguised protectionist measures’ against each other as well as developed countries (Stiglitz 1999; Finger and Schuknecht 1999; UNCTAD 1999g).

According to Stiglitz (1999), two out of the top four users of antidumping measures in 1998 were developing countries. Antidumping initiations taken by developing economies increased from 37 per cent of all antidumping cases filed in 1991–94 to 59 per cent in 1995–98. In addition, the number of antidumping cases per dollar of imports is much higher among developing countries than among developed countries (Finger and Schuknecht 1999).

The increasing use of antidumping practices by developing countries can thus be viewed in different ways. On the one hand, it can be argued that it is merely a reflection of developing countries’ stronger participation in the global trading system and their enhanced capacity to defend their trade interests. On the other hand, it can be seen as one of many forms of implicit protection against the increased contestability faced by domestic markets as a result of global trade liberalisation.

Given the lack of transparency that surrounds antidumping cases, it is difficult to draw conclusive observations about whether the use of such measures
is having a negative impact on the general trend toward liberalisation. Nonetheless, it will be important that the use of antidumping measures by all WTO members be monitored closely.

**Sanitary and phytosanitary (SPS) measures**

Many developing countries believe that developed countries use SPS measures as a form of protection to prevent market access. Often, meeting developed country conditions requires developing country exporters to use production technologies that may not be available to them (Panagariya 1999b). At times, it can be difficult to distinguish between whether lack of access arises from stringent SPS standards or the inability of developing countries to meet the customer requirements and public health and safety standards of developed countries.

An associated issue is the level at which SPS requirements are set. The levels at which health, food safety and crop and animal disease control standards are set in countries reflect judgments about potential risks and the benefits and costs of allowing the entry of external products. However, that does not mean that such standards should be set so high as to prevent trade when the risk of disease or contamination are low.

In some instances, lack of access to developed (or developing) countries’ markets can arise because of perfectly reasonable SPS standards that accurately reflect potential risks of loss and/or loss of benefits to producers in both domestic and foreign markets, and costs to domestic consumers from lack of access to imports. Under the SPS Agreement, each country has the sovereign right to determine the level of sanitary and phytosanitary protection they deem appropriate, and to institute plant and animal health and food safety measures (against bona fide risks) to achieve that level of protection (Rodriquez, Heaney, Abdalla and Treadwell 2000).

The agreement requires that science be used to demonstrate that it is in the interests of one country to place particular standards on imports of specific products from another when there is a risk of disease or contamination. If, however, the standards used are the subject of a dispute and a WTO panel finds them to be excessive, damaged parties have avenues for redress. Here again, however, developing countries are limited in their resources and technical abilities to implement and/or challenge such rulings.

While there is this imbalance between WTO members in their ability to use such mechanisms, any limitations of members’ abilities should be addressed

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*Trade liberalisation and developing countries*
directly rather than through retaliatory action. It does not justify the practice of ‘tit for tat’ trade restrictions where governments could threaten restrictions on one or more products from a country that will not accept their exports of a particular commodity, because, for example, its SPS standards are considered by them (and not established by a WTO panel) to be too high. Actions such as these are not consistent with the SPS agreement. Further, retaliatory trade actions frequently damage the interests of those who instigate them as well as the targeted country.

The need for technical assistance

The use of SPS and antidumping measures highlights a critical need for developing countries to enhance their abilities to meet market requirements and trade opportunities. Michalopoulos (1999) mentions the range of WTO agreements that refer to the desirability of developed country members and international institutions providing technical assistance in areas hampered

4 Capacity building on sanitary and phytosanitary risk analysis

The WTO Agreement on Sanitary and Phytosanitary (SPS) measures represents a means whereby science is used to assess the health and quarantine risks of animal and plant import. A key element for each WTO member is the capacity of scientists in each country to provide robust risk analyses to take account of such matters as:

- records of occurrence and distribution of plant pests in exporting countries;
- diagnostic and taxonomic capabilities, particularly for screening for exotic pests and diseases;
- pathways for entry, establishment and spread of pests and diseases;
- potential biological and economic impact posed by pests and diseases of concern to importing countries; and
- opportunities for managing risk, particularly offshore.

Governments around the world are under pressure from their constituents to manage trade in agricultural commodities for maximum competitive advantage by using provisions of the SPS agreement that allow importing countries to deny entry of commodities of legitimate concern. These pressures notwithstanding, it is becoming increasingly apparent that knowledge underpinning risk analysis is frequently deficient. Equally, if not more importantly, market access may founder on the level of risk that countries may be prepared to accept based on the available scientific evidence.
Trade liberalisation and developing countries

The imbalance in capacity between developed and developing countries to undertake risk analysis strains relations and jeopardises the spirit of more liberalised trade between member countries.

In 1999-2000, AusAID provided funding to the National Office of Animal and Plant Health of Agriculture, Fisheries and Forestry – Australia (AFFA) to conduct two APEC-wide training workshops on sanitary and phytosanitary risk analysis under the aegis of the APEC Experts Group on Agricultural Technical Cooperation. Part of the funds provided included sponsoring delegates from developing countries to attend the workshops. The objectives of the workshops were to:

- enhance the knowledge of and understanding within member countries of the process involved in developing risk analyses;
- build on the capacity of all countries to develop robust risk analyses such that they can form the basis of meaningful negotiations on market access issues;
- enhance the understanding of the principles of quarantine and various standards and guidelines used in risk analyses;
- enhance the capacity of developing countries to adapt to a free trade environment by seeking acceptance of the need to adhere to international standards and guidelines developed by the International Plant Protection Convention when preparing risk analysis; and
- improve communication between APEC economies on quarantine issues.

In 1997 the Integrated Framework for Trade Related Assistance to Least Developed Countries was established to coordinate trade related technical assistance for all 48 least developed countries as designated by the United Nations. Six core organisations coordinate their activities to increase the benefits that the least developed countries can derive from such assistance, as well as from other multilateral, regional and bilateral sources (WTO 1999). The organisations involved are the International Monetary Fund, the
International Trade Centre, the United Nations Conference on Trade and Development, the United Nations Development Program, the World Bank and the World Trade Organisation. Michalopoulos (1999, p. 32) observes that, to date, this effort has made limited progress, and technical assistance is required by many developing countries, not just the least developed countries. ‘Sometimes, the problem may not be lack of funding, but rather a lack of an integrated approach among donors and recipients’.

Another relevant area in this regard is the marketing and distribution skills of some agricultural industries in developing countries, particularly those that have previously relied largely on supplying domestic markets. This inability has impeded success in developing and maintaining export markets. In this context, where there are clear shortcomings in current marketing methods, there may be avenues to use expertise both to reform marketing arrangements and to use marketing expertise available elsewhere to overcome such shortcomings.

**Productivity gains from trade liberalisation**

ABARE has estimated the likely magnitude of the productivity effects from trade liberalisation. An important limitation in GTEM is the absence of any productivity gains associated with trade liberalisation. The relationship between inputs and outputs is assumed in the model to be unchanged as trade flows change. This ignores the so-called dynamic gains from trade that lead to increased output. These productivity enhancements are derived from a number of sources including improved technology, the increased ability to capture economies of scale and improved production efficiencies. For example, imported goods often embody technologies that are unavailable locally. By lowering tariffs and other barriers to trade, domestic firms are able to obtain more competitively priced technologies that can lead to productivity improvements in production processes. In addition, when barriers to trade fall, firms in small economies are better able to capture economies of scale by expanding their potential market, which enables goods to be made at lower cost. Finally, removing trade barriers exposes domestic industry to increased international competition. The pressure of competition can provide a strong incentive to increase efficiency in both managerial and technical processes, including a positive inducement to technological innovation.

A simulation was undertaken to determine the magnitude of the gains from trade liberalisation if some of these productivity gains were captured. Estimates of the possible productivity enhancements were obtained from the literature and applied to trade in the manufacturing sector. Productivity in
this sector has been found to increase with the decline in the level of protection relative to the reference case. A more detailed discussion is presented in appendix E.

Results indicate that global gains from comprehensive trade liberalisation may be increased to nearly US$123 billion a year from US$94 billion a year in the standard scenario (table 19). Such gains might be enhanced further had the assumption been applied to sectors other than agriculture. The results indicate that if the estimates assumed here are correct, the benefits of trade liberalisation presented in this study may be significantly underestimated.

The World Bank (1994b) has also found that firms in developing countries have increased productivity in response to increased demands from customers in developed countries for products manufactured using international 'best practice'. The World Bank also refers to studies undertaken in Colombia, Mexico and Morocco that demonstrated that differences in productivity levels of exporting and nonexporting firms were often reduced once the latter group of firms began exporting.

### Impacts of productivity improvements from comprehensive liberalisation, 2010

<table>
<thead>
<tr>
<th>Region</th>
<th>Increase in gross domestic product relative to the reference case (US$m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>3 990</td>
</tr>
<tr>
<td>Argentina</td>
<td>836</td>
</tr>
<tr>
<td>Australia</td>
<td>435</td>
</tr>
<tr>
<td>Brazil</td>
<td>6 456</td>
</tr>
<tr>
<td>Canada</td>
<td>400</td>
</tr>
<tr>
<td>China</td>
<td>20 810</td>
</tr>
<tr>
<td>European Union (15)</td>
<td>33 230</td>
</tr>
<tr>
<td>India</td>
<td>7 262</td>
</tr>
<tr>
<td>Indonesia</td>
<td>1 516</td>
</tr>
<tr>
<td>Japan</td>
<td>14 670</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1 341</td>
</tr>
<tr>
<td>New Zealand</td>
<td>293</td>
</tr>
<tr>
<td>Philippines</td>
<td>1 625</td>
</tr>
<tr>
<td>Thailand</td>
<td>1 752</td>
</tr>
<tr>
<td>United States</td>
<td>4 350</td>
</tr>
<tr>
<td>Rest of Latin America</td>
<td>2 658</td>
</tr>
<tr>
<td>Rest of World</td>
<td>21 220</td>
</tr>
<tr>
<td>Total</td>
<td>122 845</td>
</tr>
</tbody>
</table>

*Source: GTEM simulations.*

### Coverage of the WTO negotiations

A consideration for both developing and developed countries is determining the appropriate issues for inclusion in the WTO negotiations that best represent the interests of each member. As discussed in chapter 4, more comprehensive trade liberalisation is likely to provide economic benefits for almost every country, whereas narrow liberalisation for agriculture alone would provide lesser benefits. By definition, countries that do not have a
comparative advantage in agriculture might not (depending on support levels in other industries) gain much from trade liberalisation in agriculture alone.

The key issue is that to obtain agreement on the coverage of the agenda, a balance has to be struck between the interests of both developed and developing countries. For example, there are likely to be differences of view over which areas should be covered in the General Agreement on Trade in Services. Developing countries are more likely to favor inclusion of such topics as the movement of natural persons, and construction and maritime services, while developed countries are more likely to be interested in competition policy. In the interests of making progress, it is salient to remember that in terms of numbers of members, the WTO is dominated by developing countries and that the costs of not liberalising far outweigh the adjustment costs from proceeding down the path of trade reform.

Krueger (1999) observes that developing countries have a number of common interests that will benefit from a multilateral trading system. These are that the economies of developing countries (even including the larger ones) are relatively small in comparison with the larger trading nations of the European Union, the United States, Canada and Japan. As a result, they have a greater need for an international rules based system than do larger countries with more bargaining power. She also points out that developing countries have a large stake in the healthy growth of the world economy, particularly given the high dependence on trade of most developing countries.

**Environment and labor standards**

There is a strong push by some developed countries to include a number of nontrade concerns within the WTO framework as a means of applying trade restrictions to impose, for example, environmental and labor standards. The motivations for such actions can reflect a conjunction of interests between uncompetitive industries and labor unions seeking protection from imports and environmental protection bodies.

**Labor standards**

There is a concern in some developed countries that trade liberalisation will result in a relocation of labor intensive activities away from their own countries toward developing countries where labor costs and standards are lower. Their concern is that this will increase unemployment in vulnerable groups and regional economies in their own countries. However, if developed countries were to force much higher labor standards and costs on many develop-
oping countries, they would be largely denying those countries the benefits from their current comparative advantage in labor intensive products. By so doing they would slow the process of developing countries’ development and industrialisation and deny them many of the benefits of development, as well as increasing their unemployment. At the same time, the developed countries would be denying their consumers the benefits from industrial products produced at lower cost in developing countries while slowing adjustment in their own economies toward areas of increasing comparative advantage especially in services and high technology areas.

Additionally, insistence on higher labor standards for production and distribution of products that are traded internationally than for other products that are produced in developing countries would be likely to result in a two-tiered wages structure in developing countries. A result could be a substantial reduction in wages and standards in the nontraded goods sector or higher levels of unemployment.

At the WTO meeting in Seattle in November 1999 the President of the United States informally raised the possibility of using sanctions on developing countries that did not raise their labor standards closer to US levels. Ostensibly this reflects pressure from human rights groups, but it can also be seen as an attempt to protect jobs in import competing industries in the United States.

While it is difficult to interpret how such a threat of sanctions might be implemented, any such restrictions would impinge only on traded goods. It would be difficult to demand particular labor standards on nontraded services. The effects of such constraints to trade can be modelled as a tariff imposed by developed countries on goods imported from developing countries.

To analyse these effects, a 10 percentage point increase in tariffs on manufactured goods (including textiles and motor vehicles) on exports from developing countries to developed countries was simulated within GTEM. The choice of tariff level is somewhat arbitrary here, as it is difficult to specify the additional costs imposed by, as yet unspecified, labor standards. However, the sign and pattern of impacts is instructive. Full employment is assumed in the model, so any adjustment in the labor market operates through the price of labor, real wage rates. Results are shown in table 20.

Global costs in terms of changes in constant gross domestic product from raising tariffs on manufactured imports from developing countries amount
to more than US$37 billion in 2010 relative to the reference case, offsetting well over two-thirds of the gains from trade liberalisation. More to the point, losses accrue to nearly all countries, including some of those that impose the sanctions. However, developing countries are hit hardest, particularly countries such as Malaysia and the Philippines that export manufactured products to developed countries.

Might such policies benefit wage earners? Trade liberalisation is generally expected to benefit unskilled labor in developing countries, and skilled labor in developed countries as each country specialises in producing the goods in which it has abundant factors of production. Raising tariffs would have the opposite effect. In this model, labor is not differentiated into skilled and unskilled, so it is not possible to distinguish the economic impacts on the different groups. However, it is possible to show that real returns to labor as a group decline in both sets of countries. The results indicate that most countries’ workers experience falls in real wages relative to the reference case.

The implication of a policy imposing labor standards on developing countries would appear to be that workers in some developed countries might gain in absolute terms. Costs are imposed on other groups in developed countries and, most notably, workers in traded goods industries in poor countries.

**Trade and the environment**

On the use of trade restrictions to enforce environmental standards, trade standards represent an extremely blunt and generally inefficient means of addressing environmental concerns. Such environmental concerns generally

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### Impacts of trade sanctions on labor standards, 2010

<table>
<thead>
<tr>
<th>Country</th>
<th>Gross domestic product</th>
<th>Real wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>-1 681</td>
<td>-0.28</td>
</tr>
<tr>
<td>Argentina</td>
<td>-244</td>
<td>-0.07</td>
</tr>
<tr>
<td>Australia</td>
<td>-422</td>
<td>-0.08</td>
</tr>
<tr>
<td>Brazil</td>
<td>-2 555</td>
<td>-0.28</td>
</tr>
<tr>
<td>Canada</td>
<td>86</td>
<td>0.01</td>
</tr>
<tr>
<td>China</td>
<td>-11 330</td>
<td>-0.79</td>
</tr>
<tr>
<td>European Union (15)</td>
<td>6 090</td>
<td>0.05</td>
</tr>
<tr>
<td>India</td>
<td>-2 726</td>
<td>-0.49</td>
</tr>
<tr>
<td>Indonesia</td>
<td>-830</td>
<td>-0.35</td>
</tr>
<tr>
<td>Japan</td>
<td>500</td>
<td>0.01</td>
</tr>
<tr>
<td>Malaysia</td>
<td>-1 986</td>
<td>-1.48</td>
</tr>
<tr>
<td>New Zealand</td>
<td>-37</td>
<td>-0.04</td>
</tr>
<tr>
<td>Philippines</td>
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<td>-1.32</td>
</tr>
<tr>
<td>Thailand</td>
<td>-1 069</td>
<td>-0.49</td>
</tr>
<tr>
<td>United States</td>
<td>-1 180</td>
<td>-0.01</td>
</tr>
<tr>
<td>Rest of Latin America</td>
<td>-4 329</td>
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</tr>
<tr>
<td>Rest of World</td>
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<td>-0.35</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>-37 245</strong></td>
<td><strong>-0.35</strong></td>
</tr>
</tbody>
</table>

*Source: GTEM simulations.*
arise from externalities or spillovers from production processes. They are usually region or production method specific, although there are some of a transborder nature (for example, greenhouse gas emissions or nutrification of groundwater and water pollution that extend across national boundaries). Generally, the externalities can be much more efficiently addressed by specifically targeted environmental policies than through blunt trade restrictions. It is also worth noting that some environmental conventions discourage the use of trade restrictions in achieving their goals. For example, the United Nations Framework Convention on Climate Change explicitly states ‘measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade’ (Article 3.5).

Which policies best address these externalities will depend on the values that the affected communities’ place on them. The values placed on such externalities by people in developing countries can be far different from those that may be placed on them by people in developed countries. Applying developed country standards such as those that might be enforced through trade sanctions would be inappropriate. Where people in developed countries see themselves as having a stake or an important interest in environmental conditions in developing countries, such as preservation of species or habitat, an appropriate solution might be for them to provide the resources to overcome the externality more directly.
Many developing countries have been critical of progress so far in multilateral agricultural trade reform. They believe that they are yet to reap significant benefits from such reforms and are sceptical about prospects of obtaining benefits. Yet it is clear from the evidence of the past two decades that the success of trade liberalisation in nurturing economic growth depends on a host of supporting nontrade factors. Many of these factors involve the existence and efficiency of institutions and physical and social infrastructure that are not directly limited to international trade but are critical to the effective operation of markets.

Developing countries that achieved the highest growth rates in the 1990s were those that embraced a holistic approach to development whereby trade liberalisation was considered as a necessary but not sufficient condition. As stated by Pinstrup-Anderson (2000, p. 130) ‘market liberalisation and globalisation requires different institutions, rules and regulations’.

The liberalisation of traded goods and services markets works best if complemented by socioeconomic policies that also support the transition to a more market responsive economy by addressing constraints in markets for factors of production, and a strong network of institutions that facilitate the implementation of these policies. In this chapter, key nontrade domestic factors that impinge on the effectiveness of agricultural trade reforms in developing countries are analysed.

Rural investment

Investment in rural infrastructure

Adequate and reliable infrastructure services are key factors in the ability of countries to compete in international trade (World Bank 1994b). For agriculture in particular, inadequate and inefficient transport facilities, storage facilities and telecommunications can act to constrain the supply side response of developing countries.

For example, Chand (1998) refers to a number of infrastructure constraints that are detrimental to Indian agricultural trade, particularly exports. These
include road and rail transport, inadequate storage, lack of availability of railway wagons during peak periods and lack of availability of vapor heat treatment.

Further, the lack of infrastructure contributes to a lack of integration of regional markets within a country and prevents many developing countries from being able to capture the gains from trade by reallocating resources to regions and industries where they will earn higher returns. For example, in recognition of the importance of improved transport and communications infrastructure for national integration and economic development in Indonesia, the government has increasingly opened infrastructure development to the private sector, including the relaxing of restrictions on foreign direct investment in the sector (Erwidodo 1999).

Transport infrastructure plays a central role in rural development. Among other benefits, rural roads provide lower cost access to markets for agricultural output and inputs, thereby affecting the profitability of agricultural activities. Relatively high domestic transport costs, while providing a degree of insulation to domestic producers from import competition, also reduce the prices that producers receive for their commodities if these are competing with imports at a port city or are exported.

With the globalisation of world trade, the ability of developing countries to capture the benefits from the decline in transaction costs of matching buyers and sellers is becoming increasingly dependent on access to high quality infrastructure, including telecommunications, transport and storage, which allows cost effective and speedy marketing and delivery of goods and services. Further, consumers in remote areas will gain by more reliable access to cheaper supplies, thereby increasing household food security.

While the availability of transport infrastructure has increased significantly in most developing countries in recent decades, the inadequacy of transport infrastructure is still a constraint for a number of developing countries. Freight monopolies given to domestic air, rail and shipping carriers are common in many developing countries and decrease the competitiveness of agricultural industries. In Africa, transport infrastructure bottlenecks are partly responsible for the relatively high shipping costs to Europe compared with those incurred on exports from Asia. In Tanzania, for example, bad road conditions imposed excess vehicle operating costs amounting to a third of export revenues in 1990, with adverse implications for the development of marketed crops (World Bank 1999a). In Uganda, when the rail monopoly of haulage
of the coffee crop was abolished, haulage rates were halved (Mitchell 1999), while in Zambia, the ‘rundown rural road network has been a disincentive to private maize traders to procure and distribute grain in remote rural areas’ (Seshamani 1998, p. 547). A similar problem exists in the Philippines, where the lack of adequately maintained roads has prevented farmers from diversifying their production and moving into higher value crops (East Asia Analytical Unit 1998a). Also Bhasin is cited in Chand (1998) as having observed that rail transport problems and port congestion impede Indian rice exports.

In addition to transport services, telecommunication infrastructure plays a crucial role in enabling countries to integrate more readily into the global economy. Advances in communications are transforming the world’s ability to store and transmit information and are reducing the natural monopoly characteristics that have in the past inhibited telecommunications in some regions. New technologies thus provide greater opportunities for developing countries to capitalise on the opening of markets through logistical cost savings, quicker response to customer demands and greater access to markets that were previously inaccessible because of distance.

While a growing number of developing countries are taking advantage of these opportunities, a number of other countries in the developing world have limited access to even basic communications technologies. As an illustration, in South Asia and Sub-Saharan Africa there are 14 telephone lines for every 1000 people while in high income economies, the corresponding figure is 540 (World Bank 1998). This is partly a reflection of the differing income levels but also partly of inefficient state monopolies and regulatory regimes that result in lower supply than would be the case under more competitive service provision arrangements (World Bank 1998).

Further, access to basic telecommunication services in rural areas is particularly poor in many developing countries. For example, in Indonesia, there were just over 4 million telephone subscribers in 1996 in a country with a population of roughly 200 million people. Less than 28 per cent of these subscribers live on islands other than Java and Madura (Erwidodo 1999).

The benefits of deregulation can be seen in the Philippines where following the deregulation of mobile and fixed line telephony in the late 1980s and early 1990s there was a fifteenfold increase in the annual installation of main lines in the mid-1990s (East Asian Analytical Unit 1998b). Subsequent implementation problems with interconnection conflicts between telephone companies also highlight the need for appropriate regulatory guidelines.
Another type of infrastructure critical to the competitiveness of agricultural industries is post harvest facilities. The ability to package, handle and store commodities, particularly perishable items, varies considerably in developing countries. For example, insufficient packing and handling of fruit and vegetables in the field and a lack of cool storage facilities in India contribute to product decomposition and sanitation problems (Chand 1998).

A key issue in the provision of rural infrastructure in developing countries is the financing of these projects. Until recently, public sector involvement dominated most aspects of infrastructure service provision in developing and developed countries alike. However, over time, it became apparent that market forces and competition had the potential to enhance the production and delivery of many infrastructure services. In addition, with growing infrastructure requirements in many developing countries and limited public resources available to finance such projects, the need for efficient service provision and the role of the private sector came to the fore.

Consequently, throughout the 1990s, private sector infrastructure activity expanded substantially in some developing country regions. Total annual infrastructure financing raised on international markets by developing countries increased from US$1.4 billion in 1990 to US$32 billion in 1997, with the bulk of the funds flowing to East Asia and Latin America (East Asia Analytical Unit 1998b). In comparison, the ability of African countries to mobilise foreign private capital over most of that period has been rather limited, with capital investments being still largely publicly financed.

The ability of developing countries to attract private infrastructure funding depends not only on economic fundamentals such as macroeconomic stability, sound microeconomic policies and liberalised trade regimes but also on a range of other complementary factors. These include education, regulatory institutions that provide a clearly defined set of rights and responsibilities for foreign investors in order to minimise sovereign risk, and the development and opening of stock markets to foreign participation to attract foreign equity financing (World Bank 1999a).

**Investment in productivity**

The role of agricultural research and extension services in enhancing the productivity of the agricultural sector is well established. Increasingly, with trade liberalisation, deregulation of regulatory regimes and falling transport and communications costs, the opportunities for developing countries to
expand their knowledge base by acquiring knowledge generated elsewhere are growing. This is despite domestic resource constraints. However, history also suggests that the productivity enhancing impacts of imported knowledge are highly dependent on an ability to absorb that knowledge and be adapted to local conditions (World Bank 1998). This underscores the need not only for a strong research and extension system at the local level but also, importantly, for investment in human capital through education and training in rural areas.

People in agriculture need improved skills and information to ensure continued productivity improvements in agriculture, to respond more readily to changing demand patterns, and to enhance the ability to shift to other activities, including nonagricultural sectors if necessary. Greater local research capability will also be critical in allowing farmers to manage and apply emerging technologies including those arising from the biotechnology revolution. Most agricultural biotechnology research is currently being undertaken by a few multinational companies. Investment by such companies in developing countries will depend on expected returns that in turn will be influenced by the ability of farmers in these countries to adapt to the new technologies. Issues associated with acceptance of genetically modified organisms by consumers in both developed and developing countries are also likely to be important.

However, in many developing countries, agricultural research and extension services face constraints including a lack of technical and support staff and insufficient operating funds. For example, David (1999) points to the significant underfunding of government research and extension efforts in developing countries. The opportunity cost of underinvesting in public agricultural research and development is high. A ‘review of social rates of return estimates worldwide reports this to be in the order of 40 to 60 per cent’ (David 1999, p. 15). Further, the ratio of extension personnel to farmer population for public extension services in developing countries ranges from 1:1800 to 1:3000 while in developed countries the ratio averages around 1:400 (Feder, Willett and Zijp 1999).

Poor performance is also partly the result of poor program design and implementation, and incoherent links not only between researchers and extension agents but also between the research sector and farmers’ needs more generally. David (1999) is critical of the institutional framework of research systems in developing countries in particular, the organisational structure, lack of accountability, incentive problems and instability in leadership. In a number
of developing countries the management of agricultural research and extension is such that the participation of local communities is not effectively encouraged, which potentially reduces the relevance of technology generation. For example, in Pakistan specialised research on crop and resource management has not typically taken into account the interactions between different crops and agronomic issues (Faruquee 1995). Similarly, specialised agricultural services managed from the top down have not been client driven in East Africa (World Bank 1999a).

Several institutional changes have been introduced in developed and developing countries recently in an attempt to address the generic problems associated with agricultural research and extension. A key element underpinning these changes is the recognition that not all research and extension services need to be organised, implemented and funded by government agencies. Feder, Willett and Zijp (1999) highlight the characteristics of successful extension models. These include:

- broadening of extension beyond production to include transformation and marketing;
- integration of farmer participation and control;
- collaboration with community organisations; and
- prioritisation, categorisation and stratification of farmers into target groups.

Land policies and institutions

In addition to infrastructure services and research and development, well functioning land markets have significant implications for the efficiency of the agricultural sector, and, hence, for the ability of this sector to adjust to and capture the gains from trade liberalisation. In particular, the assignment of well defined and secure property rights to land can be expected to have direct benefits by increasing farmers’ ability to produce both for subsistence and income generation, incentives to invest in and sustainably manage land, and the ability to obtain credit. Indirectly, they should also be beneficial by supporting the emergence of more efficient farm structures. In particular, land markets in which fully specified, transferable and enforceable land rights can be exchanged allows those who do not have a comparative advantage in agriculture to sell or lease their land to those that do.

In their review of the evidence on the effects of fuller and more secure property rights systems, Deininger and Feder (1998) draw the following conclusions:

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• where population density is sufficiently high, increased tenure security increases investment significantly; and

• a higher degree of transferability tends to provide additional incentives for investment and far more efficient use of family labor.

Developing countries vary widely in the nature and extent of land rights and the institutions governing the allocation of these rights. This diversity reflects an array of factors such as population density, access to technology, extent of agricultural commercialism, and distributional and customary considerations. Moreover, in many developing (and developed) countries, governments impose restrictions on the extent of land rights by limiting the degree of exclusivity or transferability.

For example, in the Philippines, the Comprehensive Agrarian Reform Program (CARP) introduced in 1988 involved the mandatory sale of farms over 5 hectares to tenants and other beneficiaries in an attempt to redistribute land to small scale farmers and landless families, together with compensation to the owners. This law and the subsequent prohibition of plot consolidation has led to an average farm size of 2–3 hectares, with 85 per cent of farms being less than 5 hectares. While small plot size is not usually considered to be an impediment to poultry, pig or fish farming, it imposes an important constraint on the production of major crops such as rice, corn and coconut (East Asia Analytical Unit 1998a). In particular, the achievement of economies of scale in the use of modern cultivation and harvesting technologies is adversely affected by small plot sizes, while regulations preventing coordination of adjacent farms prevent of the most effective forms of beneficial agricultural adjustment.

David (1999) refers to the political difficulties and the high implementation costs of the land reform program in the Philippines that has acted as a disincentive to investment in agriculture, particularly in perennial cropping (such as coconut trees) and that which requires longer term land and irrigation development. She states that various provisions of the land reform programs, combined with their slow implementation have increased land market distortions with unintended negative effects. These include making share tenancy illegal and the prohibition of private land sales effectively eroding the asset value of land.

In India, a stated objective of land policy is the consolidation of agricultural holdings into viable economic enterprises (OECD 1999a). However, customs
and inheritance laws under which land is divided among family members have contributed to growing fragmentation of land in rural areas. In addition, the security of land rights is somewhat compromised by inadequate administrative procedures. Poor formal records and administrative weaknesses in some states have had a negative impact on the security of tenants’ rights and the development of an efficient agricultural sector.

While land rights clearly have an impact on agricultural productivity, there are also other policies and cultural issues that indirectly impinge on the significance of these rights (see box 5, based on Bruce 1998). For example, local customs, particularly in relation to inheritance, may also affect the structure of land ownership. A major difficulty facing many developing countries is that land use and ownership systems are largely based on nonmarket transactions such as widely different inheritance laws and customs. Deininger and Feder (1998) maintain that there is insufficient quantitative evidence to ascertain how efficient or equitable these traditional nonmarket systems are. Further, it is equally difficult to ascertain the transaction costs involved in transforming such systems to ones where they will earn the highest return. For example, women in quite a number of developing countries generally have largely informal land rights but carry out a significant part of agricultural production activities. Very little is known about the potentially far reaching efficiency implications for agricultural productivity and investment if these rights were strengthened.

Further, direct or indirect taxation of agriculture also implies a tax on agricultural land when such taxes have a higher incidence than those applying in other sectors. Similarly, underdeveloped financial markets, which is a common problem in developing countries, can effectively hinder the development of efficient land markets by preventing the most efficient farmers from getting access to credit.

This example underscores the need for land tenure reforms to take into account the relationship between formal and informal tenure systems, and be supported by adequate administrative capacity and developed financial markets.

Credit policies and institutions

The lack of access to credit is a perennial problem faced by small entrepreneurs, including farmers, in developing countries. There has been considerable criticism over many years about inadequate rural financial services and subsidised credit programs both in relation to their inability to meet the partic-
The salient feature of land tenure arrangements in West African countries is the deeply entrenched duality of tenure systems represented by the statutory and the customary systems.

The statutory system or official policy has evolved considerably over the past forty years, with recent reforms in a large number of these countries reflecting a push toward privatisation of land holdings and the development of land markets. Increasing population is the major factor driving this trend, evident to varying degrees across the region, along with land pressures and international aid donors’ support for widespread legal reform.

Despite the existence of statutory tenure systems for over a century, customary systems of tenure revolving around local communities still dominate access to land in virtually all West African countries. In all these community based tenure systems, access to land is primarily determined through inheritance if one is a member of the lineage or group; borrowing, sharecropping or renting if one is an outsider to the group; or purchase if land is bought and sold in the area. 

Agriculture is pivotal to the livelihood of rural populations in most countries of West Africa, with 50–70 per cent of West African populations living in rural areas and up to 90 per cent of these populations involved in agriculture either directly or indirectly. The growth of agricultural production in West Africa has been sluggish or even negative since the 1960s. Land tenure is clearly but one of the factors that is viewed as having contributed to this poor performance. With land transfers driven primarily by customs, the allocation of land resources has tended to take place without regard to how the resource was best employed (that is, where it can earn the highest return). In addition, community based tenure systems are considered to have created some degree of insecurity, with adverse incentives for agricultural investment.

While recent moves toward more individualised forms of tenure are aimed at strengthening tenure security and enhancing agricultural investment and production, there are some concerns that tenure security may in fact be undermined for a number of reasons. For example, in some countries, borrowers have been evicted by the original land holders because of the concern that they might register the land they occupy. Such behavior would reflect a lack of confidence in the security of tenure rights for both the borrowers and the lenders. In addition, the coexistence of competing sets of rules for allocating land and the lack of institutionalised policy coordination between the two systems have led to an increase in overlapping claims, market inefficiencies and social conflict. Another observation identified from the profiles of individual countries in the region is that with the partial shift to less community oriented systems a number of strategies for staking claims to land resources have emerged. These range from traditional reliance on social identity to the application of privileged access to financial resources or specialised information.
ular requirements of rural customers (for example tenants and women) and to address specific market failures. The difficulties in providing affordable and accessible rural financial services are seen as a critical impediment to rural development, particularly for raising household incomes and food security and reducing poverty.

In poor communities where borrowers’ collateral assets are limited, the liability of borrowers is effectively limited. This often leads to higher interest rates because the costs to lenders of assessing the creditworthiness of potential borrowers are relatively high. Imperfect information and the resulting market segmentation characterised by wide variations in interest rates across borrowers are likely to reduce the scope for competition in capital markets in developing countries.

Further, this information failure is likely to affect the poorest households the most as borrowers in this category have less wealth to use as collateral. This implies that farmers most likely to have access to credit are those with relatively higher incomes and asset levels rather than those with projects having the highest expected net return or those with the most efficient farm operations. In these circumstances, lack of access to credit can be expected to have an adverse impact on agricultural sector growth.

In an attempt to overcome this problem, governments in developing countries traditionally have tended to intervene directly in rural financial markets through targeted credit programs and interest subsidies. However, the evidence suggests that this approach has had limited success in improving incomes and alleviating poverty in rural areas (Yaron, Benjamin and Charitonenko 1998). In particular, such programs, while well intentioned, have typically had a limited coverage, have tended to displace existing lines of credit and have resulted in high budget costs without reaching those who need it most and making any significant impact at the farm level.

A common feature has been the development of informal financial lenders such as credit unions and cooperatives, local money lenders, savings and loans associations and village banks. Another important source of funds is relatives, friends and neighbors. According to Killick (1993), informal institutions tend to be more responsive to borrowers’ needs, more accessible, particularly in rural areas, and have lower lending costs when dealing with small enterprises. Zeller and Sharma (2000) found that formal lending to the poor in Pakistan and Cameroon accounted for less than 5 per cent of total household borrowings, while in Madagascar, Bangladesh, Nepal, Egypt and

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China, more than 60 per cent of borrowings to poor households come from informal financing. Glassburner, cited in Erwidodo (1999) estimated that informal finance accounts for around 80 per cent of the total capital needs of the Indonesian agricultural sector.

Microfinance organisations play an increasing role in many developing countries by providing access to credit and savings facilities for individuals and organisations that do not have the means to use the services that commercial institutions provide (see box 6). In conjunction with informal lending, microfinance institutions are providing another avenue for the poor to gain access to credit. The Bank for Agriculture and Agricultural Cooperatives in Thailand and the Grameen Bank in Bangladesh, for example, are now widely recognised as being successful in terms of outreach and financial self-sustainability (Yaron, Benjamin and Charitonenko 1998).

For countries that provide financial services to rural areas that are more tailored to the needs of potential clients (including meeting the demand for savings products), there is evidence of higher incomes and an increased ability by households to be food secure. Other related aspects involve removing specific impediments to financial markets such as weak prudential regulation of financial institutions, interest rate and credit controls and information asymmetry between lenders and borrowers, and addressing broader policy distortions.

Macroeconomic settings are a key factor in determining interest rates and economic volatility. For example, Siamwalla is cited in Poapongsakorn and Santanaprasit (1999) stating that a stable and flexible exchange rate system is a vital element of the competitiveness of agricultural exports from Thailand. Unsound macroeconomic policies have the potential to adversely affect financial intermediaries by distorting price signals, and thereby leading to an inefficient allocation of financial resources.

Similarly, sectorally biased policies that discriminate against agriculture reduce agricultural growth, which in turn hinders the development of rural financial markets. For example, deficient investment in infrastructure, education and communications in rural areas increases the transaction costs of providing financial services in many developing countries (Paxton 1998; Ouattarra, Baydas and Paxton 1998).

While sound microeconomic and macroeconomic policies are critical in enhancing the efficiency of rural financial markets, these policies need to be
supported by a strong and consistent institutional capacity if they are to be implemented effectively. Supportive legal and regulatory institutions are particularly important in providing cost effective enforcement of financial contracts. Similarly, clearer property rights and a greater degree of secure and efficient transferability of land rights can be expected to affect the emergence and efficiency of rural financial markets in developing countries given that land is one of the best collateral assets available. In addition, there may be a need for finance providers to better target their products, recognising the nonfinancial constraints faced by potential clients and providing a greater range of savings, investment and insurance products.

6 Microfinance and access to credit in developing countries

The following examples, selected from a range of developing countries, demonstrate that a key factor to the success of microfinance organisations in providing credit and financial services to the poor is their ability to operate commercially. While donor capital has been used in setting up many of these projects, they have continued to operate following the withdrawal of aid money. They provide ongoing services targeted to the credit needs of low income communities and, in doing so, are credited with having contributed significantly to the task of alleviating poverty.

Bangladesh

Probably the most well known microcredit program in the world that lends to the poor is the Grameen Bank. The program began in 1976 when small loans were given to the poorest in Bangladesh as part of a research project lead by Professor Yunos examining how credit services could be delivered to the rural poor (Grameen Foundation 1999).

The project was pilot tested in a village near the University of Gittagong, and after initial success in improving incomes, housing, self-employment, health, food security, education, and other poverty related concerns, the program was extended to neighboring villages. Its continued success to alleviate the plight of the poor in Bangladesh, a large proportion of them women, led to the expansion to other parts of the country, the participation of the Central Bank and nationalised commercial banks, and its eventual transformation to an independent bank by legislation.

The bank provides loans to voluntary small groups of five people who provide ‘mutual, morally binding guarantees in lieu of collateral’. It operates by allowing two members of a group to apply for a loan first, and if repayments are satisfactory, the next two members can apply for loans. If payment performance is again satisfactory, the fifth member of the group can then apply for a loan.
Repayments are in weekly instalments spread over a year. Eligibility for further loans depends on repayment of previous loans. Discipline is stressed and strongly encouraged by bank staff and group pressure, while compulsory and voluntary savings provide safeguards to minimise risk. The assumption is made that if individual borrowers are given access to credit, they will be able to identify and participate in viable income generating activities.

The Grameen Bank is 90 per cent owned by borrowers with the government holding the remaining 10 per cent. The success of the Grameen model in improving the livelihood of many people in Bangladesh has led to its replication in 223 other programs in 58 other developing countries (Grameen Foundation 1999).

The Grameen Bank is currently the largest rural financial institution in Bangladesh, with more than 2.3 million borrowers, 90 per cent of which are women (Grameen Foundation 1999). There are 1128 branches providing services to more than half of the villages in the country. Loan repayments average US$160 and are paid back more than 95 per cent of the time. The Grareem Foundation (1999) estimates that the greatest benefits have gone to landless households, followed by marginal landowners, with there being a significant decrease in the number of bank members living below the poverty line (20 per cent compared to 56 per cent for comparable non Grameen Bank members). There has also been a shift from agricultural wage labor to self employment in small trading.

Guatemala

The Women’s Village Banking program of CARE Guatemala provides access to credit services to Guatemala’s poor, who are considered to be some of the most marginalised people in Latin America (Paxton 1998). By 1995, the program had provided loans averaging US$170 to over 10 000 women since its beginning in 1989.

The program faces a number of operational difficulties that highlight the need for such services to be adaptive to different conditions. In this case, there are high transaction costs of working with isolated rural clientele who live in mountainous areas serviced by poor roads; a lack of social services such as education, which puts additional training pressure on the bank; and the existence of a number of different ethnic groups with different languages and cultural norms.

The program followed the traditional village banking system where communities of 30–70 individuals were organised into banks (Paxton 1998). The performance of village banking is considered to have been very successful since its inception. However, high transaction costs and the high dependence on donations rather than commercial loans as in the case of the Grameen Bank, has cast some doubt on the sustainability of the village banking program. According to Paxton (1998), the leaders of village banking are at a crossroads in determining the future mission and role of the bank.
The three major issues confronting both village banking and many other micro-financial organisations are:

- the implications of alternative corporate cultures to either provide subsidised humanitarian aid or operate with a more sustainable approach to commercial banking;
- should village banks be encouraged to ‘graduate from the program’ and become ‘actual banks’? and
- how to safely and sustainably meet clients’ requirements to use savings.

**Niger**

Microfinance in Niger is provided by a network of credit unions known as the Caisses populaires d’épargne et de crédit (CPEC). The organisation was initiated following external funding primarily from USAID in collaboration with the World Council of Credit Unions (WOCCU). There are two aspects of CPEC that stand out. These are its ability to operate in a difficult environment characterised by extreme poverty, illiteracy, political and economic instability, an underdeveloped regulatory system, and uncertain external funding sources. Finally, it has had the additional pressure of dealing with the loss of donor funds sooner than had been planned (Ouattarra, Baydas and Paxton 1998).

CPEC adopted the World Council of Credit Union model of microfinance that emphasises sustainability, participation, and offers a variety of services besides lending. CPEC learnt from the pitfalls of credit unions, particularly in other parts of Africa, and was determined to avoid such problems. With a more commercial and market oriented approach to microfinance, CPEC is considered to have been highly successful in providing financial services to middle and low income people in both urban and rural Niger. One particular aspect is that donor funds have not been used in the basic provision of financial services, but rather for training, education, regulatory reform and network creation (Ouattarra, Baydas and Paxton 1998). It is this aspect that is believed to have prevented the collapse of CPEC following the premature withdrawal of funding from USAID precipitated by the coup d’état in Niger in 1996.

There is evidence the CPEC has managed to reach many poor clients, primarily located in rural areas. It is hoped that the network of funds, set up on a sustainable basis, will overcome the early withdrawal of donor funding and continue on a sound footing.
Governance and institutional reform

While sound policies are important in fostering the development of efficient markets, the processes and institutions through which these policies are formulated and implemented are just as important. Sustained development requires institutions of good governance with transparent and participatory processes. Ndulu and O’Connell (1999) quote Adam Smith’s views that good governance can spur economic development through the elements of ‘peace, easy taxes and tolerable administration of justice’.

There does not appear to be a single accepted definition of governance. Kaufman, Kraay and Zoido-Lobatón (1999, p. 1) define governance as the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced, the capacity of the government to effectively formulate and implement sound policies, and the respect of citizens and the state for the institutions that govern economic and social interactions among them.

In recent years there has been an increase in interest in measuring the overall ‘quality’ of governance in individual countries as well as determining the relationship between the quality of governance and long term economic growth (Wei 1999; Haggard 1999; Kaufmann, Kraay and Zoido-Lobatón 1999; Ng and Yeats 1999). Most studies conclude that there is a strong causal relationship between improved governance and better development outcomes. For example, Kaufmann, Kray and Zoido-Lobatón (1999) assessed a cross section of more than 150 countries against six aggregate indicators of basic governance concepts (accountability, political stability, government effectiveness, regulatory burden, rule of law and perception of corruption). Their results show a strong positive causal relationship between better governance and per person income.

Similarly, Wei (1999) reviews the statistical evidence on the impacts of corruption on economic performance. His findings suggest that corruption, defined as the abuse of public office for private gains, have a negative impact on economic growth. This nexus is created by several underlying factors: the crowding out of domestic private investment by public investment, distortions in the composition of government expenditure away from education, health and infrastructure maintenance toward less efficient public projects with more scope for manipulation, and reduced foreign direct investment.
It is clear that good governance is generally important for allowing sound government policies to be formulated and implemented effectively. In terms of agriculture in particular, a number of factors are increasing the demand for improved governance. These include the greater decentralisation of the management of public resources to local governments and organisations, and the increasing privatisation of agricultural research and marketing activities.

While good governance is a fundamental requirement for enhanced economic outcomes in developing countries, it must also be acknowledged that institutional reform to provide good governance is a complex and long term process. For instance, the design and implementation of judicial reform to uphold the rule of law and enforce property rights can be made more complex in many developing countries because of the lack of knowledge about the relationship between formal enforcement of the laws through the courts and traditional or informal means of enforcement (Messick 1999).

In addition, adequate enforcement of the law requires well trained regulators and a supportive system of incentives and provision of penalties, all of which is costly and takes time to develop. This is clearly illustrated by the experience of several East Asian economies affected by the financial upheavals that commenced in 1997. Even though countries such as Thailand and Indonesia have drafted new bankruptcy legislation as part of their reform programs, the new commercial courts established in 1999 have been slow in enforcing these laws, reflecting a lack of expertise and credibility (East Asia Analytical Unit 1999).

These factors call for reform projects that are carefully designed to take into account informal enforcement mechanisms as well as the specific and evolving requirements of individual countries.
Appendix

Modifications to the standard GTAP database (1995)

General equilibrium databases comprise four sets of data. Input–output tables show the linkages between sectors, whereas trade flows reveal the linkages between countries. Policy variables, predominantly export subsidy rates, tariff rates and domestic support, indicate the levels of protection in various sectors. Finally, parameters, such as income elasticities, show the relationship between the variables.

Trade flow data are considered the most robust, policy variables are subject to change, and input–output data can be outdated and occasionally inaccurate. There may be sound reasons to modify these data. Parameters are rarely changed, although in some cases parameters are merely generalised assumptions, applying perhaps to all commodities or across all regions. For use in the GTEM model, ABARE has made many modifications to the GTAP database.

Protection data

Numerous changes were made in the database to export subsidy rates, tariff rates and domestic support to more accurately represent policies that are in place in various countries. Attempts were made, where possible, to use applied rather than bound (statutory maximum) tariffs. Many of the border measures in the ASEAN countries in particular were made consistent with those contained in the UNCTAD TRAINS database (UNCTAD 1999h), the APEC Tariff Database and notifications to the WTO.

Where the United States and the European Union provide preferential access to their sugar markets using voluntary export restraints, the rents have been reallocated to the exporting countries rather than allowing the importing countries to collect the tariff revenues. This is done by postulating an export tax and an output subsidy in the exporting country to raise domestic prices to an appropriate level. This implies that when such policies are reduced or removed, the domestic producers in the exporting countries are adversely affected by the loss of the export market and the fall in prices. With a voluntary export restraint incorrectly represented as a tariff, exporters are shown to gain from liberalisation.
Trade flows

A feature of the GTEM model used here is that if an industry has no output or no imports or exports, these cannot be generated through changes in relative prices. This reflects the solution procedure whereby the model equations are expressed in percentage changes. If a tariff is prohibitive, imports will not flow when the tariff is reduced or eliminated, as any percentage change applied to zero is zero. To solve this problem it is necessary to provide some small positive production or trade flows in the initial database. This was done for Japanese rice. Japan started importing rice in 1996 following the implementation of the market access agreements in the Uruguay Round.

Paddy rice and cane and beet sugar should be defined in a way such that there is no trade, except perhaps where mills are adjacent to borders. Therefore, in most instances trade in these products is eliminated.

Input–output tables

The original GTAP version 4e input–output tables in many instances do not give a fully representative picture of agriculture. Examples include sales of unprocessed products such as paddy rice, cane and beet sugar and live cattle and sheep into food products or beverages rather than into processed products such as processed rice, sugar and meat products. In other cases paddy rice is sold in construction, chemicals, rubber and plastics, and capital. Most of these inconsistencies stem from the disaggregation of the national input–output tables, where a product such as cereals is split into wheat, rice and coarse grains. It is inappropriate to give rice the same cost or sales shares as wheat.

These inconsistencies make the results difficult to interpret. When very little paddy rice is used as an input into processed rice, for example, then a tariff reduction can lead to a fall in paddy rice output and a rise in processed rice production, even though paddy rice is virtually nontradable. The original GTAP version 4e database was systematically adjusted to remove these inconsistencies.

Disaggregation of land into three types

A feature of GTAP is that quantity changes appear large relative to price changes. One reason is that prices reflect the scarcity of the fixed factor, land. Agricultural land is too readily substitutable to the extent, for example, that
tropical crops (cane sugar) can be substituted for temperate crops (wheat) in the model. To address this, land is disaggregated into three types: crops (broadacre crops such as rice, wheat, coarse grains, oilseeds), livestock (cattle, sheep, pigs and poultry), and speciality land (such as sugar, vegetables and fruit, plant fibres and other crops). The allocation of crop types to land need not be one to one. Some crops can use two or more types of land. For example, beet sugar is allocated to crop land while cane sugar is allocated to speciality land. This disaggregation of land makes prices more responsive to policy changes.

Finally, significant demographic detail is required in GTEM to model population and labor force growth over time. Underpinning the demographic module are historical data showing the age and gender composition of the population in each region in one year cohorts from age 0 to 100. These are sourced from United Nations (1998). Labor supply is determined by population growth, and the rate of unemployment is assumed to be constant. Labor force adjustment occurs through the price of labor, the real wage.
GTEM is a multiregion, multisector, dynamic general equilibrium model of the world economy. It is derived from the GTAP model (Hertel 1997) and the MEGABARE model (ABARE 1996). The starting point for the GTEM database is the GTAP 4e database (McDougall, Elbehri and Truong 1998).

GTEM was developed at ABARE to analyse global change issues and has been used in assessments of international climate change policies and domestic and international trade policies. It is highly suited to analysis of policies that involve complex interactions between sectors and between regions. A detailed description of the model, together with some working papers that illustrate further model developments, can be found on ABARE’s web site (www.abareconomics.com).

Key features of GTEM are described below.

**Dynamics**

GTEM is a dynamic model that includes relationships between variables at different points in time. This is in contrast to comparative static models, which compare two equilibriums, one before a policy change and one following. As a dynamic model, GTEM requires a reference case against which to compare the results of policy simulations. The reference case provides projections of growth in labor and capital in each economy or region, and the associated growth throughout the rest of the economy in the absence of any policy measures. The results of policy simulations are then interpreted as deviations from the reference case.

**Factors of production**

The primary factors of production in GTEM are land, capital and labor. There are three types of land: crops (broadacre crops such as rice, wheat, coarse grains, oilseeds), livestock (cattle, sheep, pigs and poultry), and speciality land (such as sugar, vegetables and fruit, plant fibres and other crops). Land is used only in agriculture, and like the other primary factors of production, must be fully used. However, the productivity of land can be altered exogenously (outside the model), to reflect land clearing or set-aside policies. Crops
are substitutable within the land types, but not between them. For example, wheat can substitute in production with other grains but not with livestock or speciality crops. The capital stock in each region accumulates by investment less depreciation in each period. Both capital and labor are mobile between industries and, to a lesser extent, across regions through international capital flows and labor migration.

Population and labor supply for each region are determined endogenously (within the model) over time. GTEM contains an elaborate description of population dynamics, which captures the idea that as economies move along the economic development path, with increasing per person incomes, changes in fertility and mortality rates follow a well defined path. The model uses estimates of the dependence of fertility and mortality rates on income and an exogenously imposed migratory pattern to predict age and gender specific population changes.

**Natural rate of unemployment**

It is assumed that the imposition of any policy change does not raise unemployment above the so-called natural rate of unemployment for any economy. Any downward shifts in the demand for labor are assumed to be offset by reductions in real wages growth sufficient to prevent the emergence of unemployment above the natural levels. This assumption is often known as the ‘full employment assumption’ and its use is justified in cases where policy changes are introduced progressively, allowing time for wages to adjust to new market conditions.

In practice, however, it could be expected that changes in patterns of production caused by trade liberalisation could lead to the emergence of some unemployment, especially if liberalisation has negative impacts in sectors where the skills of the labour force are not easily transferable. Relaxing this assumption may therefore lead to increased estimates of the economic costs of trade liberalisation policies.

**Prices**

For each commodity and primary factor, taxes on production, sales, exports and imports are accounted for separately. As a result, the supply price, market price, domestic user prices and the export price (including export taxes) for a commodity in the producing region and the import price (including international freight), duty paid market price and user prices in the importing
region of a given commodity are clearly distinguished. In the standard model closure used in this study, prices adjust fully to equate the supplies of and demands for all factors and commodities in each region in each period. All prices in the model are determined relative to the price of savings — the numeraire price.

**Producer behavior**

Producers in GTEM are assumed to operate in perfectly competitive markets using constant returns to scale technologies. Under these assumptions, prices will be set to cover costs and GTEM industries earn zero profits at all times, with all returns paid to primary factors of production. Thus, changes in output prices are determined by changes in input prices of materials and primary factors. This structure implies, for example, that the removal of domestic support raises rather than lowers market prices. This may seem counter-intuitive, as the objective of government support is generally to raise prices. However, domestic support policies drive a wedge between producer and consumer prices, raising the former and lowering the latter. Reduction in support reverses these effects.

**National income, savings and consumption**

In GTEM, a representative household in each region owns all factors of production and receives all payments made to the factors, all tax revenues and all net interregional income transfers. The representative household allocates its net income across private and public consumption and savings. National savings are assumed to move in line with national income.

Total consumption expenditure is calculated as the difference between current household income and savings, with the ratio of private consumption to government consumption assumed to be constant. Given total private consumption, the representative consumer maximises current period utility by choosing consumption levels for each of the commodities in the database, from both domestic and imported sources.

**Trade**

A key feature of GTEM is that it takes account of and models the impacts of policies on bilateral trade flows of all commodities between all regions. Consumers in a given region can substitute goods produced in that region with the same goods produced in different regions. However, an ‘Armington’
preference structure is adopted which ensures that a good produced in one region is an imperfect substitute for goods produced by the same industry in other regions (Armington 1969a,b). In other words, the same commodity from different sources can trade at different prices.

For any given consumption activity, demand for a commodity is allocated between a domestic product and a composite imported product according to a constant elasticity of substitution (CES) function. The demand by a region for each composite imported commodity is then allocated between sources of imports according to a further CES function. Substitution between domestic and imported commodities and between imported commodities from different sources will depend on movements in relative prices and the specified elasticity of substitution — the Armington elasticity.

The Armington elasticities in GTEM vary between commodities and are derived from current literature and from empirical work undertaken by Jomini et al. (1991) in the construction of the SALTER world trade model. As with all parameters in a global computable general equilibrium model, there is uncertainty about the appropriate size and relativities of the Armington elasticities for various commodities. These elasticities are important determinants of the model results in this report as they affect the estimated trade impacts on agricultural commodities resulting from trade liberalisation.

The issue of the appropriate size of the Armington elasticities is one of aggregation rather than product homogeneity. The elasticity should rise with greater levels of disaggregation. Wheat or rice should have a higher elasticity than cereals. By contrast, aggregated sectors such as manufacturing or services should have rather low elasticities reflecting the diversity between each country’s exports.

In equilibrium, the exports of a good from one region to the rest of the world are equal to the import demand for that good in the remaining regions. GTEM does not require the current account to be in balance every year. It allows the capital account to move in a compensatory direction to maintain the balance of payments.

Goods are transported between regions by an international transport industry. This industry takes prices as given and minimises the cost of obtaining transport services from each region. The cost of international transport is added to the cost of imports to each region.
International capital mobility

In GTEM, international capital mobility refers to the mobility of investment funds across regions in response to changing rates of return rather than the mobility of physical capital such as plant and machinery. In other words, region A may provide (lend) investment funds to region B provided sufficient incentives exist, but physical capital that is installed in region A cannot be relocated to region B irrespective of any rate of return differentials. In addition, capital owners in region A do not directly own or operate physical capital in region B. They do, however, buy or sell bonds denominated in global currency units that are traded internationally to facilitate the flow of investment funds.

Investment funds are supplied by regional savings that depend on regional income. Savings from each region are pooled, as if given to a global banker, to be lent to investors. The demand for investment funds in a region depends on the prevailing economic conditions that determine the desired stock of capital. It is assumed that regional investors bid for the funds to finance their planned investment by offering higher rates of (expected) return on bonds issued to the global banker, who in turn sells these bonds to the regional savers. The global market for investment funds is in equilibrium when the supply of investment funds equals demand. The net borrowing thus determined by the gap between investment and savings of each region adds to the regional indebtedness.

The international flow of investment funds modeled in GTEM is similar to foreign direct investment as these funds are then used to invest in physical capital. GTEM does not, however, account for bilateral investment flows. For example, investment by Japanese residents in the Indonesian coal sector is not explicitly modeled. Rather, Japanese savers own a bond that returns the global average rate of return paid by Indonesian investors.

At the regional level, however, rates of return may differ. These differences reflect region specific risk premiums and restrictions on foreign investment that drive a wedge between the rate of return in a particular region and the global rate of return. For example, investors tend to place a higher risk premium on investing in developing economies in GTEM to reflect the greater uncertainty of investing in these regions. The equilibrium rates of return in developing economies are therefore higher than in developed economies.
Capital market restrictions also contribute to differentials between regional rates of return and the global rate of return. These restrictions can increase or decrease the wedge between regional rates of return and the global rate of return. For example, capital will be relatively more scarce in a region that restricts capital inflows. All things being equal, a scarcity of capital will increase the rate of return in that region compared with the global average. On the other hand, a region that restricts capital outflows will overinvest at home, lowering returns relative to the global average.

Exchange rates
The exchange rate in GTEM is the price of converting local currency into global currency. It is the price that adjusts to keep the balance of payments in equilibrium. For example, if trade liberalisation leads to a significant decline in export earnings from a particular region this will, other things being equal, result in an exchange rate depreciation for that region. The depreciation in the exchange rate will improve the competitiveness of exporters and import competing producers in that region. Exports will increase and imports decline, restoring balance of payments equilibrium.

A change in the exchange rate will also influence international transfers associated with foreign debt or lending. For example, a region that has borrowed from international capital markets in GTEM that experiences an exchange rate depreciation will have a greater level of debt denominated in foreign currency. The debt servicing requirement (interest paid) will increase in domestic currency terms. On the other hand, a region holding foreign assets through international lending will earn more interest income in domestic currency if their exchange rate depreciates.
Effects of replacing preferences to high cost producers with competition for limited market access

It might be considered that if a country restricted its imports of a product to a particular level, it would not matter for world market conditions and prices whether those imports were drawn from countries that had specific preferences or from elsewhere. In this appendix, however, it is shown that, if there are preferential arrangements to high cost producers that result in prices for imports that are well above world market prices, the preferential arrangements, while providing benefits to the preferential suppliers, penalise other suppliers by more. This is illustrated in the following three-panel diagram (figure I)

The first two panels are for exporting countries of a product $Y$. The one on the left hand side is for low cost exporters that have been denied access to the market in a major importing country $A$. The second panel is for high cost exporters that export only, in the first instance, to country $A$ which allocates special access quantities to each of those high cost exporters. The third panel depicts country $A$’s import quantity limit, $Q_2$, which is assumed to be fully filled. The objectives of the limitation are to maintain the internal price at $P_2$ to support country $A$’s domestic producers and, initially at least, to provide the benefits of preferential access (aid through trade) to the high cost exporting countries in the second panel. In addition, the third panel includes import demand for the rest of the world which together with country $A$’s imports constitutes aggregate world import demand.

I

Effect of allocated tariff quotas on world price

<table>
<thead>
<tr>
<th>Low cost exporters</th>
<th>High cost exporters</th>
<th>Country A</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P_2$</td>
<td>$Q_2$</td>
<td>$Q_3$</td>
</tr>
<tr>
<td>$P_3$</td>
<td>$Q_4$</td>
<td>$Q_1$</td>
</tr>
<tr>
<td>$P_1$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Import demand rest of world

Trade liberalisation and developing countries 135
Initially, the quantity limitation on imports into country A results in a price $P_2$ which is sufficiently high for the excess supply in the high cost exporters to fill country A’s import limit. This price is determined under the assumption that there is sufficient import demand for product Y in country A to sustain it.

At the same time, the price for all other world trade would be $P_1$, and the quantity traded on markets outside A would be $Q_1$ where the excess of production in the low cost exporters equals the import demand in the rest of the world (excluding A).

If the preferentially allocated amounts for imports into country A were to be replaced by a total nonallocated amount and any restrictions on importers concerning the sourcing of their imports were removed, producers in the low cost countries could then compete with those in the high cost countries for a share of country A’s market. This competition would drive the price for exports to country A down to a new, lower world price, shown as $P_3$ in figure 1. Because the total amount that is permitted to enter country A does not change, however, the internal price in country A can be maintained at $P_2$.

The difference between the new, lower, competitively determined price at which imports can enter country A and $P_2$ will be appropriated either by importers or the government depending on the administrative arrangements adopted. If the government were to limit its involvement to restricting the aggregate level of imports to $Q_2$, the difference between the internal price and the new import price, $P_2 – P_3$, would be appropriated by the importers. However, if the government were to introduce a system such as auctioning the limited rights to import, the difference would be appropriated by the government of country A.

The lower price to producers in high cost countries would reduce their production. However, producers in the low cost countries would have access to a larger market which would include at least part of country A’s imports. The higher demand that these low cost producers face would increase the price that they faced and they would increase their production. The decline in production in the high cost countries along with the access of low cost producers to country A’s market as well as to the rest of the world would increase the world market price from $P_1$ to $P_3$, while the import price into country A would be $P_3$. If the high cost producers allowed their internal prices to decline along with the reduction in their export prices, the new world price, $P_3$, would balance export supplies from both low and high cost producers with the total of the permitted import demand in country A and import demand in all other
countries, such that \( Q_3 = Q_4 + Q_5 \). The gainers and losers from the changes would be:

<table>
<thead>
<tr>
<th>Gainers</th>
<th>Losers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producers in low cost countries that did not receive preferences initially</td>
<td>Consumers in low cost countries that did not receive preferences initially</td>
</tr>
<tr>
<td>Consumers in the high cost countries that had received preferences</td>
<td>Producers in high cost countries that had received preferences</td>
</tr>
<tr>
<td>Importers or government in country A</td>
<td>Consumers in the rest of the world</td>
</tr>
<tr>
<td>The global economy (due to more efficient factor allocation)</td>
<td></td>
</tr>
</tbody>
</table>

On a global level, production, consumption and trade of commodity \( Y \) would be somewhat lower, but overall economic efficiency would be improved. More resources would be allocated to producing commodity \( Y \) in the low cost countries and more resources would be diverted in the high cost countries that had previously received preferences to producing goods with a higher marginal return from the world market than commodity \( Y \).
How important are the trade elasticities?

Trade (or Armington) elasticities in general equilibrium models determine the degree of substitution between imports of the same category of product from different sources and between imports and domestically produced goods. These elasticities are important determinants of the model results in this report as they affect the estimated trade impacts. Low values for these parameters (less than 10) imply that the goods in question are not homogeneous, and the degree of substitutability between them is less than perfect. A further implication is that the price of output in any sector will vary according to its source.

The usefulness of imperfect substitutability is apparent when dealing with aggregations of obviously heterogeneous goods, such as for the manufacturing sector. Such groupings are often characterised by intra-industry trade, with one country or region both importing and exporting the commodity.

The trade elasticities in GTEM vary between commodities and are derived from current literature and from some empirical work undertaken by Jomini et al. (1991) in the construction of the SALTER world trade model. The Armington elasticities used averaged 4.4 for imports from different sources, and 2.2 between imports and domestic products. These vary somewhat across products. The various crops and processed foods have an elasticity of 2.2, unprocessed livestock and natural resources around 2.6–2.8, manufactured goods around 3 and services lowest at around 2. A trade elasticity of 2, for example, implies that the percentage change in demand for imports from a particular source is twice the percentage change in the price of the import, other things being equal.

As with all parameters in a global computable general equilibrium model, there is uncertainty about the appropriate size and relativities of the trade elasticities for various commodities. One of the more obvious difficulties is that some seemingly homogeneous commodities, such as sugar, wheat and, to a lesser extent, rice, have the same trade elasticities as obviously heterogeneous groups such as manufacturing. A second shortcoming is that all regions have the same trade elasticity regardless of the source of their imports.
Does this matter? The model results are sensitive to these values, because they determine the terms of trade effects. They also determine how production moves across the world.

To assess the importance of trade elasticities, an alternative reference and policy simulation was undertaken with increased trade elasticities for wheat, processed rice and processed sugar. Although there may be an important varietal distinction between japonica and indica rice, these products appear to be relatively homogeneous. In the reference projection, the elasticities between imported and domestic products are increased from 2.2 in the standard database to 5, and from 4.4 to 10 for imports from different sources. These parameter values are maintained in the policy simulation, and the standard partial agricultural trade liberalisation scenario as described in chapter 3 was undertaken. The gross domestic product impacts are shown in table 21, with the standard estimates as a comparison.

The most obvious impact of raising the trade elasticities is on the global gains from partial agricultural liberalisation. These have increased from $53 billion to $68 billion. The increased trade elasticities imply that the same policy shocks lead to greater gains as cheaper products are more readily substituted for relatively expensive products and greater shifts in output (and prices) occur. The benefits of resource reallocation are more apparent.

The second point is that most of the benefits accrue to Japan. In the alternative scenario Japanese imports of rice increase fourfold rather than by 160 per cent. Japanese paddy rice output falls by 30 per cent rather than 10 per

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<p>| Wheat, rice and sugar: Impact of varying trade elasticities for partial agricultural liberalisation, 2010 |
| Change in gross domestic product relative to the reference case |</p>
<table>
<thead>
<tr>
<th>Standard elasticities</th>
<th>Alternative elasticities</th>
</tr>
</thead>
<tbody>
<tr>
<td>US$m</td>
<td>US$m</td>
</tr>
<tr>
<td>Africa</td>
<td>479</td>
</tr>
<tr>
<td>Argentina</td>
<td>312</td>
</tr>
<tr>
<td>Australia</td>
<td>189</td>
</tr>
<tr>
<td>Brazil</td>
<td>1 447</td>
</tr>
<tr>
<td>Canada</td>
<td>66</td>
</tr>
<tr>
<td>China</td>
<td>2 570</td>
</tr>
<tr>
<td>European Union (15)</td>
<td>28 310</td>
</tr>
<tr>
<td>India</td>
<td>894</td>
</tr>
<tr>
<td>Indonesia</td>
<td>64</td>
</tr>
<tr>
<td>Japan</td>
<td>8 980</td>
</tr>
<tr>
<td>Malaysia</td>
<td>467</td>
</tr>
<tr>
<td>New Zealand</td>
<td>264</td>
</tr>
<tr>
<td>Philippines</td>
<td>208</td>
</tr>
<tr>
<td>Thailand</td>
<td>505</td>
</tr>
<tr>
<td>United States</td>
<td>1 830</td>
</tr>
<tr>
<td>Rest of Latin America</td>
<td>304</td>
</tr>
<tr>
<td>Rest of World</td>
<td>6 360</td>
</tr>
<tr>
<td>Total</td>
<td>53 249</td>
</tr>
</tbody>
</table>

Source: GTEM simulations.
cent in the standard scenario. The fall in Japanese raw sugar output also doubles in the alternative scenario. With the increased trade elasticities, Japanese consumers are less discriminating in their selection of products, and more prepared to switch to foreign produced products as their prices fall with tariff reductions. For rice, whether that would occur to a substantial degree would depend on the preparedness of Japanese consumers to substitute both foreign japonica rice and indica rice for domestic japonica rice.

An obvious implication that can be drawn from this analysis is that the trade elasticities are an important determinant of trade gains, and that attempts to improve the quality of these estimates may be worthwhile in terms of providing more robust estimates of the impacts of policy changes. A policy implication is that countries may benefit by setting in place policies that facilitate transparent comparisons between products from different sources. Consumers may be able to more easily compare the characteristics of different products if labeling and product standards are harmonised, for example.
Trade liberalisation with exogenous productivity gains

In the standard GTEM framework it is possible to evaluate the resource allocation benefits of trade liberalisation. That is, as trade barriers are removed and the relative prices of factor inputs and intermediate and final goods and services change, an economy’s resources will shift to those areas in which they have the greatest comparative advantage. This leads to a more efficient allocation of resources and higher real gross domestic product. However, there are additional productivity benefits for an economy that are generated by the liberalisation process that are not captured in this modeling framework, although these can be significant.

To illustrate the potential impacts on gross domestic product of such productivity improvements a sensitivity analysis has been undertaken based on information in the economic literature. This relates the size of the reduction in trade barriers implicit in the trade liberalisation scenario to productivity improvements. For example, a number of cross industry studies have attempted to estimate a relationship between manufacturing productivity and effective rates of protection (Kwak 1994; Okamoto 1994; Urata and Yokata 1994). In these studies the increase in productivity in the manufacturing sector that results from a 1 percentage point decrease in the effective rate of protection ranges from 0.01 to 0.024 per cent. Other work estimates that a 1 per cent cut in nominal tariffs will increase manufacturing productivity by between 0.18 and 0.56 per cent (Chand 1999; McKibbin 1999).

This analysis is incorporated into GTEM by exogenously increasing productivity in textiles, manufacturing and motor vehicles by 0.01 per cent for every percentage point fall in the effective rate of protection in developed countries and 0.024 per cent in developing countries. The changes in the effective rates of protection that are implied in the trade liberalisation scenario are calculated for the manufacturing industries in each region using the method described in Hertel (1997). The developing countries are assumed to currently have lower levels of technology and to be able to benefit most from technology transfer.

The results indicate that if the productivity benefits of trade liberalisation in the manufacturing sector are included, the impact on gross domestic product of the comprehensive trade liberalisation scenario could be more than...
30 per cent higher than that estimated when productivity gains are not taken into account. That is, the increase in global gross domestic product in 2010 relative to the reference case could be equal (in 1995 prices) to around US$123 billion (table 19).

Large differentials occur in countries such as the Philippines, India and Africa where significant manufacturing protection is removed. However, output falls in the European Union, as other countries are able to compete more effectively with the benefit of greater productivity changes. The greatest impacts are thus distributional, with the developing countries gaining at the expense of countries whose competitiveness has not improved.
### Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aggregate measurement of support (AMS)</strong></td>
<td>The measured level of domestic support used in the WTO Agreement on Agriculture. It is determined for each commodity supported and for agriculture in aggregate. It consists of unit price support multiplied by production, plus direct payments or other subsidies that are not exempted from reduction commitments, less specific agricultural levies or feed paid by producers. The unit price support for commodities is the difference between internal administered support prices and a fixed external price (import parity for importers or export parity for exporters) calculated at its 1986–88 base period level. In the WTO Agreement on Agriculture, the AMS is used for negotiated reductions on a whole of agriculture basis.</td>
</tr>
<tr>
<td><strong>Antidumping measures</strong></td>
<td>Special import duties imposed when a firm, following an inquiry, is assessed as having sold a product in the importing market at a price below the comparable price of the product in its home market. Under WTO rules, antidumping measures may only be imposed if the price differential causes material injury to the domestic industry producing similar products in the importing country.</td>
</tr>
<tr>
<td><strong>Applied tariff</strong></td>
<td>The actual tariff that is applied to imports at a particular time.</td>
</tr>
<tr>
<td><strong>Base period</strong></td>
<td>The time period(s) agreed during the negotiations as the basis on which all reductions and commitments are made. For the WTO Agreement on Agriculture, the base period for market access and domestic support commitments is 1986–88; for export subsidy commitments, the base period is 1986–90.</td>
</tr>
<tr>
<td><strong>Bound tariff rate</strong></td>
<td>The maximum rate that a WTO member undertakes to apply. The bound rate provides a ceiling that applied tariff rates cannot exceed except by negotiation, with compensation for affected trading partners.</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
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<tr>
<td><strong>Ceiling binding</strong></td>
<td>For the WTO Agreement on Agriculture, developing countries had the flexibility to offer ceiling bindings on products subject to unbound ordinary customs duties. These bound tariffs could be higher than the September 1986 applied tariff (the rate at which developed countries were required to bind where products were subject to customs duties only at that time).</td>
</tr>
<tr>
<td><strong>Comparative advantage</strong></td>
<td>A principle that forms the foundation for much of the theory underlying the benefits from trade. Under this principle, countries benefit from specialising in the production of goods and services in which they have the lowest costs relative to their other production alternatives. They benefit from such specialisation and exchanging part of their production for items that others produce comparatively more cheaply. Comparative advantage is not static, and countries can alter their comparative advantage by investing in, among other things, new technology and new skills for their work forces.</td>
</tr>
<tr>
<td><strong>Decoupling</strong></td>
<td>The provision of support to producers that is not linked to variables that affect markets including production, prices, trade or factors used in production. Such support is less market distorting than support that is linked to those variables.</td>
</tr>
<tr>
<td><strong>De minimus</strong></td>
<td>Under the WTO Agreement on Agriculture, support can be excluded from the calculation of the AMS and exempt from reduction commitments for domestic support if that support is below a set proportion of the value of the relevant agricultural production. That proportion is 5 per cent for industrialised countries for each of product specific and non product specific support. For developing countries, the rate is 10 per cent for each of those two categories.</td>
</tr>
<tr>
<td><strong>Dispute settlement mechanism</strong></td>
<td>The process that the WTO employs to resolve conflicts between governments over the interpretation and application of trade rules.</td>
</tr>
<tr>
<td><strong>Export credit</strong></td>
<td>The granting to the importer (buyer) of goods and services of an extended term to pay for them.</td>
</tr>
<tr>
<td><strong>Export subsidy</strong></td>
<td>Government payments or other financially quantifiable benefits provided to domestic producers or exporters contingent on the export of their goods or services.</td>
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<td>--------------------</td>
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</tr>
<tr>
<td><strong>Food security</strong></td>
<td>The ability of all people at all times to have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (FAO 1996a).</td>
</tr>
<tr>
<td><strong>GATT</strong></td>
<td>The General Agreement on Tariffs and Trade which was formed in 1947 with the view of reducing tariffs and other trade barriers, and eliminating discriminating treatment in trade in order to raise the living standards of member countries.</td>
</tr>
<tr>
<td><strong>Generalised system of preferences (GSP)</strong></td>
<td>A system, entered into force in 1971, that gives developing countries a margin of preference in the tariff rates that their goods face in developed countries’ markets. These preferences are nonreciprocal and discretionary.</td>
</tr>
<tr>
<td><strong>High income economies</strong></td>
<td>A group of 45 economies listed in the <em>World Development Report</em> which, in 1998, had a per person gross national product of US$9361 or more.</td>
</tr>
<tr>
<td><strong>Least developed countries</strong></td>
<td>A group of 48 low income countries (see below) classified by the United Nations: 29 of these countries are WTO members that are exempt from any support reduction commitments under the WTO Agreement on Agriculture.</td>
</tr>
<tr>
<td><strong>Lomé convention</strong></td>
<td>An umbrella agreement, first signed in 1975 and last renegotiated in 1990 for ten years (Lomé IV), between the European Community and some 70 African, Caribbean and Pacific (ACP) countries. It provides duty free access for most products originating in the ACP countries to the EC, significant aid flows, and two export earnings guarantee schemes. The agreement is nonreciprocal. The convention is currently being renegotiated to be more compatible with the WTO Agreement on Agriculture.</td>
</tr>
<tr>
<td><strong>Low income economies</strong></td>
<td>A group of 64 economies listed in the <em>World Development Report</em> which, in 1998, had a per person gross national product of US$760 or less.</td>
</tr>
<tr>
<td><strong>Middle income economies</strong></td>
<td>A group of 101 economies listed in the <em>World Development Report</em>, which, in 1998, had a per person gross national product between US$761 and US$9360.</td>
</tr>
<tr>
<td><strong>Multifibre arrangement (MFA)</strong></td>
<td>An agreement between textile producing and consuming countries first concluded in 1973 and renegotiated periodically afterwards to manage trade in textile products. The MFA was terminated by the Uruguay Round Agreement on Textiles and Clothing and its voluntary export restraints that imposed nontariff barriers on trade are to be dismantled over a period of ten years commencing 1 January 1995.</td>
</tr>
<tr>
<td><strong>Multilateral trade negotiations</strong></td>
<td>Seven rounds of multilateral trade negotiations have been held under GATT auspices since 1947. Each round represented a discrete and lengthy series of interacting bargaining sessions among the contracting parties in search of mutually beneficial agreements aimed at reducing barriers to world trade.</td>
</tr>
<tr>
<td><strong>Nontradables</strong></td>
<td>Goods and services that are not traded internationally either because they are abundant and cheap everywhere or because the cost of support services needed for trading them would exceed the value of the product in the importing market.</td>
</tr>
<tr>
<td><strong>Optimum tariff</strong></td>
<td>Refers to a tariff (import or export) that maximises some measure of the national welfare for the country levying the tariff. For a country to benefit from such tariffs, its production or consumption must be sufficiently large for the tariffs to affect world prices.</td>
</tr>
<tr>
<td><strong>Purchasing power</strong></td>
<td>Refers to the amount of goods and services that a given level of income can purchase at the going price.</td>
</tr>
<tr>
<td><strong>Quantitative restrictions on trade</strong></td>
<td>Explicit limits, or quotas, on the physical amounts of particular products that can be imported or exported during a specific period of time.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------</td>
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</tr>
<tr>
<td>Rent seeking</td>
<td>Activities of firms, and businesses, whereby they seek special favors to restrict rights to produce or trade particular goods or services to allow them to secure excess profits. Firms often engage lobbyists to try to influence governments to obtain such favors. Such activities incur a cost to society.</td>
</tr>
<tr>
<td>Special and differential treatment</td>
<td>The concept that exports of developing countries should be given preferential access to markets of developed countries, and that developing countries participating in trade negotiations need not reciprocate fully the concessions they receive. Under special and differential treatment, developing countries are accorded longer timeframes for phasing in new rules and lower levels of obligations for adherence to the rules than developed countries.</td>
</tr>
<tr>
<td>Special safeguard provisions</td>
<td>A provision in the WTO Agreement on Agriculture that allows importing countries to increase tariffs temporarily beyond bound levels when world prices drop sharply or there is a surge in imports.</td>
</tr>
<tr>
<td>Tariff</td>
<td>A duty (or tax) levied on goods transported from one customs area to another. Tariffs raise the price of the imported goods, thus making them less competitive within the market of the importing country.</td>
</tr>
<tr>
<td>Tariff escalation</td>
<td>The tendency for import tariffs to increase as the degree of processing increases.</td>
</tr>
<tr>
<td>Tariffication</td>
<td>Conversion to tariff equivalents of nontariff measures applying to particular products.</td>
</tr>
<tr>
<td>Tariff peaks</td>
<td>Bound or applied tariffs that are substantially higher than average tariffs for imported products.</td>
</tr>
<tr>
<td>Tariff-quota</td>
<td>Application of a reduced tariff rate for a specified quantity of imported goods. Imports above this specified quantity face a higher tariff rate.</td>
</tr>
<tr>
<td>Above tariff-quota tariff</td>
<td>The tariff rate that applies for quantities of imports other than the specified quantities entering within a tariff quota.</td>
</tr>
<tr>
<td>Allocated tariff-quota access</td>
<td>Access of imports to a market within tariff-quotas that is allocated to specific supplying countries.</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>In-tariff-quota-tariff</td>
<td>The reduced tariff rate that applies for the specified quantities that enter within a tariff-quota.</td>
</tr>
<tr>
<td>Nonallocated tariff-quota access</td>
<td>Access of imports to a market within tariff-quotas that is global and not allocated to specific supplying countries.</td>
</tr>
<tr>
<td>Terms of trade</td>
<td>Prices received for exports relative to those paid for imports.</td>
</tr>
<tr>
<td>Tradables</td>
<td>Goods and services that can be traded on international markets.</td>
</tr>
<tr>
<td>Trade liberalisation</td>
<td>A general term for the partial, or complete, removal of existing barriers to trade in goods and services and of market distorting domestic and export subsidies.</td>
</tr>
<tr>
<td>Variable levy</td>
<td>A tax on imports that varies with changes in import prices in order to maintain internal prices at a specified level.</td>
</tr>
<tr>
<td>World Trade Organization (WTO)</td>
<td>The institution established at the beginning of 1995 to cover a range of objectives concerning international trade. It subsumes the General Agreement on Tariffs and Trade which was formed in 1947. Its objectives include: to set rules for international trade and trade related activities; to provide a forum to negotiate trade liberalisation multilaterally; to settle trade disputes between contracting parties; to provide information on trade and trade policies; and to cooperate with other multilateral institutions (Anderson 1998).</td>
</tr>
<tr>
<td>WTO Agreement on Agriculture</td>
<td>The agreement that was negotiated in the Uruguay Round and that was ratified in 1994.</td>
</tr>
<tr>
<td>WTO Agreement on the Application of Sanitary and Phyto-sanitary Measures (SPS Agreement)</td>
<td>The agreement on issues concerning human, animal and plant health as they affect trade that was negotiated in the Uruguay Round and that was ratified in 1994.</td>
</tr>
</tbody>
</table>
**WTO Appellate Body**  
A standing body established under WTO Understanding on Rules and Procedures Governing the Settlement of Disputes to hear appeals arising from panel cases. The body is made up of seven persons of recognised authority with demonstrated expertise in law, international trade and relevant WTO agreements, and are not affiliated with any government.

The above definitions for ceiling binding, export subsidies, multilateral trade negotiations, quantitative restrictions, special and differential treatment and tariff-quota are drawn from, or based on, Young (1994). Additional references are taken from Goode (1998).
References


East Asia Analytical Unit 1998a, *The Philippines: Beyond the Crisis*, Department of Foreign Affairs and Trade, Canberra.


Foroutan, F. 1998, ‘Does membership in a regional preferential trade arrangement make a country more or less protectionist?’ *World Economy*, vol. 21, no. 3, pp. 305–35.


Leung, E.S. 1995, ‘Exchange rate regimes and outward-looking growth,’ in Garnaut, R., Grilli, E. and Riedel, J. (eds), Sustaining Export-Oriented
Development: Ideas from East Asia, Cambridge University Press, United Kingdom


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—— 1999b, The millennium round and developing countries: negotiating strategies and areas of benefits, Paper prepared for the Research Program of the Group of 24, for presentation at the Conference on Developing Countries and the New Multilateral Round of Trade Negotiations, Harvard University, 5–6 November.


ABARE research report 2000.6


— 2000, World Development Indicators 2000, Washington DC (and previous issues).


Young, E. 1994, Uruguay Round Outcomes: Agriculture, Agriculture Branch, Trade Negotiations and Organisations Division, Australian Department of Foreign Affairs and Trade, Canberra.
