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The Challenge of Reducing Subsidies and Trade Barriers

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Abstract

Phasing out distortionary government subsidies and barriers to international trade will yield extraordinarily high benefits relative to any adjustment costs, notwithstanding the considerable reforms that have already taken place over the past two decades. This paper surveys recent estimates, using global economy-wide simulation models, of the benefits of reducing remaining distortions via unilateral reform, multilateral trade negotiations, and preferential trading arrangements. Distortionary trade policies harm most the economies imposing them, but the worst of them (in agriculture and clothing) are particularly harmful to the world's poorest people. Opportunities to reduce remaining distortions, including via the WTO's Doha Development Agenda as compared with sub-global preferential reform, are examined, before drawing out the implications of liberalization for poverty and the environment.

Key words: trade policy reform, subsidy reduction, Doha Development Agenda

JEL codes: F02, F13, F15, F17

The Challenge of Reducing Subsidies and Trade Barriers

Despite the net economic and social benefits of reducing most government subsidies[1] and opening economies to trade, almost every national government intervenes in markets for goods and services in ways that distort international commerce. Those interventions have been reduced considerably over the past two decades (the exports-to-GDP ratio rose globally by about one-third), but many remain. Distortionary policies harm most the economies imposing them, but the worst of them (in agriculture and clothing) are particularly harmful to the world's poorest people. This paper focuses on how wasteful those anti-poor policies are, as measured in recent modelling exercises; what could be done to induce countries to reduce remaining distortions, including via the Doha Development Agenda of the World Trade Organization (WTO) as compared with sub-global preferential reform; and what impact that reform could have on poverty and the environment.

This challenge in its modern form has been with us for about 75 years. The latter part of the nineteenth century saw a strong movement toward laissez faire, but that development was reversed following the first world war in ways that led to the Great Depression of the early 1930s and the conflict that followed (Kindleberger 1989). It was during the second world war, in 1944, that a conference at Bretton Woods proposed an International Trade Organization. An ITO charter was drawn up by 1948 along with a General Agreement on Tariffs and Trade (GATT), but the ITO idea died when the United States failed to progress it through Congress (Diebold 1952). Despite that, the GATT during its 47-year history (before it was absorbed into the WTO on 1 January 1995) oversaw the gradual lowering of many tariffs on imports of most manufactured goods by governments of developed countries. Manufacturing tariffs remained high in developing countries, however, and distortionary subsidies and trade policies affecting agricultural, textile, and services markets of both rich and poor countries continued to hamper efficient resource allocation, economic growth and poverty alleviation.

The Uruguay Round of multilateral trade negotiations led to agreements signed in 1994 that contributed to trade liberalization over the subsequent 10 years. But even when those agreements are fully implemented by early 2005, and despite additional unilateral trade liberalizations since the 1980s by a number of countries (particularly developing and transition economies), many subsidies and trade distortions remain. They include not just trade taxes-cum-subsidies but also contingent protection measures such as anti-dumping, regulatory standards that can be technical barriers to trade, and domestic production subsidies (allegedly decoupled in the case of some farm support programs in rich countries but in fact only partially so). Insufficient or excessive taxation or quantitative regulations in the presence of externalities such as environmental or food safety risks also lead to inefficiencies and can be trade distorting. Furthermore, the on-going proliferation of preferential trading

[1] Not all subsidies are welfare-reducing, and in some cases a subsidy-cum-tax will be optimal to overcome a gap between private and social costs that cannot be bridged à la Coase (1960). Throughout this paper all references to 'cutting subsidies' refer to bringing them back to their optimal level (which will be zero in all but those exceptional cases).

and bilateral or regional integration arrangements – for which there would be little or no need in the absence of trade barriers – is adding complexity to international economic relations. In some cases those arrangements are leading to trade and investment diversion rather than creation that may even be welfare reducing for some economies.

The reluctance to reduce trade distortions is almost never because such policy reform involves government treasury outlays. On the contrary, except in the case of a handful of low-income countries still heavily dependent on trade taxes for government revenue, such reform may well benefit the treasury (by raising income and/or consumption tax revenues more than trade tax revenues fall, not to mention any payments foregone because of cuts to subsidy programs). Rather, distortions remain largely because further trade liberalization and subsidy would cut redistribute jobs, income and wealth in ways that those in government fear would reduce their chances of remaining in power (and possibly their own wealth in countries where corruption is rife). The challenge involves finding politically attractive ways to phase out remaining distortions to world markets for goods, services, capital and potentially even labor.

This paper focuses primarily on distortions at national borders (trade taxes and subsidies, quantitative restrictions on international trade, and technical barriers to trade) plus a few significantly trade-distorting production subsidies. While global in coverage, the paper distinguishes between policies of developed countries and those of developing (including former socialist and least-developed) countries. Among other things, it emphasizes the likely consequences for the UN's key Millennium Development Goals.

The paper begins by summarizing the arguments for removing trade distortions, along with critiques by sceptics. This involves examining not only the economic benefits, and costs, but also the social and environmental consequences of such reform. Opportunities to reduce these distortions over the next five years are then laid out. They are, in decreasing order of potential contribution to global openness and economic growth: full trade liberalization globally (to provide more a benchmark than a politically likely scenario), non-preferential legally binding trade liberalization following the WTO's current round of multilateral trade negotiations (the Doha Development Agenda), a reciprocal preferential agreement in the form of a Free Trade Area of the Americas (FTAA), and a non-reciprocal preferential agreement by OECD countries to provide least-developed countries with duty-free and quota-free market access for their exports of everything but arms (EBA). Estimates of the economic benefits and costs of these opportunities are then presented, along with a methodological critique of the various empirical studies surveyed. The paper concludes with a brief assessment of possible impacts of trade reform on poverty alleviation and the natural environment.

Arguments for Removing Trade Barriers

Even before examining the empirical estimates of the costs and benefits from grasping various trade-liberalizing opportunities, the case can be made that such reform in principle is beneficial economically. It then remains to examine whether particular reforms are also at least benign in terms of social and environmental outcomes. The latter is particularly important because there are many non-economists who believe or

assume the social and/or environmental consequences are adverse and seek to persuade others through such means as mass (and sometimes violent) street protests.

Static economic gains from own-country reform

The standard comparative static analysis of national gains from international trade emphasises the economic benefits from production specialization and exchange so as to exploit comparative advantage in situations where a nation's costs of production and/or preferences differ from those in the rest of the world. This is part of the more general theory of the welfare effects of distortions in a trading economy, as summarized by Bhagwati (1971). Domestic industries become more productive as those with a comparative advantage expand by drawing resources from those previously protected or subsidized industries that grow slower or contract following reform.

The static gains from trade tend to be greater as a share of national output the smaller the economy, particularly where economies of scale in production have not been fully exploited and where consumers (including firms importing intermediate inputs) value variety so that intra- as well as inter-industry trade can flourish.[2] In such cases the more-efficient firms within expanding industries tend to take over the less efficient ones. Indeed theory and empirical studies suggest the shifting of resources *within* an industry may be more welfare-improving than shifts between industries.[3] They are also greater the more trade barriers have allowed imperfect competition to prevail in the domestic marketplace, which again is more common in smaller economies where industries have commensurately smaller numbers of firms.

Dynamic economic gains from own-country reform

To the standard comparative static analysis needs to be added links between trade and economic growth. The mechanisms by which openness contributes to growth are gradually getting to be better understood by economists, thanks to the pioneering work of such theorists as Grossman and Helpman (1991), Rivera-Batiz and Romer (1991) and the literature those studies spawned. Channels through which openness to trade can affect an economy's growth rate include the scale of the market when knowledge is embodied in the products traded, the degree of redundant knowledge creation that is avoided through openness (Romer 1994), and the effect of knowledge spillovers (Taylor 1999).[4] More importantly from a policy maker's viewpoint, the

[2] Some may question the value of intra-industry trade, given that transaction costs such as freight can be non-trivial. However, if consumers (including producers using those products as intermediate inputs) are willing to pay for a greater variety of products, it would be welfare reducing to prevent them. Feenstra et al. (1992) suggest the welfare cost of tariff protection can be underestimated by as much as a factor of ten when this consideration is not included. In a study of US import data from 1972 to 2001, Broda and Weinstein (2004) find that the upward bias in the conventional import price index, because of not accounting for the growth in varieties of products, is approximately 1.2 percent per year, and estimate that the welfare gain from variety growth in US imports alone is 2.8 percent of GDP.

[3] See Melitz (1999) on the theory of this point and Trefler (2001) for an empirical illustration.

[4] Openness allows society's knowledge capital to grow faster. If an x percent increase in that stock generates an increase of more than x percent in individual firms' outputs, as assumed by Romer (1986) and Lucas (2002), then that economy's GDP growth rate will rise. A recent study of North-South trade by Schiff and Wang (2004) provides empirical support for this assumption for developing countries.

available empirical evidence strongly supports the view that open economies grow faster (see the survey by USITC 1997).

Notable econometric studies of the linkage between trade reform and the rate of economic growth include those by Sachs and Warner (1995) and Frankel and Romer (1999). More-recent studies also provide some indirect supportive econometric evidence. For example, freeing up the importation of intermediate and capital goods promotes investments that increase growth (Wacziarg 2001). Indeed, the higher the ratio of imported to domestically produced capital goods for a developing country, the faster it grows (Lee 1995; Mazumdar 2001).

Rodrigeuz and Rodrik (2001) examine a number of such studies and claim the results they surveyed are not robust. However, in a more recent study that revisits the Sachs and Warner data and then provides new time-series evidence, Wacziarg and Welch (2003) show that dates of trade liberalization do characterize breaks in investment and GDP growth rates. Specifically, for the 1950-1998 period, countries that have liberalized their trade (raising their trade-to-GDP ratio by an average of 5 percentage points) have enjoyed on average 1.5 percentage points higher GDP growth compared with their pre-reform rate.

There have also been myriad case studies of liberalization episodes. In a survey of 36 of them, Greenaway (1993) reminds us that many things in addition to trade policies were changing during the studied cases, so ascribing causality is not easy. That, together with some econometric studies that fail to find that positive link, has led Freeman (2004) to suggest the promise of raising the rate of economic growth through trade reform has been overstated. But the same could be (and has been) said about the contributions to growth of such things as investments in education, health, agricultural research, and so on (Easterly 2001). A more-general and more-robust conclusion that Easterly draws from empirical evidence, though, is that people respond to incentives. Hence getting incentives right in factor and product markets is crucial – and removing unwarranted subsidies and trade barriers is an important part of that process. Additional evidence from 13 new case studies reported in Wacziarg and Welch (2003) adds further empirical support to that view, as does the fact that there are no examples of autarkic economies that have enjoyed sustained economic growth, in contrast to the many examples since the 1960s of reformed economies that boomed after opening up.

Specifically, economies that commit to less market intervention tend to attract more investment funds, ceteris paribus, which raise their stocks of capital (through greater aggregate global savings or at the expense of other economies' capital stocks). This is consistent with the findings by Faini (2004) that trade liberalization in the 1990s fostered inward foreign investment (and both had a positive impact on investment in education) while backtracking on trade reform had a negative impact on foreign investment. More-open economies also tend to be more innovative, because of greater trade in intellectual capital (information, ideas and technologies, sometimes but not only in the form of purchasable intellectual property). Trade liberalization can thereby lead not just to a larger capital stock and a one-off increase in productivity but also to higher *rates* of capital accumulation and productivity growth in the reforming economy because of the way reform energizes entrepreneurs. For those higher growth rates to be sustained, though, there is widespread agreement that governments also need to (a) have in place effective institutions to efficiently allocate and protect property rights, (b) allow domestic factor and product markets to function freely, and (c) maintain macroeconomic and political stability (Rodrik 2003; Wacziarg and

Welch 2003; Baldwin 2004). Or to paraphrase Panagariya (2004), trade openness is necessary, but may not be a sufficient condition, for sustained economic growth.

What Could Induce Countries to Reform?

Despite the evident economic gains from removing trade distortions, most countries retain protection from foreign competition for at least some of their industries. Numerous reasons have been suggested as to why a country imposes trade barriers in the first place (infant industry assistance, unemployment prevention, balance of payments maintenance, tax revenue raising, protection of environmental or labor standards, etc.). All of them are found wanting in almost all circumstances, in the sense that a lower-cost domestic policy instrument is available to meet each of those objectives (Corden 1997; Bhagwati 1988). Nonetheless, there are well-meaning people who still believe trade measures are needed for one or other of those reasons, or to avoid the social costs associated with removing them.[5] So part of the present challenge is to convince such people that the gains from reform would far exceed the costs and that there are more-direct means of addressing their concerns.

The more difficult part of reforming trade policies relates to the fact that the most compelling explanation for their persistence is a political economy one. The changes in product prices that result from trade liberalization or subsidy cuts necessarily change the prices for the services of productive factors such as land, labor and capital. Hence even though the aggregate income and wealth of a nation may be expected to grow when trade distortions are reduced, not everyone need gain; and social safety nets, where they exist, typically provide only partial compensation for such losses. This is the source of resistance to policy reforms: the expected losses in jobs, income and wealth are concentrated in the hands of a few who are prepared to support politicians who resist protection cuts, while the gains are sufficiently small per consumer and export firm and are distributed sufficiently widely as to make it not worthwhile for those potential gainers (not to mention foreign producers/exporters) to get together to lobby for reform, particularly given their greater free-rider problem in acting collectively (Hillman 1989; Grossman and Helpman 1994). Thus the observed pattern of protection in a country at a point in time may well be an equilibrium outcome in a national political market for policy intervention. In that case reform requires a shock to that equilibrium.

That political market equilibrium may be altered from time to time. Changes are induced by such things as better information dissemination, technological changes, reforms abroad, and new opportunities to join international trade agreements.

[5] Trade liberalization in recent years has attracted a considerable amount of attention of civil society groups, who see it contributing to the spread of capitalism and in particular of multinational firms, and believe those aspects of globalization add social and environmental ills in both rich and poor countries (Bhagwati 2004; Wolf 2004). But just as the traditional economic arguments for protection have been found wanting, so too have the social and environmental ones both conceptually and empirically. For example, there has not been a systematic 'race to the bottom' in environmental or labor standards of rich countries as a result of trade and foreign direct investment growth, and in poor countries foreign corporations often have among the highest environmental and labor standards (Bhagwati and Hudec 1996). Nor has trade growth been a major contributor to the stagnation of wages of unskilled workers in OECD countries (Greenaway and Nelson 2002).

Better information dissemination

One way that political markets for policy intervention change is better dissemination (e.g., by national or international bureaucrats, think tanks, local export industries, foreign import suppliers) of more-convincing information on the benefits to consumers, exporters and the overall economy from reducing subsidies and trade distortions, and on alternative means of achieving society's other objectives more efficiently, so as to balance the views of single-issue non-government organizations (NGOs), labor unions and the like who tend to focus only on the (often exaggerated) costs of reform to their constituents.

During the past two decades the spreading of more balanced benefit/cost information has contributed to unilateral economic reforms and a consequent opening to trade in numerous developing countries as well as richer countries such as Australia and New Zealand. More recently several major NGOs, together with the OECD Secretariat, have begun to focus on providing better information about the wastefulness of environmentally harmful subsidies, and that has already started to have an impact (e.g. in reducing coal mining subsidies in Europe).

Technological change

Another way the political equilibrium is altered is technological innovation. The information and telecommunications revolution of the past two decades, for example, has dramatically lowered the costs of doing business across national borders, just as happened with the arrival of steamships and the telegraph during the latter part of the nineteenth century. That increased trading opportunity has made (actual or potential) exporters more eager to get together to counter the anti-trade lobbying of import-protected groups and NGOs.

Unilateral opening of markets abroad

A country's political equilibrium could be upset also by trade opening by one or more other countries, in so far as those reforms alter international prices and volumes of trade and foreign investment and provide greater market access opportunities for current or prospective exporters. Such opening abroad also adds to the evidence of the net gains and (particularly in the case of phased reforms) the relatively low adjustment costs associated with trade reform, making it easier for exporters to counter the alarmist lobbying of protectionists.

A coincidence of this and the previous two types of shocks has given rise to the latest wave of globalization. This is raising not only the rewards to economies practicing good economic governance but also the cost of retaining poor economic governance. Just as financial capital can now flow into a well-managed economy more easily and quickly than ever before, so it can equally quickly be withdrawn if confidence in that economy's governance is shaken – as the East Asian financial crisis of the late 1990s demonstrated all too clearly. A crucial element of good economic governance is a commitment to a permanently open international trade and payments regime (along with sound domestic policies such as an absence of subsidies, secure property rights and prudent monetary and fiscal policies).

International trade agreements

In seeking to find politically expedient ways to open their economies, governments are increasingly looking for opportunities to do so bilaterally, regionally or multilaterally. The reason is that the political market equilibrium in two or more countries can be altered in favor of liberalism through an exchange of product market access. If country A allows more imports, it may well harm its import-competing producers if there are insufficient compensation mechanisms; but if this liberalization is done in return for country A's trading partners lowering their barriers to A's exports, the producers of those exports will be better off. The latter extra benefit may be sufficiently greater than the loss to A's import-competing producers that A's liberalizing politicians too become net gainers in terms of electoral, financial or other support in return for negotiating an international trade agreement. When politicians in the countries trading with A also see the possibility for gaining from such an exchange of market access, for equal and opposite reasons, prospects for trade negotiations are ripe.[6] Such gains from trade negotiations involving exchange of market access are potentially greater nationally and globally, the larger the number of countries involved and the broader the product and issues coverage of the negotiations. That is the logic behind negotiating multilaterally with nearly 150 WTO member countries over a wide range of sectors and issues.

The WTO negotiating process is becoming increasingly cumbersome, however, which has led countries also to negotiate bilaterally or regionally in the hope that faster and deeper integration will result. Preferential free trade areas involving just a subset of countries need not be welfare-enhancing for all participant nations, however, in part because of trade diversion away from the lowest-cost supplier; and non-participants in the rest of the world may be made worse off too (Pomfret 1997; Schiff and Winters 2003). Hence the need for empirical analysis of the likely gains from different types of prospective trade agreements.

Opportunities for Reducing Subsidies and Trade Barriers

The gains from reducing government interventions in markets have been well known since the writing of Adam Smith's *Wealth of Nations* more than two centuries ago, and popular magazines such as *The Economist* and more and more daily newspapers continue to remind the public of the virtues of market opening.[7] Even so, greater dissemination of empirical information on the net economic benefits of reducing trade distortions, to balance the often-exaggerated claims by potential losers and their supporters of the adjustment costs of reform, can no doubt assist the liberalization process. Empirical studies can also shed better light and take some of the heat out of debates about whether, in the presence of domestic distortions such as undertaxed pollution, subsidy and trade reform is welfare-reducing. Such studies can also point to the domestic policy reforms that should accompany trade reform so as to guarantee not only national welfare improvement in aggregate but also that there is no significant left-behind group, no unexpected new damage to the environment, etc. Clearly there is an opportunity for well-meaning interest groups, think tanks and

[6] Elaborations of this economists' perspective can be found in Grossman and Helpman (1995), Hillman and Moser (1996), Maggi and Rodrigeuz-Clare (1998), Hoekman and Kostecki (2001) and Ethier (2004). Political scientists take a similar view. See, for example, Goldstein (1998).

[7] On the intellectual history of the virtues of free trade, see Bhagwati (1988, Ch. 2) and Irwin (1996). Bhagwati notes that the virtues of division of labour and exchange were cited twenty four centuries ago in Plato's *Republic* (see the back cover of the October 1985 issue of the *Journal of Political Economy*).

national and international economic agencies to spend more money and resources on such empirical studies, and in particular on the effective dissemination of their findings. In an idealistic world in which such studies were able to persuade all governments to fully liberalize their trade unilaterally, the benefit derived from that opportunity would be measured by the gain from moving the world to one free of subsidies and trade barriers. Unlikely though such an outcome may seem in the foreseeable future, it provides a benchmark against which all other opportunities to partially meet this challenge can be measured.

Among the more-feasible opportunities available today for encouraging trade negotiations to stimulate significant market opening, the most obvious is a non-preferential legally binding partial trade liberalization following the WTO's current round of multilateral trade negotiations**.** That round was launched in Doha, the capital of Qatar, in 2001 with the intention of completing negotiations at the end of 2004, when implementation of the last of the Uruguay Round commitments under WTO are scheduled to be completed. That deadline has since slipped, and it is uncertain as to how long the current round will take, what issues will be kept on its agenda, and indeed even whether it will come to a successful conclusion. That uncertainty is all the more reason for assessing the potential of this opportunity, given that it involves almost 150 WTO member countries plus another 25 in the midst of accession, and hence all but a tiny fraction of global trade.

There are at least three other types of trade negotiating opportunities that, while they involve only a subset of the world's economies, have the potential to generate deeper integration in the medium term and so are worth comparing to the WTO Doha round. One is non-preferential but non-binding trade liberalization, as currently being pursued by the Pacific rim members of the Asia Pacific Economic Cooperation (APEC) forum. APEC member countries agreed in 1994, and have since reiterated that commitment several times, to move to free trade in the Asia Pacific region by 2010 in the case of developed countries and 2020 in the case of developing countries. Even though there is no legal binding on members to achieve that goal and retain that status beyond the deadline, the distinguishing feature of this long-term commitment is that, as with WTO commitments, the market opening is to be provided to all trading partners of each APEC country (a most-favoured-nation or MFN reform) and not just to other APEC members as in a free trade agreement (FTA). That makes its effects simply a subset of those derived from moving to global free trade.

A second type of trade negotiating opportunity involving a subset of the world's economies is a reciprocal preferential agreement. This could take the form of an FTA, a customs union, or a broader economic union. Typically such an agreement would be legally binding and, even though it would be notified to the WTO, it would provide greater market access only to signatories to that agreement and hence would not be MFN. An example is the agreement to enlarge the European Union from 15 to 25 members from May 2004. Efforts are also being made to negotiate a Free Trade Area of the Americas (FTAA), which potentially would bring together all the economies of North, Central and South America. This is by far the largest and most ambitious preferential agreement currently in prospect: it dwarfs the bilateral FTA negotiations the US and EU are each having with a range of other countries, and it is also more advanced than other proposed FTAs such as in South Asia and between China and Southeast Asia. Hence the FTAA provides an upper limit on the gains that might be expected from this type of prospective trade agreement.

There is also the opportunity to enter into non-reciprocal preferential trade agreements, as the EU has had with its former colonies (the so-called ACP countries

of Africa, the Caribbean and the Pacific) and as most OECD countries have with developing countries in the form of a Generalized System of tariff Preferences (GSP). The EU's recent initiative to extend preferences for UN-designated 'least developed countries' (LDCs) provides duty- and quota-free access to the EU for exports of 'everything but arms' (EBA). It received in-principle, best-endeavours endorsement by other OECD countries at the WTO Ministerial in Doha in November 2001, but without any specific timetable. While this opportunity clearly involves only a small volume of global trade, it has a relatively high probability of being implemented unilaterally by numerous countries and is perceived to be of direct benefit to the world's poorest people – even though that view may be misplaced (see below).

Economic Benefits From Reducing Subsidies and Trade Barriers

Various attempts have been made to estimate the benefits and costs associated with the opportunities just outlined. All of the estimates of the potential global economic welfare gains from these opportunities considered here are generated using computable general equilibrium (CGE) models of the global economy, the most common of which is known as GTAP.[8] The CGE welfare gains refer to the equivalent variation in income (EV) as a result of each of the shocks described.[9] While not without their shortcomings (see Francois 2000, Whalley 2000, Anderson 2003), CGE models are far superior for current purposes to partial equilibrium models, which fail to capture the economy-wide nature of the adjustments to reform whereby some sectors expand when others contract and release capital and labor; and they are also superior to macro-econometric models which typically lack sufficient sectoral detail (Francois and Reinert 1997). They were first used in multilateral trade reform analysis in ex post assessments of the Tokyo Round of GATT negotiations in the late 1970s/early 1980s (Cline et al. 1978; Deardorff and Stern 1979, 1986; Whalley 1985). Since then they have been used increasingly during and following the Uruguay Round, as shown, for example, in the various studies summarized in Martin and Winters (1996).

Empirical comparative static studies of the economic welfare gains from multilateral trade liberalization typically generate positive gains for the world and for most participating countries. (Exceptions are when a country's welfare is reduced more by a terms of trade change or reduced rents from preferential market access than it is boosted by improvements due to reallocating its resources away from protected industries.) When economies of scale and monopolistic competition (IRS/MC) are assumed instead of constant returns to scale and perfect competition (CRS/PC), and when trade in not just goods but also services is liberalized, the estimates of potential

[8] On the GTAP model and database see Hertel (1997) and www.gtap.org. Estimating the height of trade barriers for that database is a non-trivial task in itself, even for merchandise (Evans 2003) but especially for services (Findlay and Warren 2001) and if technical barriers to trade are involved (Maskus and Wilson 2001). Most of the studies surveyed here use the GTAP database for protection estimates, but virtually none of the export taxes that are still imposed by numerous low-income countries (see e.g. Thiele (2003) regarding beverage and cotton crops in Africa) are included in that database. The reason is that estimates of those taxes are not yet sufficiently comprehensive.

[9] EV is defined as the income that consumers would be willing to forego and still have the same level of well-being after as before the reform. For a discussion of the merits of EV versus other measures of change in economic welfare, see for example Just, Hueth and Schmitz (1982), Ng (1983) and Martin (1997).

gains can be increased several fold. A few economists have also examined the effects of lowering barriers to international capital flows or labor movements, and some have included estimates of a lowering of trade costs as a result of trade facilitation measures such as streamlining customs-clearance procedures. Even so, in most studies the sum of these comparative static CGE model estimates tends to amount to only a tiny fraction of GDP.

Those low estimated gains seem to fly in the face of casual empiricism. Irwin (2002), for example, notes that three different countries on three continents chose to liberalize in three different decades, and per capita GDP growth in each of those countries accelerated markedly thereafter (Korea from 1965, Chile from 1974 and India from 1991 – see Irwin 2002, Figures 2.3 to 2.5). Certainly those historical liberalization experiences involved also complementary reforms to other domestic policies and institutions that would have contributed significantly to the observed boosts in economic growth. Even so, as mentioned above, both theoretical economists and econometricians have sought to demonstrate that trade can promote not only static efficiency gains but also dynamic gains. Some CGE modellers have tried to proxy that effect by adding an additional one-off total factor productivity shock to their trade reform scenarios. But reform may also raise the *rate* of factor productivity growth and/or of capital accumulation (Lumenga-Neso, Olarreaga and Schiff 2004). Such endogenous growth has yet to be satisfactorily introduced into CGE models,[10] and in any case it is unclear how to interpret a model's estimated welfare effects if households are reducing current consumption in order to boost their or their descendents' future consumption by investing more.

It should be kept in mind that all the experiments in the comparative static CGE studies surveyed below reduce only trade barriers plus agricultural production and export subsidies. The reasons for including subsidies only in agriculture are that they are the key subsidies explicitly being negotiated at the WTO (where non-agricultural export subsidies are illegal),[11] they represented an estimated 38 percent of all government expenditure on subsidies globally during 1994-98,[12] and they are fully represented in the GTAP database whereas subsidies for most other sectors are not included so it is not possible to estimate their welfare cost within the same framework. And the reason for not also explicitly estimating the welfare impacts of other domestic policies and institutions that, because of their complementarity, affect the payoff from opening up is that typically they are beyond the sphere of influence of international trade negotiators.

With this as background, consider first the economic benefits associated with removing all trade barriers and agricultural subsidies. Only a few CGE modelling studies have reported simulations of complete liberalization. The ones of most relevance are those that incorporate in their baseline the implementation of all the

[10] For an early attempt to develop a dynamic version of the GTAP model, see Ianchovichina and McDougall (2000).

[11] Production subsidies in non-agricultural sectors, however, have come under close scrutiny through the WTO's dispute settlement procedures since the Uruguay Round's Agreement on Subsidies and Countervailing Measures came into force with the WTO's formation in 1995 (Bagwell and Staiger 2004). Also, fisheries subsidies are explicitly under consideration by negotiators in the WTO's Doha round.

[12] See van Beers and de Moor (2001, Table 3.1), whose estimates suggest energy subsidies are the next biggest group, at 22 percent of all subsidies, followed closely by road transport (21 percent) and then water (6 percent), forestry and mining (each 3 percent) and fisheries (2 percent), with manufacturing subsidies making up the residual 5 percent. For more details on energy and transport subsidies, see OECD (1997) and von Moltke, McKee and Morgan (2004).

Uruguay Round agreements, since that process is due for completion at the end of 2004. Their results are reported in Table 1.

The ADFHHM study (Anderson et al. 2001) provides the simplest scenario: global liberalization of just merchandise trade using a comparative static version of the GTAP model with constant returns to scale and perfect competition in all product and factor markets (first described in Hertel 1997). The GTAP Version 4 database (McDougall, Elberhnri and Truong 1998), which provides data for 1995, is used in that study to generate a new baseline for 2005 by projecting the world economy forward a decade and assuming all Uruguay Round commitments (including the politically sensitive Agreement on Textiles and Clothing) and those of China and Taiwan (made on their accession to the WTO) are implemented by then. This baseline for 2005 is then compared with how it would look after full adjustment following the removal of all countries' trade barriers and agricultural subsidies. The economic welfare gain is estimated to be US$254 billion per year in 1995 dollars as of 2005 (and hence slightly more each year thereafter as the global economy expands). Of that, $108 billion p.a. is estimated to accrue to developing countries. These are the lowest of the estimates summarized in Table 1. Using the decomposition algorithm developed by Harrison, Horridge and Pearson (2000), Table 2 shows that only two-fifths of this study's estimated gain to developing countries are derived from policy changes in developed countries. Changes in policies in developing countries make a more substantial contribution to other developing countries' economic welfare, and almost half of that gain comes from policy changes in their agricultural sector. This reflects the importance not only of own-country reform but also of expanding South-South trade.

The BDS study (Brown, Deardorff and Stern 2003) uses the same Version 4 GTAP data base also projected to 2005, but they embed it in the authors' static Michigan Model of World Production and Trade (www.ssp.umich.edu/rsie/model and Deardorff and Stern 1986) to produce the highest of the surveyed estimates of global welfare gains from complete removal of trade barriers and agricultural subsidies: $2080 billion p.a., of which $431 billion would accrue to developing countries. These much larger estimates are the result of several features of this study: not having China and Taiwan's implementation of their WTO accession commitments in the baseline; the inclusion of increasing returns to scale and monopolistic competition (IRS/MC) for non-agricultural sectors and therefore product heterogeneity at the level of the firm rather than just the national industry; liberalization of services in addition to goods trade (with IRS/MC assumed for the huge services sector); and the inclusion in services liberalization of the opening to foreign direct investment. The latter boosts substantially the gains from services liberalization, which account for 63 percent or $1310 of this study's estimated total gains.

All other estimates of the gains from complete trade liberalization are between these two extremes. The FMT study (Francois, van Meijl and van Tongeren 2003), which builds on Francois (2001), uses the more-recent Version 5.2 of the GTAP database for 1997 (Dimaranan and McDougall 2002) and a variant of the GTAP model to include IRS/MC (see www.intereconomics.com/francois and Francois 1998). As in the BDS study, the latter feature ensures the inclusion of the agglomeration effects of reform that are emphasized in the new economic geography literature.[13] Its economic welfare gain is estimated to be US$367 billion per year in

[13] See, for example, Fujita, Krugman and Venables (2001), Neary (2001), Fujita and Thisse (2002) and Baldwin et al. (2003).

1997 dollars as of 1997, of which $113 billion p.a. is estimated to accrue to developing countries. Just over 40 percent of that total ($151 billion) is due to trade facilitation measures such as streamlining customs clearance,[14] while only 14 percent ($53 billion) is due to services trade reform.[15] The global gains from removing just merchandise trade barriers is $163 billion in 1997 (compared with ADFHHM's gain of $254 billion for 2005 when the global economy is considerably larger). Part of the reason for these gains being lower than those from the BDS study is that this one includes in its baseline China's WTO accession, the European Union's Agenda 2000 and the EU's eastern enlargement, which lowers its estimate of the gains from removing residual EU-25 trade barriers. But the main reason has to do with the quite different way in which services trade barriers are measured and their reform modelled.

The final study reported in Table 1, WBGEP (World Bank 2002), uses the same 1997 GTAP data base as FMT but projects the GTAP model to 2015. With the world economy considerably bigger then than in 1997 or 2005 one would expect WBGEP to provide larger dollar estimates, other things equal. Two are provided, both assuming constant returns to scale and perfect competition and both with only merchandise trade reformed. The first estimate, which is comparable to the ADFHHM study, provides a global gain of $355 billion p.a. for 2015. That is in line with ADFHHM's estimate of $254 billion for 2005 as both represent 0.7 percent of GDP for their respective years, as projected by the World Bank (2003, Table A3.1). The slightly larger share of that gain going to developing countries (52 percent in 2015 compared with ADFHHM's 43 percent) also is in line with the expected growth in developing countries' share of the world economy over that decade.

The second WBGEP estimate assumes liberalization boosts factor productivity in each industry according to the extent of growth in the share of production exported by the industry. While the precise formula used for this adjustment is somewhat arbitrary, it nonetheless gives a feel for how the overall size and composition across economies of the gains from trade can change when allowance is made for an openness-induced productivity boost. The case presented suggests the gains would rise 2.3 times to $832 billion p.a. with that adjustment,[16] and since trade of developing countries grows more than that of OECD countries under full liberalization, they receive 65 percent of those gains ($539 billion) instead of the 52 percent or $184 billion generated without that productivity adjustment.

In both WBGEP simulations, agriculture contributes 70 percent of the gains from liberalizing all merchandise trade. This is very similar to the estimate of two-

[14] The OECD defines trade facilitation as the simplification and standardization of procedures and associated information flows required to move products internationally from seller to buyer and to pass payment in the other direction. For an in-depth discussion of the nature and importance of reducing trading costs, see World Bank (2003, Ch. 6). Francois et al. (2003) assume full trade liberalization would be accompanied by a reduction in trading costs (the difference between fob and cif valuations) of 3 percent of the value of trade.

[15] In this study less than 4 percent of the gains from the agricultural portion of the reform is due to domestic agricultural support. This is consistent with other studies which also find domestic support measures to be a relatively minor part of agricultural assistance measures. See, for example, Hoekman, Ng and Olarreaga (2004) and Rae and Strutt (2003). Those findings vindicate the present paper's focus on border measures.

[16] This greater gain is consistent with the consensus that has developed over the past decade that incorporating endogenous growth effects in CGE models raises the welfare gains from trade liberalization by several orders of magnitude. A recent study by Rutherford and Tarr (2002), using a generic model of a small open economy, reinforces this consensus.

thirds by both the ADFHHM and FMT studies.[17] The extent to which these results are dominated by agriculture is remarkable, given that agriculture is responsible for only one-twelfth of global GDP and exports. It simply reflects the fact that agricultural sectors of both rich and poor countries are still highly protected from import competition, and in some rich countries are also subsidized directly, despite the efforts of the Uruguay Round.[18]

By contrast to the similarity in welfare results for goods trade liberalization, the gain from services trade reform reported in the FMT study ($53 billion in 1997) is only a small fraction of the BDS estimate of $1280 billion in 2005 ($220 billion of which goes to developing countries). The FMT estimate is in line with an estimate by Verikios and Zhang (2001) of $47 billion globally just for telecom and financial services, while the BDS estimate of $220 billion for developing countries alone is exceeded by the WBGEP study which also reports an estimate of the gain from liberalizing services trade just for developing countries, of $884 billion in 2015. These vastly different results for services reflect the great deal of uncertainty that still prevails in estimating the extent and effects of services trade barriers (see Findlay and Warren 2001; Whalley 2003). Even though this is widely recognized as a major area of trade policy concern for both developed and developing countries, there is clearly much more research required in this area before we can expect a convergence of empirical estimates for the services sector.

The huge estimate for gains from services reform in the BDS study appears to be a consequence of their model explicitly allowing for foreign investment flows, in contrast to the standard GTAP model where such flows play a very modest role. What this highlights is that trade in products need not – as suggested by the simplest of trade models (Mundell 1957) – be a complete substitute for trade in factors of production such as capital and labor. Indeed, as Markusen (1983) has shown (and see also Ethier 1996), factor trade can be a complement to product trade. Nor are we able to say a priori which might grow more when trade in all factors and products is opened simultaneously (Michaely 2003).

None of the above empirical studies examines the global welfare gains from allowing greater international movement of labor. Historical analyses of global migration by Hatton and Williamson (1998, 2002) conclude that the effective demand by developing country workers to move to higher-income countries is likely to grow considerably over the next quarter century, with wage differentials a major driving force. It appears national governments, however, are becoming more rather than less restrictive of migrant inflows in the wake of that growing demand. How costly are such restrictions? A CGE study twenty years ago suggested complete liberalization of

[17] By contrast, BDS estimate a share close to zero. The explanation BDS provide for this result is that the expanding of agriculture in lightly protecting countries draws resources from the non-agricultural sectors which, unlike agriculture, are assumed to have increasing returns to scale and monopolistic competition. Apparently that IRS/MC feature is having a much stronger effect in the BDS model than it is in the FMT one (which also has IRS/MC), since the FMT estimated contribution of agriculture is close to the estimates from the CRS/PC models.

[18] The above studies do not provide an estimate of the net welfare gains from reducing direct government subsidies to domestic production or consumption of non-farm products. They would be small compared with those from trade reform, bearing in mind that an estimated 38 percent of all government subsidies go to agriculture (van Beers and de Moor 2001) and hence are captured in the above estimates. They nonetheless represent significant transfers from taxpayers to special interest groups, estimated by van Beers and de Moor (2001, Table 3.1) to be $1065 billion per year globally between 1994 and 1998 (4 percent of GDP) and by others to be between half and twice that amount. Cutting those subsidies therefore has the potential to provide a great deal of revenue for meeting society's other pressing challenges.

world labor markets, in the presence of existing barriers to trade in products and capital, could double world income and in so doing raise several-fold the economic welfare of people working at that time in developing countries (Hamilton and Whalley 1984). The more-recent resurgence of interest in this subject has encouraged one group of GTAP modellers to examine this issue afresh, but in the context of Mode 4 of the WTO's General Agreements on Trade in Services, the so-called temporary movement of natural persons. Winters et al. (2003) simulate the effect of raising worker immigration quotas of developed countries enough to increase labor forces there by 3 percent (which sums to a temporary migration flow from developing countries of 8.4 million unskilled and 8 million skilled workers or just 0.6 percent of the labor force in developing countries). A movement even as modest as that is estimated to raise annual world welfare by $156 billion (0.6 percent of global income), with most of that benefit accruing to those currently in developing countries who migrate. These welfare results underscore two points: first, migration restrictions are very costly to people in poor countries; and second, if rich countries are to persist with those restrictions in the wake of growing demands for lifting them, even more effort should be made to alleviate poverty through liberalizing international capital flows and trade in products exportable from developing countries, most notably agricultural goods.

Implications for the Doha Round

What do these results imply about the potential benefits from the WTO's first round of multilateral trade negotiation round, known as the Doha Development Agenda? That round was originally scheduled to conclude at the end of 2004 but has been making slow progress, so assessing the *likely* benefits is difficult even though we know the *potential* benefits are those associated with full trade liberalization as discussed above. What needs to be kept in mind, though, is that a partial cut of, say, one-third across-the-board will deliver much less than one-third of the welfare gains shown in Table 1. The key reason for that stems from the fact that many (especially developing) countries have tariff bindings that are well above applied rates, particularly in agriculture. A cut in bound rates of, say, one-third may not deliver any cut at all in applied rates for some commodities.[19] This underlines the importance of first trying to reduce the gap between bound and applied rates. Since that gap tends to be larger the higher the bound tariff rate, that can happen easiest if a 'Swiss formula' is applied which reduces tariffs proportionately more the higher they are (Francois and Martin 2003; Fontagné, Guérin and Jean 2004).

Other points that need to be kept in mind when using these CGE modelling results include the following:

- the gains to developing countries enjoying tariff preferences in developed country markets are exaggerated if (as is the case) those preferential rates are not included in the models' tariff profiles;[20]

[19] This is not to say a binding well above the applied rate has no value. As Francois and Martin (2004) show, for a commodity subject to domestic and/or international market fluctuations, the binding can cap the extent of protection in unusual years.

[20] To the extent that the gains to preference-receiving developing countries are offset by losses to other countries because of trade diversion, the global welfare effects of accounting for preferences (given the smallness of recipient economies) will be small. The GTAP Version 6 database is to include preferences when it is released in the fall of 2004, so future modelling studies will be able to account for this.

- domestic distortionary policies and exchange rate policies, which may inhibit the reaping of benefits of opening up, are not all included in the models;
- existing but currently redundant technical barriers might cease to be redundant and become binding constraints to trade as tariffs fall, in which case the rate of protection would fall less than the applied tariff rate; and
- re-instrumentation of assistance to industries will reduce the gains and may even turn them into losses if sufficiently inferior policy instruments (e.g., new technical barriers to trade) replace the ones being liberalized.

On the other hand, there are numerous reasons for believing some of the estimates in Table 1 may be too low, including the following:

- services trade reforms still need to be added to some of the modelling exercises, together with trade facilitation (including export tax removal), FDI liberalization if not also international migration;
- any opening up of government procurement to foreign suppliers that might result from the Doha round also needs to be modelled,
- non-agricultural subsidies (which are estimated to be around 60 percent of all direct government subsidies globally) are not modelled for removal in the reform scenarios;
- some of the productive factors initially absorbed to fuel reform-induced output growth, particularly unskilled labor, may have been previously underemployed;
- monopolistic competition and product variety/heterogeneity between firms still needs to be included in some of the models;
- price elasticities in the standard GTAP model arguably err on the low side;
- endogenous growth effects need to be included as a benefit;
- account needs to be taken of wasteful spending of resources on lobbying, as that will fall if assistance to industries (including re-instrumentation of existing protection) is announced to be a thing of the past;
- if trade reform encourages domestic policy and foreign exchange policy reforms as well, the benefits from those changes too need to be added; and, perhaps most important of all,
- the counterfactual to reform is not the status quo as assumed by modellers but increased protection, particularly for agriculture and conceivably also for other sectors without tariff bindings in place or for which technical barriers to trade or anti-dumping duties may then restrain trade.

With these claims and counter-claims it is not possible to be precise about the gross benefits that would result from any particular reform. But consider the optimistic prospect of a Doha outcome involving a halving of subsidies and trade barriers. A lower-bound estimate of the benefit from that might be half that provided in the IRS/MC part of the FMT study, which is the only study to consider cuts to bound (as distinct from applied) tariffs. That estimate amounts to 0.67 percent of GDP in 1997. It contrasts with the estimate from the BDS study, in which services trade liberalization includes dramatic growth in foreign direct investment. Half of the latter's gain from full reform amounts to 3.0 percent of GDP in 2005. If the comparative static gains from a 50 percent reform after full adjustment is an unweighted average of the BDS and FMT estimates, that would involve a boost of 1.8 percent of GDP for the world as a whole and 2.5 percent for developing countries (implying 1.6 percent for developed countries).

There are dynamic gains from trade to consider in addition to those comparative static ones (not to mention the net benefits from non-farm subsidy cuts and the potentially massive gains from freeing up migration). The experiences of successful reformers such as Korea, China, India and Chile suggest trade opening immediately boosts GDP growth rates by several percentage points. A conservative estimate therefore is that reform boosts GDP growth rates – projected to 2015 by the World Bank (2003, Table A3.1) to be 2.7 percent for developed countries and 4.6 percent for developing countries – by one-sixth for developed countries and one-third for developing countries, that is, to 3.1 and 6.1 percent, respectively and hence from 3.2 to 3.8 percent globally.

Comparison with just removing intra-American trade barriers

The negotiations to create a Free Trade Area of the Americas (FTAA) – the largest such FTA negotiations currently under way – are running into political problems so it is not clear if/when they might conclude. It is nonetheless worth considering that opportunity so as to point out that the potential global gains from such an FTA are only a small fraction of those obtainable from multilateral negotiation. Two studies that examine both Doha and the FTAA are included in Table 1. The global gain from the FTAA in the BDS study is estimated to be just one-twenty-fifth that from a full multilateral trade liberalization, and for the HRTG study the difference is even greater. Yet another study of the FTAA, by Hertel, Hummels, Ivanic, and Keeney (HHIK 2003), yielded estimated gains of even less that HRTG. Furthermore, these studies take no account of the dampening effect of the rules of origin that almost invariably constrain the extent to which firms can take advantage of any FTA's removal of bilateral tariffs (Krueger 1999; Anson et al. 2003); nor of the fact that such FTAs typically have phase-in periods that stretch more than a decade for some products and exclude altogether the most sensitive products.

FTAs of this type are pursued nonetheless for a wide range of reasons, including preferential access to an important protected market (often at the expense of other countries), insurance against anti-dumping by that partner, and deeper and faster integration than has been possible or is in prospect through the multilateral reform route (Schiff and Winters 2003). The gains to just one or a few developing economies from joining with North America or the EU may be non-trivial, but so too would be the gains from a similar degree of multilateral reform. According to the HRTG study, a multilateral reform involving even just a 25 percent reduction in merchandise tariffs would benefit South America more than a 100 percent preferential tariff reform under the FTAA, for example.

Moreover, even leaving aside the potential systemic cost of FTAs on the WTO rules-based multilateral trading system, such preferential agreements can harm excluded developing and/or developed countries through trade diversion. For example, the estimated gains to FTAA members are nearly fully offset by losses to excluded economies, according to the HHIK and HRTG studies. Harmful trade diversion would also result from an FTA between, say, South Asia and either North America or the EU, according to GTAP results reported in Bandara and Yu (2003). Indeed a recent examination of 18 existing preferential trading arrangements found that 12 diverted more merchandise trade from non-members than they created among members (Adams et al. 2003). That review was able to conclude more positively about the benefits of FTAs in reforming such things as investment, services, competition policy and government procurement, but was unable to say whether those

benefits tend to be sufficient to offset any losses from merchandise trade diversion. Another recent review, by Nielsen (2003), came to similar conclusions, and added that the greatest gains for developing countries from FTAs would come if developed countries were to liberalize trade in their politically sensitive sectors, most notably agriculture but also textiles and clothing. That is likely in preferential agreements only with the smallest of developing countries whose impact on protective developed economies is tiny – examples of which are examined next.

Comparison with just removing developed country barriers to exports from least-developed countries

The EU's recent initiative to extend preferences for United Nations-designated 'least developed countries' (LDCs) provides duty-and quota-free access to the EU for exports of 'everything but arms' (EBA). That initiative received in-principle, best-endeavours endorsement at the WTO Ministerial in Doha in November 2001, but without any specific timetable. Liberal though that proposal sounds, note that it does not include trade in services (of which the most important for LDCs would be movement of natural persons, that is, freedom for LDC laborers to work on temporary visas in the EU or other high-wage countries – see Winters et al. 2003). Also, a number of safeguard provisions are included in addition to the EU's normal anti-dumping measures. Furthermore, access to three politically sensitive agricultural markets, bananas, rice and sugar, would be phased in by the EU only gradually over the rest of this decade (and would be subject to stricter safeguards).

Several empirical studies of the proposal have already appeared. A World Bank study by Ianchovichina, Mattoo and Olarreaga (2001) compares the EU proposal, from the viewpoint of Sub-Saharan Africa (SSA), with recent initiatives of the United States and Japan. Its GTAP modelling results suggest that even the most generous interpretation of the United States' Africa Growth and Opportunity Act (which they model as unrestricted access to the US for all SSA exports) would benefit SSA very little because the US economy is already very open and, in the products where it is not (e.g. textiles and clothing), SSA countries have little comparative advantage. By contrast, the EU proposal, especially if it were to apply to all Quad countries (the EU, the US, Canada and Japan), would have a sizeable effect on SSA trade and welfare – provided all agricultural products are included in the deal. Just from EU access alone, SSA exports would be raised by more than US$0.5 billion and SSA economic welfare would increase by $0.3 billion per year (a 0.2 percent boost).[21] Those results overstate the benefits of the EU proposal, however, as this World Bank study assumes all SSA countries (excluding relatively wealthy South Africa and Mauritius), not just the LDCs amongst them, would get duty- and quota-free access.

Another World Bank study, by Hoekman, Ng and Olarreaga (2002), uses a partial equilibrium approach and looks at the benefit of the EU initiative for LCDs not just in SSA but globally. It finds that trade of LDCs would increase by US$2.5 billion per year if all Quad countries provided LDCs with duty- and quota-free access on all merchandise.[22] However, almost half of that increase would come as a result of trade diversion from other developing countries. The authors suggest this is trivial because

[21] This is very similar to the estimate by UNCTAD/Commonwealth Secretariat (2001, Ch. 3).

[22] This and other estimates of gains from preferential market access provisions need to be discounted to the extent that such things as rules of origin, anti-dumping duties, and sanitary, phytosanitary and other technical barriers limit the actual trade allowed. For a detailed analysis of these types of restrictions on EU imports from Bangladesh in recent years, see UNCTAD/Commonwealth Secretariat (2001, Ch. 5).

it represents less than 0.1 percent of other developing countries' exports (about $1.1 billion),[23] and that MFN reductions in agricultural and textile tariffs would help LDCs much less than it would help other developing countries. But keep in mind several downsides of non-reciprocal trade preference agreements that apply not just to the 'everything but arms' initiative but also to the agreement the EU has had with its former colonies known collectively as ACP (Asia, Caribbean and Pacific) developing countries.

First, other equally poor but non-LDC/non-ACP developing countries (e.g., Vietnam) are harmed by such preferences. This was made abundantly clear in the 1990s during the infamous dispute-settlement case that was brought to the WTO concerning the EU's banana import regime. One background study showed that for every dollar of benefit that the banana policy brought to producers in ACP countries, the regime harmed non-ACP developing country producers by almost exactly one dollar – and in the process harmed EU consumers by thirteen dollars (Borrell 2004). It is difficult to imagine a more inefficient way of transferring welfare to poor countries, since EU citizens could have been, through official development assistance payments, 13 times as effective in helping ACP banana producers and not hurt non-ACP banana producers at all.[24] Such wasteful trade diversion is avoided under non-discriminatory MFN liberalizations that result from multilateral trade negotiations under WTO.

Second, the additional production that is encouraged in those LDCs or ACP countries getting privileged access to the high-priced EU market is not internationally competitive at current prices (otherwise it would have been produced prior to getting that preferential treatment). Indeed the industry as a whole may not have existed in the LDC/ACP country had the preference scheme not been introduced.[25] In that case, its profits are likely to be lean despite the scheme, and would disappear if and when the scheme is dismantled or EU MFN tariffs are reduced. Efforts to learn the skills needed, and the sunk capital invested in that industry rather than in ones in which the country has a natural comparative advantage, would then earn no further rewards.

Third, these preference schemes reduce very substantially the capacity for developing countries as a group to press for more access to developed country markets. When the 48 LDCs/79 ACP countries have been given such preferences, they become advocates *for* rather than *against* the continuation of MFN tariff peaks for agriculture and textiles – diminishing considerably the number of WTO members negotiating for their reduction. Perhaps if these schemes and the GSP had not been offered in the first place, developing countries would have negotiated much more vigorously in previous GATT rounds for lower tariffs on agricultural and other imports to developed countries.

Fourth, because these preferential access schemes have not been reciprocal agreements (that is, the developing countries are not required to open their markets to developed countries' exports) they contribute nothing to the removal of the wasteful

[23] The impact outside the LDC group would be far from trivial for Mauritius, however, since the vast bulk of its exports are quota-restricted sales of clothing and sugar to the EU and US. See the discussion in UNCTAD/Commonwealth Secretariat (2001, Ch. 6).

[24] The EU is contemplating moving by 2006 to a tariff-only regime for banana imports from non-ACP countries, and in the process raising its tariff from the current 75 Euros. That could raise the protective effect of the tariff for ACP countries currently enjoying duty-free access, so yet again harming other developing countries (Borrell and Bauer 2004).

[25] Alternatively, the ACP scheme may have caused an existing industry to become less competitive. An extreme example of an industry that has ossified as a consequence of regulations introduced to share the expected benefits of EU preferences is sugar in Mauritius (Borrell and Pearce 2004).

trade-restrictive policies of the LDC/ACP countries. This contrasts with market access negotiations under WTO, which are characterized by reciprocity.[26]

Points one to three also apply to South-North reciprocal FTAs. Furthermore, the latter agreements are rarely just a simple sentence such as: there shall be free trade between the parties. On the contrary, they can run to thousands of pages involving long lists of exceptions, complex rules of origin and dispute settlement procedures, differing phase-in periods for different products, safeguard mechanisms, requirements to meet the trade partner's myriad standards, and so on. So complex are such features that it is not uncommon for firms to pay the MFN tariff rather than do all the paperwork necessary to get duty-free access within an FTA. And while they are potentially able to deliver gains to those who join them, FTAs do so to some extent at the expense of excluded countries and so, as was clear from the discussion above of the FTAA studies, they contribute only a small fraction of the gains that can come from WTO-based multilateral reform – and yet they can involve major diversions of trade from other, lower-cost suppliers and of trade negotiator attention away from WTO negotiations.[27]

In any case, the more MFN tariffs are reduced the less need there is for preferential trade agreements; and gains to consumers in the preference-providing countries from their MFN liberalizations would be more than sufficient to allow them to increase their aid to LDCs to compensate many times over for the loss of LDC income from the preference erosion that necessarily accompanies MFN reform.

Economic Costs of Trade Reform

The above benefits from reform are not costless of course. Expenditure on negotiating, and on supporting policy think tanks and the like to develop and disseminate a convincing case for reform, would be needed. But more significant in many people's eyes are the private costs of adjustment for firms and workers, as reform forces some industries to downsize or close to allow others to expand (Matusz and Tarr 2000; Francois 2003). Those costs are ignored in the full-employment CGE models discussed above. There are also social costs to consider. They include social safety net provisions in so far as such schemes are developed/drawn on by losers from reform (e.g., unemployment payments plus training grants to build up new skills so displaced workers can earn the same wage as before), and perhaps increased costs of crime in so far as its incidence rises with transitional unemployment.

Those one-off costs, which need to be weighed against the non-stop flow of economic benefits from reform, tend to be smaller, the longer the phase-in period or smaller the tariff or subsidy cut per year (Furusawa and Lai 1999).[28] They also are minor relative to the benefits from reform. An early study by Magee (1972) for the United States estimated the cost of job changes including temporary unemployment to be no more than one-eighth of the initial benefits from tariff and quota elimination.

[26] These criticisms are not new. Most were foreshadowed by Patterson (1965) when the preferences were first mooted by Prebisch and Singer.

[27] They can also reduce welfare in the partner developed country through trade diversion, as was shown using CGE analysis as long ago as the 1980s (Brown 1987, 1989).

[28] The adjustment required also tends to be small when compared with the changes due to exchange rate fluctuations, technological improvements, preference shifts and other economic shocks and structural developments associated with normal economic growth (Anderson et al. 1997; Dixon, Menon and Rimmer 2000).

Even assuming that transition took as many as five years, he estimated a benefit/cost ratio of 25. A subsequent study which examined a 50 percent cut in US tariffs (but not quotas) came up with a similar benefit/cost estimate (Baldwin, Mutti and Richardson 1980). In more recent debates about trade and labor, analysts have not found a significant link between import expansion and increased unemployment (see Greenaway and Nelson 2002). One example is a study of the four largest EU economies' imports from East Asia (Bentivogli and Pagano 1999). Another is a study of the UK footwear industry which found liberalizing that market would incur unemployment costs only in the first year, because of the high job turnover in that industry, and they were less than 1.5 percent of the estimated benefits from cutting that protection (Winters and Takacs 1991). A similar-sized estimate is provided by de Melo and Tarr (1990) using a CGE model that focuses just on US textile, steel and auto protection cuts and drawing on estimates of the cost of earnings lost by displaced workers (later reported by Jacobson, LaLonde and Sullivan 1993).

For developing countries also the evidence seems to suggest low costs of adjustment, not least because trade reform typically causes a growth spurt (Krueger 1983). In a study of 13 liberalization efforts for nine developing countries, Michaely et al. (1991) found only one example where employment was not higher within a year. A similar study for Mauritius by Milner and Wright (1998) also found trade opening to be associated with employment growth rather than decline. A survey of 18 Latin American countries for the period 1970 to 1996, by Marquez and Pages (1998), found some increases in short-term unemployment, but mainly in countries where the real exchange rate appreciated as a result of capital inflows that had accompanied the reforms. That small short-term negative effect soon reversed as production became more labour intensive following reform, according to studies by Moreira and Najberg (2000) for Brazil and de Ferranti et al. (2001) for a wide range of Latin American and Caribbean countries over the 1990s.

A further impact of trade policy reform about which concern is often expressed is the loss of tariff revenue for the government. This is of trivial importance to developed and upper middle-income countries where trade taxes account for only 1 and 3 percent of government revenue, respectively. For lower middle-income countries that share is 9 percent, and it is more than 20 percent for more than a dozen low-income countries for which data are available. How concerned should those poorer countries be? The answer depends on whether/how much that revenue would fall and, if it does fall, on whether/how much more costly would be the next best alternative means of raising government revenue. On the first of those two points, government revenue from import taxes will rise rather than fall with reform if the reform involves replacing, with less-prohibitive tariffs, any of import quotas or bans, or tariffs that are prohibitive (or nearly so) or which encourage smuggling or under-invoicing or corruption by customs officials. It is possible even in a tariff-only regime that lower tariffs lead to a sufficiently higher volume and value of trade that the aggregate tariff collection rises. Examples of recent trade policy reforms that led to increased tariff revenue are Chile and Mexico (Bacchetta and Jansen 2003, p. 15) and Kenya (Glenday 2000).[29] Since the economy is enlarged by opening up, income and consumption tax collections will automatically rise too. On the second point, about the cost of raising government revenue by other means if tax revenue does fall, Corden (1997, Ch. 4) makes it clear that in all but the poorest of countries it will be more rather than less efficient to collect tax revenue in other ways. Even countries as

[29] See also Greenaway and Milner (1993) and Nash and Takacs (1998).

poor as Cambodia have managed to introduce a value added tax. Hence from a global viewpoint there is no significant cost that needs to be included in response to this concern. To the extent subsidies are also cut as part of the reform, the chances of government revenue rising are even greater. Income and consumption tax revenue also will rise as the economy expands following reform. In any case CGE modellers typically alter those other tax rates when trade tax revenues change so as to keep the overall government budget unchanged.

Impacts of Reform on Poverty and the Environment

Because trade reform generates large and on-going economic gains while incurring comparatively minor one-off adjustment costs, it would allow individuals and governments to spend more on other pressing problems, thereby *indirectly* contributing to the alleviation of other challenges facing society. But in addition, trade reform would also *directly* alleviate some of those challenges. By way of illustration, consider the impact of trade reform on poverty alleviation (since that is the solution to many of the world's problems) and then on the environment.

Poverty alleviation

Evidence presented by Dollar and Kraay (2002) and Sala-i-Martin (2002) among others suggests aggregate economic growth differences have been largely responsible for the differences in poverty alleviation across regions. Initiatives that boost economic growth are therefore likely to be helpful in the fight against poverty, and trade liberalization is such an initiative. But cuts to subsidies and trade barriers also alter relative product prices domestically and in international markets, which in turn affect factor prices. Hence the net effect on poverty depends also on the way those price changes affect poor households' expenditure and their earnings net of remittances. If the consumer and producer price changes (whether due to own-country reforms and/or those of other countries) harm the poor, it is then an empirical question as to whether the generic effects of reform on economic growth are sufficient to more than offset those adverse price changes. But if those price changes are pro-poor, then they will reinforce the growth effects of trade reform on the poor.

The effects on global poverty can be thought of at three levels: on the income gap between the developed and developing country groups, on different types of developing countries, and on poor households within those different types of countries. On the first, the current developing countries, which produced just 19 percent of global GDP in 2002, would enjoy nearly half of the net present value of the global static plus dynamic gains from halving trade barriers, according to the above survey of CGE estimates. Clearly that would reduce substantially the income gap between developed and developing countries on average.

Leaving aside the potential growth effects, comparative static welfare effects of reform-induced price changes on different developing countries are provided by Anderson et al. (2001, Table 4). All major developing countries gain except China (where the terms of trade effect of expanding its exports of light manufactures dominates), as do all the other regions of smaller economies other than North Africa and the Middle East (where the terms of trade loss from rising international food prices is large). Among the smaller developing countries there may be some agricultural exporters with preferential access to the high-priced European food

market whose loss from preference erosion exceeds the gain from reducing own-country distortions.[30] Food-importing developing countries also could be harmed from an increase in the relative price of food in international markets. Even in these cases, losses are likely only where own-country reform is so modest that the gain in efficiency of resource allocation from own-country reform is insufficient to compensate for the adverse terms of trade change. A new preliminary study using the pre-release Version 6 of the GTAP database that includes tariff preferences finds that Sub-Saharan Africa could indeed lose slightly from the Doha round, but only if that region undertakes little trade reform itself (Achterbosch, Ben Hannouda, Osakwe and van Tongeren 2004). The region would be even less likely to lose if the export taxes still in place there (see Thiele 2003) were also to be removed.

Note that it is not necessarily the case that a country that is currently a net food importer will lose from a rise in the international price of food, *ceteris paribus*. If, for example, the country is close to self-sufficient in food without price supports, and reform abroad raises the price of its food exports, it may switch to become sufficiently export-oriented that its net national economic welfare rises.[31] A second possibility is that a developing country's own policies are sufficiently biased against food production that the country is a net importer, despite having a comparative advantage in food. In that case, it has been shown that the international price rise can improve national economic welfare, even if the price changes and its own partial reform are not sufficient to turn that distorted economy into a net food exporter (Anderson and Tyers 1993). That comes about because the higher price of food attracts mobile resources away from more-distorted sectors, thereby improving the efficiency of national resource allocation. Because of these two possibilities, the number of poor countries for whom a rise in international food prices might cause some hardship is (possibly much) smaller than the number that are currently net importers of food products.

How poor households *within* developing countries are affected is more difficult to say (Winters 2002; McCulloch, Winters and Cirera 2001). What is clear from Table 2 is that the agricultural policies of developed countries provide a major source of developing country gains from reform, and lowering barriers to textiles and clothing trade also is important. Both would boost the demand for unskilled labor and for farm products produced in poor countries, with the possible exception of those countries that would suffer most from preference erosion. Since two-thirds of the world's poor live in rural areas and, in least-developed countries, the proportion is as high as 90 percent (OECD 2003a, p. 3), and since most poor rural households are net sellers of farm labor and/or food, one would expect such reforms to reduce the number in absolute poverty (Anderson 2004; Cline 2004a). A preliminary analysis by Hertel, Ivanic, Perckel and Cranfield (2003), in which GTAP results are carefully

[30] They were not able to be captured in that study not only because of insufficient disaggregation by country but also because LDC preferences were not available for inclusion in the GTAP model's Version 5 database. It needs to be kept in mind, though, that the preference margin is often eroded by complex rules of origin, and the residual is shared between importing and exporting countries with the latter getting less, the more trade is concentrated on standard commodities (Olarreaga and Ozden 2004, Ozden and Sharma 2004). A recent partial equilibrium study found that in practice export revenue losses from preference erosion are likely to be limited to a small subset of countries, primarily small island economies dependent on exports of sugar, bananas and, to a far lesser extent, textiles (Alexandraki and Lankes 2004).

[31] This case would not apply to a country eligible for preferential access to the protected EU food market, because if that country was unable to export profitably before the EU protection cut it would not be able to after the reform when the EU internal price would be lower.

combined with household income and expenditure survey data for 14 developing countries, tests this hypothesis and finds strong support for it in most of the 14 cases considered.[32]

The natural environment

The effects of trade reform on the environment have been the focus of much theoretical and empirical analysis since the 1970s and especially in the past dozen or so years (Anderson and Blackhurst 2002; Beghin, van der Mennsbrugghe and Roland-Holst 2002; Copland and Taylor 2003). Until recently environmentalists have tended to focus mainly on the *direct* environmental costs they perceive from trade reform, just as they have with other areas of economic change. That approach does not acknowledge areas where the environment might have been improved, albeit *indirectly*, as a result of trade reform (e.g., from less production by pollutive industries that were previously protected). Nor does it weigh the costs of any net worsening of the environment against the economic benefits of policy reform of the sort described above. The reality is that the environmental effects of reform will differ across sectors and regions of the world, some positive and some negative.

Having said that, there are many examples where cuts to subsidies and trade barriers would reduce environmental damage (Anderson 1992; Irwin 2002, pp. 48-54). For some time the OECD has been analysing these opportunities (OECD 1996, 1997, 1998, 2003b). Environmental NGOs too are increasingly recognising them, with Greenpeace currently focusing on energy subsidies, WWF on fisheries subsidies (WWF 2001), and IISD and Friends of the Earth on subsidy reforms generally (e.g, Myers and Kent 1998; FOE et al. 2003). They and the better-informed development NGOs such as Oxfam are coming to the view that the net social and environmental benefits from reducing subsidies and at least some trade barriers may indeed be positive rather than negative, and that the best hope of reducing environmentally harmful subsidies and trade barriers is via the WTO's multi-issue, multilateral trade negotiations process.

If there remains a concern that the net effect of trade reform on the environment may be negative nationally or globally, that should be a stimulus to check whether first-best environmental policy measures are in place and set at the optimal level of intervention, rather than a reason for not reducing trade distortions. This is because if they are so set, we would then know that the direct economic gains from opening to trade would exceed society's evaluation of any extra environmental damage, other things equal (Corden 1997, Ch. 13).

Estimating the global cost to society of all environmental damage that might accompany a reduction in subsidies and trade barriers, net of all environmental gains, is extraordinarily difficult both conceptually and empirically.[33] But much environmental damage in developing countries is a direct consequence of poverty

[32] The interesting exception is Mexico: poverty there has been reduced by Mexico's preferential access into the US market via NAFTA, and the benefit of those preferences would decrease with multilateral reform because Mexico would then have to share some of those earlier gains with other developing countries. This result highlights the beggar-thy-neighbour nature of FTAs, as discussed earlier.

[33] A beginning nonetheless is being made, with several governments funding ex ante evaluations of the WTO Doha round's potential impact on the environment. The EU's efforts include a workshop on methodological issues which are laid out in CEPII (2003), and further work has been contracted to the University of Manchester whose progress can be traced at http://idpm.man.ac.uk/sia-trade/Consultation.htm. Ex post analyses are also being undertaken by NGOs. See, for example, Bermudez (2004) for WWF's sustainability impact assessment of trade policies during 2001-03.

(e.g., the slash-and-burn shifting agriculture of landless unemployed squatters). In so far as trade reform reduces poverty, so it will reduce such damage. More generally, the relationships between per capita income and a wide range of environmental indicators have been studied extensively. Because richer people have a greater demand for a clean environment, income rises tend to be associated with better environmental outcomes once incomes rise above certain levels.[34] Even though more pollutive products are being consumed as incomes rise, many abatement practices have been spreading fast enough to more than compensate. And openness to trade accelerates that spread of abatement ideas and technologies, making their implementation in developing countries affordable at ever-earlier stages of development.

When the environmental impact is global rather than local, as with greenhouse gases and their alleged impact on climate change, international environmental agreements may be required (see Cline 2004b). When developing countries are not party to such agreements, however, it is difficult to prevent 'leakage' through a re-location of carbon-intensive activities to those non-signatories. An alternative or supplementary approach that is likely to achieve at least some emission reductions, and at the same time generate national and global economic benefits rather than costs, involves lowering coal subsidies and trade barriers. Past coal policies have encouraged excessive production of coal in a number of industrial countries and excessive coal consumption in numerous developing countries including transition economies. Phasing out those distortionary policies has both improved the economy and lowered greenhouse gas emissions globally – a 'no regrets' outcome or win-win Pareto improvement for the economy and the environment (Anderson and McKibbin 2000). Additional opportunities for reducing greenhouse gases through cutting energy subsidies are pointed to in the new UNEP study by von Moltke, McKee and Morgan (2004).

Conclusion

Notwithstanding the progress over the past two decades in opening up national economies, including key developing countries, much remains to be gained from further trade reform. The estimated net benefit to developing countries that would flow from adjusting to greater access to developed country markets is large compared with official development assistance currently provided by OECD countries to developing countries (around $60 billion per year). It is large also compared with the foreign direct investment (FDI) funds that flow from OECD to developing countries (between $120 and $150 billion per year). Yet it would not be costly for developed countries to provide that greater market access. On the contrary, those countries would gain even more in dollar terms than developing countries from such policy reform (see Table 2), giving them extra resources to expand their development assistance and FDI and thereby further reduce global income inequality and poverty. And if developing countries were to reduce their own trade barriers as well, they would gain even more – both from removing their own distortionary policies, and

[34] This is the theme of the recent book by Hollander (2003). For statistical evidence of the extent to which different environmental indicators first worsen and then improve as incomes rise (sometimes called the environmental Kuznets curve), see the special issue of the journal *Environment and Development Economics*, Volume 2, Issue 4 in 1997 and the more-recent papers by and cited in Harbaugh, Levinson and Wilson (2002) and Cole (2003).

because of greater growth in their trade with other developing countries. What is required is bold leadership to grasp the opportunities for unilateral and multilateral trade reform and associated subsidy cuts, particularly now that the WTO's Doha round of negotiations is back on track following the meetings in Geneva in late July 2004.

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Table 1: Comparative static estimates of economic welfare gains from full global liberalization of goods and services trade

Study	**Market assumptions**[a]	**Sectors liberalized**	**Baseline year** (of EV welfare measure)	**Welfare gain, non-OECD** (US$ billions)	**Welfare gain, global** (US$ billions)	Year of currency (US dollars)
ADFHHM (2001)	CRS/PC	Goods only	2005	108	**254**	1995
BDS (2003)	IRS/MC	Goods, services and FDI	2005	431	**2080**	1995
FMT (2003)	IRS/MC	Goods and services	1997	113	**367**	1997
WBGEP (2003)	CRS/PC	Goods only	2015	184	**355**	1997
WBGEP (2003)	CRS/PC plus productivity boost	Goods only	2015	539	**832**	1997

[a] Constant returns to scale/perfect competition and increasing returns to scale/monopolistic competition/firm-level differentiated products.

Sources: Anderson et al. (2001); Brown, Deardorff and Stern (2003); Francois, van Meijl and van Tongeren (2003); and World Bank (2003).

Table 2: Sectoral and regional[a] contributions to comparative static estimates of economic welfare gains from completely removing goods trade barriers globally, post-Uruguay Round, 2005

(percent of total global gains)

Liberalizing Region: *Benefitting region*	Agriculture and Food	Other Primary	Textiles & Clothing	Other Manufactures	Total
High Income					
High Income	43.4	0.0	-2.3	-3.2	38.0
Developing	4.6	0.1	3.5	8.8	16.9
Total	**48.0**	**0.0**	**1.3**	**5.6**	**54.9**
Developing					
High Income	4.4	0.1	4.1	10.9	19.5
Developing	12.3	1.0	1.4	10.9	25.6
Total	**16.7**	**1.1**	**5.5**	**21.7**	**45.1**
All Countries					
High Income	47.9	0.1	1.9	7.7	57.5
Developing	16.9	1.0	4.9	19.6	42.5
Total	**64.8**	**1.1**	**6.8**	**27.3**	**100.0**

[a] High income here is short-hand for developed or advanced industrial countries.

Source: Anderson et al. (2001).

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