Global Economic Prospects

and the Developing Countries

2002

01 02 03 04 05—10 9 8 7 6 5 4 3 2 1

ISBN 0-8213-4996-1
ISSN 1014-8906
Library of Congress catalog card number: 91-6-440001 (serial)

Contents

Tables

Boxes

Acknowledgments

This report was prepared by the Economic Policy and Prospects Group and drew from resources throughout the Development Economics Vice Presidency and the World Bank operational regions. The principal author of the report was Richard Newfarmer, with direction from Uri Dadush. The chapter authors were Hans Timmer (chapter 1), Aristomene Varoudakis (chapter 2), Aaditya Mattoo (chapter 3), Carsten Fink (chapter 4), Keith Maskus (chapter 5), and Dominique van der Mensbrugghe and Richard Newfarmer (chapter 6). Bernard Hoekman provided ideas, suggestions, and comments on the trade chapters. The report was prepared under the general guidance of Nicholas Stern.

The report benefited from contributions from many Bank staff. Annette I. De Kleine, Caroline Farah, Himmat Kalsi, Robert Keyfitz, Robert Lynn, Fernando Martel Garcia, Shoko Negishi, Dilip Ratha, Mick Riordan, Virendra Singh, and Bert Wolfe contributed to the global trends; Shaohua Chen and Martin Ravallion contributed to the poverty analysis; and David Roland-Holst assisted with the international development goals in chapter 1. Ataman Aksoy, Betty Dow, Dilek Aykut, Don Mitchell, John Baffes, Marcelo Olarreaga, Simon Evenett, and Francis Ng contributed to chapter 2. Yong Zhang, Stijn Claessens, Antonio Estache, Charles Kenny, Fernando Garcia Martel, Cristina Neagu, Randeep Rathindran and Taizo Takeno provided inputs into chapter 3. Shweta Bagai, Ileana Cristina Neagu and Ranga Rajan Krishnamani contributed to chapters 4 and 5. The following provided comments on chapter 4: Mark Juhel, Juan Gaviria, Ronald Kopicki, Aaditya Mattoo, Marcelo Olarreaga, Uma Subramanian, Simon J. Evenett, and Tony Venables. Ataman Aksoy, Shweta Bagai, Mirvat Sewadeh, and John S. Wilson contributed to Chapter 6. The regional and statistical annexes were prepared by Milan Brahmbhatt, Caroline Farah, Robert Keyfitz, Annette I. De Kleine, Robert Lynn, Mick Riordan, and benefited from the guidance of the Bank's regional chief economists, Sadiq Ahmed, Alan Gelb, Homi Kharas, Mustafa Nabli, Guillermo Perry, and Marcelo Selowsky. John Baffes, Betty Dow, Don Mitchell, and Shane Streifel contributed to the analysis of commodity prices in chapter 1 and the appendix. Mark Feige edited the report with a special competence. Shweta Bagai, Yeling Tan, and Yong Zhang provided research assistance. Awatif Abuzeid was the task assistant for the report, and Katherine Rollins assisted with chapter 1.

Many others from inside and outside the Bank provided inputs, comments and suggestions that immeasurably improved its content. Milan Brahmbhatt and Roberto Zagha were overall peer reviewers, and other reviews of specific chapters were invaluable: James Hanson, Odin Knudsen, Kym Anderson, James Hodge, Elizabeth Twerk, Carlos Braga, Eric Swanson, Anne

Kenny McGuirk, Todd Schneider, Ejaz Syed Ghani, Manjula M. Luthria, David Hummels, Mauricio Carrizosa, Will Martin and T.N. Srinivasan. The report also benefited from the comments of Ian Goldin, Shahrokh Fardoust, Larry Hinkle, Ernesto May, David Tarr, Dimitri Diakosavvas, and Edith Wilson. The Development Data Group was instrumental in the preparation of the appendix. Robert King coordinated the production and managed the dissemination from the Development Prospects group, working closely with Heather Worley and Susan Graham. Book design, editing and production were managed by the Production Services Unit of the World Bank's Office of the Publisher.

Summary

As 2001 draws to a close, the global economy is slipping precariously toward recession. Developing countries have seen their economic growth rates plunge. Growth in trade has undergone one of the most severe decelerations in modern times—from over 13 percent in 2000 to 1 percent in 2001. Developing countries are confronting a 10 percentage point drop in the growth of demand for their exports. Though the weight of evidence still points to a probable recovery in mid-2002, the risks posed to recovery are the gravest in a decade. The terrorist attacks in the United States, although it is still too early to evaluate them fully, have unleashed new and unpredictable forces that have substantially raised the risk of a global downturn.

Against this uncertain backdrop, world leaders have launched an intense discussion about whether to begin a new round of global trade negotiations at the ministerial meeting of the World Trade Organization (WTO) in November 2001. A round would offer an opportunity to renew progress on multilateral rules that open markets and expand trade. A reduction in world barriers to trade could accelerate growth, provide stimulus to new forms of productivity-enhancing specialization, and lead to a more rapid pace of job creation and poverty reduction around the world.

However, the fate of new trade talks is as uncertain as the global outlook. Many developing countries have lingering doubts about new trade negotiations. On the one hand, they have become important actors in the global system. In contrast to the early rounds of global trade negotiations—the Dillon Round in 1960 had only 39 participants, mostly from industrial countries—the next round will have more than 142 WTO members, 70 percent of which are developing countries. This mirrors the increased weight of developing countries in the global economy. They have grown to account for more than one-third of merchandise trade—and they have much to gain from a new round.

On the other hand, they worry that the multilateral system, in leaving intact barriers to markets whose removal would otherwise stimulate pro-poor growth, has become less fair and less relevant to their development concerns; that the trade agenda is being expanded to include only issues in which the developed countries have an interest; and that multilateral rules are increasingly becoming a mere codification of existing laws and rules prevalent in developed countries, but which are inappropriate or unenforceable in developing countries (Ganesan 2000).

Nor is support for new trade initiatives universal among industrial countries. New opposition to "globalization" in general—and expanded trade in particular—has emerged forcefully, questioning the very premises that more open markets can raise people's incomes, especially those of the poor. The downturn in the global economy may inflame protectionist sentiment.

The international community thus faces a clear choice: whether now is the time to continue down the path toward greater openness that has led to greater integration and prosperity for more than five decades, or whether to allow the hiatus in the wake of the WTO meetings in Seattle (1999) to endure. If trade talks are to succeed in underpinning a new wave of global prosperity, and at the same time contribute to raising the incomes of the poorest in the global community, they will have to ensure that the world's poorest countries and poorest people will benefit.

The world's poor could benefit from reshaping the global architecture of trade—

Poor people—those living below the international poverty line of $2 per day—work primarily in agriculture and labor-intensive manufactures. These sectors confront the greatest trade barriers, putting the world's poor at a particular disadvantage. According to estimates in chapter 2, the average poor person selling into globalized markets confronts barriers that are roughly twice as high as the typical worker in developed countries. In general, tariffs in high-income countries on imports from developing countries, though low, are four times those collected from developed countries (0.8 percent as opposed to 3.4 percent). Subsidies and other support to agriculture in the high-income countries are particularly pernicious—and are now running roughly $1 billion a day—*or more than six times all development assistance*. Distortions in tariff codes—exceptionally high tariffs on developing country products (tariff peaks), embedded incentives against processing abroad (tariff escalation), and tariffs that are far higher once specified import ceilings are reached (tariff rate quotas)—and trade practices, such as frequent recourse to antidumping actions, are often more important impediments that keep the poor from taking advantage of trading opportunities.

Other costly asymmetries in trade-related agreements and practices can at times work at odds with development objectives. For example, full implementation of the Agreement on Trade-Related Intellectual Property Rights (TRIPS) may not be suitable for all countries. Transportation cartels enjoy official sanction but are costly to developing countries, and some standards may be set with little regard for their effects on developing countries.

Protection is not solely an issue for high-income countries. Developing countries have also placed high barriers on agriculture, labor-intensive manufactures, and other products and services. Developing-country tariffs in manufacturing average four times higher for imports from developing countries than are tariffs in industrial countries on imports from developing countries (12.8 percent as opposed to 3.4 percent). Restrictions on services trade are usually more common than in industrial countries.

This report argues for reshaping the global architecture of world trade to promote development and poverty reduction. The report focuses on four policy domains:

1. Using the WTO ministerial to launch a "*development round*" of trade negotiations that would reduce global trade barriers. Those bargains will only be enduring and have greatest development impact if industrial countries are willing to reduce restrictions on products and services that poor countries and poor people produce—particularly protection of agriculture (including subsidies), textiles, and clothing; and even restrictions on temporary movement of workers. Similarly, developing countries can improve their own situation while at the same time winning concessions by liberalizing services, and lowering barriers to import competition. To be sure, a trade round also involves issues of interest primarily to industrial countries. Nonetheless, a true development round would produce win-win gains for the entire national community, including the world's poor.
2. *Engaging in global collective action to promote trade* outside the negotiating framework of the WTO. Providing market access may not by itself be enough to elicit

new trade from developing countries, particularly the poorest. Increasing multilateral "aid for trade"—development assistance to promote trade infrastructure, adoption of best practice standards and rules, and a healthy investment climate—could help. No less important, global cooperation to improve the environment and labor standards can most effectively be undertaken outside the WTO.

3. Adopting pro-trade development *policies of high-income countries* unilaterally. First, if the high-income countries were to allow low-income countries duty-free and quota-free access to their markets, they would provide a strong stimulus to trade that would help these poor countries overcome their past lackluster trade performance. Second, high-income countries could also demonstrate good faith by reining in mushrooming antidumping cases. Third, increasing bilateral "aid for trade" can complement the multilateral effort.
4. Enacting new *trade reform in developing countries*. Developing countries individually can improve their competitiveness through trade reforms that lower restrictive barriers, especially in services markets. Indeed their own policies hold the largest potential for policy-induced gains from trade. Trade reforms, especially those reinforced with reforms in governance and in domestic investment climates, can raise productivity and incomes, irrespective of policies of other nations.

Other aspects of global trade architecture—for example, regional trading arrangements, standards, and world institutions with effects on trade (such as the World Customs Organization and so on)—are also important. However, save for brief mention in chapter 6, they fall outside the focus of this report. This is for reasons of parsimony and because they have been covered in recent Bank reports.[1] Nonetheless, if the policies recommended in these four areas were adopted, they would move the global trade architecture in way that would enhance the prospects of developing countries.

Reshaping global trade architecture for development would reduce world poverty—

Seizing the opportunity to reshape the global trade architecture for development would make an enormous difference to the world's poor. Some 2.8 billion people today live on less than $2 day. In the base-case long-term projection of this report, developing countries would grow at rates that reduce poverty to 2.2 billion by 2015, effectively lifting some 600 million people above this poverty line. This would be an important achievement.

But better results are possible. This report simulated the effects of taking the mutually reinforcing actions in all four policy domains—effectively removing restrictions on trade and services in combination with the "aid for trade" agenda and other companion policies that translate the trade impulse into rising incomes for the poor. These exercises have methodological limitations but are indicative of what's at stake.

Three headlines are worthy of note: First, the pace of poverty-reducing globalization would clearly be accelerated. This combination of polices could spur new growth that will lift an *additional* 300 million people above the poverty line relative to the normal growth in the base case.[2] Said differently, because of faster growth associated with trade integration, the world would have 14 percent fewer people living in poverty in 2015 than in the base-case scenario. Faster integration through lowering barriers to merchandise trade would increase growth and provide some $1.5 trillion of additional cumulative income to developing countries over the 2005–15 period.[3] Liberalization of services in developing countries could provide even greater gains—perhaps as much as four times larger than this amount.

Second, the effects on income distribution of removing trade restrictions in the simulation are broadly positive. The simulations show that labor's share of national income would rise throughout the developing world. And un-

skilled workers generally do better in most regions. Finally, this scenario would bring down infant mortality more rapidly and contribute to improved child health throughout the developing world.

Chapter Highlights

This report is dedicated to the trade-for-development agenda

Realizing the promise of the new global initiatives to expand trade requires concerted effort to move development to center stage in trade policy formulation. This report is dedicated to that agenda. It begins with a review of global prospects and ways globalization links the fates of industrial and developing countries. The report then considers issues in four broad areas that are particularly important to developing countries: merchandise trade, services, transport, and intellectual property rights. A final chapter summarizes the forward-looking policy agenda, and assesses the potential impact of further global integration and more rapid growth for the standards of living in poor countries everywhere.

Global prospects

By the third quarter of 2001, the global economy was precariously close to recession. For the first time in more than two decades, the three major engines of the global economy—the United States, Japan, and Europe—were slowing at the same time. With recession already a fact in Japan and the probability of negative growth in the United States rising—in part attributable to the demand and supply shocks from the September terrorist attack—and Europe suddenly slowing, the global economy has ceased supporting rapid growth in developing countries.

Nonetheless, the outlook for 2002, though subject to unusually high risks, is that the global economy will begin to recover. Developing countries are expected to grow by 3.7 percent if the external environment improves as expected, up from 2.9 percent in 2001. The world economy should grow by 1.6 percent, with the recrudescence of consumer spending in the United States, prompted by lower interest rates and fiscal stimulus, and renewed expansion in Europe in response to recent interest rate cuts and lower oil prices. High-income countries, still shackled by slow growth in the first half of 2002 but picking up in the second, are likely to grow at about 1.1 percent for the year, up slightly from the anemic 0.9 percent in 2001. Dynamism in major economies of the developing world—particularly China and India and, to a lesser extent, Brazil and Mexico—will reinforce these positive trends. South Asia seems likely to become the fastest-growing region, with growth at 5.5 percent, followed closely by East Asia, at 4.9 percent. Other regions will not achieve these growth rates, but all will predictably do better than in 2001.

The recovery of the global economy is likely to transmit new growth to developing countries through more robust trade demand. Although unlikely to reach the boom rates of 2000, trade expansion seems likely to surpass 4 percent in 2002, up considerably from the 2001 rate.

Risks to this forecast are unusually high. The terrorist violence in the United States in September will have negative short-run consequences for the United States and the global economy, but could be even more severe than these projections indicate if unforeseen events prove highly disruptive. These uncertainties with enormous downside risks overlay structural risks. U.S. consumers may be less responsive to interest rates than on previous occasions; foreign investors, concerned about the high external current account deficit, may precipitate a sudden adjustment; European growth may level off at a lower-than-expected plateau; and Japan's structural reforms may falter and cause the dip in 2001 to carry over into the next year. Thus, with the global economy in precarious balance, unforeseen shocks from whatever source are magnified and could push the global economy into recession.

This said, the long-term prospects for developing countries remain bright. Fundamen-

tals—savings, population growth, and investments in education—are favorable. Moreover, many of the policy distortions prevalent in many developing countries during the 1980s have been progressively diminished during the 1990s. Budget deficits have generally come down, reserve levels are higher relative to debt levels, and economies are now more open. For these reasons, the growth rates in the base-case scenario of 3.6 percent for the 2005–15 period are both technically feasible and realistic.

However, not all countries and regions bask in this bright long-term outlook. Non-oil commodity exporters, countries with high debt levels, and countries with poor credit histories will find themselves at a disadvantage in trade and financial markets. Sub-Saharan Africa in particular confronts enormous problems in all of these dimensions—as well as the public health epidemic of AIDS (acquired immune deficiency syndrome). For these reasons, invigorating the global trade agenda, even in these times of uncertainty, is imperative.

Merchandise trade

Restrictions on agriculture and labor-intensive manufactures, notably textiles and clothing, are particularly damaging to the world's poor. Virtually all major agricultural commodities face barriers to trade on a scale that dwarfs manufactured products. Barriers include high, steeply escalating, and nontransparent tariffs; tariff peaks; tariff rate quotas on maximum low-tariff imports; and a plethora of domestic and export subsidies in high-income countries, to say nothing about state enterprise trading that still survives in many developing countries. Support to agricultural producers in high-income countries runs in excess of $300 billion annually. During downturns—such as the one the global economy is now experiencing—these subsidies tend to increase and force a disproportionate share of the cyclical adjustment onto producers in developing countries. Tariff peaks also work against the poor. Fully one-third of exports of the poorest developing countries face tariff peaks in at least one of the four major markets, the United States, Japan, Europe, or Canada. As estimated in chapter 6, phasing out restrictions on agriculture would produce dynamic gains that could well mean higher incomes in 2015 by nearly $400 billion.

The Agreement on Textiles and Clothing (ATC), which replaced the Multi-Fiber Agreement in the Uruguay Round, succeeded in integrating these products into the WTO. However, the agreement provided a much delayed phaseout schedule that put off much of the market liberalization until the very end of the process in 2005. And, because the implementation of the ATC allows importers much leeway in selecting the products to be freed of quotas, forgone export earnings for developing countries are sizable. Because high tariffs loom behind the quotas, market access will remain restricted even after the quotas have been abolished in 2005. Removing these barriers would, we estimate, produce increases in income of perhaps $120 billion by 2015.

These issues provide fertile areas where reciprocal negotiations in a development round of the WTO could provide substantial benefits for development. Developing countries would benefit from reducing their own protection in these sectors as part of negotiated reciprocal reductions in high-income countries for agriculture and labor-intensive manufactures. Beyond this, high-income countries could also expand trade by enlarging the scope for preferential access for poor countries. Existing schemes in high-income countries have limited coverage and, together with other impediments to trade, undermine their otherwise positive effects.

Services

Services are the fastest growing components of the global economy, and trade and foreign direct investment in services have grown faster than in goods over the past decade. In virtually every country the performance of the services sectors can make the difference between rapid and sluggish growth. More efficient services—in finance, telecommunications, domestic transportation, and professional business services—improve the performance of the whole economy because they have broad link-

age effects. Collectively, they are essential to increasing domestic productivity.

Developing countries, in particular, are likely to benefit significantly from further domestic liberalization and the elimination of barriers to their exports. In a range of services—from financial sector and business services to telecommunications and retailing—restrictions on foreign investment are still common, particularly in developing countries. Even more stringent restrictions affect the export of services, such as professional and construction services, through the movement of persons—a mode of supply in which many developing countries have a comparative advantage.

As with merchandise trade, reforms in services have to be managed carefully. The largest gains come from eliminating barriers to entry and new competition, but many developing countries have been content only to change ownership through privatization while retaining limits on entry that buttress monopolies. Privatization without competition can vitiate well-intentioned reforms. Effective regulation is also critical to the success of liberalization. Even though governments can initiate reforms of services unilaterally, multilateral agreements through the General Agreement on Trade in Services (GATS) could help accelerate domestic reform and improve access to foreign markets for developing countries. In parallel, global cooperation to expand trade could mobilize support for developing countries at four levels: in devising sound policy, strengthening the domestic regulatory environment, enhancing their participation in the development of international standards, and ensuring access to essential services in the poorest areas.

The payoffs to success, however, are especially high. Studies comparing reduction of services barriers to reductions in barriers to merchandise trade find that services liberalization can provide benefits up to four times higher. Estimates suggest that, after controlling for other determinants of growth, countries that fully liberalized trade and investment in finance and telecommunications grew on average 1.5 percentage points faster than other countries over the past decade.

Transport

International transportation costs to move developing countries' exports to foreign markets often are a far greater barrier to trade than tariffs. Both public policies and private practices exercise a significant influence on costs. Policies toward maritime transport, such as cargo reservation policies and limitations on the provision of port services, often protect inefficient service providers and unduly restrain competition. Competition-restricting practices among shipping lines increase freight rates by up to 25 percent on selected routes. Increasing concentration in the market for port terminal services poses the risk that the benefits of liberal government policies may not be passed on to consumers.

International air transport services, despite being at the heart of the globalization process, are one of the most protected from international competition. The current regime of bilateral air service agreements largely denies access to efficient outside carriers—and inflates export costs for developing countries.

Countries themselves can take actions to improve management of their ports and reduce costly delays associated with inefficient customs. In Brazil, for example, failure to deploy efficient container services has kept costs up to more than twice international norms in customs, warehousing, inland transport, and ports. Recasting institutional arrangements to maximize competition in the provision of port services could also drive improvements. Adopting non-discriminatory policies of open access in international air transport can enhance the efficiency of air services. At the same time, there is a need to regulate private practices of transport service providers by competition policies, to ensure that the gains from liberalization are not captured by private firms.

A special responsibility for promoting competitive international transport markets falls on the large industrial countries. These coun-

tries, with their strong regulatory capacity and history of antitrust enforcement, are well positioned to enforce competition disciplines on multinational transport operators. To date, they have not done so.

Beyond this, multilateral negotiations on transport services under the GATS can support domestic reforms by unleashing greater liberalization and by lending credibility to domestic policies. The scope for creating binding multilateral disciplines on transport services is large. Only little progress has been made in the past on maritime transport, and even less has been made on air transport.

Intellectual property

Intellectual property rights (IPRs) are designed to balance the needs of society to encourage innovation and commercialization of new technologies, products, and artistic and literary works, on the one hand, with needs to promote use of those items, on the other. Since the overwhelming bulk of intellectual property is created in the industrialized countries, the Uruguay Round TRIPS shifted the global rules governing intellectual property in favor of developed nations. If TRIPS were fully implemented, rent transfers to major technology-creating countries—particularly the United States, Germany, and France—in the form of pharmaceutical patents, computer chip designs, and other intellectual property, would amount to more than $20 billion.

To be sure, there are reasons to believe that the enforcement of IPRs is associated positively with growth. However, these benefits tend not to materialize until countries move into the middle-income bracket. Therefore, many countries, especially low-income countries, see these potential benefits as elusive promises against which they have to weigh heavy, up-front costs of enforcement and administration. Administration and enforcement, together with higher prices for medicines, agricultural inputs, and other key technological inputs, could readily absorb a significant portion of annual public expenditures in many low-income countries. Moreover, enforcing *all* property rights is often a major problem needed to improve the investment climate, so governments have to ask whether it makes more sense when measured against objectives of poverty reduction to forego allocating scarce resources for enforcement of (say) land rights in agriculture—where returns to investments often benefit poor owners directly—in order to enforce IPRs.

Because economic advantages and capability of enforcement tend to rise as countries become more developed, and low-income countries markets are of marginal importance to patent holders, there is a compelling logic to rebalance the TRIPS agreement to accommodate the problems of low-income countries. This could take three forms: It may make sense to recognize the validity of a phased implementation of TRIPs based upon development capacity. Second, negotiating compulsory licensing provisions to allow poor countries with no production capability of their own to license producers in other countries for sale in their markets would improve their competition access to critical development inputs. This may provide small developing countries with greater flexibility in addressing public health crises. Third, since industrial countries are the main up-front beneficiaries of IPRs, they may find it in their interest to provide assistance to the poorest countries for the implementation of TRIPS. Beyond this, developing countries can realize concrete benefits from TRIPs by encouraging domestic intellectual property development and its protection abroad.

Reshaping global trade architecture for development

This report thus proposes actions to reshape global trade architecture to promote development in four policy domains: launching *a development round* of trade negotiations within the WTO, moving forward on the *global cooperation agenda to expand trade* outside the WTO, enacting new *policies in high-income countries* to provide aid for trade, and adopting *trade reforms within developing countries*.

Reshaping global trade architecture for development: The four-part policy agenda

1. Convening a development round in the WTO

Market access

Agriculture

- Reduce applied tariffs, phase out tariff rate quotas, and bind tariffs at applied rates in both developed and developing countries
- Phase out export subsidies in high-income countries and commit to eliminate domestic support linked to production levels
- Reduce tariff escalation and cut off tariff peaks

Manufactures

- Reduce applied rates further, and bind tariffs to levels that equal or are close to applied rates
- Reduce tariff escalation and cut off tariff peaks
- Accelerate implementation of ATC quota eliminations and reduce tariffs in lines now covered by quotas
- Negotiate tighter disciplines on antidumping and other forms of contingent protection

Services

- Liberalize entry of foreign services suppliers through elimination of restrictions on entry and promoting increased competition, with wider use of GATS to bind nondiscriminatory access and lend credibility to domestic programs
- Enhance scope of services provision through the temporary movement of service providers (both skilled and unskilled)
- Secure openness of e-commerce in services, through wider and deeper GATS commitments on cross-border supply
- Strengthen multilateral rules to deal with anticompetitive practices in services
- Adopt a nondiscriminatory trading regime for air transport, including traffic rights, under GATS

Implementation procedures and phasing

- Adopt a phased implementation of TRIPS and other administrative-intensive agreements for low-income countries, based upon development capacity.
- Establish a consensus that the TRIPS Agreement allows developing countries with no domestic production capacity to grant compulsory licenses to foreign firms
- Convert "best endeavor" promises to binding commitments to provide low-income countries with financial and technical assistance to implement WTO accords

Improving WTO transparency and participation

- Require WTO disclosure of databases; reports and their full associated information; and analyses for particular decisions
- Provide assistance to strengthen capacity of all members to participate effectively in negotiations

2. Global cooperation to support trade outside the WTO

Provide "aid for trade" through stepped up development assistance

- Expand "Integrated Framework" assistance to all low-income countries
- Provide assistance to enhance the efficiency of the customs clearance process in developing countries, notably the good customs practices that are laid out in the revised Kyoto Convention (World Customs Organization)
- Expand multilateral assistance to overcome country-specific bottlenecks to improving competitiveness and trading potential (for example, in finance, transportation infrastructure, education for low income workers, and public sector trade-related institutions) and to promote trade

- Fund mechanisms to help developing countries use intellectual property protection to their benefit by protecting intangible assets such as traditional knowledge, designs, music, and ethnobotanicals, and patent protection for industrial goods as well as improve enforcement of IPRs
- Establish a global health fund to purchase licenses from developers of new medicines essential to treating debilitating diseases in poor countries

Expand global efforts beyond trade to improve environment, raise labor standards, and adopt adequate product standards outside the WTO

- Expand global environmental cooperation with financing to improve environmental protection in developing countries, and create multilateral forum of environmental exchange
- Strengthen international actions on labor standards through the International Labour Organisation (ILO), with project collaboration from multilateral development banks
- Create a Standards Development Facility to introduce science and other professional evidence into standard setting for products, with adequate representation from developing countries; and provide assistance to developing countries' standard setting bodies

3. Policies for high-income countries

Market access

- Grant to all low-income countries duty-free and quota-free access to markets of all countries of OECD
- Reduce uncertainty of market access by harmonizing rules of origin, and by reducing threats of antidumping

Expand bilateral "aid for trade"

- Provide financial and technical assistance to developing countries for "behind the border" trade-related investments necessary to take advantage of market access
- Improve policy coherence by establishing coordinating mechanisms between development policies and trade policies to ensure effective development outcomes
- Assist developing countries to strengthen competition agencies and improve legislation, and require antitrust agencies to provide to developing countries information on third market effects of domestic mergers as well as pending cases of price-fixing and restrictive business practices; and review the anticompetitive consequences of antitrust exemptions in transport and other sectors that adversely affect development

Domestic policies that facilitate adjustment of labor to economic change

- Review domestic policies to ensure displaced workers have adequate social support to deal with rapid changes in labor market conditions, including unemployment insurance, social safety nets (particularly health and pensions), and access to training and education

4. Policies for developing countries

- Adopt program of trade reform, including phased lowering of border protection for goods and services as part of a poverty reduction strategy
- As part of trade reform program, adopt companion policies to cushion any impact on the poor of adjustment to new trade incentives, and ensure investment responses; solicit foreign assistance when necessary to implement administrative requirements of programs
- Spur development of industries essential to trade, such as transport, telecommunications, financial sector, and business services, particularly through introduction of regulatory policies that, where feasible, harness competition
- Invest in upgrading public sector institutions related to trade, including customs, administration of drawback programs, and financial supervision agencies
- Encourage domestic intellectual property development through TRIPS-consistent standards appropriate to country needs, and pursue protection of domestic intellectual property abroad
- Ensure adequate macroeconomic policy framework to provide sound investment climate

While this report focuses on global issues, chapter 6 indicates ways regional agreements, properly designed, can be steppingstones to promote new trade and deeper integration that reinforces multilateral collective action. The box below summarizes specific measures that can produce faster economic integration.

Removing barriers to trade and services, in conjunction with companion policies to foment a supply response, would give a strong growth impetus to the global economy and long-run development. Chapter 6 quantifies these effects, if with the large margin of uncertainty and qualifications that estimating techniques impose. If remaining restrictions on merchandise trade were phased out in the 2006–10 period, economic growth in developing countries would be about 0.5 faster than in the base-case scenario—including services liberalization would add significantly to the boost in growth. Much of the benefits come from trade reforms in their own countries and in other developing countries—and in that sense developing countries as a group control a considerable portion of their own trade destiny. In some regions, these new trade policies could well make the difference between achieving their objectives (for poverty-reduction, lowering maternal and child mortality, and improving educational attainment) and falling short by a large margin.

The long-term promise of well-implemented trade reform is therefore tangible: a world with a much higher standard of living, hundreds of millions lifted out of poverty, and a greater share of children living beyond their fifth birthday to become productive citizens of the world. Continuing down the path of greater integration will not be easy, but if the international community succeeds in doing so, the world will undoubtedly be more prosperous and stable.

Notes

1. On regional trading arrangements, see World Bank 2000. On standards, see World Bank 2001, chapter 3.

2. Trade liberalization has a relatively small impact on the rate of growth, but has a large impact on the net number of poor lifted out of poverty. The reasons are threefold as described in chapter 6: First, under the base-case scenario, growth—assuming population were held constant—will reduce the number of poor from 2.8 to 1.9 billion, but population growth will push that number back up to 2.2 billion in 2015. Hence comparing the net change to the change associated with fast integration records an impressive increment. Second, growth has a disproportionate and positive effect on poverty, and we have assumed a poverty elasticity with respect to growth of two, consistent with historical experience. Finally, trade liberalization changes the composition of production to incomes of the poor.

3. This is the discounted present value in 2005 of cumulative income gains over the decade to 2015.

References

Ganesan A.V. 2000. "Seattle and Beyond: Developing Country Perspectives" in Jeffrey Schott (ed.) *The WTO After Seattle* Washington: Institute for International Economics.

World Bank. 2000. *Trade Blocs* Washington DC: World Bank

———. 2001. *Global Economic Prospects 2001* Washington DC: World Bank.

Abbreviations and Data Notes

ACP	African, Caribbean Pacific Group of States
ASA	Air Service Agreement
ASEAN	Association of Southeast Asian Nations
ATC	Agreement on Textile and Clothing
CAP	Common Agricultural Policy
CAPAS	Coordinated African Program of Assistance on Services
CGE	Computable General Equilibrium
CEPR	Consortium and the Centre for Economic Policy Research
CEWAL	Associated Central West Africa Lines
CIS	Commonwealth of Independent States
CPI	Consumer Price Index
DEC	Development Economics
DFA	Duty-free access
EA	East Asia
EAC	East African Community
EAP	East Asia and the Pacific
EC	European Community
ECA	East and Central Asia
EDI	Electronic data interchange
EEC	European Economic Community
ERF	Economic Research Forum
EU	European Union
FDI	Foreign Direct Investment
FIAS	Foreign Investment Advisory Service
FTAA	Foreign Trade Agency of the Americas
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GDF	Global Development Finance

GDP	Gross domestic product
GSP	Generalized System of Preference
GTAP	Global Trade Analysis Project
GEP	Global Economic Prospects
HIV/AIDS	Human immunodeficiency virus/acquired immune deficiency syndrome
ICAO	International Civil Aviation Organization
ICT	Information and Communications Technology
ICTB	International Clothing and Textiles Bureau
IDA	International Development Agency
IDB	Inter-American Development Bank
ILO	International Labour Organization
IMF	International Monetary Fund
IPRS	Intellectual Property Rights
IT	Information Technology
ITA	Information Technology Agreement
JPS	Japanese patent system
LAC	Latin America and the Caribbean
LATN	Latin American Trade Network
LDCs	Least Developed Countries
MENA	Middle East and North Africa
MERCUSOR	Latin America Southern Cone trade bloc (Argentina, Brazil, Paraguay, and Uruguay)
MFA	Multi-fiber Agreement
MFN	Most favored nation
MRAs	Mutual Recognition Agreements
NAFTA	North American Free Trade Agreement
NAPM	National Association of Purchasers and Manufacturers
NASSCOM	National Association of Software and Service Companies
NGO	Non-governmental organization
NTBs	Non-tariff barriers
PREM	Poverty Reduction and Economic Management
PRSP	Poverty Reduction Strategy Papers
PSE	Producer support estimates
ODS	Ozone depleting substance
OECD	Organization for Economic Cooperation Development
OPEC	Organization of Petroleum Export Countries
PBRS	Plant breeders' rights
QUAD	U.S., Canada, European Union and Japan
SOEs	State-owned enterprises

SSA	Sub-Saharan Africa
SAR	South Asia Region
TBT	Technical Barriers to Trade Agreement
TFP	Total factor productivity
T&C	Textiles and clothing
TFP	Total factor productivity
TRAI	Telecommunication Regulatory Authority of India
TRIPS	Trade-Related Intellectual Property Rights
TRQs	Tariff Quotas
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
UR	Uruguay Round
URAA	Uruguay Round Agreement on Agriculture
USDA	United States Department of Agriculture
WCO	World Customs Organization
WDR	World Development Report
WHO	World Health Organization
WTO	World Trade Organization
WIPO	World Intellectual Property Organization

Data notes

The "classification of economies" tables at the end of this volume classify economies by income, region, export category, and indebtedness. Unless otherwise indicated, the term "developing countries" as used in this volume covers all low- and middle-income countries, including the transition economies.

The following norms are used throughout:

- Billion is 1,000 million.
- All dollar figures are U.S. dollars.
- In general, data for periods through 1998 are actual, data for 1999 are estimated, and data for 2000 onward are projected.

1

Prospects for Developing Countries: Coping with a Global Slowdown

Global economy stalls

The global economy, already balanced precariously between recession and recovery in the summer of 2001, received a sharp negative shock with the terrorist attacks in the United States on September 11. The probability of a more severe global slowdown has since increased, but because of the difficulties of anticipating the responses of businesses and consumers to these unprecedented events, together with the unpredictable ramifications of the attacks, forecasts are subject to an unusually high degree of uncertainty. Nonetheless, U.S. consumer demand, instead of fueling a recovery in global demand in the fourth quarter, now seems likely to decline. The September 11 events snuffed out the first signs, clearly discernible in late summer, of an incipient rebound in U.S. manufacturing production. As perceived risks rose, stock markets fell around the world, and new private lending to most developing countries has effectively ceased. Trade flows, already depressed by slowing demand, are under new pressures from rising security-related costs, disruptions in normal air traffic, and further post-attack slackening in demand.

The origins of the global downturn can be traced to the sudden decline in U.S. financial markets in mid-2000. This signaled the end to the worldwide bubble in equity values and created over-capacity in global high-tech sectors. In the ensuing slowdown of the U.S. economy, investment demand plummeted, and consumer confidence waned. Weakening investor confidence quickly spread to Europe, first evident in equity markets but soon transmitted to business and consumer demand. The phased contraction of U.S. and then European import demand, in combination with the reversal of incipient recovery in Japan, heralded an unprecedented deceleration of world trade in 2001 that has adversely affected developing countries.

Growth of global trade fell from record 13.3 percent growth in 2000 to 1 percent in 2001. Because nearly half of U.S. investment was in computers, electronics, telecommunications, and other high technology products, the sharp contraction of investment hit East Asia's technology-heavy exports swiftly and hard. The U.S. downturn also rippled through Mexico into the rest of Latin America. The downturn spread to the Euro area where economies were reaching the top of the business cycle in early 2001. Conditions then worsened as the technology slump cut into demand, rising oil prices cut into the purchasing power of consumers, and the profits of European companies in the large U.S. market sagged. The European Central Bank, still fearful of future inflation associated with oil prices and the Euro's value, did not immediately cut interest rates. In Japan, slumping exports cut the tenuous string preventing the economy from slipping back into recession as the government bumped up against ceilings on fiscal headroom. These forces, together with weak commodity prices, reduced growth in virtually all major regions of the developing world.

Those countries that still depend heavily on commodity exports were particularly hard-hit. Many have experienced falling commodity prices since 1997, prices that never recovered from the East Asia crisis. These countries were unable to rebuild reserves and other buffers to cushion this year's further terms-of-trade losses, and suffered declines in income. Sub-Saharan Africa as a whole, for example, seems likely to witness a decline in real per capita income of 0.7 percent during 2001.

For the first time since 1974–1975, the world's major economies are decelerating in tandem. With Japan in recession, Europe decelerating, the United States dealing with the aftermath of the attacks, and many developing countries seeing their own growth slow, the downturn has now become global in scope. Global gross domestic product (GDP) is projected to increase by a tenuous 1.3 percent in 2001, down from 3.8 percent in 2000 (table 1.1).

The most probable scenario is a recovery in mid-2002—

The global economy, in the most probable scenario, will begin to recover in mid-2002, probably starting in the United States and then spreading to Europe and elsewhere. With inflation in abeyance, U.S. monetary authorities have progressively brought interest rates down 400 basis points over the course of the year through October and new tax cuts and spending increases provide additional stimulus for this year and next. The European Central Bank cautiously started to bring interest rates down in the third quarter of 2001, and, after September 11, did so in tandem with other central banks around the world. Both the low inflation and the improved structural policies in most industrial countries have created an environment in which technology-driven productivity growth can gain traction rather promptly, once the cyclical downturn has reversed. Moreover, rapid technological developments, high depreciation rates of investment goods, and just-in-time production systems tend to generate relatively rapid rebounds after downturns. Only Japan, facing severe financial problems, is unlikely to become a source of global growth in the short run. Oil prices, averaging $25 a barrel in 2001, are likely to drift downward to an expected long-run equilibrium of $20 a barrel, underpinning growth in oil-importing countries.

—creating a global environment better for developing countries in 2002–03

These developments in the high-income countries, if they evolve as anticipated, will create a moderately propitious external environment for a rebound in developing countries in late 2002, and stronger growth in 2003. Aggregate growth rates for the developing countries are expected to fall from 5.5 percent in 2000 to 2.9 percent in 2001; if global recovery takes hold as anticipated by mid-2002, growth in developing countries would probably pick up to 3.7 percent in 2002, and then rebound to over 5 percent in 2003. Trade and financial links, which had transmitted weakening impulses to growth from the large high-income economies to developing countries in 2001, appear now likely to reverse in 2002, and to do so sharply in 2003.

Trade growth is likely to accelerate modestly next year to 4 percent, and then gain substantial momentum in 2003 to exceed 10 percent. The last decade of trade growth has created structural changes that now favor expansion for many developing countries. Many countries not only gained global market share during the 1990s, but also diversified heavily into manufactures. This enabled them to escape the volatility inherent in commodity trade and price movements. It also cushioned the 2001 shock, and should allow them to benefit from high growth when the projected rebound in global demand begins to occur over 2002–03. However, those countries remaining dependent on commodity exports are experiencing severe stress today, and can expect little relief from forecast developments over the next years.

Developments in global financial markets are also likely to favor renewed growth beginning in 2002, if on a more selective basis than

Table 1.1 Global conditions affecting growth in developing countries and world GDP growth

(percentage change from previous year, except interest rates and oil price)

	Current estimate 2000	Current forecasts			April 2001 Forecasts		
		2001	2002	2003	2001	2002	2003
Global conditions							
World trade (volume)	13.3	1.0	4.0	10.2	5.5	7.3	7.3
Inflation (consumer prices)							
G-7 OECD countries[ab]	1.9	1.8	1.4	1.5	1.8	1.7	1.8
United States	3.4	2.8	2.2	2.3	3.0	2.6	2.7
Commodity prices (nominal dollars)							
Commodity prices, except oil (dollars)	–1.3	–8.9	1.6	8.1	–0.3	5.4	5.6
Oil price (dollars, weighted average), dollars/barrels	28.2	25.0	21.0	20.0	25.0	21.0	20.0
Oil price, percent change	56.2	–11.3	–16.0	–4.8	–11.4	–16.0	–4.8
Manufactures export unit value (dollars)[c]	–2.0	–4.6	4.0	4.4	5.9	3.1	2.4
Interest rates							
LIBOR, 6 months (dollars, percent)	6.7	3.6	2.8	3.0	4.8	4.7	5.0
EURIBOR, 6 months (euro, percent)	4.5	4.1	3.3	3.3	4.3	4.2	4.5
World GDP (growth)	3.8	1.3	1.6	3.9	2.2	3.3	3.4
High-income countries	3.4	0.9	1.1	3.5	1.7	2.9	2.9
OECD countries	3.3	0.9	1.0	3.4	1.6	2.8	2.9
United States	4.1	1.1	1.0	3.9	1.2	3.3	3.2
Japan	1.5	–0.8	0.1	2.4	0.6	1.8	2.3
Euro Area	3.5	1.5	1.3	3.6	2.5	3.1	2.9
Non-OECD countries	6.3	0.6	3.2	5.7	4.1	4.9	5.2
Developing countries	5.5	2.9	3.7	5.2	4.2	4.9	4.9
East Asia and Pacific	7.5	4.6	4.9	6.8	5.5	6.0	6.1
Europe and Central Asia	6.3	2.1	3.0	4.2	2.3	4.2	4.1
Latin America and the Caribbean	3.8	0.9	2.5	4.5	3.7	4.4	4.4
Middle East and North Africa	3.9	3.4	2.9	3.6	3.9	3.5	3.6
South Asia	4.9	4.5	5.3	5.5	5.5	5.5	5.6
Sub-Saharan Africa	3.0	2.7	2.7	3.9	3.0	3.4	3.6
Memorandum items							
East Asia crisis–affected countries[d]	7.1	2.3	3.4	5.4	3.7	5.1	5.2
Transition countries of ECA	6.1	4.0	3.1	3.8	4.1	3.8	3.8
Developing countries							
excluding ECA	5.3	3.1	3.8	5.4	4.2	5.1	5.1
excluding China and India	5.0	1.9	2.9	4.6	3.4	4.4	4.4

[a] Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.
[b] In local currency, aggregated using 1995 GDP weights.
[c] Unit value index of manufactures exports from G-5 to developing countries, expressed in dollars.
[d] Indonesia, the Republic of Korea, Malaysia, the Philippines, and Thailand.

Source: Economic Policy and Prospects Group, October 2001; and *GDF 2001* projections of April 2001.

in the past. Lower international interest rates eased the pressure on developing countries' debt servicing, particularly in the most creditworthy countries. However, this positive news is likely to be offset in the short run with a flight to quality, and rising risk premiums globally. These have increased financial strains in some highly indebted countries. Investors, with memories of financial crises in East Asia and elsewhere firmly in mind, are more dis-

criminating, and that at least partially explains why financial stress in Turkey and Argentina have not produced more widespread contagion. Capital flows are thus likely to constrain growth in some countries, but will probably reward good policies in other countries. As in the case of trade flows, only by 2003 should growth of capital flows be expected to show a significant acceleration.

Short-term risks are high—
Even though the most probable scenario is for recovery by mid-2002, risks to this global outlook are unusually high and depend largely on the still unfolding ramifications of the terrorist violence in the United States. Moreover structural and policy risks persist. The U.S. current account deficit remains large, and global financial markets could impose a disruptive adjustment. Japanese domestic financial strains, should improvements in policy not be forthcoming, may have a destabilizing effect on the global economy. Furthermore if both monetary and fiscal policies in Europe are insufficient to offset the worsening of market sentiment, the slump could be deeper and longer than in present projections; a longer and more pronounced downturn in Europe would be especially harmful for developing countries due to the region's strong trade and financial linkages with all developing regions. Finally, financial tensions in some developing countries may significantly delay the recovery in more tightly linked groups of countries.

These risks argue strongly for continued policies in the high-income countries that will support growth, and for policies in developing countries that quicken the pace of structural reforms to improve their investment climate.

—but long-term prospects are favorable
Even though today's environment is weak and unusually uncertain, the long-term growth potential of developing countries is promising. This is because improved macroeconomic management, rising savings, increased openness, and greater diversification create better incentives for investment, technological progress, and growth. Yet, with these favorable growth trends in most regions, some will be left behind, and may find it difficult to meet development goals, such as a reduction in child mortality, without additional policy measures and external support.

To understand ways the global slowdown is affecting the prospects for developing countries, the first three sections below discuss elements of the global environment that shape the outlook for developing countries: the synchronous slowdown in the high-income countries, then deceleration of trade, and diverse trends in financial markets. We then show how these forces shape the short-term outlook for developing countries, as well as the risks that could undermine this outlook. A final section concludes with a discussion of long-term prospects and potential consequences for reductions in poverty.

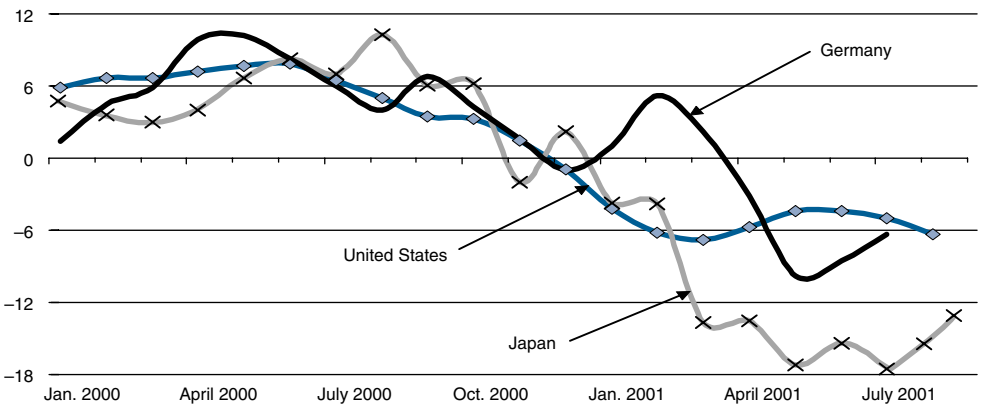
A simultaneous downturn in the industrial countries

Downturn broadened—
For the third time in two decades GDP growth in the industrial world slowed below 1 percent in 2001. By September, the downturn had not become as deep as during the early 1990s and the beginning of the 1980s. However, a worrisome characteristic of the current downturn is that all three industrial regions are simultaneously in a downward phase of the business cycle (figure 1.1). More pronounced weakness in the Euro Area and recession in Japan mirrored meager GDP growth in the United States.

While the end of the high-tech boom, the collapse of stock markets, high oil prices, and currency movements were factors that contributed to the downturn in all three regions, the relative importance of those factors differed across regions. Plunging sales of semiconductors and related products primarily affected the United States and Japan, as growth in Europe depended less on high-tech manufacturing. Also, the collapse of stock markets has probably affected the United States and

Figure 1.1 Industrial production in the G-3 countries falls in 2000–01

(percent change, 3-month/3-month, saar)



Note: The G-3 countries are United States, Japan and Germany.
Source: National statistics; Economic Policy and Prospects Group calculations.

Japan more severely: wealth effects are traditionally more important in the United States, and the fragile Japanese banking sector is vulnerable to low equity prices. Inflationary pressure coming from high oil prices and the strong dollar were a main impediment in Europe, where the European Central Bank tried to establish a tradition of keeping inflation strictly under control and hesitated to ease monetary policy.

—as growth stalls in the United States—

The downturn started in mid-2000 in the United States, with sharp corrections in the stock market ending a long period of large capital gains, especially in the high-tech sectors. Just when an expected soft landing seemed at hand, market sentiment worsened toward the end of the year. Uncertainty about future profits sharply reduced investment demand and borrowing, particularly by high-tech firms. The resulting negative wealth effects also sharpened the downturn in other sectors.

U.S. business investment continued to weaken sharply during 2001, exports and imports plummeted at double-digit rates, and jobless claims rose at a recession-like pace. Quarterly GDP growth rates flirted with recession during the first three quarters of the year. Manufacturing production had sagged—a result of declining domestic investment and the adverse effects on exports stemming from the strong dollar and weak global growth—which in turn yielded burgeoning excess inventory levels that required sharp curtailments in output.

The terrorist attacks on September 11 exacerbated the deterioration of economic conditions. The direct loss of U.S. output in the immediate aftermath of the September 11th tragedy is estimated to be $25 to $35 billion. This is about one day's GDP (1.5 percent of quarterly output)—as business, financial markets, and air transport effectively came to a halt as the events of the day unfolded. Financial markets remained closed for four trading sessions, a full ban on commercial air travel lasted for a week, and disruptions to the countries' "normal" order of business became widespread.

The collapse of air transport aggravated the direct output effects, because the sector is highly labor intensive, and air travel is an essential input to other economic activities. According to the World Bank's sectoral Linkage

Model, a 20 percent cut in air travel supply during one month would reduce annual GDP by more than 0.25 percentage points. Accommodations and restaurants are among the sectors that were affected severely, with "recreational services" representing over 3 percent of national value added—some three times that of air transport.

The indirect effects of the attacks are prospectively larger, operating through a fall in consumer confidence and lower equity market prices. The aggressive monetary policy reactions following the attacks could well contain the deterioration of market sentiment to a limited period; but is unlikely to prevent a strongly negative impact on economic activity during the fourth quarter of 2001.

—while Japan is in recession—

Even though the economy is likely to have slipped back into recession in 2001, the Japanese government persevered with its plans for badly needed reforms. It moved toward some fiscal consolidation and began disposing of banks' nonperforming loans, acknowledging that short-term economic costs are the price for achieving long-term gains. Bad loans have continued to mount in the domestic banking system, rising by official estimates from 9.7 percent of GDP in fiscal 1997 to 12 percent of GDP in fiscal 2000.[1] Loan-loss reserve coverage of "risk management loans" dropped from 46 percent in fiscal 1997 to 24 percent as of fiscal 2000. Revised reporting criteria now commit commercial banks and other financial institutions to "mark-to-market" equity held as capital, revealing losses that have likely been substantial over the last years, and requiring additional scale-backs in the loan portfolio (see box 1.1). With the Nikkei at very low levels, this adjustment could be particularly sharp.

The economy will probably contract by 0.8 percent in 2001. With limited policy instruments other than structural reforms, only a recovery of exports can offset continued stagnation in consumption and fall-off in public works spending, to set the stage for eventual recovery in private investment.

—and Europe, led by Germany, weakens

The weakening in Europe has been unexpectedly sharp in the second and third quarters of 2001 (figure 1.2). Germany was the first to feel the impact of collapsing investment demand in the United States and East Asia. Its exports to those regions amount to almost 4 percent of GDP, more than for any other European country. The malaise in German manufacturing is depressing activity in other countries and other sectors. Moreover, it became increasingly clear that Europe could not escape the sharp cyclical global downturn in high-tech products. In particular the telecom sector, which had invested heavily in infrastructure and licenses for third-generation mobile communications, had to adjust its profit expectations. Trade volumes are falling rapidly across the region, reflecting the sharp downturn in global demand, as well as declining intra-European Union (EU) flows. Earlier strengthening of the dollar, remaining high levels of the oil price and the fall in equity markets—in addition to slowing world trade, contributed to this recent sharpening of the downturn in Europe.

The unexpected strengthening of the dollar during the spring, and high energy prices both added to inflationary pressures, and the European Central Bank (ECB) was hesitant to lower interest rates further, even when it became increasingly clear that such a step would be necessary to stabilize the economy. But the ECB reduced its policy interest rates by 25 basis points in late August, and lowered rates again as part of the coordinated policy response to the September 11 events.

Declines in equity markets and financing conditions in the United States appear also to have affected the domestic investment of globally active European firms. The EU has continued to be the major investor in U.S. equity and fixed-income markets, as well as in mergers and acquisitions (M&A) over the last years—accounting for some 70 percent of net foreign purchases of U.S. corporate bonds, 90 percent of equities, and over $125 billion in M&A during 2000.[2] Hence fall-out from slowing export market growth, accumulated losses in U.S. fi-

Box 1.1 Japan and the developing countries

During the 1970s and 1980s, East Asia's developing and newly industrialized countries found that links through Japan's goods trade, banking flows, direct investment, and official development assistance formed a cement that fostered robust advances in trade, financial integration, and growth within the region. During the 1990s Japan experienced a burgeoning problem of nonperforming loans in its banking system and meager output growth of 1.4 percent per year. Yet, Japan's impact on the region during bad times appears to be as strong as during the good times of the earlier decades.

Links through trade

	Japan's share in region's exports		GDP "exported" to Japan (percent)[a]	
World region	**1990**	**2000**	**1990**	**2000**
Developing E. Asia/ NIEs	18.8	13.8	5.2	5.5
China	14.7	15.6	2.6	3.9
Korea, Republic of	18.6	11.1	5.0	4.0
Singapore	8.8	7.5	12.6	10.8
Oil exporters	23.6	24.4	11.4	13.1
North America	10.3	6.7	0.9	0.7
European Union	2.1	1.8	0.5	0.6
Major Latin America	6.8	3.0	0.6	0.5
Other major developing**	20.7	6.1	3.3	1.5
Other developing	10.3	5.7	0.8	0.7

Note: [a] Calculated as the share of total exports in GDP for country "i" times the share of Japan in country "i's" exports.
**Group includes Algeria, Arab Republic of Egypt, India, Islamic Republic of Iran, Morocco, the Russian Federation, and South Asia.

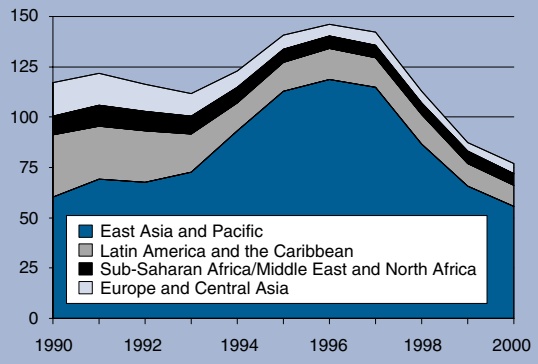
Source: IMF Direction of Trade Statistics, Japan ERISA, World Bank data, Economic Policy and Prospects Group calculations.

Japan has become less important as a destination for regional exports over the last decade, as evidenced by a 5 percentage point drop in export share for East Asia, and sharper fall-offs for other developing regions. This is indicative of relatively low growth of Japanese import demand and a diversification of export markets by Asian economies. However, the share of East Asian GDP, and particularly that of China "exported" to Japan, has risen slightly over the last decade.

On the financial front, however, the scale-back of Japanese commercial bank lending to developing countries has continued well beyond the retrenchments of the immediate post-crisis period.

Japanese commercial bank claims by developing region, 1990–2000

(billions of current dollars)



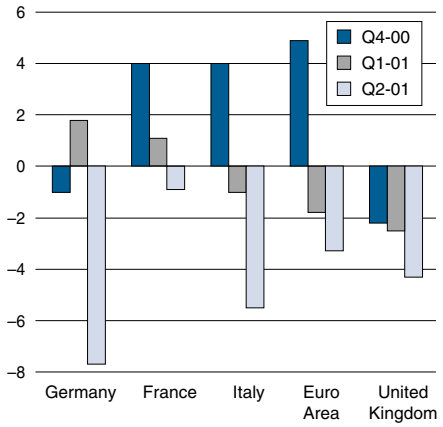
Source: Bank for International Settlements, Quarterly Report June 2001 and Annex tables.

Japanese lending to East Asia doubled between 1990 and 1996, rising to 4.4 percent of regional GDP, and as high as 21 percent of GDP in Thailand. A critical factor contributing to the upsurge in international lending was domestic—the demise of the traditional or "Main Bank" lending system within Japan itself, introducing more competition in the capital markets (Hoshi 2001). The financial crisis of 1997–98 yielded a swift decline in Japanese bank claims on the "Crisis-5" countries dropping by 30 percent between 1996 and 1998, representing a withdrawal of some 2.6 percent of GDP for these countries—although for Thailand it was 8.3 percent of GDP. From 1998 through 2000, Japanese claims on developing countries continued to fall, by 53 percent to the Asia-Pacific region and 12 percent for other developing regions. At present, the persistence of nonperforming loans in the portfolios of Japanese banks constrains its ability to generate new lending. Indeed, domestic lending by Japanese banks has fallen recently at 6 to 7 percent annual rates. Financial institutions have reduced overseas exposures in order to build up capital and increase funding for loan-loss reserves (Mori and others 2001). So Japan's share in developing countries commercial bank financing has dropped by *one-half* in the last decade, lessening the importance to emerging markets of further withdrawal of Japanese loans during the present downturn.

Note: Crisis-5 countries are Indonesia, Republic of Korea, Malaysia, the Philippines, and Thailand.

Figure 1.2 European industrial production falls

(growth at seasonally adjusted annualized rates)



Source: National agencies; Eurostat.

nancial markets, and unfavorable conditions under which to mobilize new corporate affiliations have come to exert increasingly adverse effects on the European business climate. The fall in equity prices also had a negative impact on consumer confidence, although wealth effects are, on average, less important in Europe than in the United States. Euro Area GDP growth is expected to fall to 1.5 percent in 2001, following strong output gains of 3.5 percent in 2000.

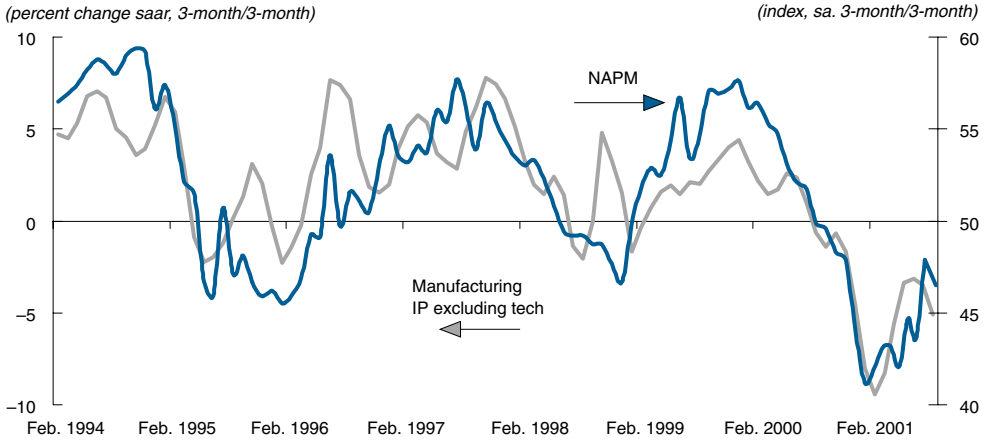
Rebound next year still likely, but probably later than earlier expected

Before September 11, there were early signs that a recovery in the manufacturing sector was underway in the United States. Figure 1.3 shows, for example, that manufacturing production, excluding high-tech production, had reached a trough, confirming information coming from the purchasing managers' index (NAPM). Since the terrorist attacks, that recovery has been postponed. But prudent use of the levers of economic policy is likely to bring about at least the beginnings of a rebound in 2002 for the United States and Europe. The United States has aggressively loosened monetary policy, with the Federal Reserve having lowered interest rates by 400 basis points in a series of nine cuts over the course of 2001, carrying the Federal Funds rate to 2.5 percent by mid-October, its lowest level since the early 1960s. European rates have also fallen, but not as swiftly. In addition, on both sides of the Atlantic increased fiscal stimuli are expected to augment consumption. However, the U.S. recovery, while expected to begin in the second or third quarter of 2002, will be reflected more in 2003 annual growth numbers than in those for 2002. Nonetheless, the U.S. recovery is unlikely to be as quick and strong as earlier thought, and the European recovery will likely lag one or two quarters. European manufacturers have been faced with large-scale unsold inventories, and it will take several quarters for this inventory cycle to unwind. With lower external demand than earlier anticipated, a buoyant export-led U.S. recovery has become less likely. U.S. consumer demand, put on hold after September 11, is expected to lead the recovery—if somewhat delayed. In Japan, there is no effective scope for monetary easing through interest rate cuts. Financial problems will continue to weigh heavily upon the Japanese economy, though a return to moderate positive growth in 2003 is expected with revival of world trade.

In the medium term, prospects for industrial countries remain favorable. Low inflation and improved structural policies in most industrial countries have created an environment in which the potential benefits from investment in technology can be reaped once the cyclical downturn has reversed. Oil prices averaging $25 a barrel are expected to return slowly to long-run equilibrium of under $20 a barrel, further underpinning growth in the industrial countries. And in Japan, the new government's tougher approach toward the "bad loan" problem should help the economy move gradually toward potential growth rates.

Under these assumptions, the forecast anticipates continued low growth rates in the United States, Japan, and Europe for 2002, 1.0, 0.1, and 1.3 percent respectively, but with strong acceleration of GDP growth advancing into 2003 (figure 1.4). [Weaker *annual* GDP growth

Figure 1.3 U.S. NAPM and manufacturing industrial production excluding high tech, 1994–2001

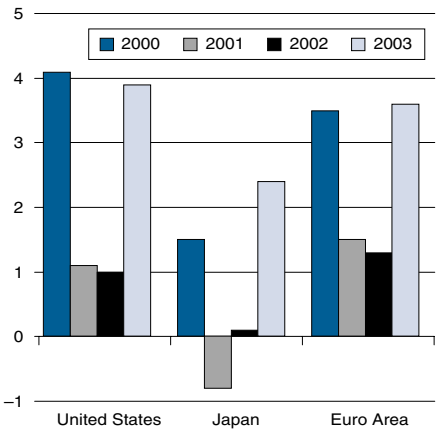


Source: National Association of Purchasing Managers, Datastream.

rates in 2002 are due in large measure to statistical effects related to the initial conditions for the year—a "carry-over" of sluggish or declining growth in the final quarters of 2001. A pick-up in the momentum of output growth across the major OECD blocs on a *quarterly* basis is anticipated to commence in the second and third quarters of 2002, in turn yielding positive "carry-over" effects and resulting in higher annual GDP figures for 2003.] The delayed recovery of these major locomotives of the global economy will transform the earlier-expected outlook for the developing countries. Trade and financial markets will be the two main channels through which these dynamics are transmitted. The next two sections look at the global environment through the lens of trade and finance, and a following section explores in detail the outlook for developing countries.

Figure 1.4 GDP growth in OECD blocs

(percent)



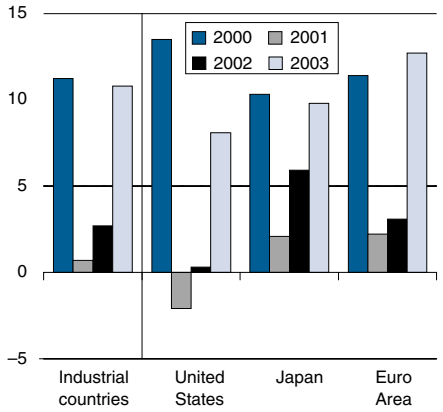
Source: National agencies; Economic Policy and Prospects Group projections.

Global environment: trade

Downturn hits manufacturing exporters— The industrial country–downturn has led to the sharpest deceleration of world trade on record, from an extraordinary 13.3 percent advance in 2000 to a crawl of 1 percent growth in 2001. Import demand in all three industrial regions slowed sharply, with the steepest decline in U.S. imports (figure 1.5). U.S. investment in equipment declined by 4.5 percent

Figure 1.5 Import growth across industrial centers

(percent)



Source: World Bank data; Economic Policy and Prospects Group projections.

after growing by over 11 percent last year. With almost 30 percent of such investment being imported, and 40 percent of total investment consisting of high-tech products, this was a major force behind the slowdown of world trade and the collapse of the global semiconductor market. Indeed, U.S. imports of capital goods dropped at an annual rate of 32 percent during the first half of the year.

The terrorist attacks on September 11 restrained trade flows further, exacerbating the sharp cyclical downturn. Security concerns translated into higher freight rates,[3] and limited air travel greatly hindered the shipment of perishables and high-tech products.[4] The impact on trade in services was significantly larger, with tourism and business travel sharply lower.[5]

Growth of exports from developing countries plummeted from over 19 percent in 2000 to 2 percent in 2001. East Asian export growth fell more sharply still, from 25 percent to 0.5 percent (table 1.2). These effects are so pervasive because developing countries are now more than ever linked to global trade cycles in manufacturing. Countries increased trade as a share of their economies, and increased their share of the global market during the 1990s. In doing so, many developing countries diversified away from commodities to manufactures, and further, into high-tech products. The share of manufactured goods in developing countries' exports increased from 60 to 80 percent over the last decade, while the share of capital goods increased from 27 to 42 percent (figure 1.6).

—and commodity exporters

Commodity exporters have been hard hit by price declines. Although the number of countries that are highly dependent on commodity

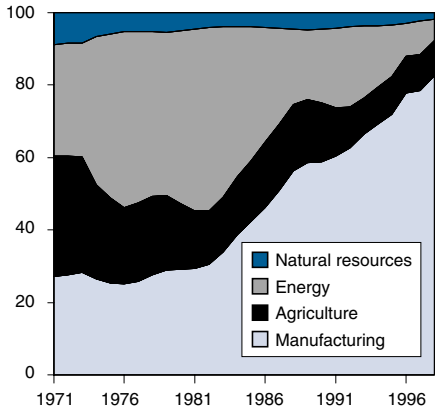
Table 1.2 Merchandise export volumes, annual average percentage change

	1999	2000	2001	2002	2003
World	4.1	13.5	0.3	3.7	10.3
High-income countries	4.1	11.9	–0.2	3.3	10.5
United States	3.9	11.3	–2.1	4.6	11.9
Euro Area	3.2	12.2	2.2	3.0	11.0
Japan	4.0	12.9	–7.7	4.0	11.8
Low-middle-income countries	3.8	19.2	2.1	5.0	9.7
East Asia and Pacific	9.7	25.5	0.5	6.4	11.5
South Asia	7.5	12.3	3.0	7.0	7.6
Middle East and North Africa	–2.6	8.0	2.1	4.1	5.8
Europe and Central Asia	–2.6	18.9	6.1	2.8	8.4
Latin America and Caribbean	–0.8	12.0	1.9	3.8	9.3
Sub-Saharan Africa	0.0	8.8	3.4	2.9	6.4
Memo: Developing x ECA	5.3	19.2	1.2	5.5	10.0

Source: World Bank data; and Economic Policy and Prospects Group projections.

Figure 1.6 Export shares for developing countries excluding transition economies

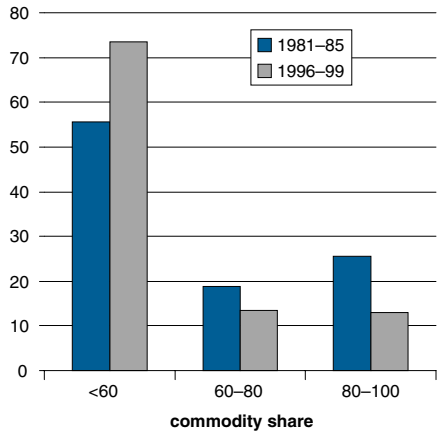
(percent of total exports)



Source: U.N. Commodity trade statistics (COMTRADE).

Figure 1.7 Distribution of countries by share of primary commodities in total merchandise exports

Percent of countries



Source: Staff calculations using UN COMTRADE data from WITS system.

exports is declining, for more than 10 percent of developing countries commodities exports account for over 80 percent of total merchandise exports (figure 1.7).

Non-oil commodity prices are projected to fall by about 9 percent in 2001 following a 1.3 percent decline in 2000. Substantial increases in the supply of commodities such as coffee, vegetable oils, and timber, and currency weakness of major exporters relative to the U.S. dollar,[6] also contributed to the fall of commodity prices. In the case of metals, the price declines come in spite of production cuts, particularly in aluminum, but also in copper and other metals.[7] Using its market power, the Organization of Petroleum Exporting Countries (OPEC) was able to sustain, at least in the short run, prices around $25 a barrel. However, slackening demand, especially after September 11, clearly will exert downward pressure on price. OPEC's reassurance that it will guarantee sufficient supply quickly, eased market concerns after September 11, but the possibility of future supply disruptions in the aftermath of the terrorist attacks has not disappeared, keeping uncertainty at exceptionally high levels in the short run.

World trade expected to rebound later in 2002—

As noted in *Global Development Finance* (*GDF 2001*), earlier cyclical downturns in the world semiconductor industry have been brief, largely due to technological advance and rapid inventory liquidation. More generally, faster depreciation rates of capital goods appear to have shortened the investment cycle, while lower inventory ratios have reduced the structural importance of inventory cycles. Combined with the positive impact of lower interest rates on demand for durable goods, the changing technological characteristics made a recovery of manufacturing production in the United States before the end of 2001 probable—and the first signs of a rebound were visible before September 11. However, the terrorist attacks have now rendered such a scenario of quick recovery unlikely. Although the mechanisms behind the recovery remain unchanged, a delayed upturn is more plausible now.

As a recovery in the United States begins to gather pace by mid-2002, increased investment and Information and Communications Technol-

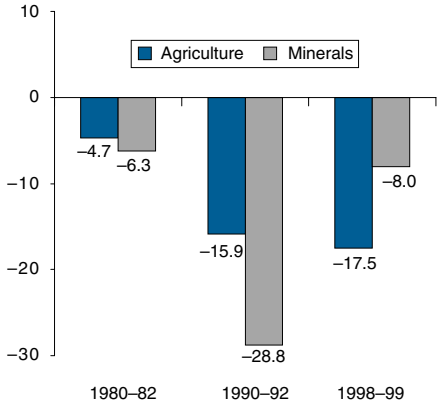
ogy (ICT) equipment spending should feed through to import demand, setting the stage for a pick-up in world export growth, mainly manifesting in robust 2003 annual growth rates (table 1.2). Expected growth of 4 percent in 2002 is followed by growth over 10 percent in 2003 in this projection. The rebound is likely to be fastest for East Asia, with growth rates of 6.4 and 11.5 percent in the coming two years. The dynamics in the region reflect countries' specialization in high-tech products and the pronounced boom-bust cycles rippling through East Asia since the 1997–98 crisis. For regions depending more on commodity exports, export growth will be lower under these circumstances. For example, Latin American exports are expected to grow about 4 and 9.5 percent in 2002 and 2003, while Sub-Saharan Africa could see exports growing near 3 and 6.5 percent, lower than Africa's record growth of 2000, but still high relative to past trends.

—but commodity exporters remain vulnerable

After the sharp 9 percent fall in commodity prices in 2001, almost no rebound is expected for 2002, and only by 2003 are current losses likely to be made up. Market conditions continue to put downward pressures on commodity prices in local currencies, and the modest price rebound expected for 2002 is mainly based on expected currency movements. With manufactures export prices expected to increase by 4–4.5 percent per year, in light of anticipated depreciation of the dollar, commodity exporters are likely to experience further terms-of-trade losses. The decrease in the import-purchasing power of exports as a result of relative price changes might constrain consumption and investment demand, for instance because of reduced availability of intermediate manufactures or capital goods. Research on North-South business cycles suggests that up to 20 to 50 percent of output volatility for such countries may be explained by business fluctuations in developed countries (see, for example, Deaton and Miller 1996; Kouparitsas 1996; Kose and Riezman 2000). Figure 1.8 indicates that the negative impact during downswings on mineral exporters is generally larger than on agriculture exporters, reflecting the greater sensitivity of minerals demand to industrial production.

Figure 1.8 Episodes of world growth slowdown and agricultural and mineral export prices

(difference in growth from the previous two years—percent)

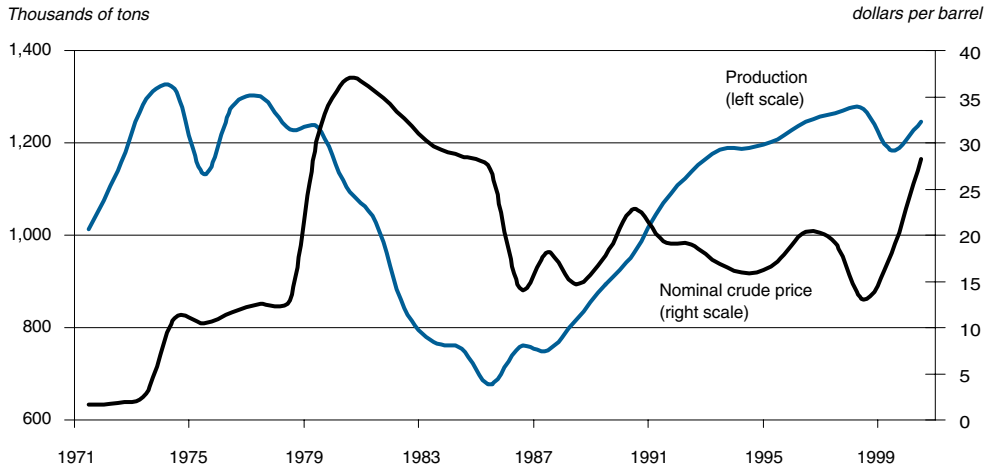


Sample of 31 non-oil commodity dependent SSA countries, classified as mineral or agricultural exporters (see GEP 2000, Chapter 4, fn. 28 on p. 129 for details of coverage).

Source: Economic Policy and Prospects Group staff estimates.

Oil prices are expected to gradually decline to under $20 a barrel over the forecast period, due to rising supply competition from both non-OPEC producers and within OPEC itself. Earlier episodes, notably the second oil crisis during the early 1980s, show that, in the short term, it is possible to evoke large price swings with small supply shocks, but that large supply adjustments are needed to keep the price at high levels for a more extended period (figure 1.9). The sharpening of the downturn after September 11th and OPEC's policy reactions to avoid sharp price hikes in the wake of the terrorist attacks, have accentuated the expected downward trend.

Figure 1.9 OPEC output and crude oil price



Source: World Bank; OPEC Bulletin.

Global environment: financial markets

Increasing risk generally outweighs interest rate reductions—

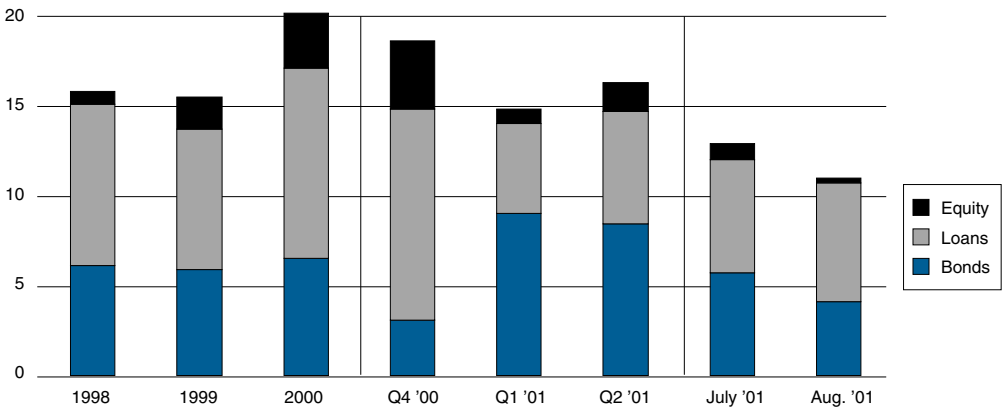
The weaknesses of demand in the industrial countries had translated into lower interest rates before September 11, as authorities provided a more accommodating monetary stance. After the terrorist attacks, monetary authorities in the industrial countries swiftly eased monetary conditions further. These policies can potentially soften both the slowdown in the OECD region itself and the transmission of the downturn to developing countries, enabling the latter to benefit from lower international interest rates and a shift of capital flows away from industrial countries. However, the financial channel of transmitting growth dynamics from the major markets to developing countries produced higher spreads instead of larger capital flows in 2001, and contained a strong bias in favor of well-performing, creditworthy countries. This reflects the behavior of investors, who are now more risk-sensitive and discerning than they were in the years before the 1997–98 crises in emerging markets. Therefore, the benefits of lower OECD interest rates have been more-than-offset by higher risk premiums particularly for poorer performing countries.

This is in sharp contrast to the 1991–93 slowdown in industrial countries, another episode of slowing growth and interest rate cuts. Then, when U.S. interest rates fell by 450 basis points cumulatively over three years, global gross capital market flows increased by 22 percent a year, albeit from very low levels born of the 1980s' debt crisis. Developing countries benefited from the increased liquidity with a similar increase in inflows by 32 percent a year.

In 2001, the opposite occurred when the Federal Reserve reduced policy rates by 400 basis points. After rising in 2000 for the first time since the 1997–98 crisis-ridden period, net capital flows to developing countries are expected to decline in 2001. Gross flows from international capital markets, which increased by over 30 percent last year, are down by near 20 percent (year on year—y/y) in the first half of this year (figure 1.10). Foreign direct investment (FDI) flows have continued to fall

Figure 1.10 Gross capital market flows to developing countries

billions of dollars (monthly averages)



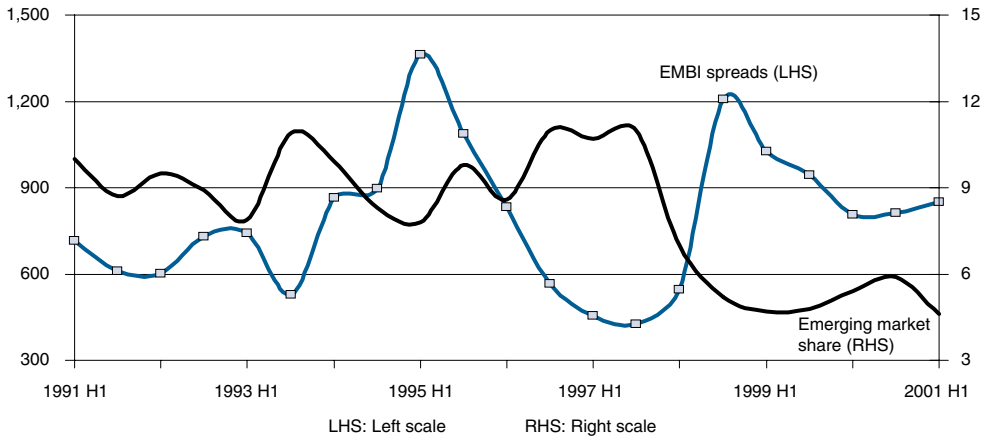
Source: Euromoney; Economic Policy and Prospects Group.

(by 4 percent [y/y] in the first quarter) from their peak in 1999, and official flows are not expected to post a significant rise in 2001.

The difference between the current downturn and the recession a decade ago is the risk perception of private investors. Toward the end of the 1991–93 recession, investors were generally optimistic about new investment opportunities in emerging markets after many developing countries eased capital market restrictions. The spreads were relatively low and developing countries' share in global capital flows were increasing (figure 1.11). This year, the spreads were high and even rising toward the middle of the year, reflecting the heightened risk perceptions of the markets. As a result, the already

Figure 1.11 Emerging market spreads and share of global capital flows

Basis points *Percent*



Source: Euromoney.

small share of developing countries in global capital flows has declined further.

—but mainly because of financial tensions in some large emerging markets—

Although aggregate net capital flows are on the decline this year, the reduction comes mainly at the expense of a few large recipients, notably Brazil, Argentina, and Turkey. Investors shunned the latter two countries on the worry of default on their public debt. Brazil, which received FDI flows of over $30 billion a year in 1999 and 2000—more than covering current account deficits—has seen a marked fall-off in FDI to $15–20 billion in 2001. A worsening of the external environment for Brazil—weak export market growth, low commodity prices, and rising spreads due to contagion from Argentina—and a domestic energy crisis have limited the country's access to capital markets.

Market reactions in the first weeks after the terrorist attacks showed a similar pattern. Spreads on Brazilian and Argentine bonds increased by more than 150 basis points, but the average increase for all other emerging economies was just 60 basis points, only slightly more than the decline in international interest rates (LIBOR).

Capital market financing to developing countries other than Argentina, Brazil, and Turkey declined by 9 percent in the first half of 2001, contrasted with a 20 percent decline including these three countries. Bond issuance, that seems to have benefited from the lower interest rate environment, grew by 75 percent excluding the three countries, and by 35 percent for all emerging markets.

Countries that usually had difficulty in accessing the global bond market in the past few years were successful during "windows of opportunity" that opened up periodically in the first half of 2001. These episodes usually occurred when interest rates fell sharply in the industrial countries—thereby increasing liquidity in the market—and when difficult conditions in key developing countries abated. June 2001 was one such month, when gross capital flows surged to over $21 billion, with countries that had little success in accessing the market much in the past year raising relatively large sums. For example, a private Russian corporation successfully issued a bond—the first access in a year—while large sums were raised by the Arab Republic of Egypt ($1.5 billion), Malaysia ($1 billion), and Hungary ($0.9 billion). Moreover many small issuers with less-than investment grade credit ratings either tapped the bond market (Jamaica, Lebanon, Romania, and the República Bolivariana de Venezuela) or obtained syndicated loans (Chad, El Salvador, Estonia, Gabon, Peru, and a Russian bank that received a loan for the first time since the 1998 crisis in that country).

These "windows of opportunity," however, alternated with periods when they were closed decisively. Investor sentiment deteriorated sharply in July, with average spreads rising by nearly 200 basis points in response to adverse developments in Argentina and Turkey. Although spreads also increased for several Central European and other Latin American countries, the contagion was limited. The terrorist attacks and threats of further violence will likely yield a further decline in private flows to emerging markets in 2001, both capital market flows and foreign direct investment. Capital market commitments could drop to some $160 billion—a third below 2000 levels. FDI to major emerging markets had declined from $61 billion in the first half of 2000 to $56 billion in the first half of 2001, and the attacks have raised the likelihood of a further downturn: they have greatly increased the uncertainty involved in traveling to supervise foreign subsidiaries; raised the cost of globally integrated supply chains due to higher insurance rates and enhanced security measures at the border; and demonstrated that these supply chains are vulnerable to interruption.

Capital flows are unlikely to recover in 2002

Although near-term gross capital market flows are notoriously difficult to forecast, the global political and economic environment seems too uncertain for a rapid upturn in capital flows to

developing countries. In the short run, emerging markets' share of private flows—which increased rapidly during the last decade—is likely to drop sharply as private investors seek safe havens. By 2003, however, the right mix of continued low interest rates, a rebound in world trade and reduced risk perceptions could generate a recovery of capital flows, and perhaps an increase in developing countries' share of global flows. Yet private market flows will probably be much more selective than in the past. Investors, with memories of financial crises in East Asia and elsewhere firmly in mind, will remain more discriminating. Capital flows are thus likely to reward good policies in some countries, but continue to constrain growth in others. Moreover risks remain weighted to the downside, as default by a major emerging market would escalate risk premiums for the majority of developing countries.

The outlook for developing countries

Although the slowdown in global economic activity is being led by the industrial countries, aggregate growth for developing countries is being adversely affected and expected to weaken from 5.5 percent in 2000 to 2.9 percent in 2001. Delayed recovery in the OECD area is likely to keep developing country growth in 2002 restrained to 3.7 percent. But stronger recovery in the advanced economies by 2003 should ignite a rebound to 5.2 percent growth in the developing world. However, there are considerable regional variations underlying these summary figures.

The Europe and Central Asia (ECA), and Latin America and the Caribbean (LAC) regions have been hardest hit by the deteriorating global environment in 2001—although conditions in these regions have been clouded by difficult financial and economic developments in Turkey, Argentina, and Brazil, respectively. Latin America in particular will begin 2002 within a challenging external environment, with the United States likely in recession, commodity prices falling sharply, international tourism collapsing, and capital-market risk aversion heightened. Only by mid-2002 will recovery gain some underpinning, as the United States and the Euro Area emerge from their slumps. Economic prospects for the Middle East and North Africa (MNA) region—which, after Sub-Saharan Africa (SSA) suffers the smallest reduction in near-term growth—are expected to deteriorate further in 2002, as oil prices continue to fall and other commodity prices drop relative to the cost of manufactures imports. The East Asia and Pacific (EAP) region is anticipated to be first among developing regions to show a recovery in exports in late-2001 and early 2002, as the group was the first to suffer from the collapse in high-tech trade flows. South Asia (SAS) is expected to experience a less pronounced cycle, as the region is relatively less integrated with the global economy. But GDP growth at 4.5 percent in 2001 corresponds with the 1997 low registered by the region. (See appendix 1 for more detailed discussion of the regions).

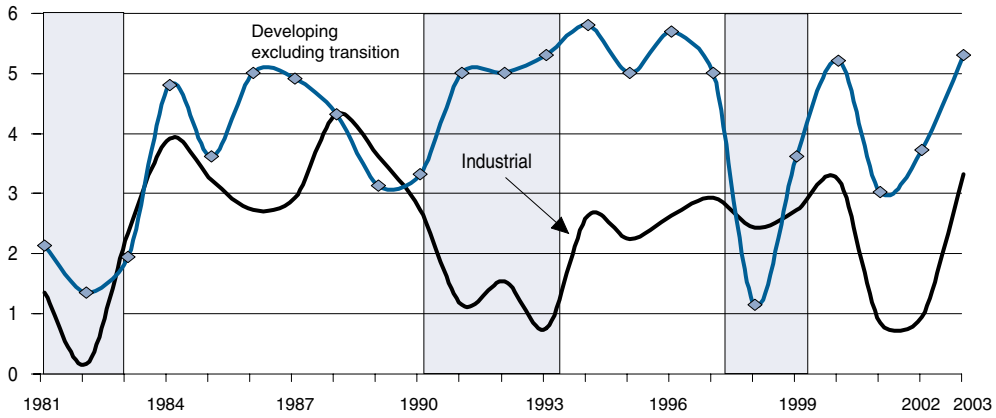
Diverse impacts of industrial countries' slowdowns

Historically, the effects of downturns on developing countries have been quite diverse (figure 1.12). Financial conditions are discriminating factors that potentially even reverse the sign of the impact. In the early 1980s, the developing countries followed the industrial countries into recession; after the second oil crisis the industrial countries tightened monetary policy to bring inflation under control. Higher interest rates generated severe debt-service problems for oil-importing developing countries that had accumulated foreign debts, and the downturn in the developing countries was almost as deep as in the industrial world. Moreover, growth opportunities in highly indebted countries were limited for a longer period.

In the beginning of the 1990s, growth in developing countries, excluding the transition group, accelerated despite recessions in the United States and Europe. It was again monetary transmission that played an important role. With inflation under control, the indus-

Figure 1.12 Industrial- and developing-country GDP growth, 1981–2003

(percent change)



Source: World Bank data; Economic Policy and Prospects Group projections.

trial world pursued an accommodative and more predictable monetary policy. Encouraged by major reforms in developing countries—including the opening up of capital markets—international capital diversified away from industrial country markets and found its way to those developing countries that undertook major reforms. This enabled many low- and middle-income countries not only to escape the downturn, but to grow at significantly faster rates than the high-income countries—until the East Asia crisis brought about a sudden reversal in capital flows.

Although the current downturn resembles that of 1991–93 rather than the 1982 episode, developing countries today are more adversely affected by falling import demand in the industrial countries. This is because trade linkages have become increasingly important. And in the aftermath of the East Asia crisis, a sharp rerouting of capital flows from industrial countries to developing countries (as occurred in the early 1990s) is less likely. On the other hand, developing countries are now better equipped than 20 years ago to absorb negative external shocks, benefiting from diversification and domestic reforms associated with integration into the global economy. The structural improvements in many developing countries justify the expectation that they will return to relatively high growth rates, once the global economy recovers from the current slowdown.

Current downturn follows region-specific channels on developing country growth

A probable consequence of the simultaneous downturn in the industrial world is that a broad range of developing countries will face an abrupt ending to the strong recovery that followed the financial crises. GDP growth is expected to drop by 2.6 percentage points in 2001, with serious downside risks, discussed in the next section. Apart from an 11 percentage point drop in export *market* growth, and sharp fall in non-oil commodities—implying substantial terms of trade losses—developing countries face a decline in capital inflows of almost 20 percent and spreads are again on the rise after a steady decline since the financial crises (table 1.3).

The regional impacts follow closely the export patterns that vary significantly across regions, both the commodity composition of exports, and the orientation of exports across various markets in the industrial and developing worlds (figures 1.13 and 1.14). Countries

Table 1.3 All developing countries: key indicators

(annual percent change unless indicated)

	1990–99	2000	2001	2002	2003
Export market*	7.5	13.4	2.3	4.4	9.4
Merchandise export volume	7.4	19.2	2.1	5.0	9.7
Terms of trade (percent of GDP)	–0.2	0.5	–0.5	–0.5	–0.4
International market spreads (avg. bp)	807.6	707.2	733.6	. . .	. . .
Gross capital market flows	15.2	28.8	–18.5	. . .	. . .
Real GDP	3.2	5.5	2.9	3.7	5.2

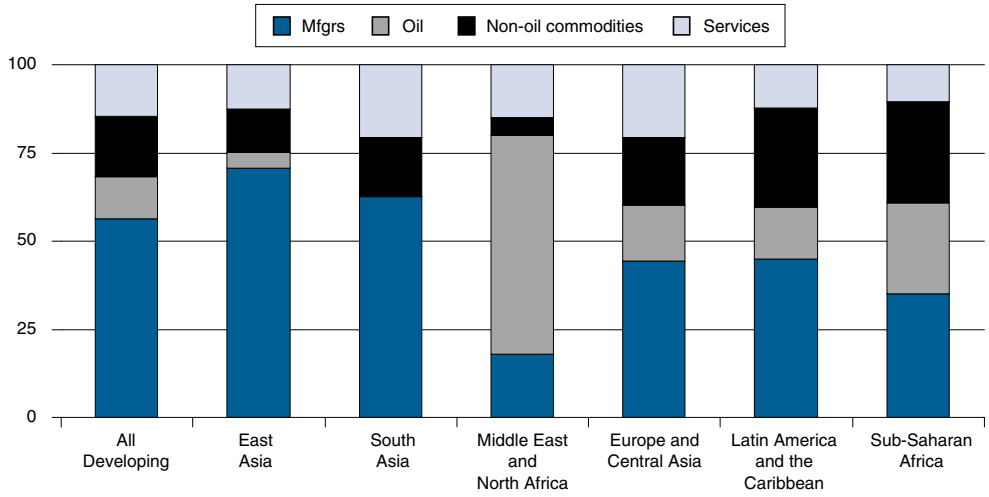
*merchandise import growth in destination countries, weighted by export shares of exporting countries.
. . . Not available
Source: Economic Policy and Prospects Group.

in East Asia—and to a lesser extent Latin America—with large manufacturing exports, were the first to feel the impact of the collapse of import demand in the United States and Japan. East Asia's high-tech laden exports (about one-third of total shipments from the region) were especially adversely affected as demand for computers, telecommunications equipment, and other semiconductor-based capital goods dissipated. Now, increasing weakness in Europe and declining commodity prices put additional pressure on countries in Central Europe, Sub-Saharan Africa, and Latin America.

External debt-to-export ratios, and the composition of the debt (private or official) differ widely across regions (figure 1.15), and can largely influence the severity of the impact. The more difficult external environment is especially worrisome for highly-indebted countries relying on private capital flows, such as Argentina, Brazil, Turkey, and Indonesia. At a regional

Figure 1.13 Composition of developing-country exports

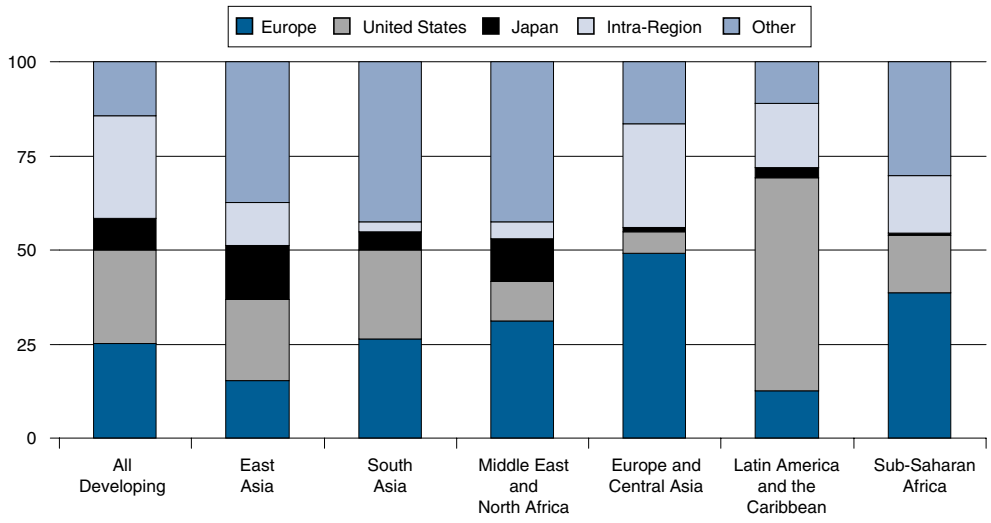
(average export shares, 1998–2000—percent)



Source: U.N. COMTRADE database.

Figure 1.14 Major destinations for developing-country exports

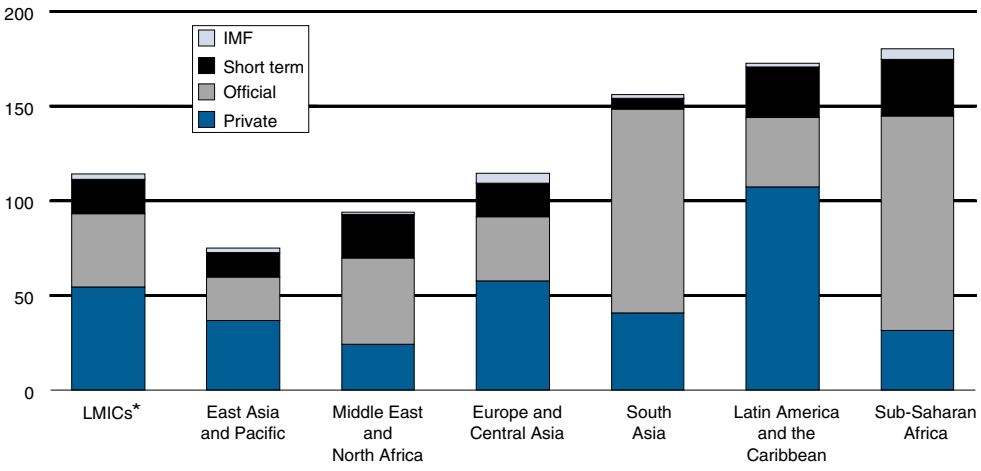
(average export shares, 1998–2000—percent)



Source: International Monetary Fund; Direction of Trade Statistics.

Figure 1.15 Total external debt in developing countries, 2000

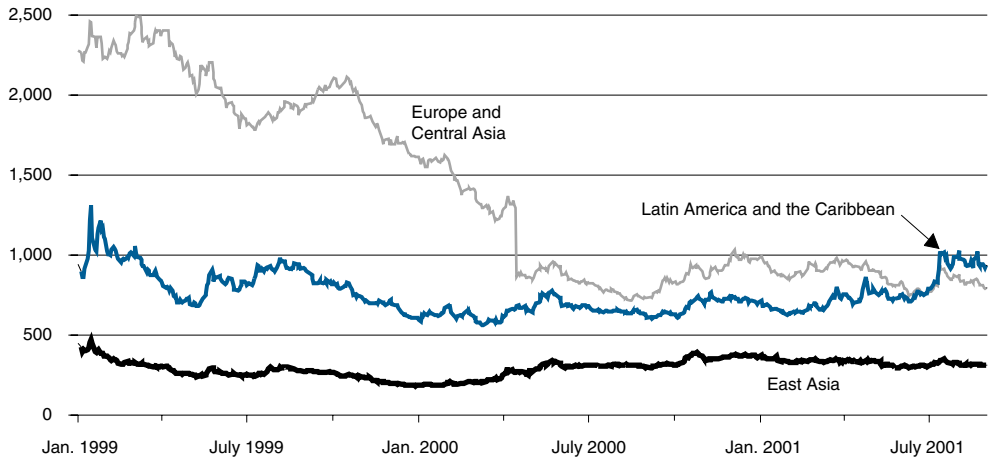
*(as a percent of exports**)*



Note: *Low- and middle-income (developing) countries. **exports of goods and services plus workers' remittances.
Source: Global Development Finance 2001, World Bank.

Figure 1.16 Emerging market stripped spreads, 1999–2001

(basis points over US$ Treasury bonds)



Source: Euromoney; Economic Policy and Prospects Group calculations.

level, Latin America has one of the highest debt-to-exports ratios, and at the same time the largest share of private debt in total debt. As a result, debt from private sources as a share of exports in Latin America is more than twice as large as in any other region. This makes Latin America particularly vulnerable. Potentially the region can benefit from lower international interest rates, but is at the same time most susceptible to reduced availability of funds for refinancing. This vulnerability translates into a larger increase in Latin American spreads than in other regions (figure 1.16). The heterogeneous debt picture across developing countries requires diverse policy responses. While for countries with large reserves and low debt, some macroeconomic easing may be warranted to stimulate the domestic economy; others face harsh, but ineluctable, fiscal adjustments.

Region-specific factors will complement coming recovery

Developments in the world economy, if they evolve as anticipated, will create a more favorable external environment for renewal of growth in developing countries later in 2002. Aggregate growth rates for the developing countries are likely to bounce back from their fall to 2.9 percent in 2001 to a projected 3.7 percent in 2002 and 5.2 percent in 2003. The dynamics of this cycle are likely to be much different from earlier downturns in the global economy—and to be heavily conditioned by structural changes in trade and financial markets.

Although the initiating factor driving recovery among developing countries will be the resumption of growth in the industrial centers, this should be augmented by conditions specific to developing regions and major countries. For example, an important factor rekindling growth in East Asia should be a recovery of intra-region trade, following the return of more buoyant demand conditions in the United States and Europe. In Central and Eastern Europe progress toward accession to the EU, albeit more protracted, should serve to underpin policy reforms and set the stage for more robust growth as Western Europe emerges from its slowdown. The degree of near-term success of reforms in the larger developing and transition economies—Brazil, China, India, Indonesia, and the Russian Federation—will also prove critical elements in the outlook, as these countries address issues ranging from fiscal and financial sector

reforms, privatization, or trade liberalization. China's imminent accession to the World Trade Organization could spur its growth and contribute to further global integration.

East Asia and Pacific . . . trade slump leads to sharp growth slowdown. . .

EAP experienced an unprecedented deceleration of exports in 2001, as noted in previous sections. Export growth plummeted 25 percentage points, mainly following the collapse in global high-tech markets and the fall in Japanese and U.S. import demand. Worsening of financial conditions, reflected in higher spreads, was limited to highly indebted countries such as Indonesia and the Philippines. Relatively low debt levels, current account surpluses, and large foreign reserves tended to insulate other countries from contagion.

The sharp drop in manufacturing exports resulted in significant output declines—close to recession levels in some of the small, open economies. However, carryover effects from last year resulted in positive annual growth rates for most countries, while continued strong, albeit somewhat less dynamic growth in China keeps regional growth near 4.5 percent in 2001.

The strength of next year's rebound will primarily depend on the vigor of the trade recovery and on policy responses to the deterioration of the financial environment. Signs that the high-tech markets have potentially passed trough levels are becoming clearer, but it remains uncertain whether the upswing in these markets will be as strong as they were during the last decade. And slower U.S. growth in the wake of September 11 developments will dampen near-term export prospects.

Export growth during the coming two years is expected to register 6.5 and 11.5 percent respectively. This is only 1 to 2 percentage points above export market growth, while in previous years the difference between export performance and export market growth was much larger, averaging 6 points over the 1990s, reflecting the high-tech specialization of East Asia. In that sense, the current forecast is a cautious view on near-term developments. Low inflation in most countries provides the opportunity for further monetary easing. However, strengthening of financial systems may be equally as important as domestic stimulus at the moment. Under cautious assumptions about trade recovery and domestic policies, and assuming no clear-cut financial crises, the forecast implies growth rates of 5 and 6.8 percent in 2002–03 respectively.

Latin America . . . global context and financial stress in Argentina exact a toll on growth

Developments during 2001 proved much more challenging than anticipated in the spring of the year, and have turned yet more adverse following September 11. Slackening world trade and weakening commodity prices contributed to slower growth in many Latin American countries. The region's merchandise export volume fell from a 12 percent advance in 2000 to about 2 percent, following a similar decline in export market growth. At the same time the region endured terms-of-trade losses, equivalent to 0.2 percent of GDP in 2001. For commodity-dependent Central American countries, this measure dropped by a full percentage point in the year. Caribbean countries were hit hard by a sharp reduction in tourism earnings after the terrorist attacks in the United States.

More important than the deterioration of the trade environment were changing conditions in financial markets. Rapidly declining U.S. interest rates provided a degree of relief for some highly indebted countries by reducing interest payments on debt. But international capital markets were less forthcoming than anticipated, and a number of countries had difficulties in financing maturing debt. Argentina's fiscal strains and Brazil's drought-induced shortage of hydroelectric power were among the domestic factors that created an inflammable mixture with the worsening of the external environment. GDP growth in the region was constrained to 0.9 percent—a decline of 2.9 percentage points from the 3.8 percent performance of 2000.

GDP growth in 2002 accelerates to 2.5 percent in the current projections. However, this point estimate is surrounded by a high degree of uncertainty, as it assumes that those countries under financial pressure in 2001 are able to avert further adverse developments. Latin America's high debt and continued large financing requirements will keep risk perceptions elevated, due to the region's strong reliance on volatile private capital markets. Argentina's struggle to establish sound footing for its fiscal position and debt burden continues to depress its immediate prospects. Many large countries are facing elections in 2002 (Brazil and Colombia), with the potential for domestic shocks remaining high. But macroeconomic management in many of the larger countries has improved steadily over the course of the 1990s, laying the groundwork for higher sustainable growth in the medium term.

In 2003, rebounding world output and trade activity should be supportive of a substantial recovery in Latin America, reflected in 4.5 percent GDP growth, powered in part by a revival of export growth to over 9 percent.

Europe and Central Asia . . . prospects worsened by EU downturn

The drop in export market growth from 12 percent in 2000 to 5 percent in 2001 was not as sharp for the ECA region as for others. This mainly reflects that the slowdown in Western Europe, accounting for 50 percent of ECA's exports, started half-a-year later than in the United States and Japan.

Despite the smaller than average drop in exports (about 13 percentage points), the deceleration of output growth was larger than in any other region, from 6.3 percent in 2000 to 2.1 percent in 2001. This reflects the combined outturns of a strong contraction in Turkey's GDP after recent financial upheaval; a return to more moderate growth rates in Russia—and other hydrocarbon exporters—after an unusually robust expansion of near 8 percent in 2000; and tight monetary policy in several Central European countries, notably Poland and Hungary, leading to appreciation of currencies during the first half of the year. With financial stress in Turkey, Western Europe needing time to recover, oil prices expected to decline, and a possible hiatus in progress toward EU accession,[8] a sharp and quick recovery of economic activity in the region is unlikely. In the Commonwealth of Independent States (CIS), GDP growth is expected to decelerate further to 3.2 percent in 2002, due in large part to the easing of oil prices. In the absence of high oil prices, significant institutional and structural impediments remain a constraint to achieving higher sustained rates of growth. GDP growth in the CIS is likely to achieve a 3.5 percent pace in 2003.

In Central and Eastern Europe, the potential for solid growth exists in the medium run. Two key assumptions underlying this performance are that the EU accession process stays, generally, on track—albeit with some transitory difficulties. And that Turkey is successful in reestablishing macroeconomic stability, paving the way for a recovery over the coming period, driven in part by strong export growth, due to some extent to the fall of the Turkish lire. A gradual recovery to stronger performance in the region would yield growth of 3 percent in 2002, rising to near 4.5 by 2003. Contagion from the financial strains in Turkey has been limited thus far, with average spreads following a downward trend. This development has been supported as well by higher oil prices serving to ease some of the financial tensions that caused the Russian crisis. Nonetheless, financial risks remain substantial and could drastically change the outlook.

South Asia . . . less affected by global slowdown

SAS, less integrated into the global economy, is generally less affected by the deteriorating global environment, although uncertainty is exceptionally high because the region could be directly affected by the ramifications of the terrorist attacks in the United States. GDP is projected to slow only moderately, from 4.9 percent in 2000 to 4.5 percent in 2001. Growth is

then expected to remain near a rate of 5.4 percent over the short-term forecast period. This reflects not only a relatively low level of global integration across much of the region, but also some positive domestic factors within many of the countries. Agricultural sectors, at least outside Pakistan, are expected to perform better than last year, when weather conditions were highly unfavorable. However, the most significant contribution to growth will be the continued buoyancy of India's large domestic service sector, which is expected to grow at about 8 percent over the next few years. Of course, the sharp deceleration in global trade has depressed growth in regional manufacturing production to only slightly above 1 percent, but because this sector accounts for approximately 25 percent of regional economic activity, the aggregate impact has been somewhat muted.

Government subsidies have been used over the last several years to cushion the impact of high oil prices and poor crop production on consumer prices—which in turn is being reflected in growing fiscal and current account deficits. For both India and Pakistan, central government fiscal deficits—of 5.3 percent and 5.8 percent respectively—have become major impediments to an acceleration of growth. India's fiscal deficit is considerably higher on a consolidated basis, including regional governments. Pakistan's fiscal woes are being compounded by its deteriorating current account position, which reflects higher oil prices and interest payments, as well as drought-affected declines in export revenues. This has come at a time of high levels of public debt and low foreign reserves, and Pakistan was forced to turn to the IMF to help finance the current account. Pressure on the current account may not ease in the short run, because a severe water constraint for irrigation is likely to significantly reduce cotton output, the main foreign exchange earner for Pakistan. Aside from economic developments, Pakistan's position on the "front line" of military action against Afghanistan will carry substantial near and medium term implications.

Risks are substantial for the region. Political uncertainty hangs over Afghanistan, and ineluctably implies future uncertainty for the subcontinent. Structural problems also entail risks. Financial strains in India and Pakistan, left unattended, would significantly reduce the opportunities for the region to benefit fully in coming years from a recovery in the global economy, and jeopardize the promise of regional growth. The ending of a preferential trade agreement with the United States—which accounts for 30 percent of Bangladesh's exports—may damage the Bangladeshi clothing sector, but this will probably be more than offset in 2002, when Bangladesh will receive duty-free access to European markets for its garment exports.

Middle East and North Africa . . . high oil prices and reprieve from drought boosts near-term growth

Oil revenues—which account for almost two-thirds of the region's export revenues—provide the MNA region with a short-term outlook that is better than other regions. In 2001, the oil-exporting countries benefited not only from strong export revenues, but also improved fiscal positions and higher rates of investment. Among the diversified exporters, agricultural production and rural incomes received a strong boost from a reprieve of long-standing drought conditions in some parts of northern Africa. Growth in Morocco, for example, is anticipated to accelerate strongly after consecutive years of stagnant or declining output.

While higher oil prices and recovery from droughts in 2001 have provided a fillip to growth, the delayed recovery in industrial countries will significantly reduce the external impetus to growth at end-2001 and into 2002. World demand has slowed, and oil prices are expected to fall to $21 per barrel by 2002. Growth in the oil-dominant economies will slow to 2.3 percent in 2002. The diversified exporters are similarly affected. Demand is now slowing sharply in the EU—the dominant export market for the countries of the *Maghreb*—and in the United States, of importance to several countries in the *Mashreq*. Lower income

growth and the erosion of confidence after September 11th will also affect tourism and related sectors in the region in a substantial fashion. For some of the diversified exporters, increasing levels of public debt make it relatively hard to cope with the current deterioration of the external environment. Increasing spreads threaten to worsen debt dynamics for several countries. Growth in the diversified exporters should improve in 2003, as external conditions become more favorable to exports and tourism—although the improvement in the international context is expected to be gradual. And the MNA region will face increasing competitive pressures as the countries of Central Europe enjoy greater access to the EU.

Sub-Saharan Africa . . . suffering from low commodity prices

In 2001, the world economic slowdown temporarily derailed SSA gradual recovery from the late 1990s slump. Average growth across the region slowed to 2.7 percent from 3.0 percent in 2000, and with population growing at 2.5 percent, per capita GDP barely increased at all. Despite generally better supply conditions in commodity producing sectors, weak demand in industrial countries held export volume growth to 3.4 percent. Services, including tourism also felt the impact, growing at 3.6 percent. A widespread deterioration in terms of trade compounded the difficulties for many countries. Agricultural and mineral commodity export prices plummeted due to a combination of weaker demand and a delayed supply response to the price surge of 1995–97. Oil prices also weakened, although oil exporters continued to benefit from buoyant terms of trade and strong foreign investment demand. Not surprisingly, oil exporters average growth of 3.6 percent significantly outperformed the rest of the region, where growth registered 2.6 percent for the year.

Given the steep decline in developed countries activity toward the end of 2001, and the prospect of a sluggish recovery in the first half of 2002, the near term outlook for SSA is pessimistic. The forecast anticipates 2.7 percent growth in 2002, with per capita incomes again flat. However, the recovery in developed countries is expected to gather pace over the coming year and set the stage for a strong rebound in 2003, with growth rising to 3.9 percent. Non-oil exporters should see a substantial improvement in performance, as commodity markets firm and prices stabilize or even rise modestly in real terms. By contrast, oil producers face sharply weaker export prices and declining terms of trade. Significant new capacity, especially in offshore development will help to offset the negative impacts by allowing production and exports to increase. However, spillovers to non-energy sectors will be limited and oil exporters' growth is expected to slow as the boom unwinds.

Risks to the outlook

The specter of a sharper slowdown in industrial countries haunts the outlook—

Risks to this forecast are unusually high. The terrorist violence in the United States in September will undoubtedly have negative short-run consequences for the U.S. and global economy. But it is difficult to predict the severity of the adverse effects because the response of consumers and businesses—and even future policies—are unknown. These uncertainties overlay structural risks that in other contexts would be more manageable. U.S. consumers may be less responsive to interest rates than on previous occasions as the stock market falls, high consumer debt, and heightened insecurity may render them more cautious; or foreign investors might become concerned about the persistently high U.S. current-account deficit, and impose an abrupt adjustment; these events in turn would delay the recovery of investment and its implied demand for high-tech imports. The European downturn may become more severe once market sentiment deteriorates further, or monetary policy does not ease sufficiently or have the expected effects. Japan's structural reforms may falter or exact a higher toll on economic performance, and cause the dip in 2001 to last into

Table 1.4 First year effects of a 2 percent of GDP decline in investment in the United States, Europe, and Japan

(percentage points impact on regional GDP)

East Asia and Pacific	Latin America and the Caribbean	Sub-Saharan Africa	Europe and Central Asia	Middle East and North Africa	South Asia
–1.5	–0.5	–0.9	–0.4	–0.4	–0.3

Source: Economic Policy and Prospects Group.

the next year. Thus, with the global economy in precarious balance, unforeseen shocks from whatever source are magnified and could push the global economy into recession.

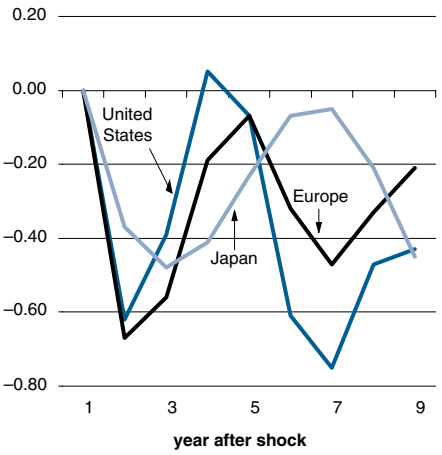
What would be the consequences for the developing countries of a further slowdown in the industrial regions? We model simulations of synchronous downturns in the United States, Europe, and Japan. For each, the simulation assumes a decline in domestic investment of 2 percent of GDP, spread over four quarters, which is counterbalanced by monetary policy reactions, which leads to a shift in the business cycle. The monetary reactions follow historical patterns, with the United States quickly reacting to the fall in output with an accumulated drop of 2.5 percentage points in interest rates. European policy, much more focused on inflation, is less aggressive, and interest rates fall by 1 percentage point. In Japan, the scope for further lowering of interest rates is minimal as rates are close to zero in the baseline. The result of the differences in policy reactions is a weakening of the dollar both against the euro and the yen. Table 1.4 shows the first year effects of these simulated downturns on developing regions. East Asia is hardest hit followed by Sub-Saharan Africa. Indeed, the negative effects of a European recession on developing countries is generally larger than the impact of a U.S. or Japanese recession. A Japanese recession has fewer repercussions, due in part to the smaller size of Japan in world trade (see box 1.1).

The impact of a U.S. recession is mitigated by a strong monetary policy response and, more importantly, by the strong and widespread effects of that reaction. Latin American countries in particular may benefit from a sharp decline in dollar interest rates. The euro interest rate is less important than the dollar rate in the international financial system. Furthermore European trade linkages with Africa, Central Europe, and some Latin American countries are relatively strong. These features illustrate why the recent slowdown in Europe, on top of low or negative growth in the United States and Japan is especially worrisome for developing countries. The negligible short-term impact of the U.S. shock on Latin America as a whole is the outcome of very diverse country-specific effects, strongly negative for Mexico and positive for Argentina. The latter result is mainly driven by the weakening of the dollar in the simulations. However, this positive impact appears to be only temporary.

The medium-term dynamics of downturns in the industrial countries differ markedly. Figure 1.17 shows the impact on global GDP in the years after the shock. For example, the first year after the U.S. shock, global GDP is 0.6 percent lower than the baseline, and three years after the shock it has returned to baseline levels. So the impact is not a permanent change in the level of global GDP, but rather a shift in the timing of the business cycle. While the rebound after a U.S. downturn is likely to be quicker as a result of monetary easing, it may create tensions in the medium run because of the monetary impulses to the rest of the world. Lower interest rates potentially boost domestic demand in other countries to compensate for export losses. In the medium run this may result in inflationary tensions that give rise to a new downturn. The dynamics after a Japanese crisis show a different picture. Because of limited options for monetary easing, it takes several years

Figure 1.17 Global dynamics of recessions in industrial countries

(percentage points cumulated impact on global GDP)



Source: Economic Policy and Prospects Group.

to rebound, with a more protracted, but less pronounced, impact on the global cycle. The analysis suggests that a European recession gives rise to global dynamics somewhere in between the other two. Again we see that a European recession on top of a U.S. recession is potentially dangerous. It could lead to a more protracted rebound, while at the same time aggravating medium-term tensions.

—while financial instability is another risk

The previous analysis explored the effects of slower growth through the main international transmission mechanisms: trade and international interest rates. To illustrate the importance of financial flows (here, bank lending), we simulated a temporary withdrawal of short-term bank lending from the three industrial regions, along with a general increase in emerging market spreads and a country-specific increase in spreads, depending on the reduced net capital inflows in terms of import coverage. In four quarterly steps the short-term debt owed to industrial-country banks is halved, after which the original debt is gradually restored.

Table 1.5 Short-term claims of international banks outstanding in selected developing regions

(as of end December 2000; percent of annual imports of debtor countries)

Creditor	Japan	North America	Europe	Total
Debtor region				
Africa	2.7	4.6	33.6	40.9
East Asia and Pacific	3.8	1.5	11.9	17.2
Europe and Central Asia	0.9	2.0	26.4	29.3
Latin America and the Caribbean	1.8	10.8	36.9	49.5

Source: BIS; Economic Policy and Prospects Group.

Table 1.5 shows the short-term exposure of industrial countries' banks in selected developing regions as a percentage of the region's annual import bill. These economies account for two-thirds of all short-term borrowing by developing countries from international banks.

The data show that the claims of European banks are six to seven times larger than the exposure of U.S. and Japanese banks. Moreover lending by European banks is much more diversified, while Japanese banks are focused on East Asia, and U.S. banks on Latin America. Consequently, banking problems in Europe are potentially more disruptive for a broad range of developing countries than similar problems in Japan or the United States, albeit that the probability of European financial strain is much lower than of escalating tensions in Japan. The simulation results highlight the dominance of European banks and the large negative impact of a withdrawal of their lending on GDP in all the debtor countries considered (table 1.6).

Apart from the magnitude of the shock, domestic conditions in the borrowing countries determine the impact. The shock is more detrimental if reserves are low or foreign debt is high relative to exports. In general, the initial reduction in foreign funds is absorbed in three ways: by attracting alternative foreign capital at the cost of higher interest rates; by improving the current account at the cost of domestic

Table 1.6 Withdrawal of short-term lending by industrial-country banks to selected developing regions: the first-year impact on GDP

	United States banks	European banks	Japanese banks
East Asia	–0.1	–1.4	–0.1
Eastern Europe	0.0	–1.3	0.0
Sub-Saharan Africa	–0.1	–2.1	–0.1
Latin America	–0.4	–4.4	–0.1

Source: Economic Policy and Prospects Group calculations.

recession and by reducing foreign reserves at the cost of becoming more vulnerable to future shocks. For example, the Republic of Korea would replace, in the simulation, a quarter of the lost short-term capital by other capital inflows, reducing its capital needs by roughly 10 percent of the shock, and absorbing the remaining 65 percent of the shock by selling foreign reserves.

For countries with a low initial level of foreign reserves, such as Brazil, reducing reserves much further would not be a viable option. Therefore, the withdrawal of short-term lending would directly translate into a domestic credit crunch. For countries with high external debt, such as Indonesia, Argentina, or Brazil, an improvement of the current account is difficult because higher spreads result in higher debt service. This would put more weight on the contraction of the domestic economy.

Long-term prospects: growth and poverty reduction

Despite the weakening of growth and uncertain present context, long-term prospects remain relatively promising for developing countries. Moreover, it should be noted that the rate of GDP growth established by developing countries even in the sluggish global year 2002 (3.7 percent), contrasts favorably with historic experience—some 0.2 percentage points above the average performance of the 1980s, and 0.5 points above outturns for the 1990s. And longer term prospects hold the promise of continued bettering of historic performance, with advances in per-capita GDP rising to 3.6 percent over the period from 2005–2015, two full percentage points higher than the experience of the 1990s.

While the near-term outlook for developing countries is heavily influenced by the international business cycle and global environment, long-term development trends are more directly the result of economic fundamentals—savings, investment, population growth, trade and productivity improvements as well as policy in the various regions. Analyzing these factors allows us to study possible paths of development and ways developing countries might interact with the global economy over a longer period.[9] To do so, we create a long-term growth scenario and analyze its consequences for development.[10] This scenario allows us to test the realism of growth and poverty reduction objectives, given reasonable expectations about fundamentals and current policies. The scenario also provides a baseline against which to simulate policy changes. In chapter 6 we return to long-run analysis and use the baseline to analyze the effects of global reductions of barriers to trade.

Long-term growth: A baseline scenario

Income growth in the developing countries under the baseline scenario for 2005–15 would be 3.6 percent in per capita terms, more than 1 percentage point above the per capita growth rate of the high-income countries and 2 percentage points higher than during the decade of the 1990s (table 1.7). Developing countries are expected to benefit from reforms carried out over the past decade. The policy environment is much improved, especially in major countries in virtually all of the regions. Tariffs have come down sharply in the last decade, and as a result economies are more open, with trade ratios 50 percent higher than a decade ago. Macroeconomic policies are improved; because government budget deficits are lower now than in the late 1980s and median inflation rates have been halved. These efforts to improve policies constitute investment in better long-term prospects, and will allow regions to take ad-

Table 1.7 Long-term prospects: forecast and scenario growth of world GDP per capita
(annual average percentage change)

			Forecast	*Scenario*
			Medium-term	Long-term
	1980s	1990s	2000–04	2005–15
World total	1.4	1.2	1.4	2.1
High-income countries	2.4	1.8	1.8	2.5
OECD	2.5	1.8	1.8	2.4
United States	2.2	2.2	1.7	2.2
Japan	3.4	1.1	1.1	2.6
Euro Area	2.2	1.8	2.2	2.7
Non-OECD countries	3.7	3.8	2.3	4.2
Developing countries	1.5	1.6	2.8	3.6
East Asia and Pacific	6.1	6.0	4.8	5.4
Europe and Central Asia	2.7	–2.5	3.2	3.5
Latin America and the Caribbean	–0.9	1.6	1.5	2.6
Middle East and North Africa	–0.6	1.0	1.4	1.4
South Asia	3.5	3.3	3.5	4.0
Sub-Saharan Africa	–1.2	–0.5	0.9	1.5
Memorandum items				
Transition countries of ECA	2.7	–3.2	3.7	3.5
Developing countries,				
excluding ECA	1.4	3.0	2.8	3.7
excluding China and India	0.8	0.4	1.8	2.7

Note: Aggregations are moving averages, reweighted annually after calculations of growth in constant prices.
Source: Economic Policy and Prospects Group.

vantage of underlying momentum on economic fundamentals—savings rates, educational investments, population growth rates, and improvements in productivity. And the external environment is poised to provide a more supportive long-term context that redounds to the benefit of the developing countries.

The acceleration of growth in the developing countries seems, on first sight, somewhat more spectacular than it actually is. First, excluding the transition countries, the next five years feature a decrease of 0.2 percentage points relative to the 1990s, before accelerating by 0.9 percentage points to a 3.7 percent rate of per-capita growth. Second, about two-thirds of the acceleration is the result of so-called composition effects. Fast growing countries such as China have now a larger weight in the total than they had ten years ago, increasing the growth rate of the developing countries on aggregate, even without increasing its own rate of growth.

Internal factors and policies drive differing regional performance. *East Asian countries* would not be able to maintain the exceptionally high growth rates of the 1980s and early 1990s, but, on the strength of high savings rates and productivity, would continue its 30-year pattern as the most rapidly growing region. China's growth will naturally slow as its economy becomes larger and more modern, but still has scope to growth at 6 to 7 percent annually over the period (see World Bank 1997: *China 2020*). The countries in East Asia—should their savings rate persist at high levels—could well see capital accumulation account for nearly two-thirds of their overall growth rate, with about 30 percent generated by productivity increases. *South Asia* would follow a fairly similar pattern, although with somewhat more contribution from labor supply growth and less from technological improvement.

For *Latin America*, the scenario assumes that the latent, but undeniable, growth poten-

tial in Mexico, Brazil, and Argentina, as well as other economies, is progressively realized. Better fiscal management and greater hemispheric and global integration are likely to provide powerful forces that reduce debt burdens which in the past have shackled growth on the one hand, and, on the other, can unleash new productivity. The contribution of capital accumulation in Latin America will be about twice the contribution of productivity, with the contribution from labor supply growth less than 15 percent on average.[11]

The countries of *Eastern Europe and Central Asia* are expected to grow quite rapidly, continuing a recovery from the transition-generated depression of the early part of the 1990s. Further openness among Central and Eastern European countries to trade and financial integration with the EU, together with the reestablishment of the conditions of peace in Southeastern Europe, should provide a favorable context for these countries to grow. Both Eastern Europe and Central Asia will rely extensively on productivity growth, with labor supply growth either stagnant or in decline.

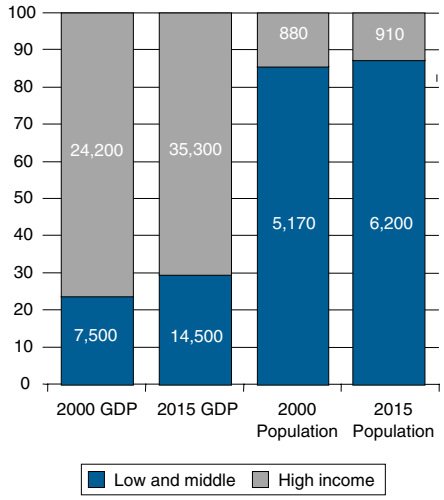
While *the Middle East and North Africa* would improve rates of per capita growth relative to the historic period, growth under this baseline scenario is likely to make only modest impact on achieving the International Development Goals (IDG). Consistent with relatively high population growth rates, growth in the Middle East and North Africa will be accounted for by labor supply growth—between 25 and 40 percent. Productivity growth will have to be fairly sustained—between 35 and 60 percent of total growth—to achieve the IDG GDP targets.

The external environment is likely to be supportive. Even though today's environment is exceptionally weak, new technologies and further economic integration could indeed produce higher productivity-led per capita growth in high-income countries of 2.5 percent versus 1.8 percent during the 1990s. The *U.S. economy* is expected to recover to a long-term trend that is somewhat higher than in the medium-term forecast because of the effects of technology-driven productivity growth. *Europe*, with a lower initial level of integration, has somewhat greater scope for productivity improvements as it adopts new technology and becomes more integrated. *Japan* is expected to emerge from its current restructuring with a more efficient system of allocating capital, and this will allow it to regain a degree of growth momentum, even though its aging population profile adds more drag to its growth. If this scenario for the industrial countries is realized, capital flows to developing countries could well resume within the context of a high productivity, low inflation, low interest rate environment.

Between 2000 and 2015 world income would, according to the scenario, expand by 60 percent—some $18 trillion (in 1997 dollars) (figure 1.18). Income in the low- and middle-income countries would almost double, and account for over 37 percent of the increase in world output. Over 1 billion persons will be added to world population, reaching some 7.1 billion. Over 97 percent of the pop-

Figure 1.18 Income and population shares

(income in billions of 1997 dollars using market exchange rates, population in millions—percent)



Source: Economic Policy and Prospects Group and World Bank Data and Projections (Population).

ulation increase will occur in low- and middle-income countries, with the high-income countries expected to add only around 30 million persons in total.[12]

Poverty trends

Growth will substantially reduce the number of people living in poverty. With base case growth, the total number of destitute poor, living on less than $1 per day, would decline to about 750 million persons in 2015, down from 1.15 billion in 1999 (table 1.8). The number of people living on $2 per day or less would decline by 600 million, from 2.8 billion to 2.2 billion. While this rate of poverty reduction would be sufficiently robust to achieve the target of reducing poverty by one-half in 2015,[13] not all regions would succeed. Sub-Saharan Africa would be far from reaching the goal even under this favorable growth scenario. Moreover, should growth in developing countries turn out to be less than the 3.6 percent per capita of the baseline scenario, the world as a whole would not reach the target.

Nonetheless, these projections would continue the reduction of the number of people living in poverty that began roughly about 1980. Up through the 1970's, long-term increases in population swamped the growth effects in the global economy and the number of people living below $1 day increased (figure 1.19).[14] However, since 1980 faster growth, particularly in China and South Asia, has contributed for the first time in recent history to a steady decline in the number living in destitute poverty. These new projections confirm that trend.

The new projections represent slight reductions in out-year poverty relative to last year's forecast. The changes largely reflect updated information on poverty and income distribu-

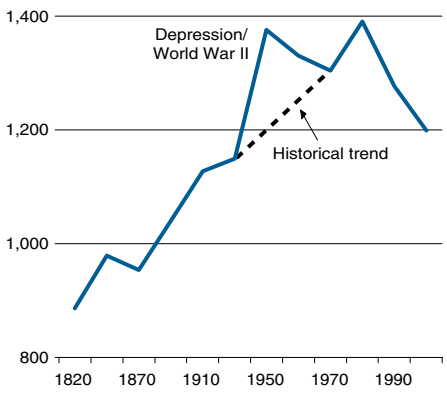
Table 1.8 Regional breakdown of poverty in developing countries

	Number of people living on less than $1 per day (millions)			Number of people living on less than $2 per day (millions)		
Region	1990	1999	2015	1990	1999	2015
East Asia and Pacific	452	260	59	1,084	849	284
Excluding China	92	46	6	285	236	93
Europe and Central Asia	7	17	4	44	91	42
Latin America and the Caribbean	74	77	60	167	168	146
Middle East and North Africa	6	7	6	59	87	65
South Asia	495	490	279	976	1,098	1,098
Sub-Saharan Africa	242	300	345	388	484	597
Total	1,276	1,151	753	2,718	2,777	2,230
Excluding China	916	936	700	1,919	2,164	2,040
	Head count index (percent)			Head count index (percent)		
Region	1990	1999	2015	1990	1999	2015
East Asia and Pacific	27.6	14.2	2.8	66.1	46.2	13.5
Excluding China	18.5	7.9	0.9	57.3	40.4	13.3
Europe and Central Asia	1.6	3.6	0.8	9.6	19.3	8.7
Latin America and the Caribbean	16.8	15.1	9.7	38.1	33.1	23.4
Middle East and North Africa	2.4	2.3	1.5	24.8	29.9	16.7
South Asia	44.0	36.9	16.7	86.8	82.6	65.5
Sub-Saharan Africa	47.7	46.7	39.3	76.4	75.3	68.0
Total	29.0	22.7	12.3	61.7	54.7	36.3
Excluding China	28.1	24.5	14.8	58.8	56.5	43.0

Source: World Bank staff estimates.

Figure 1.19 World poverty, 1820–1998

(Number of people living on less than $1 day, millions)



Source: Dollar (2001), Bourguignon and Morrisson (2001), and Chen and Ravallion (2000).

tion in several countries. The downward revision in out-year poverty is despite the adverse effect on poverty of somewhat lower long-term growth projections—the key economic determinant of poverty reduction. As discussed earlier in this chapter, the downgrading of the economic growth forecast reflects the effects of lower growth in 2001 and 2002, as well as minor revisions in long-term prospects for some countries.[15]

There are three factors influencing the current poverty forecast, reflecting updated information:

- The current forecast incorporates 31 new household surveys leading to a reduction in the assessment of the base-year level of poverty, with South Asia accounting for the greatest reduction, somewhat offset by higher poverty levels in Latin America and the Caribbean.
- Overall projected population growth in developing countries is slower, in large part due to the impacts of HIV/AIDS. This tragic epidemic particularly affects population growth in Sub Saharan Africa, which accounts for a significant part of the reduction in this year's poverty forecast.
- Revisions to the estimates of the relationship between economic growth and poverty reduction based on the new surveys, suggesting a stronger positive effect of growth on poverty reduction in several countries.[16]

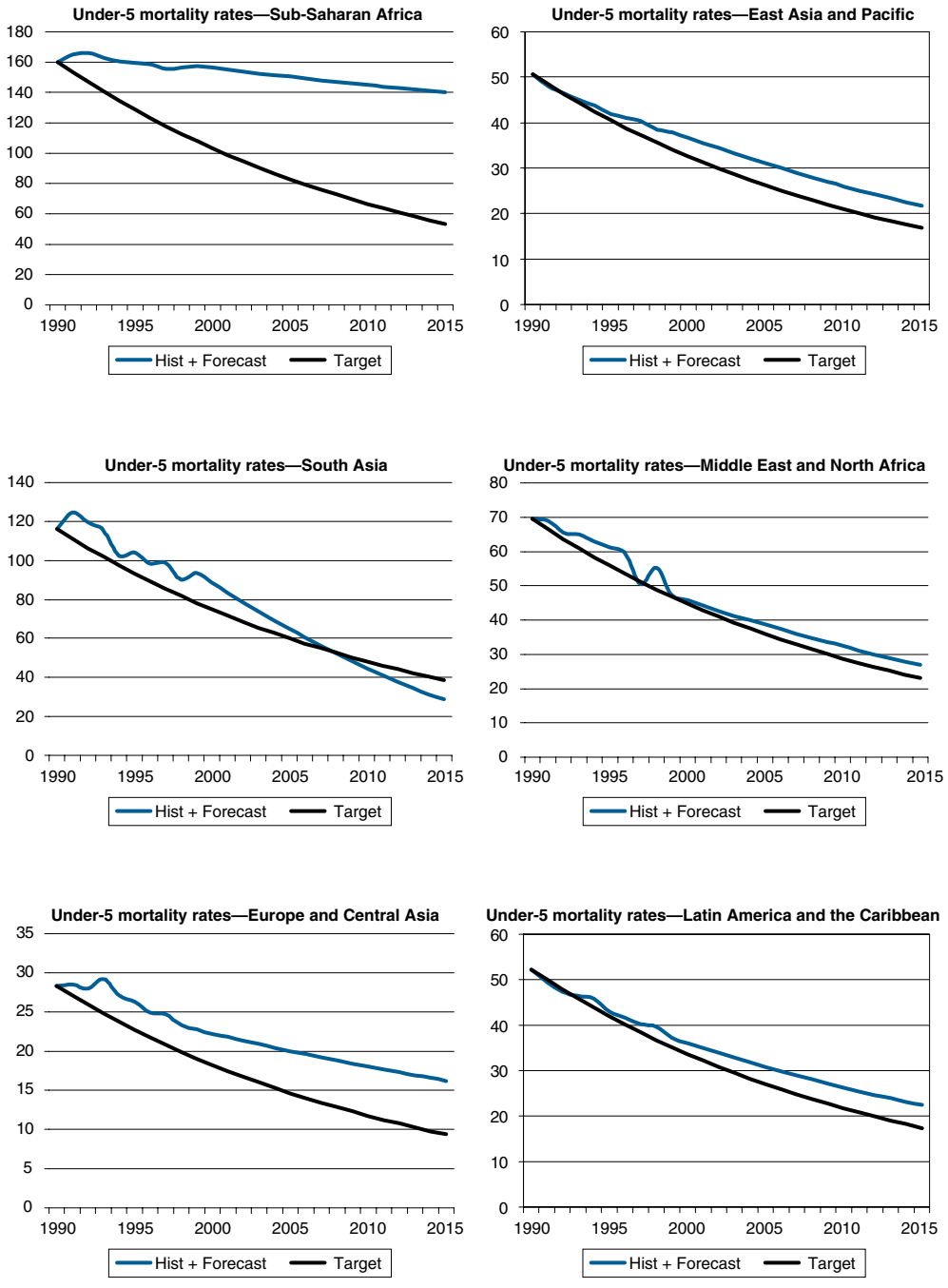
The long-term projection underscores the importance of achieving fast growth and distributing the benefits of growth equitably. Even under this scenario, the harsh reality is that over 2.2 billion persons will be living below the $2 per day income level in the year 2015—some 36 percent of developing country population. Without macroeconomic stability, improved governance and sustained structural reforms, including for example, improvements in the provision of public services and infrastructure, as well as enhancing the participation of the poor in growth, the pattern of growth that underlies the baseline scenario will not be realized, and millions more people will remain in poverty.

A faster rate of growth is possible. This report explores the potential for more rapid growth associated with an acceleration of global integration. Reducing barriers to trade in merchandise and services can accelerate growth if adequately supported by domestic policies and development assistance. These policies and their consequences, the focus of this report, are analyzed further in Chapter 6.

Under-5 mortality

One of the most important international development goals for 2015 concerns infant and child mortality. Are these goals likely to be achieved under the scenario of growth and rising incomes? To project under-5 mortality, we link long-term growth and urbanization, shown to be effective predictors of child and maternal health status and expected outcomes in under-5 mortality.[17] Figure 1.20 presents the baseline forecast and compares it with the official IDG target. The only region with a forecast achieving the goal is South Asia (SAS). Three of the other regions are likely within range of achieving the target: East Asia (EAP), Middle East and North Africa (MNA), and

Figure 1.20 Under-5 mortality—hopes and aspirations



Source: Economic Policy and Prospects Group; World Bank/Latin America Region staff.

Latin America (LAC). Europe and Central Asia (ECA) is not likely to achieve its target based on this scenario. And Sub-Saharan Africa (SSA) is well off the target path. SSA has already deviated significantly over the last decade, and the current forecast foresees little closing of the gap.

Conclusions

Both the short-term outlook and the long-term analysis underscore the importance of realizing accelerating growth. One way to create incentives to grow is for developing countries to deepen their participation in the global economy. And that is the subject of the remainder of this report.

Notes

1. Japan Financial Services Agency, January 2001, and *Japanese Banks 2000*, Japanese Bankers Association.

2. Source for data is U.S. Treasury. It should be noted that the United Kingdom accounts for about 50 percent of portfolio investment flows, channeling European and well as developing country and offshore funds into U.S. assets.

3. For example, major shipping lines increased freight rates to South Asia by 10 to 15 percent.

4. Notably, the share of U.S. export value shipped by air has risen from 25 percent a decade ago to 40 percent in 2001, with 75 percent of total high-tech exports moving by air.

5. For example, around 65 percent of holidays booked for the Caribbean had been canceled in the weeks after the attack.

6. For example, the Brazilian *real* depreciated 27 percent relative to the dollar in the first half of 2001, contributing to the 12.9 percent decline in soybean prices and 11.6 percent drop in vegetable oil prices in the same period. Indonesia's currency depreciated 21 percent (from December to April), which pushed dollar prices for palm oil and natural rubber down. Thailand, the world's largest rice exporter, had a year-to-date currency depreciation of 8 percent, contributing to a 9 percent decline in rice prices.

7. In the U.S. Pacific Northwest, 1.6 million tons of aluminum capacity has been closed—equivalent to 7 percent of world capacity—because of the electricity crisis in California.

8. Support for eastward expansion of the EU has waned markedly in existing member countries, a trend that was highlighted most recently by Ireland's "no" vote on the Treaty of Nice (which makes changes to the voting structure of the EU to accommodate a larger membership).

9. The main strategy in developing the baseline scenario is that GDP growth rates are given and the model solves endogenously for a technology parameter consistent with the GDP target. The following assumptions underlie the base-case scenario. The baseline assumes that population and labor supply growth is exogenous. The latter is proxied by the growth of the population aged between 15 and 65 years, and implicitly assumes that participation rates are constant. Agricultural productivity is fixed at 2.5 percent per year. Manufacturing productivity is assumed to be 2 percentage points greater than services productivity. International transportation margins decline by 1 percent per year in the baseline. Income elasticities are fixed at base year levels. This involves recalibrating the parameters of the consumer demand system between solution periods. Capital accumulation is modeled as the previous period's depreciated capital stock augmented by the previous period's level of investment (including net foreign investment). The model tracks capital vintages with substitution elasticities, typically lower for installed capital than for new capital. Countries with higher rates of investment will exhibit more flexibility over time. Foreign capital flows are fixed at base year levels (ensuring at least their sustainability). Fiscal policies are unchanged at their base year levels, except for direct taxation that adjusts to target a given fiscal deficit.

10. This is distinct from a forecast in the sense that unforeseeable positive or negative shocks—from technology, politics, or other sources—are virtually certain to occur, and will push up or down actual performance, especially at the regional level.

11. While one of the key outcomes of the baseline scenario is the endogenously determined productivity, many other variables of interest are generated endogenously in the baseline—relative factor prices, real exchange rates, terms of trade, bilateral trade flows, and the composition of demand and output.

12. The above analysis provides a framework for assessing the world distribution of income and rates of conversion, but says nothing about how this outcome is achieved or what policies are needed to help bring about these outcomes or even improve them. The analysis relies to a large extent on an applied general equilibrium model of the global economy. The model reflects key facets of economic theory—the most important being that supply equals demand. This framework ensures that all economic flows are fully consistent—at the individual, national, and global level. The model abstracts from some real world phenomenon, notably international financial flows are not modeled

explicitly, allowing differential rates of return across nations. Nor are there linkages between monetary phenomena and the real economy, for instance, when the model exhibits super-neutrality.

13. Reducing poverty by one-half in 2015 (compared with the 1990 level) is one of the key development goals (see for example http://www.paris21.org/betterworld).

14. Historical discussion based on David Dollar (2001), Bourguignon and Morrisson (2001) and Chen and Ravallion (2000).

15. The long-term per-capita consumption growth forecast for developing countries has dropped from 3.5 percent to 3.4 percent (average per cent change per annum), though with variation across regions.

16. The household surveys and national income accounts on which forecasts are predicated are undergoing continual review and methodological changes, especially for large countries, which can have important effects on overall poverty assessments. For example, the poverty levels for India may well be revised downward even further next year, once the new household survey has been thoroughly evaluated in conjunction with national authorities.

17. This is based on the pioneering work initiated by Quentin Wodon of the World Bank's Latin American Region. We link long-term GDP forecasts to econometrically estimated relations with selected International Development Goals (IDGs). The work undertaken in the Latin American Region has used panel estimation techniques to fit a relation between the IDGs and GDP and the rate of urbanization, two important determinants of health access. In order to allow for varying elasticities (with respect to income and urbanization levels), the LAC estimation procedure used spliced data. The forecast presented here uses a logistic function that has continuously variable elasticities (although with constant signs). The estimation procedure is based on pooled data on a regional level. It is assumed that the relation between per capita GDP growth and the rate of urbanization is uniform across countries within a region, although the elasticities themselves will be country-specific and related to the level of economic development.

References

Bourguignon, François and Christian Morrisson. 2001. "Inequality among World Citizens: 1820–1992." DELTA, Paris. Processed. (Available at http://www.delta.ens.fr/XIX/paper WD19.pdf).

Chen, Shaohua and M. Ravallion. 2000. "How did the World's Poorest Fare in the 1990s?" *World Bank Policy Department Working Paper* No. 2409. August. Washington, D.C.

Deaton, Angus, and R. Miller. 1996. "International Commodity Prices, Macroeconomic Performance and Politics in Sub-Saharan Africa." *Journal of African Economies* 5: 99–191.

Dollar, David. 2001. "Globalization, Inequality, and Poverty since 1980". Processed. Development Research Group, The World Bank, Washington, DC.

Hoshi, Takeo. "What Happened to Japanese Banks?" *Monetary and Economic Studies,* Institute for Monetary and Economic Studies, The Bank of Japan Discussion Paper Series No. 2000-E7:1–50, March 2001. Tokyo.

Kose, M. Ayan, and R. Riezman. 2000. "Trade Shocks and Macroeconomic Fluctuations in Africa." *Journal of Development Economics* 65: 55–80.

Kouparitsas, Michael A. 1996. "North South Business Cycles." Federal Reserve Bank of Chicago Working paper WP-96–9.

Mori, Naruki, S. Shiratsuka, and H. Taghuchi. 2001. "Policy Responses to the Post-Bubble Adjustments in Japan: A Tentative Review." *Monetary and Economic Studies* (Special Edition), February 2001. Institute for Monetary and Economic Studies, the Bank of Japan, Tokyo.

World Bank. 1997. *China Engaged: Integration with the Global Economy.* World Bank, Wash. DC.

———. 2001. *Global Development Finance 2001.* World Bank WDC.

2

Market Access and the World's Poor

With the conclusion of the Uruguay Round and a wave of unilateral reforms, barriers to trade have fallen substantially around the globe, spurring the growth of world trade. Developing countries as a whole gained significant market share—about 7 percent—in world nonenergy merchandise trade, thanks mainly to ambitious domestic policy reforms in the 1990s.

Global protection hits the poor hardest

However, progress in lowering barriers has lagged in two of the sectors with both the highest protection and with the greatest impact on poverty—agriculture and labor-intensive manufactures (such as textiles and clothing). Agriculture and other labor-intensive products matter to the world's poor because they represent more than half of low-income countries' exports, and about 70 percent of least-developed countries' export revenues.

Developing countries themselves are part of the problem. Although South-South trade is a much smaller share of total trade, average tariffs in manufactures are three times higher for trade among developing countries than for exports to high-income countries. Taken together and because of high protection for labor-intensive products around the globe, the world's poor face tariffs that are, on average, roughly twice as high as those imposed on the nonpoor.

Protection that affects the poor takes several forms, including tariff peaks, quotas for textiles and clothing, tariff escalation, and agricultural subsidies in high-income countries. In textiles and clothing, the opening of markets has been slow, because the implementation of the World Trade Organization (WTO) agreement allows importers the leeway to select the products to be freed of quota restrictions. Thus despite progress made by the agreement, foregone export earnings for developing countries are sizeable. And due to still-high tariffs, market access will remain restricted even after the quotas have been abolished in 2005.

A "development round" would help—

These issues provide fertile areas where reciprocal negotiations in a "development round" could provide substantial benefits for development. Open trade in agriculture and labor-intensive manufactures would raise incomes among the world's poor.

—but effectiveness requires cooperative policies to complement negotiations

Global cooperation beyond negotiations could also expand trade. For example, most preferential access schemes to high-income countries' markets only partly breach the walls of protection. Their limited coverage and various other impediments to trade undermine their otherwise positive effects. The recent European Union's "Everything But Arms" initiative mitigates these problems by removing barriers on exports from least-developed countries. Extension of this initiative to the United States, Japan, Canada, and other higher-income countries would greatly stimulate the exports and growth of the least-developed countries.

Beyond these, "aid for trade" can help countries take advantage of new market openings. Providing assistance for countries to implementing WTO-sponsored reforms, designing programs that protect the poor during reform, and upgrading work skills will help ensure that trade benefits the poor. Moreover, domestic reforms and assistance to improve backbone services—such as transport, finance, and communications—can better link the poor to the global marketplace.

A changing landscape of merchandise trade

The 1990s witnessed a boom in world trade, with an average annual increase of 6.3 percent in the volume of global merchandise trade (1990–99)—outpacing global gross domestic product (GDP) growth by an average 4.2 percent per year over the same time period. Exports grew faster than output in every major region.

Developing countries gained market share in world merchandise trade—

The share of developing countries in global export markets rose by almost 7 percentage points, to about 25 percent of world nonenergy merchandise trade, primarily on the strength of superior performance in manufacturing (figure 2.1). However the details behind these headlines reveal divergent trends—with some sectors and some countries enjoying exceptional growth, while others remained almost stagnant.

—but poor countries remained on the sidelines, dependent on slow growing commodities and labor intensive manufactures

Developing countries as a whole improved their penetration of world markets, but the export share of the 49 least-developed countries (LDCs) shrank from 3 percent in the 1950s to around 0.5 percent in the early 1980s, and has hovered around this very low rate over the last two decades (UNCTAD 2001). The least-developed countries continue to be dependent on agriculture and labor-intensive manufactures, which together account for about 70 percent of LDC exports.

The expansion of trade volumes in these sectors did not keep pace with world trade growth, which has undermined the growth prospects of the LDCs and hindered the battle to reduce poverty. South-South trade represents about 30 percent of low-income countries' nonenergy merchandise exports, and is more important than for middle-income countries. Exports of low-income countries to other developing countries increased rapidly, especially in agriculture. In labor-intensive manufactures, South-South trade is far more important in textiles than it is in clothing, footwear, and leather, both for low-income and for middle-income countries.

Moreover across products, the increase in developing countries' exports was uneven. In labor-intensive manufactures, developing countries' market share increased sharply and now surpasses that of high-income countries. By contrast, in agriculture, another labor-intensive sector, developing countries' market share rose more modestly. This rise in market share was driven by South-South trade, with about one-third of all developing countries' agricultural exports now directed to other developing countries—up from just about 20 percent in the early 1990s. The slow increase of developing countries' share in world agricultural exports partly reflects developing countries' export diversification out of agriculture, and partly reflects surplus production from high-income countries.

Exports of the poorest countries are even more concentrated in agriculture and labor-intensive manufactures. Sub-Saharan African agricultural products provide about 60 percent of export revenues, with little contribution from manufactures.[1]

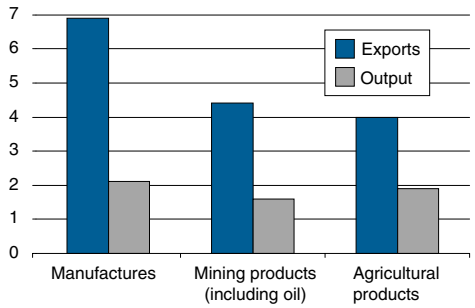
Labor-intensive exports can spur pro-poor growth

In developing countries—in particular the poorest where inexpensive labor is plentiful—

Figure 2.1 Changing global trade patterns

Export growth outpaced growth of output everywhere—

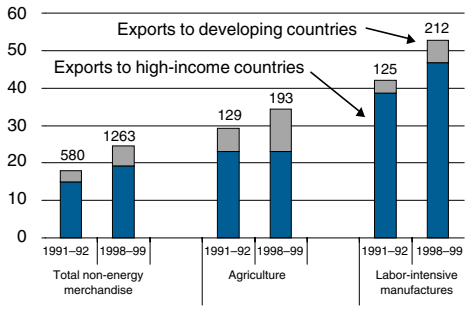
Average annual growth in volume terms, 1990–99, in percent



Source: World Bank staff calculations, based on WTO data.

—and developing countries increased their share in the global market

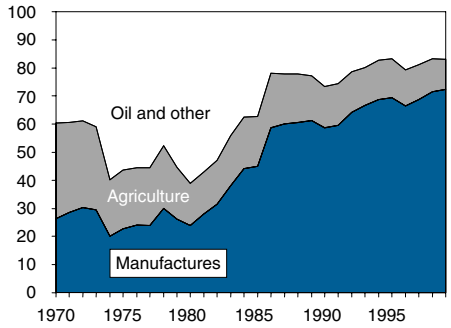
In percent of world exports for each product group (left axis)
In US$ billion (over bars)



Source: World Bank staff calculations, based on U.N. Comtrade.

Manufactured exports have boomed—

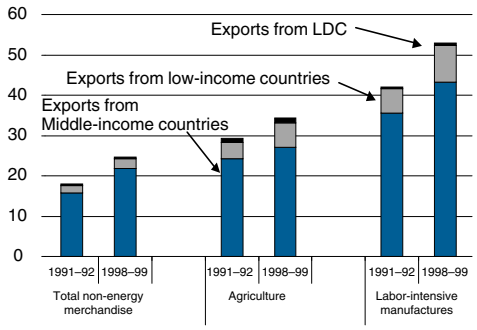
Percent of developing countries' exports



Source: World Bank staff calculations.

—but poor countries did less well

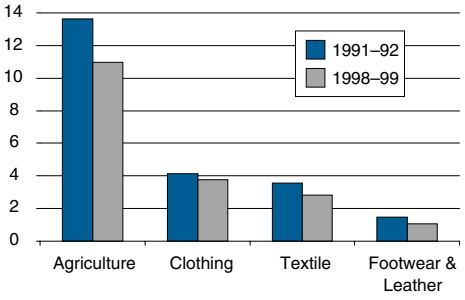
In percent of world exports for each product group



Source: World Bank staff calculations.

The shares of labor-intensive products in world exports declined—

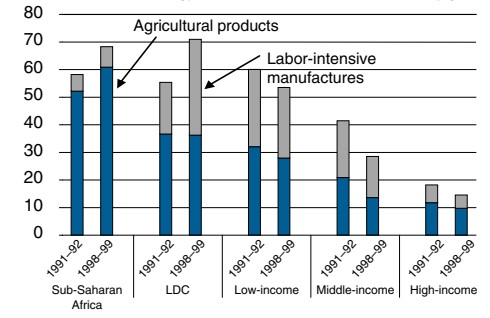
In percent of world nonenergy merchandise exports



Source: World Bank staff calculations, based on U.N. Comtrade.

—and poor countries remain dependent on these sectors

In percent of total nonenergy merchandise exports for each country group



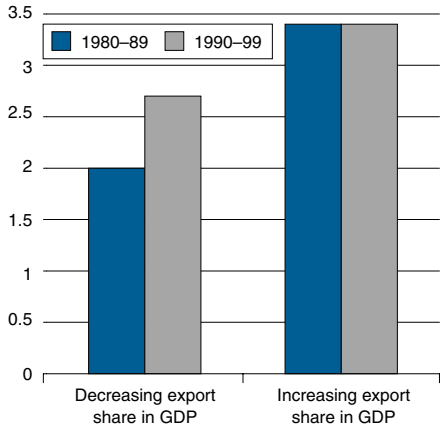
Source: World Bank staff calculations, based on U.N. Comtrade.

export-led growth can accelerate the reduction of poverty. Faster export growth can boost income growth of the poor, first, by stimulating overall economic growth. On average, every additional percentage point of growth in household consumption reduces the number of people living on less than $1 a day by an estimated 2 percent (World Bank 2000a). And among all developing countries, successful integrating countries—the top third of developing countries ranked by an increase in trade-GDP ratios—grew faster (Dollar forthcoming). During each of the past two decades, the developing countries that have had fast export growth—leading to an increase in the share of nonenergy merchandise exports in GDP—have also had, on average, 1 percent higher real GDP growth (figure 2.2).

But if growth is necessary to reduce poverty, the pattern of growth also matters. Export-led growth can reduce poverty more directly when it fosters employment in labor-intensive sectors where the poor have a stake. Capital-intensive and import-substituting growth has generally not been effective in alleviating poverty; agricultural growth, where there is a low concentration of land ownership and labor-intensive technologies are used, has almost always helped to alleviate poverty (Gaiha 1993; Datt and Ravallion 1998). Exports of textiles and clothing have also spurred labor-intensive growth in manufacturing, contributing to the reduction of urban poverty, especially among women.

Figure 2.2 A rising share of exports in GDP is associated with faster growth

Average real GDP growth per year, percent



Note: Sample includes only developing countries. Exports refer to nonenergy merchandise exports. Data from national accounts in constant 1995 dollars. Number of countries with increasing (decreasing) export share in GDP: 1980–89: 23 (63), 1990–99: 57 (29).

Source: World Bank staff calculations.

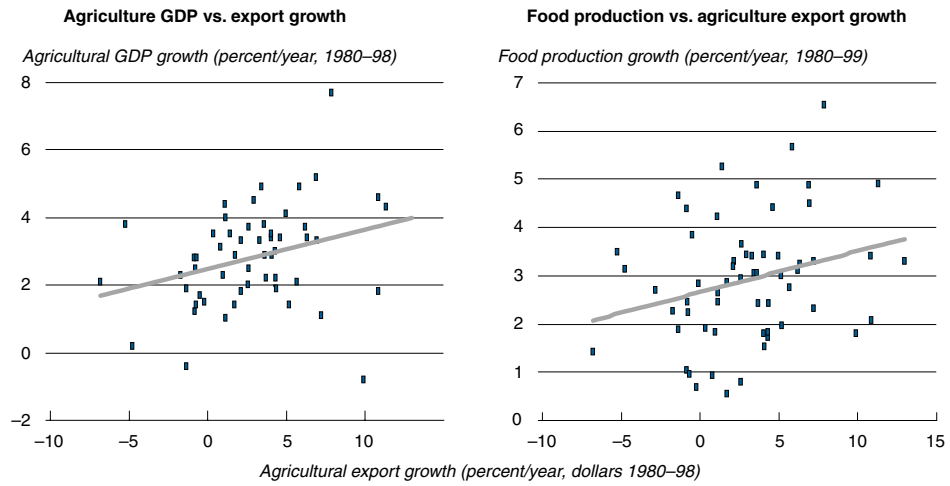
—Agricultural exports can reduce rural poverty

Rural poverty accounts for nearly 63 percent of poverty worldwide, reaching 90 percent in China and Bangladesh, and between 65 and 90 percent in Sub-Saharan Africa (Khan 2000). Developing countries that have had more rapid agricultural export growth have also tended to have more rapid growth of agricultural GDP (figure 2.3). Thus increased agricultural exports contribute to increased agricultural income growth and reduced rural poverty.

The effects of trade growth on poverty would be muted if exports expanded *at the expense* of domestic food production. But in most cases, increased exports of nonfood agricultural commodities (such as coffee, cocoa, or cotton) provided hard currency to purchase inputs for food crop production, which boosts overall agricultural growth. In Vietnam, for example, nonfood crop production and U.S. dollar exports (primarily coffee) rose by about 15 percent per year from 1990 to 1998, following economic reforms. This boosted fertilizer use and contributed to a nearly 50 percent rise in food crop production over the same period. Agricultural GDP grew by 4.6 percent per year, and rural poverty fell to 45 percent in 1998—down from 66 percent in 1993 (World Bank 2000b).

In Uganda, nonfood crop production surged following marketing liberalization in the early 1990s. This surge was followed by a tripling of fertilizer use and a rise in food crop production. Thus, increased exports (primarily coffee) boosted agricultural GDP growth

Figure 2.3 Increases in exports and agricultural production go hand-in-hand



Source: World Bank staff calculations, based on FAO data.

to about 4.4 percent per year, and eventually contributed to increased exports of other crops, creating a virtuous circle in agriculture. Rural poverty fell from 60 percent in 1992 to 39 percent in 2000, and among the poorest quintile of population primary school enrollment rose from 51 percent to 69 percent in the same period (World Bank 2001a).

Cross-country comparisons confirm that increases in agricultural exports rarely occur at the expense of food crop production. Rather than competing for scarce resources, the two are positively correlated at the national level (figure 2.3). Thus increased agricultural exports and increased food production are a win-win combination for developing countries.

Exports of textiles and clothing tend to reduce urban poverty—

Many developing countries have become major exporters of textiles and clothing (T&C), but others, especially in Sub-Saharan Africa, have yet to take advantage of this card. Low-cost labor and a competitive exchange rate are two important enablers of T&C exports. Institutional arrangements that give duty-free and efficient access to inputs and foreign investors are no less important. Most success stories among developing countries confirm that booming exports of textiles and clothing fostered broad output growth (table 2.1).

Increased T&C exports are associated with growth of local manufacturing, through demand linkages and increased purchasing power among workers. In all successful textile exporters the share of private investment in GDP considerably increased during export booms. However, to benefit from backward linkages, the domestic suppliers of the T&C industry must be competitive and responsive.[2] For example, Pakistan seems to be a case of low industrial linkages and spillovers, as the increase in the share of manufacturing value added in GDP was just about the same as that of the T&C industry. Pakistan remained focused on protective policies to boost the cotton-processing sector on the back of abundant domestic cotton production (including, for example, export controls on cotton), rather than relying on globally integrated production

Table 2.1 Major export booms in textiles and clothing and effects on economic performance and poverty

		Bangladesh[1]		Madagascar		Mauritius		Pakistan		Tunisia	
Period		1975–80	1980–95	1992–95	1996–99	1980–85	1986–92	1980–85	1986–90	1980–86	1987–93
Share of T&C in exports (%)		0.2	39.3	7.7	19.1	27.7	47.8	36.5	53.7	19.3	34.7
Real GDP growth per year (%)		3.3	4.7	1.2	3.6	2.2	7.4	7.4	6.0	3.9	4.3
Share of manufacturing value added in GDP (%)		16	16.4	14.3	15.0	16.9	23.9	15.6	16.9	13.5	16.6
Poverty rate[2]	Total Head Count	58.5	53.1	60.2	—	19.5	10.6	49.6	33.9	19.9	14.1
	Urban Head Count	50.2	35.0	—	—	—	—	38.2	28.0	12.0	8.9

Note: [1]Exports of clothing. [2]According to the national definition–end of period. For each country, the second column, indicates T&C export booms.
Source: World Bank staff calculations.

using best-available materials. By contrast, in Mauritius and Tunisia, T&C export growth was accompanied by broad manufacturing growth.

Growth in textiles and clothing also bolsters employment and real wages. In Mauritius, growing T&C exports had a tremendous impact on unemployment, which was at 14 percent before the export boom and was virtually absorbed by 1992. Eventually the shortage of labor became a constraint on the expansion of output, bringing about a nearly 50 percent wage increase. Part of Mauritius' T&C production moved thus to Madagascar.

Because of faster employment and wage growth for low-skilled workers in all countries with T&C export booms, poverty declined significantly (table 2.1). As T&C manufacturing is typically concentrated in urban areas, urban poverty was more drastically reduced. In Bangladesh, one of the poorest countries with overwhelming rural population, total poverty declined slowly; however during the export boom in clothing, urban poverty dropped by almost one-third (World Bank 1999b). Thus to effectively contribute to the reduction of poverty, trade liberalization in agriculture and labor-intensive manufactures must go hand in hand.

—but trade liberalization affects the poor in various ways

Domestic trade policy reform lays the groundwork for better use of productive resources to improve export performance. Poor workers and farmers will benefit from domestic trade policy reform, thanks to faster export growth, increased demand for their labor, and higher wages and producer prices. But trade liberalization can also affect the poor in the short term in complex ways that depend on country circumstances (see Winters 2000). These effects are difficult to track because trade policy reform is often undertaken in tandem with other major reforms that may also affect the poor—such as labor market reform, product market deregulation, or public enterprise reform.

Trade policy does have important short-term effects on the poor through three channels. Trade policy reform will, first, affect the poor by changing the prices of their consumption basket. Trade liberalization will shift relative prices, eventually increasing the prices of traded relative to nontraded goods and reducing the prices of imported relative to locally produced goods.

The overall impact on the poor through the price channel depends both on the composition of their consumption and on other reforms that may concurrently affect prices (such as the phasing out of subsidies and price controls). On balance, in net food exporting countries, while poor farmers may gain from higher producer prices, poor urban dwellers may suffer from higher food prices. In Ghana for example, while the rural sector gained from the reform and overall poverty was substantially reduced, living standards in Accra deteriorated in

1988–92. By contrast, in net food importing countries, poor consumers may benefit from lower domestic prices of imported food. Experience from Haiti illustrates the complex impact of trade liberalization on the poor (box 2.1).

Second, wages and employment may not always change as expected, depending on the pre-reform structure of protection. If for example, the protected sectors employ many of the poor, they may suffer in the transition to an open trade regime. This is more likely in middle-income countries, where sectors intensive in unskilled labor are often protected as they face stiff competition from low-cost producers (Davis 1996; Wood 1997). For example, in Mexico, a country that implemented an ambitious trade policy reform program from 1985 to 1988, the nominal tariff and import license coverage in apparel and footwear was among the highest in manufacturing (Revenga 1995). A similar pre-reform pattern of protection was also found in Morocco (Currie and Harrison 1997). A more common pattern is that the politically connected sectors that receive the most protection are the ones employing workers with higher wages.

A third channel is through the effects of government taxing and spending. Institutional disruptions can mitigate the benefits of trade liberalization for the poor. The abolition of the marketing boards for export crops sometimes led to abandoning key services that they often provided—such as research, quality monitoring, maintenance of rural roads, and credit to small farmers (Winters 2000; World Bank 2000a). In Zambia, for example, the abolition of the marketing board led to abandoning the purchase of maize in remote areas. There is also concern that, in the absence of reforms to broaden the tax base, reduced government rev-

Box 2.1 The aftermath of trade liberalization in agriculture: lessons from Haiti

The bold steps to liberalize trade in Haiti beginning in 1986 that continued throughout the 1990s have not produced rising incomes or reductions in poverty. Today with per capita income of less than $500 and about two-thirds of the people living in rural areas, and more than 80 percent of the rural population living below the poverty line, Haiti remains the poorest country in the Western Hemisphere.

Prior to trade liberalization, the agricultural sector of Haiti was highly protected through tariffs (40 to 50 percent) and subject to many nontariff barriers and import prohibitions. Reforms brought down tariffs on rice, an important food staple, to 3 percent. The real price of rice to consumers was reduced by 50 percent and imports of rice jumped from zero to about half of domestic demand. Domestic rice production also fell—by more than 40 percent compared with the 1985–90 levels.

Does this mean that the poor suffered from the trade reform as some have contended (Oxfam International 2001)? Not necessarily. To be sure, some poor, small farmers were forced out of rice production. On the other hand, many urban and rural poor were better off, because most of Haiti's poor were not producers of rice, but rather consumers who had been paying a high tax on a very basic food staple, curtailing their rice consumption. When rice became more affordable, national consumption doubled, and most of the poor were better off.

Yet this is only part of a story that does not have a happy ending. Severe governance problems eroded macroeconomic stability, discouraged investment, and undermined the capacity of the government to provide meaningful assistance for the poor, much less build infrastructure and institutions to support and sustain trade capacity. The eventual virtual collapse of the state has left Haiti mired in poverty. This underscores the lesson that trade policy cannot substitute for good governance and a pro-poor development strategy.

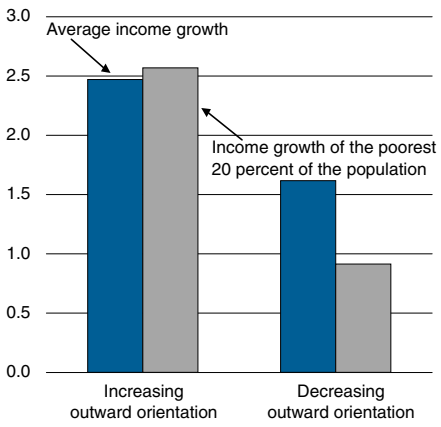
Source: Oxfam International 2001; IMF Staff Reports for the 1999 and 2000 Article IV Consultations; World Bank staff.

enues from trade-related taxes may trigger a decrease in social expenditures targeted for the poor. For example, Tanzania trade policy reform in the mid-1980s shifted income toward the largely untaxed small farmers, small enterprises, and the informal sector, thus reducing the domestic tax ratio (Kanaan 2000).

In sum the evidence is clearer on the long-term consequences for the poor: on average, in countries where outward orientation has increased, income growth of the poor has kept pace with mean income growth (figure 2.4).[3] And on average, globalizers have grown faster, thus witnessing accelerated reduction of poverty. By contrast, countries where outward orientation has decreased have seen slower growth, and the poor in those countries have also fallen behind. Nonetheless the transition to these higher growth rates can take time and reform can impose short-term costs on the poor in some countries. Hence, governments have to design trade reforms carefully, provide adequate social protection, and ensure maximum access to retraining opportunities.

Figure 2.4 In globalizing economies the poor participate in stronger growth

Percent of change per year



Note: Sample includes 129 time periods, based on developing countries' household surveys. Outward orientation is measured by the share of trade flows (the sum of exports and imports) in GDP. Periods of increasing outward orientation are those when the share of trade flows in GDP increases by at least 0.5 percentage points per year.

Source: World Bank staff calculations.

Market access barriers limit export opportunities of developing countries

The Uruguay round of trade negotiations made a significant contribution toward lowering global barriers to merchandise trade on two fronts: improving market access, thanks to the reduction of tariffs and quantitative restrictions on a number of products; and extending multilateral disciplines to previously excluded sectors—particularly agriculture, textiles, and clothing. As a result of multilateral trade negotiations and unilateral reforms, average tariff rates have been halved—although they still remain high in South Asia and in the Middle East and North Africa (figure 2.5).[4] Progress in lowering tariff barriers has been particularly important for more skill-intensive manufactures, on which an increasing number of developing countries in East Asia, Eastern Europe and Central Asia, and Latin America rely for exports. For example, the largely duty-free trade in information technology products that came into force with the "Information Technology Agreement" of the Uruguay Round strongly boosted South-North trade in the information and communications technology sector.

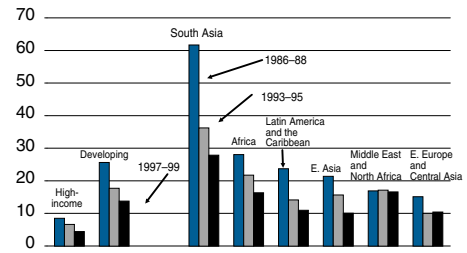
Tariff walls are high, especially in labor-intensive products

However despite progress, labor-intensive products still remain extensively protected. Tariff protection for agricultural commodities is higher than for manufactures, both in industrial and in developing countries. But in high-income countries the average tariff rate on agriculture is almost double the tariff for manufactures. Applied tariffs on labor-intensive manufactures also largely surpass the average for industrial goods. Compared to industrial products as a whole, labor-intensive manufactures are again more protected in high-income than in developing countries, by an estimated one-third.

Figure 2.5 Tariffs still impede trade

In a decade, average tariffs have been almost halved—

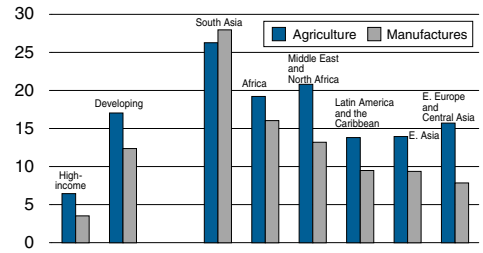
Average MFN tariffs (unweighted in percent)



Source: World Bank, based on WTO data.

—but tariff protection in agriculture is higher than in manufactures.

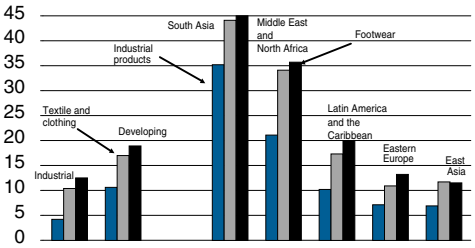
Average MFN tariffs in 1997–99 (unweighted in percent)



Source: World Bank.

Labor-intensive manufacturers are also sheltered—

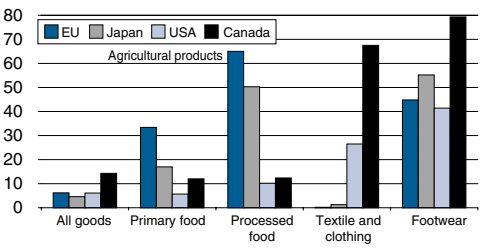
Average MFN tariffs in 1997–99 (unweighted, in percent)



Source: World Bank staff estimates, based on WTO data.

—as widespread tariff peaks shelter agriculture and labor-intensive manufactures in the Quad

MFN tariff lines in tariff peak (in percent for each product group; 1999)

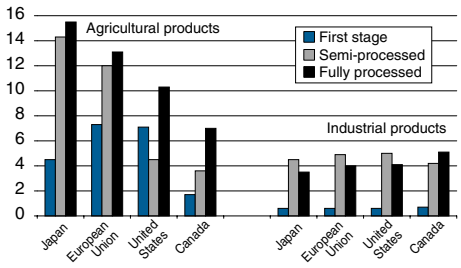


Note: Tariff peaks are defined as tariffs greater than 15 percent.

Source: World Bank, based on OECD tariff files.

Tariffs escalate steeply in the Quad—especially in agriculture—

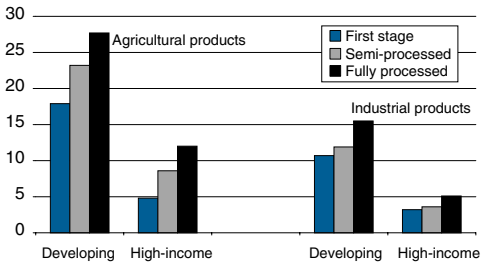
Average unweighted tariffs in percent (1998–99)



Source: World Bank, based on WTO data.

—but tariff escalation is also common in developing countries

Average unweighted tariffs in percent (1998–99)



Source: World Bank, based on WTO data.

Trade barriers on labor-intensive products are commonly raised through tariff peaks (tariffs exceeding 15 percent) on imports of "sensitive commodities." Imports at tariff peaks represent about 5 percent of total Quad (Canada, European Union (EU), Japan, and United States) imports from developing countries, and more than 11 percent of total Quad imports from LDCs (Hoekman, Ng, and Olarreaga 2001).

Within the Quad, tariff peaks are widespread but their pattern differs (figure 2.5). In North America, tariff peaks are commonly found in industrial goods, particularly on imports of textiles and clothing. By contrast, tariff peaks in the EU and Japan are common in agriculture—especially on imports of processed food, and tariff peaks on imports of footwear are widespread across all Quad markets and surpass those found in textile and clothing. In developing countries, tariff peaks are prevalent also, because applied tariffs are close to the tariff peak threshold.

Tariff escalation is a major concern for developing countries

Tariffs often rise significantly with the level of processing (tariff escalation) in many high-income and developing countries. Tariff escalation in high-income countries has the potential of reducing demand for processed imports from developing countries, hampering diversification into higher–value added exports (Blackhurst, Enders, and Francois 1996).

In high-income countries, tariffs escalate steeply, especially on agricultural products (figure 2.5). In the Quad, tariffs on more processed agricultural commodities are comparatively higher in the EU and Japan, while in the United States there is evidence of reverse escalation between unprocessed and semiprocessed commodities. Though less prevalent, tariff escalation also affects imports of industrial products—especially at the semiprocessed stage. Examples of such products, in which many developing countries have a comparative advantage, include textiles and clothing; leather and leather products; wood, paper, and pulp; furniture; rubber products; and metals.

In developing countries, too, the average tariff for fully processed agricultural products and manufactures is higher than on unprocessed products. The reduction of tariff peaks in the Quad and other countries would mitigate tariff escalation. In the EU and Japan, for example, tariff peaks are more widespread on imports of processed food than on primary food imports (figure 2.5). Trade of products where more processed exports from LDCs have a chance of breaking through would thus receive a boost.

Despite progress, trade in agriculture remains heavily distorted

The Uruguay Round Agreement on Agriculture (URAA), which came into force in 1995, marked an important step in improving access to sheltered agricultural markets in high-income countries. A wide range of nontariff barriers was abolished, including quantitative import restrictions, variable import levies, and discretionary import licensing. These barriers were converted to ordinary tariffs (tariffication). Existing and new tariffs were bound, and these bindings were subject to reduction. Developing countries were allowed more compliance flexibility through longer implementation periods and lower reduction commitments.

Because international agricultural prices in the base period for the URAA (1986–88) were way below high domestic prices supported by quotas, the conversion of quotas into tariff equivalents resulted in high rates of tariff protection (OECD 2001a; World Bank forthcoming). Moreover tariff reduction commitments involved a simple average across products, creating much leeway to spread reductions unevenly, with lower cuts in more sensitive commodities. Hence scheduled tariff reductions over the URAA implementation period may not have reduced protection enough to significantly improve market access and boost agricultural trade (Diakosavvas 2001).

Tariff peaks in agriculture occur frequently on processed products and temperate commodities. They are less common on unprocessed fruits and vegetables and tropical commodities, which are not produced in high-income countries but

are major export crops of least-developed countries. Thus tariff peaks could be seen as not targeting developing countries in particular, since such tariff peaks can be found where market shares of developing countries in Quad imports are comparatively low. However, many developing countries in temperate zones have the potential of competing as lower-cost producers in temperate commodities. Hence besides providing sizeable market price support to high-income countries' producers, developing countries' exporters may be displaced by high tariff peaks, especially in the EU where intra-EU trade is duty-free. Indeed, intra-EU trade in product groups with a high share of tariff-peak lines is prevalent, at about 70 percent of EU countries' agricultural imports. By contrast, when tariff peaks are less widespread, non-EU suppliers seem to have more opportunities.

Concerns about market access also arise from the poor performance of tariff quotas (TRQs) introduced by the URAA with the aim of securing a minimum level of market access.[5] The average fill rates of TRQs have been low and declining, from 67 percent in 1995 to 63 percent in 1998, while about a quarter of tariff quotas were filled to less than 20 percent. Evidence as to whether the method of administration of tariff-quota allocations may have an influence on the fill rates is still unclear (WTO 2001; OECD 2001a). But the low fill rate could reflect high "in-quota" rates; in some Quad markets in-quota rates are *above* the average for agriculture (OECD 1999a). And, for specific products, over-quota rates skyrocket—such as the EU 130 percent tariff for above-quota bananas.

Support to agriculture is sizable and growing

At an estimated $245 billion in 2000—about five times the level of international development assistance—support to agricultural producers in high-income countries remains sizeable (OECD 2001b). Total support to agriculture (as defined by the OECD) is even higher, at about $327 billion in 2000—or 1.3 percent of OECD countries' GDP.[6]

Support is often rationalized on the non-economic benefits of agriculture, which are not properly valued by the market—such as environmental protection, food security, and maintenance of rural communities (Winters 1990; Maier and Shobavashi 2001). But extensive support may be counterproductive for these goals because subsidies, in addition to accounting for the "multifunctionality" of agriculture, have a number of side effects. For example, production-linked subsidies encourage environmentally unsustainable farming practices, boosting the use of chemicals, fertilizer, and fuel in order to produce additional output beyond what competitive conditions would dictate. Agriculture now thus contributes about *one-fifth* of global greenhouse gases—50 percent of methane and 70 percent of nitrous oxide—while high-income countries account for the major share of global agricultural greenhouse gas emissions (OECD 1999b).[7] Enhancing the environmental performance of agriculture remains a challenge, but efforts should rely on appropriate incentive policies, tailored to local environmental circumstances and demands (OECD 2001d).

Production-related support in high-income countries also distorts agricultural commodity trade and affects developing countries. It boosts production of agricultural commodities and reduces agricultural imports, thus displacing developing-country exports in high-income countries' markets. The case of the U.S. subsidies to sugar producers illustrates both the pernicious impact of support on developing countries' exporters, and the large costs borne by high-income countries' consumers and taxpayers (box 2.2).

The unwanted production surpluses are dumped into world markets with the aid of export subsidies, depressing prices for many temperate agricultural commodities (Burfisher 2001). The case of growing EU exportable surpluses of wheat illustrates the potential distortions to trade (box 2.3). The incidence is generally negative for agricultural exporters—especially developing countries that export temperate commodities or have the capacity of

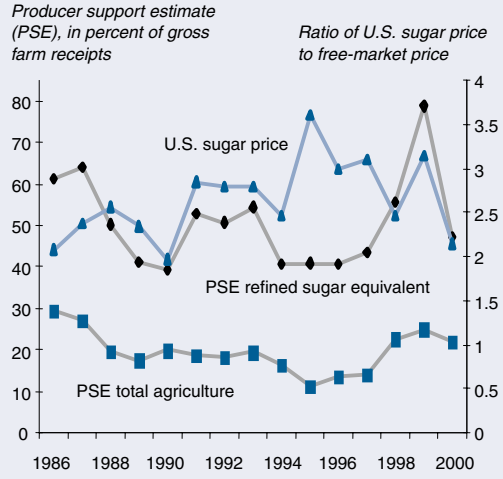
Box 2.2 U.S. sugar policy and its impact on imports

The United States began to directly intervene to support agricultural commodity prices in 1933 with the introduction of the Agricultural Adjustment Act. The Act has been modified many times, but is still the basis of most of the U.S. agricultural policy. Sugar is one of the most protected commodities under U.S. policy (see figure).

The United States is the world's largest consumer of sweeteners, with the equivalent of 142 pounds of raw sugar consumed per person per year. The U.S. sugar industry is heavily subsidized, with about half of sugar producers' revenues coming from government support. U.S. sugar producers have been protected from lower world market prices since the early 1980s, by successive farm legislations that provided price supports through restrictive import controls. On average, U.S. sugar producers have received 2.6 times the world market price for sugar since the mid-1980s (see figure).

Apart from protecting sugar production, domestic support to sugar also provides higher than world market prices to corn syrup producers. This has encouraged the development of an important High Fructose Corn Sweetener (HFCS) industry that now supplies half of the country's sweetener consumption, especially in products such as soft drinks. HFCS production is now four times higher than in 1980, and surpasses sugar production, which has increased by about 50 percent (according to the U.S. Department of Agriculture). Sugar imports by the United States fell by one-half over the period, from 4.3 million tons in 1980 to slightly less than 2 million tons in 1998. The sugar policy costs foreign sugar producers an estimated $1.5 billion in lost sales.

Steady support to U.S. sugar producers



Source: OECD; World Bank.

Source: World Bank staff, based on Sheales and others 1999.

becoming low-cost exporters. There are also, however, benefits for net food-importing developing countries from lower import prices for food (Freeman and others 2000).

The URAA also covered trade-distorting measures of support and export subsidies (box 2.4). The value of support subject to reduction commitments in OECD countries declined significantly, to about 65 percent of its level in the base period. However during the implementation period, this was largely offset by increased support under measures exempt from reduction commitments, so that in 1997 overall support was practically unchanged from its base-period level.[8] Subsidies that were exempt from reduction commitments now account for about 60 percent of total OECD-country agricultural support, even though some of these subsidies may affect production and trade (OECD 2001a).

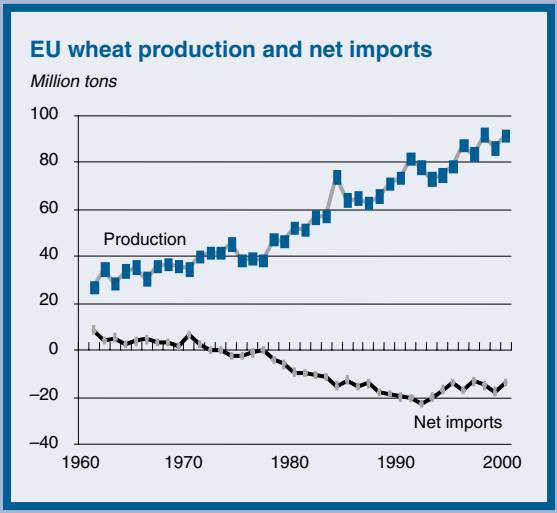
The overall level of support to producers—as measured by the OECD's producer support estimates (PSE)—has further increased since 1998, in response to the decline in world commodity prices, and now represents about 35 percent of gross farm receipts (figure 2.6).[9] And because support is counter-cyclical, it insulates farmers in high-income countries from changes in world

Box 2.3 Wheat production with CAP support

Agriculture was given a central role when the original European Economic Community (EEC) established the Common Agricultural Policy (CAP) in 1957. The basic market support set out in the Treaty of Rome remains much the same today, despite successive reforms to the CAP since the early 1990s. The CAP was very successful at achieving its goals of food self-sufficiency and stable producer prices. In fact, it was so successful that it encouraged farmers to produce more than was needed, which caused intervention stocks to build and commodities to be exported using export refunds. Wheat production is a case in point.

The first nine countries to join the EEC account for nearly 90 percent of EU wheat production. These countries have adjusted to the high and stable wheat prices established by the CAP, and they have responded by increasing yields by 2.5 percent per year since 1970, compared to only 1 percent per year for the United States, the world's largest wheat exporter. Domestic support for wheat (as measured by the OECD's producer support estimates) remains sizeable in the EU despite several reforms to the CAP. From 52 percent of gross farm receipts on average in 1986–88, it declined only marginally to an estimated 48 percent in 1998–2000.

The impact of high wheat prices was not only to increase production, but also to reduce demand and further contribute to the surpluses. Net exports of wheat surged to 22.8 million tons in 1992, and then declined somewhat due to CAP reform measures during the 1990s (see figure). One of the consequences of the CAP was that lower cost producers were deprived of a market for their products. Argentina for example, is a low cost producer that could supply wheat to the EU. With more than 50 percent of its exports concentrated on agricultural products and agro-processing manufactures, Argentina in particular may be suffering from trade distorting subsidies (see Nogues 2000).



Source: World Bank staff.

prices and makes production less responsive to swings in demand. As a result, world commodity prices become more volatile, and during downturns the burden of adjustment is shifted disproportionately to producers in developing countries who enjoy much lower levels of support (Tyers and Anderson 1992; Winters 1994).

Over the past 15 years support to agriculture in high-income countries has declined only marginally as a share of gross farm receipts. The outlook is unclear, because the reduction commitments are sectorwide, allowing governments much leeway to target the reductions, while increasing support for specific "sensitive" commodities. Many commodities of export interest for developing countries remain heavily subsidized—such as, for example, rice and sugar, where support covers as much as 80 and 45 percent of gross farm receipts (OECD 2001b).

Export subsidies are particularly damaging

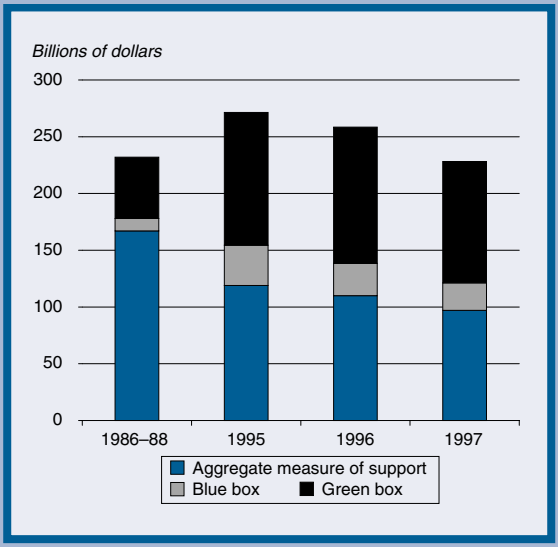
The effectiveness of URAA in disciplining export subsidies is also questionable. Because export subsidies in the 1986–88 base period were sizeable, the limited reduction commitments

Box 2.4 Bringing support to agriculture and export subsidies under multilateral rules: A long-awaited endeavor

A key objective of the URAA was to reduce trade-distorting support to agriculture, while creating room for government policies to design appropriate nondistorting support schemes, in response to country-specific circumstances. Three main categories of support were distinguished:

a) Trade-distorting support (often referred to as "amber box" measures), such as market price–support through administered prices supported by restrictive trade measures and production-related subsidies (based on output or on the use of inputs).
b) Support with no, or minimal, distorting effect on trade (often referred to as "green box" measures). These may include a vast array of programs, such as decoupled income support measures; payments covering services for research and development; pest and disease control; infrastructural services; domestic food aid; structural adjustment and regional assistance; and environmental programs.
c) A category of direct payments under production-limiting programs—the so-called blue box measures—was also distinguished.

Reduction commitments were scheduled on trade-distorting support, expressed in terms of a "total aggregate measurement of support" (AMS). Under the URAA, developed countries are required to reduce total base-period AMS by 20 percent over a period of six years. Developing countries with AMS commitments are subject to a 13 percent reduction over 10 years. Measures in the "green box"—and also, under certain conditions, in the "blue box"—have been exempt from URAA reduction commitments.

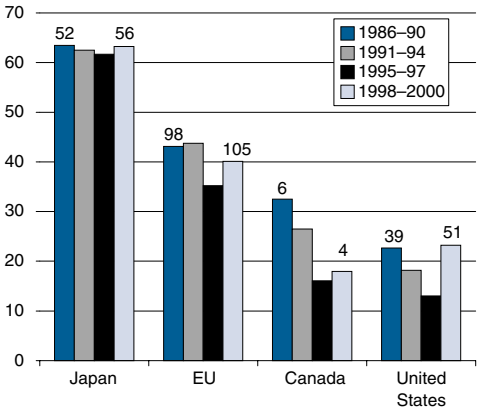


Export subsidies in agriculture allow countries to export production surpluses to the world market at prices below the high prices prevailing in their domestic markets. Export subsidies were about $7 billion on average in 1995–98, of which 90 percent was granted by the EU. In the URAA high-income countries agreed to reduce base-period subsidized exports by 21 percent, in equal steps over six years—and to cut the corresponding budgetary outlays by 36 percent. Developing countries agreed to a 14 percent reduction in subsidized export volumes over a 10-year period.

Source: OECD 2001a; WTO 2001; World Bank forthcoming.

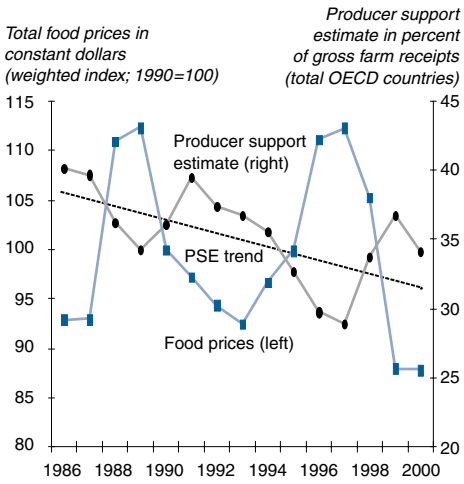
taken in the URAA leave broad margins for continued subsidization. Thus for a number of products, permitted subsidized exports during URAA implementation were larger than actual subsidized exports in the first half of the 1990s (OECD 2001a; World Bank forthcoming). And the share of subsidized exports has even increased for many products of export interest to developing countries. For example, subsidized exports of wheat represented 25 percent of total wheat exports in 1998, up from 7 percent in 1995, while subsidized exports of sugar rose to 31 from 19 percent in the same period (Ingco and Winters 2001).

Figure 2.6 Support to agriculture in the Quad is growing . . .



Source: OECD.

. . . partly due to the fall in commodity prices



Source: World Bank; OECD.

In the EU, the Agenda 2000 Common Agricultural Policy (CAP) reform marked a step in the right direction to reduce the need for export subsidies by cutting the support prices for cereals, beef, and dairy, but it is unlikely to be sufficient to eliminate the EU exportable surpluses in the years ahead. In addition to direct export subsidies, officially supported export credits have expanded during the 1998 Asian financial crisis, and are largely used in the United States. By resulting in targeted cost discounts for buyers, export credits might have similar distorting effects on trade as direct export subsidies. The URAA called for negotiation of export credit disciplines, which has not yet been achieved.

Due to remaining restrictions on textiles and clothing, developing countries forego sizeable export earnings

The Uruguay Round Agreement on Textiles and Clothing (ATC) provides for the gradual phaseout of the multifiber arrangement (MFA) country–specific quotas over a 10-year period, ending in 2005 (box 2.5). The ATC was an important step to improve developing countries' access to high-income countries' markets, because it became very difficult for the importers to introduce new quotas. Moreover, the ATC abolished voluntary export restraints in response to pressure from developing countries. These measures were identical in form with the MFA quotas.

However the effectiveness of ATC in freeing up markets has been limited by two main shortcomings. First, scheduled quota integration is "back-loaded," with quota-free market access for nearly half of all imports due only at the end of the transition. Hence the transition is unlikely to be smooth for currently shielded producers. This could disrupt the post-ATC regime by encouraging calls for higher tariff protection, or for more intensive use of contingent protection measures (box 2.6). And in textiles, after the Uruguay Round, the use of contingent protection measures has increased faster than in other sectors. In 1998–99, initiations of antidumping investigations in textiles represented 11 percent of total, up from only about 5 percent, on average, in 1990–92 (WTO 2001).

Box 2.5 A primer on the agreement on textiles and clothing

The Multifiber Arrangement (MFA) that entered into force in 1974 (like its predecessors the Short- and Long-term Cotton Arrangements between 1961 and 1973) established rules for the imposition of country-specific quotas, either through bilateral agreements or unilateral actions. This conflicted with the General Agreement on Tariffs and Trade (GATT) principle of nondiscrimination against trading partners. As of 1995, only the United States, EU, Canada, and Norway continued to use quotas to restrict their imports of textiles.

The return to GATT rules has two components: (1) a schedule for freeing textiles and clothing from import quotas (the "integration" component of the ATC); (2) additional provisions for accelerated growth of remaining non-integrated quotas (the so-called liberalization component of the ATC). Products remaining under restriction will be allowed an additional increase in quota growth rates—above the general 6 percent annual growth agreed under the MFA. Such products will have their quota increased by an additional 16 percent in the first step, 25 percent in the second, and 27 percent in the third.

The ATC is being implemented in four steps. In the first step, which took effect on January 1, 1995, WTO members had to secure quota-free market access matching, at a minimum, 16 percent of the total volume of their 1990 imports. In the second step, which started on January 1, 1998, an additional 17 percent of total 1990 imports had to be integrated, followed by an additional 18 percent in the third step, which commences on January 1, 2002. Finally, on January 1, 2005, quota-free access corresponding to the remaining 49 percent of total 1990 imports must be secured.

The choice of products to be integrated is left to the importing country, but they must cover at least one item from each of four major product groups: yarns and tops, fabrics, made-ups, and clothing.

Source: Based on ICTB 1999.

Second, the ATC rules for the removal of quotas are framed in terms of overall import shares in textiles and clothing, rather than in terms of the number of quotas. This allows importing countries the leeway to select the products to be freed of quota restrictions in each step, which slows the pace of liberalization.[10] Up to 2000, more than 33 percent of trade was integrated, fulfilling the minimum ATC requirements. But products that have been freed of quotas by the EU and the United States represent only small shares of their total textile and clothing imports—about 6 percent of 1995–97 imports for the United States and less than 5 percent for the EU (ITCB 1999). Moreover, the products of interest to developing countries that were integrated tend to have low value added—such as tops, yarns, and fabrics—with clothing representing only a small share of the total.

Due to the slow pace of the liberalization, potential benefits for developing countries are being eroded, and foregone export earnings are sizeable. For example, on current trends, the share of intra-EU trade in textiles and clothing could further decline from 49 to around 43 percent of total EU countries' imports by the ATC expiration in 2005. Assuming a twice-as-fast decline under a more ambitious liberalization, this share could drop by an additional 7 percent. Thus foregone export earnings for restrained developing countries in the EU could be as high as $10 billion a year. In the United States, after the creation of the North American Free Trade Agreement, restrained suppliers were displaced by booming textile and clothing exports from Mexico, which grew by about 35 percent per year. Despite these trade diversion effects, the sharp increase in Mexican exports illustrates the potential for other restrained low-

Box 2.6 Anti-dumping—and better alternatives

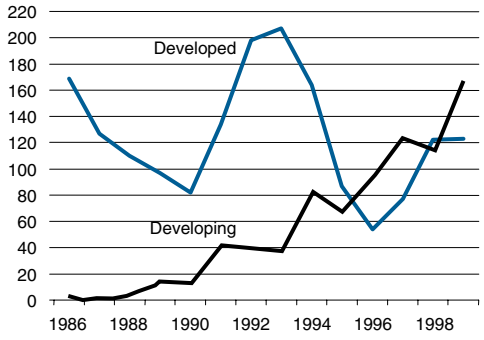
Import-competing firms are often tempted to resort to *antidumping laws*—which are permitted by WTO rules—to allege unfair trade practices by foreign competitors. A firm is said to be dumping if its export price is less than either the price in its home market or the average cost of production. Antidumping laws enable nations to impose offsetting duties on imports found to be both dumping products on the domestic market and causing "material injury" to a domestic industry. The main users of these laws were developed countries, but increasingly developing countries have taken recourse to these laws (see Figure). Industrial and developing nations are equally targeted by antidumping actions.

In addition, some nations take action against imports that they suspect may have been subsidized by another government. These so-called countervailing duty cases are also allowed under WTO rules and, if an investigation reveals that allegedly subsidized imports have injured a domestic industry, then a tariff can be placed on the products in question. Both antidumping laws and *countervailing duty* laws are referred to as "unfair trade laws," reflecting the view that dumping and subsidization tilt the commercial playing field towards foreign firms. However, the more widespread resort to "unfair trade laws" is diluting the gains from trade liberalization.

Disrupting surges in imports can be far better handled through the use of *safeguard measures*. These afford domestic firms the chance to adjust to greater competition from abroad, but do so only for a fixed period of time. WTO rules allow members to impose temporary restrictions on imports that are causing serious injury to a domestic industry. Because the import protection is temporary, trading partners know that their market access has not been permanently reduced. By contrast, the antidumping and countervailing duty laws are often implemented in such a way that the tariffs once imposed they are almost never withdrawn. Worse still, if nations believe that the market access obtained during a trade negotiation are going to be permanently eroded by the use of the unfair trade laws, then they will be less inclined to start trade negotiations in the first place.

Developing countries are victims and players in the rising game of antidumping

Antidumping cases initiated by developed and developing countries, 1986–1998



Source: World Bank staff.

cost producers to expand their exports, should market-access obstacles be removed.

Evaluating the impact of MFA quota abolition requires a model comprehensive enough to take into account the interplay between suppliers, as well as the sectoral interactions of each economy (see also chapter 6, and Kathuria and others (2001) for South Asia). Given the equally slow pace of liberalization in North America, a rough estimate of foregone export earnings for developing countries could be twice the estimated amount in the EU—equivalent to about 12 percent of total developing countries' textile and clothing exports.

Market access in textiles and clothing will remain restricted even after the MFA-related quotas have been abolished, because tariff barriers are high. While 90 percent of total high-income countries' imports of manufactures face tariff rates below 10 percent, only about half of textile and clothing imports face such low tariffs. Moreover 28 percent of total OECD

countries' imports of textile and clothing still face tariff peaks, down only marginally from 35 percent in the pre–Uruguay Round regime (OECD 2001c).[11]

Preferential market access for developing country exports

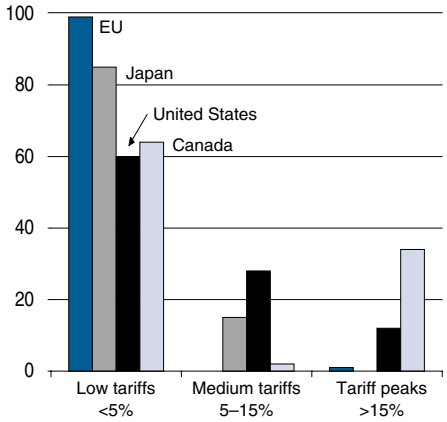
Preferential access schemes to high-income countries' markets, such as the generalized system of preference (GSP) and the LDC regimes, aim to partly mitigate the effects of high most-favored nation (MFN) tariffs on export products of developing countries. The United Nation's 48 least-developed countries benefit from LDC preferential access in all Quad countries, where 75 percent of their exports are sold.[12]

Even though on average, these preferential schemes look relatively generous (Hoekman and others 2001), a number of factors erode their effectiveness in reducing trade barriers faced by poor countries. First, preferences mainly apply to products that already face relatively low MFN tariffs (below 10 percent). The margins of preference on tariff peaks are significantly lower—with the exception of the EU, where the LDC preference margin for tariff peak products is about 70 percent. This margin is only 25 percent in Canada and 30 percent in Japan and the United States. Reflecting the selectivity of preferences and the structure of LDC exports, high tariffs are thus common in some Quad markets on products on which LDC beneficiaries reveal some comparative advantage (figure 2.7).

Second, tariff preferences under GSP and LDC regimes can also be easily eroded by nontariff measures, such as antidumping, safeguards, rules of origin, and graduation mechanisms. The case of the safeguard measures applied by Japan on imports of Shiitake mushrooms from China illustrates this point (box 2.7). Finally, the GSP (and LDC regime implicitly) have graduation mechanisms that are related to income and market shares. They are time-bound and subject to (uncertain) renewal. Countries graduate if they pass a certain per capita income threshold and if they expand their exports of products beyond a certain import share in the market of the GSP-granting country.

Figure 2.7 Despite preferences, LDC exports to the Quad often face high tariffs

In percent of LDC exports to each market (1996–99)



Source: World Bank staff calculations.

There is evidence that tariff preferences help the least-developed countries take advantage of better export opportunities in Quad markets. In the post–Uruguay Round period, LDC exports to the EU that receive high preferences, have grown by about 8 percent per year on average, outpacing growth of LDC exports that receive medium or low preferences (figure 2.8). A similar pattern is seen in Canada and Japan.[13]

On balance, global tariffs penalize developing countries—

The post–Uruguay Round tariff structure penalizes developing countries as a whole because their exports tend to be concentrated in products where market access is highly restricted. Trade-weighted applied tariffs convey a sense of tariff incidence across countries and product groups (figure 2.9).[14] In *manufactures*, developing country exporters face, on average, higher trade-weighted tariffs than other suppliers, both in high-income and in developing countries' markets. Tariff walls faced by developing-

Box 2.7 Mushroom wars

Shiitake mushroom are among the most popular mushrooms in Japan, where an estimated 30,000 farmers grow them. Japanese trading companies began in the early 1990s to encourage Chinese farmers to use Japanese spores and modern cultivation techniques to improve the quality of Chinese mushrooms to Japanese standards. The effort was a huge success. In the humid mountainous climate of Fujian province, as well as in Shandong, farmers quickly adapted and China became a global mushroom giant. The same techniques were applied to other mushrooms, and exports climbed to $120 million per year. Farmers' incomes in Fujian and Shandong rose, and consumers in Japan seemed happy to get the shiitake mushrooms at one-third the price of domestically produced shiitakes.

But Japan's shiitake farmers feared for their jobs and sought protection from the government. The government responded. Japan at first threatened to use inspection requirements as a veiled form of protection. But since April 17, 2001, imports over 8,000 tons face a tariff of 266 percent, while an amendment to the tariff code imposed temporary emergency import curbs. The import curbs will be implemented for up to 200 days through November 8. It is the first time Japan has invoked import curb measures under the WTO's ordinary safeguard mechanism designed to slow imports to allow a specific industry to adjust to heightened competition from foreign suppliers. The Chinese government urged Japanese officials to reconsider the action, to no avail. China has retaliated by imposing punitive duties on several Japanese exports. It is likely that the mushroom war is not over.

Source: The Economist, February 8, 2001; *The Guardian,* April 19, 2001; *Peoples' Daily,* April 17, 2001; *Financial Times,* June 20, 2001.

country exporters of manufactures in developing countries' markets are about three times higher than in high-income countries' markets.

In *agriculture*, developing-country suppliers face lower trade-weighted tariffs than do other exporters, both in high-income and in developing countries' markets. This is because trade preferences to some extent mitigate the impact of tariff protection on developing countries, while a large share of developing countries' exports is in tropical commodities, for which tariff protection is relatively low. By contrast, high-income countries' agricultural exports are mainly concentrated in temperate agricultural commodities and dairy products, which face widespread tariff peaks.

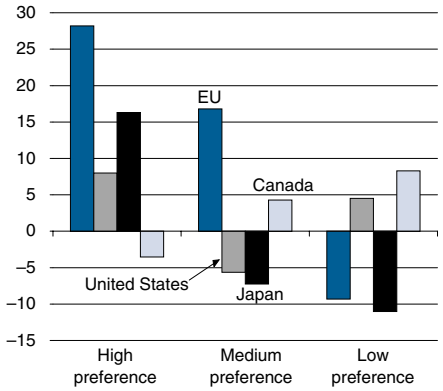
Because average applied tariffs in agriculture are higher in developing countries, South-South trade of agricultural commodities faces higher trade-weighted tariffs than exports from the South to the North (South-North trade). With an increasing share of developing countries' manufactured and agricultural exports being directed toward other developing countries, high levels of tariff protection in the South may also impede prospects for export-led growth. Trade in agriculture may suffer more from high levels of protection in middle-income developing countries because markets in these countries are growing fast, reflecting fast population and income growth. High tariff protection in middle-income developing countries may also damage the export opportunities of low-income countries, especially in agriculture and in textiles where the export market shares of low-income countries have increased rapidly.

—and denies the world's poor access to the global markets

Because developing countries are home to the world's poor—56 percent of the world's population defined as those living on less than $2 per day (World Bank 2000c)—high tariff barriers on developing countries' exports act as a roadblock to market access by the poor. Compared with the nonpoor of the world, poor people are more exposed to high penalties of the global system of protection.

Figure 2.8 LDC exports can grow fast when tariff preferences are significant

LDC export growth
(1996–99, average per year, in percent)

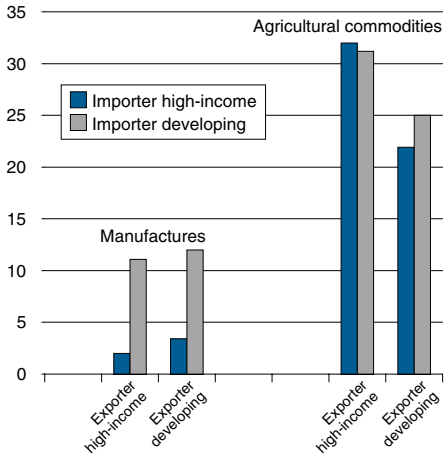


Note: Rankings of LDC preference margins on GSP tariffs: >10 percent = high preference; 3–10 percent = medium preference; <3 percent = low preference.

Source: World Bank staff calculations, based on U.N. Comtrade.

Figure 2.9 Opposite patterns of tariff incidence in manufactures and agriculture

Trade-weighted tariffs (average 1998–99), in percent



Note: Trade-weighted tariffs, using 1997 applied tariffs and trade weights: excluding intra-EU trade.

Source: Based on IMF-WB 2001.

The world's poor generally earn their living in the rural sector and other labor-intensive activities—such as light manufacturing, informal services, and construction. When these products find their way to the world markets, they face high tariff barriers—such as those faced by agricultural commodities and labor-intensive manufactures. Labor services face particular restrictions—for example, restrictions on temporary cross-border movements of workers for the provision of construction services (see chapter 3).

One way to quantify the incidence of protection—albeit in rough fashion—is to look at effective tariffs faced by the different income groups in access to the world markets. Despite the existing preferential access schemes for developing countries' exports, the world's poor face *tariffs that are more than twice as high as the nonpoor face* (box 2.8). This fact is independent of their position in the relative scale of poverty. Making world merchandise trade work for the world's poor would require bold steps to remove this disparity.

Liberalizing trade to promote development

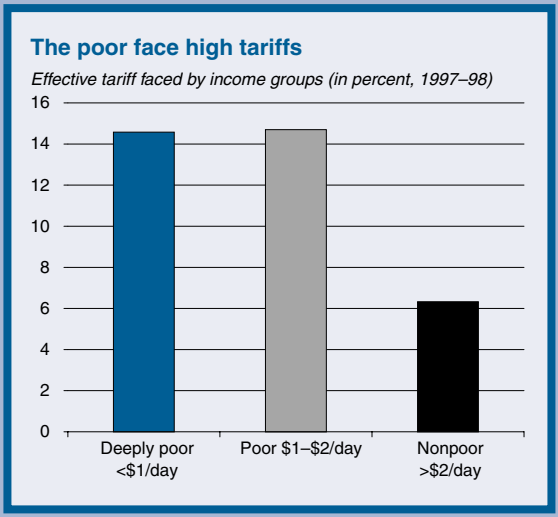
Removal of trade barriers on labor-intensive products will generate shared benefits, both for high-income and developing countries (these are quantified in chapter 6). Benefits for developing countries would include greater access to high-income countries' agricultural and apparel markets and more buoyant demand in industrial countries as a result of lower prices to consumers. Middle-income countries that have access to international capital markets but still depend greatly on exports of protected products (for example, Argentina), could possibly see a decline in the risk premia they face, because more buoyant growth of export revenues could make their balance of payments less vulnerable to economic swings. With better access to global markets, domestic policy reforms become important to create export opportunities and absorb the dynamic gains from trade.

Box 2.8 Calculating effective tariffs faced by the poor

Effective tariffs faced by people in different income groups convey a sense of uneven access to the world markets (see figure). For people in each income group, effective tariffs are calculated on the basis of the trade-weighted tariffs faced by exports of their home countries. For simplicity, it is assumed that all poor can be found in labor-intensive merchandise production, while the nonpoor earn their living across the whole array of economic activities. Thus calculations of effective tariffs on those living on less than $2 per day are based on trade-weighted tariffs faced by countries for exports of agricultural products and labor-intensive manufactures. Calculations of effective tariffs on the nonpoor are based on trade-weighted tariffs faced by countries across exports of all goods. Trade-weighted tariffs are calculated from using 1998 applied tariffs and trade weights.

Effective tariffs faced by each income group are calculated as the sum of trade-weighted tariffs faced by the exports of different countries, using as weights the share of each country's population in each income group (based on 1998 poverty data). Since by global standards even the relatively poor in all high-income countries have consumption greater than $2 per day, the whole population of these countries is in the nonpoor group.

Due to their size, China and India are the two single countries that weigh more in these calculations. The trade-weighted tariff on exports of labor-intensive products from China is 15.5 percent and for India 15.1 percent. China accounts for 29 and 21 percent respectively of the world's poor and deeply poor (those living on less than $1 a day).



India represents 27 and 40 percent of poor people in each of the two groups. The trade-weighted tariffs on labor-intensive exports from China and India are multiplied by these population shares to determine the contribution of the two countries in the effective tariffs faced by each of the two groups of poor. But China and India also account for 19 and 4 percent, respectively, of the world's nonpoor. These population shares, along with the "all-inclusive" trade-weighted tariffs faced by China and India (estimated at 8.3 and 8.5 percent) are used in the calculation of effective tariffs faced by the nonpoor.

Source: World Bank staff calculations.

Domestic policies to create export opportunities

Developing countries have gone a long way toward removing many of the domestic obstacles to export-led growth. Tariffs are lower everywhere, the anti-export bias embedded in the domestic trade regimes and sectoral policies has been reduced, while more sound macroeconomic policies have led to more competitive exchange rates. However, while macroeconomic policy and trade policy reforms were ambitious, the pace of agricultural reforms has been uneven both at the commodity and country levels (Townsend 1999; Shepherd and Farolfi 1999; Akiyama and others 2001). Moreover a number of structural impediments hamper export diversification into manufactures in the poorest countries—especially in Sub-Saharan Africa (Fosu and others 2001).

Deepening the reform process in *two directions* is key to realizing the trade promise for growth and poverty reduction: (a) reducing

further tariff and non-tariff barriers to trade in a context of supportive policies that link the poor to expanded market opportunities and cushion transitional costs for any displaced group; and (b) building trade capacity by upgrading "behind-the-border" institutions, ranging from customs and ports to telecommunications and domestic transport.

Reducing tariffs and other barriers to trade can increase incomes, but adjustment costs cannot be ignored

Reducing tariffs and other trade barriers will not automatically lead to higher growth. Trade policy cannot substitute for a development program. However trade reform is an important component of a development strategy, and developing countries, with average tariff levels three times that of the high-income countries, have ample scope for capturing further gains from trade reform. Most analyses suggest that unilateral reduction in barriers can produce the greatest and quickest gains. Several countries have realized this and undertaken important domestic trade policy reforms—including Chile, China, and Costa Rica.

Improving integration into the world trading system involves lowering trade barriers and reforming domestic institutions in ways that may initially hurt low-income consumers, unskilled workers in sheltered industries, and previously shielded producers—especially subsistence farmers in remote areas with deficient rural infrastructure. Producers of import-competing commodities that receive disproportionate support may suffer from lower levels of protection, at the same time that poor consumers benefit from lower prices.

Even though the benefits from trade integration would eventually outstrip the costs, deployment of temporary safety nets—such as support to displaced producers and retraining—would help cushion the costs of dislocation for specific groups, and would ensure that trade-led growth is pro-poor (World Bank 1997, box 2.9). Efforts would also be needed to cushion the consequences for affected countries of the reorientation of export flows, should the preferential market access regimes for specific commodities be discontinued. This would require increased donor support. At the same time, policy should remove distortions, with the aim of facilitating the redeployment of labor and released resources from the industry that enjoyed support. Although labor markets are inherently more flexible in developing countries, distortions—linked, for example, to state enterprise employment—often obstruct labor markets and hold back the adjustment to reforms.

Building trade capacity by upgrading "behind-the-border" institutions

If a country's investment climate is poor and its institutions and infrastructure are weak, simply changing relative price incentives through trade policy may do little to promote sustained growth. In several cases, as for example, in Haiti (box 2.1), failure to respond to opportunities created by trade liberalization has been related to poor macroeconomic policies that have fed volatility and discouraged investment. Weakness of "behind-the-border" institutions can have a similar dampening effect, as occurs in transport, utilities, and communications. Improving regulation and competition in these sectors would strengthen the export response by reducing the cost of exporting. In agriculture, this is key to ensuring competitiveness in rapidly expanding markets for high-valued commodities where competition is stiff—such as, for example, fruits, vegetables, meats, and cut flowers.

Effective *duty drawback and indirect tax rebate mechanisms*, are important to overcome the anti-export bias often embedded in trade regimes. *Export finance* is often a major constraint inhibiting exports in many low-income countries. Inadequacies may result from the overall weakness of the financial sector or may reflect difficulties in assessing creditworthiness of traders. While ensuring availability of trade finance is a matter that needs to be left to the private sector, any effort to expand exports and to promote increased opportunities for the poor in the export sector needs

Box 2.9 Designing appropriate safety nets to ensure trade reforms are pro-poor

Since segments of the poor may be hurt by trade liberalization in the short run, determining the incidence of the tariff structure on the poor, and deploying appropriately tailored safety nets is important to ensure that subsequent growth is inclusive, and secure domestic support for reform. Deployment of safety nets raises two broad policy options: Employ general social safety nets, or establish safety nets targeted to those who are harmed by the trade reform (World Bank, 2001c).

Country-wide safety nets seem more appropriate than special safety net programs for trade-related problems. Fundamentally, it is difficult to justify safety net programs to poor people who suffer from trade reform and deny assistance to other poor people who suffer from unemployment from other disruptions, such as technological change, or domestic demand shifts. As the main need for the poor during a difficult transition period is likely to be food, one approach is a time limited food subsidy and distribution program. However, targeting a food subsidy is difficult, and often subject to abuse, while the benefits may also spillover to middle and upper income groups. An alternative is an untargeted subsidy on inferior goods, as has been pursued in Egypt (Adams, 2000).

Direct income support tends to be the most efficient type of social safety net. But proper management of means-tested programs of support requires important administrative capabilities, which poor countries often do not possess. One approach, which was employed successfully in Jordan, is to initially provide a money payment to a wide range of households, and subsequently narrow the program to only low-income families. Because distinguishing the poor from the non-poor may be difficult, workfare programs may be more generally applicable, and have been proven effective under certain circumstances (Ravallion, 1999), as individuals can self-identify for these programs.

The World Bank's Poverty Reduction Strategy Sourcebook outlines best practices for deploying social safety nets in event of dislocation. In addition, the Bank is working with other donors through the Integrated Framework studies to ensure that best practices are tailored to local capabilities and institutions. But there are no easy answers as liberalization affects the poor differently depending on country circumstances. The Bank intends to further deepen its knowledge and provide policymakers with analytical tools needed to answer some key questions.

Source: World Bank staff.

complementary policies to help overcome credit bottlenecks. Appropriately managed matching grants can be an effective instrument to assist small firms to penetrate export markets. *Product standards* based on international norms facilitate market linkages, and act as safety, health, quality, or environmental safeguards. Developing countries face a difficult challenge in this area, as they need to establish efficient testing, certification, and laboratory accreditation requirements to attain sanitary, phytosanitary, and product standards. Low-income developing countries need both technical and financial assistance to meet this goal. *Marketing of exports* is a challenging task for all low-income countries, because they have to improve information on market opportunities; overcome problems of product and country brand; and meet concerns about quality. Foreign partners and FDI can be helpful in providing needed contacts and expertise. But local associations of exporters or producers can also help. Cooperatives and similar ventures can help improve marketing while ensuring that benefits from exports accrue to small poor farmers. However, transparency and competition in these institutions is important, or poor farmers may receive lower prices for their outputs.

In *agriculture*, in particular, where the stakes for poverty reduction are high, additional companion policies and institutions would be

needed to improve the supply response to market incentives. Some of these policies demand considerable up-front mobilization of resources, and should be backed by donor support. Examples include stepped up investment in rural infrastructure, which is a key enabler of agricultural exports in developing countries. Securing sufficient supply of credit at competitive conditions is important to encourage private sector investment into storage, transportation, and marketing of agricultural products. Increased investment in skills through education and training in rural areas is needed to bolster productivity in agriculture, and to enhance the ability of absorbing emerging technologies—especially those stemming from the biotechnology revolution.

But other initiatives in agriculture would need to improve the regulatory and policy environment. Continued trade policy reforms should redress the still remaining anti-export bias in developing countries' agriculture. Reforms of pricing policies should be stepped up, because in a number of LDC producer prices are still compressed compared to border prices, thus limiting export incentives.

Efficient land policies and land tenure institutions are also key to improving the functioning of land markets, securing property rights to farmland, and supporting the emergence of more efficient farm structures. Enhancing land rights and transferability can increase a farmer's ability to produce both for subsistence and for income, improve their incentives to invest, and enhance their ability to obtain credit (see also Freeman and others 2000).

High-income countries can help

Domestic policies in developing countries have a greater chance of success if high-income countries realize their interest in development success. One policy high-income countries can adopt is following the lead of the European Union. Its "*Everything but Arms*" proposal grants duty-free and quota-free access in all but 25 lines related to arms trade.[15] Other Quad countries have also announced initiatives that extend existing preferential access to LDC or African countries, but they all fall short of a full coverage.[16]

A number of studies have found that the export growth gains for LDCs could be significant if *all* Quad markets granted duty-free access to LDC (Hoekman and others 2001; Ianchovichina and others 2001; UNCTAD 2001). The projected trade diversion and decline in other developing countries' exports are negligible, since LDCs represent only a small part of world merchandise trade, and other developing countries' exports are more diversified. According to a study (Hoekman and others 2001), even if all Quad members were to grant LDCs duty-free access for only tariff-peak items, non-oil LDC exports would increase by an estimated 11 percent, while other developing countries' exports would decline only marginally—by an estimated 0.1 percent.

Extending duty-free market access to *all* LDC exporters would also help mitigate the drawbacks of current preferential access schemes targeted on specific beneficiaries. These schemes often distort trade, because they displace low-cost producers elsewhere in the developing world. The case of the EU preferential regime for bananas illustrates this point (box 2.10). Moreover, preferential access to high-income country agricultural markets with highly subsidized domestic prices provides a premium over world prices to the countries receiving the preferences. This form of "aid-through-trade" is not an efficient way of providing aid because it creates dependence and is targeted to particular economic activities rather than to identified areas of need.

High-income countries can also provide "aid for trade." This could include increased grant aid for trade policy analysis (such as in the integrated framework program discussed in chapter 6), technical assistance on implementation of standards, and aid for aspects of development that affect the "soft infrastructure" of the investment climate, such as governance. No less important is disciplining the burgeoning recourse to contingent protection.

Box 2.10 The banana dispute: good intentions . . . bad policies?

Bananas are almost exclusively exported by developing countries to high-income countries, with the four dominant exporters (Ecuador, Costa Rica, Colombia, and the Philippines) accounting for three-quarters of global exports. The two major importers, the United States and the EU, cover approximately 60 percent of the world market, currently estimated between $5 and $6 billion.

During the 1990s, bananas were a source of trade dispute, often termed the "transatlantic banana trade war." The trade dispute reflects primarily EU import policies. In 1997, 40 percent of the EU banana market was supplied by domestic production and duty-free imports from African, Caribbean, and Pacific (ACP) countries, with the rest being imported from non-ACP banana producers (the so-called "dollar bananas," primarily from Latin America), who were subject to quotas and tariffs.

By restricting imports from non-ACP exporters, the EU import regime causes its domestic banana prices to be much higher than other markets—on average, about two-thirds higher than in the United States. Furthermore, the regime de facto guarantees high prices to EU and ACP producers, which has been the political justification for such intervention.

Apart from the income transfer from EU consumers to ACP and EU banana producers, a number of other effects are in place. High prices lower EU banana demand. If EU per capita banana consumption was the same as in the United States, total banana consumption in the EU would increase by more than 10 percent. This additional demand would raise world prices, while lower-cost banana producers would export more. The current quota/tariff combination is an inefficient and expensive way to provide aid. Borell (1999), for example, reported that for every dollar that ACP producers receive as aid through higher banana prices, EU consumers pay $5.30.

Ecuador, Guatemala, Mexico, and the United States brought a complaint before the WTO in 1997. The panel ruled against the EU banana import regime. The EU has recently reached an agreement with the United States and Ecuador that allows more import licenses, based on historical allocation, until 2006 when ACP preferences will be retained only through tariff protection.

Source: World Bank staff.

Open regionalism could promote trade creation—

Regional arrangements continue to proliferate, and are likely to remain an enduring feature of the trade panorama. Smaller memberships make it easier to negotiate the increasingly important issues inherent in trade and regulatory regimes, while small countries often can exercise greater influence in regional arrangements.

"Open regionalism" holds the potential to stimulate global trade and improve the efficiency of regional producers. But regional arrangements can also become a vehicle for protection, trade diversion, and unintended inefficiency. Key conditions to benefit from expanded trade and investment include lowering common external trade barriers, stimulating competition, reducing transaction costs, and reinforcing nondiscriminatory investment and services policies (World Bank 2001b).[17]

North-South regional agreements are more likely to improve welfare than South-South arrangements, because they usually result in lower trade barriers with less trade diversion, and because the greater structural differences in North-South economies produce greater gains from trade creation (World Bank 2000d). Although South-South arrangements can be made to work, a number of regional integration agreements have had negative or ambiguous effects on income. In particular, agreements between richer and poorer developing countries are likely to generate losses for the poorer ones when their imports are diverted

toward the richer members whose firms are not internationally competitive.

Reflecting large differences in costs between high-income and developing countries, North-South arrangements hold also the greatest promise for trade creation in agricultural products and labor-intensive manufactures. By contrast, a regional approach—even on a South-South basis—seems promising in the regulation of services, when combined with a nondiscriminatory approach to liberalization (Subramanian and others 2000). Possible areas of cooperation—by pooling resources and expertise and by upgrading and harmonizing standards—would include domestic regulation in sectors such as financial services, telecommunications, power, and transport.

—but multilateral policies hold the key to a sustained improvement in market access—

The next trade round has the potential to improve access for developing countries' merchandise exports to high-income markets, particularly in agriculture and labor-intensive manufactures, where the stakes for the reduction of poverty are high. The Quad countries—the United States, EU, Japan, and Canada—would serve their interest in expanding trade and development well if they put serious concessions on the table in these areas.

Offering to link "aid for trade" to progress in reforms in developing countries would also serve the interest of development well. The trade round should also provide more international aid and technical assistance in key sectors, such as agriculture, where the poor countries need to build trade capacity.

Developing countries too (especially the middle-income countries) should join multilateral efforts to further liberalize merchandise trade if they want to maximize the benefits from freer global markets. Because merchandise trade among developing countries is set to accelerate further, outpacing the growth of world trade, reducing trade barriers in developing countries holds a key promise in increasing the development impact of trade.

An agenda of multilateral trade policy options to make merchandise trade work for the poor would need to respond to three main challenges.

—reducing distortions in agricultural trade—

Removal of distortions to agricultural trade requires coordinated efforts in different directions. As a first priority, MFN-applied tariffs should be reduced, on average *by half* in high-income countries, and by one-third in developing countries. Agricultural tariff peaks in high-income countries should be phased out. Tariffs should also become more transparent by limiting the use of specific and compound tariffs. The EU and Japan should take the lead because in these countries tariff peaks on agricultural imports and specific tariffs are more prevalent. The size of tariff quotas should be increased and the "in-quota" tariff rates should be eliminated to improve the very low tariff quota fill rates, and the over-quota tariffs should be considerably cut to expand market access. Removal of tariff peaks in the Quad will help reduce the tariff escalation that hampers trade in more processed agricultural products and higher value-added manufactures. But multilateral surveillance should also be enhanced, to progressively eliminate tariff escalation in both high-income and developing countries.

As a second step, agricultural tariffs should be bound to levels close to MFN-applied rates, particularly in developing countries where bound rates are very high. Binding of tariff rates will improve the predictability of the global tariff system. High bound tariffs create ample scope for tariff protection to rise without infringing WTO commitments. Investors' risks could thus increase, limiting the benefits from more open trade.

The third step would require a much bolder overhaul of the system of support provided by high-income countries to agriculture. More binding disciplines should be introduced on production-affecting support, also encompassing subsidies that are currently exempt from URAA reduction commitments ("Blue Box,"

"Green Box," and "*de minimis*" measures). As a benchmark, the producer support estimate in high-income (OECD-member) countries should be cut on average *by half* as a share of gross farm receipts. This should be coupled with an accelerated phaseout of export subsidies—especially in the EU, where their usage continues to be widespread. To level the playing field, officially supported export credits—which are more prevalent in the United States—should also be brought under multilateral disciplines.

—expanding access in labor-intensive manufactures—

The phaseout of the remaining quantitative restrictions in textiles and clothing should be stepped up, ahead of the ATC expiration in 2005, because the removal of quotas has been "back-loaded." But this will not be enough to improve market access for developing countries. Applied tariffs in textiles and clothing remain excessively high and should be cut on average *by half* in high-income countries, and *by one-third* in developing countries. Tariff peaks should be phased out—especially in the United States and Canada where they are prevalent. Tariffs on footwear should be reduced across all Quad countries.

To build confidence that trade in textiles and clothing will be freed up in the post-ATC regime, the increasing trend in the use of contingent protection (especially in textiles) should be halted. Reducing the wide discrepancies between bound and applied tariffs would help build trust, because these discrepancies provide the scope for using tariffs as safeguards or for balance-of-payments reasons (Laird forthcoming). And multilateral surveillance should be enhanced, to eliminate tariff escalation on labor-intensive manufactures in both high-income and developing countries.

—and eliminating tariff peaks and escalation on all products

Eliminating tariff peaks that now discriminate against labor-intensive products would add considerably to the export potential of developing countries. Similarly, reducing escalation in tariff codes in the developed and developing countries alike will produce more efficient, usually pro-poor growth.

Notes

1. Moreover, in Sub-Saharan Africa agricultural exports are concentrated in five major crops (cocoa, coffee, cotton, sugar, and tobacco), which, in 1990–95, accounted for an estimated 62 percent of total agricultural exports. Export concentration has hardly changed over time, since these same five crops represented 63 percent of total agricultural exports in the 1970s (Ingco and others 2001).

2. Export processing zones (EPZs) were often used extensively—for example, in Tunisia, Bangladesh, and Mauritius—to overcome the anti-export bias of domestic trade policy regimes and support export-oriented T&C industries. But their effectiveness in promoting spillovers to the rest of the economy has been questioned. By creating economic enclaves, EPZs often impair backward linkages with the rest of the economy, as the supply chain of exporting firms may rely more on imported, duty-free, intermediate goods than on local producers. Such impediments to local production linkages could be seen, for example, in the case of Bangladesh (World Bank 1999a).

3. The data on income distribution for the countries included in the sample are from household surveys reported in Deininger and Squire 1996, but in some countries household surveys measure expenditures, while in others they measure income. When household surveys report expenditure (47 out of 129 observations), consumption growth of the poorest 20 percent of the population is compared to growth in average per capita consumption—otherwise it is compared to growth in per capita GDP. Time periods span irregular intervals for each country—depending on the availability of household surveys of acceptable quality. To smooth out short-run fluctuations in income or expenditure, time periods span at least 3 years, with an average duration of 6.8 years. The geographical breakdown of the sample is: East Asia—31; Latin America and the Caribbean—50; Middle East and North Africa and Europe and Central Asia—15; South Asia—18; Sub-Saharan Africa—15.

4. In developing countries, applied tariffs are, on average, about three times higher than in industrial countries, partly because developing countries rely more on trade-related taxes to raise revenue. In developing countries, the coverage of nontariff barriers, including state trading monopolies, has also been considerably reduced (Martin forthcoming).

5. Tariff quotas allow a lower-tier, or "in-quota," rate to be set at low levels, with the second-tier, or

"over-quota," rate set at a higher level—close to the level of protection enjoyed before the URAA. The distribution of TRQs among countries and product groups reflects the incidence of tariffication. More than one-quarter of all tariff quotas apply to fruits and vegetables, with the next four more important groups being meat, cereals, dairy products, and oilseeds (WTO 2001).

6. Support to agricultural producers refers to the producer support estimate (PSE) computed by the OECD. The PSE is an indicator of the annual monetary value of gross transfers from consumers and taxpayers to farmers, measured at the farmgate level, arising from policy measures that support agriculture. These transfers include both government subsidies to agriculture (taxpayer transfers) and effective market price support through trade policies to restrict imports (transfers from consumers). A wider indicator of support, calculated by the OECD, is the total support estimate (TSE). In addition to transfers included in the PSE, the TSE also includes an estimate of general services support provided to agriculture—for example, public research and development, agricultural schools, inspection services, and infrastructure.

7. To be sure, the global impact of subsidy reduction in OECD countries on agricultural greenhouse gas emissions is uncertain, as production could increase in countries with higher emission intensity per unit of output.

8. In the EU and Japan, production-related total aggregate measurement of support (AMS) and "blue box" measures still account for the majority of support (83 percent in the EU and 53 percent in Japan), while in the United States support is now provided mainly under "green box" measures (84 percent).

9. Domestic support to agriculture is also high outside the Quad. For example, in the Republic of Korea, at an estimated $17.3 billion on average during 1998–2000, the PSE covered 66 percent of gross farm receipts, and was more than four times higher than in Canada (OECD 2001b).

10. For example, in 1990 only about 58 percent of EU imports were under quota restrictions, which left much room to defer the "integration" of restrained products.

11. These high levels of protection also have a large cost for high-income countries' consumers. According to a study, in 1997, quotas and tariffs on textiles and clothing cost to EU consumers about $10 billion, while the loss of production efficiency due to the sheltering of domestic production will have cost another $10 billion (Francois, Glismann, and Spinanger 2000). Hence, each job saved through the delayed freeing up of the EU textiles and clothing market costs an estimated $24,000 per year in textiles and $35,000 per year in clothing.

12. Other preferential schemes offer better access to some developing countries, such as those received by African, Caribbean, and Pacific, southern Mediterranean and Eastern European countries in the European Union; and those received by Mexico, Israel, Andean countries, and the Caribbean Community in the United States.

13. LDC exports to the United States show an opposite pattern. However, high-preference exports represent less than 1 percent of LDC exports to the United States, which suggests that the outcome could be sensitive also to other barriers—such as standards, rules of origin, antidumping, safeguards, distribution, and so forth.

14. Trade-weighted applied tariffs may to some extent underestimate the degree of tariff protection, since highly restrictive tariffs, which are likely to reduce trade flows, receive small weights in the construction of the index.

15. However, for three sensitive agricultural products—bananas, rice, and sugar—the liberalization will be phased in during a rather lengthy transition period, to be completed by 2009 for rice and sugar, and 2006 for bananas.

16. Japan's "99 percent Initiative on Industrial Tariffs" does not cover agricultural products where tariff barriers are particularly high. The U.S. "African Growth and Opportunity Pact" that grants duty-free and quota-free access to the United States does not include sensitive agricultural products (for which there are tariff quotas), nor apparel and clothing, which have their own preferential regime—including quotas and relatively restrictive rules of origin.

17. For example, Harrison, Rutherford, and Tarr (1997) estimate that Chile was able to profit from its free trade agreement with MERCOSUR due to the fact that it lowered its external uniform tariff from 11 to 6 percent.

References

Adams, R. 2000. "Self-targeted Subsidies: The Political and Distributional Impact of the Egyptian Food Subsidy System." Economic Development and Cultural Change, 49(1), 115–36.

Akiyama, T., J. Baffes, D. Larson, and P. Varangis. 2001. *Commodity Market Reforms: Lessons from Two Decades.* Washington, D.C.

Blackhurst, R., A. Enders, and J. Francois. 1996. "The Uruguay Round and Market Access: Opportunities and Challenges for Developing Countries." In *The Uruguay Round and the Developing Countries* W. Martin and L. A. Winters, editors. New York: Cambridge University Press.

Borell, B. 1999. "Bananas: Straightening Out Bent Ideas on Trade as Aid." Presented in the WTO Conference on Agriculture and the New Trade Agenda in the WTO 2000 Negotiations. October 1–2. Geneva.

Burfisher, M. 2001. "The Road Ahead: Agricultural Policy Reform in the WTO: Summary Report." Agriculture Economic Report No. 797, United States Department of Agriculture. Washington, D.C.

Currie, J., and A. Harrison. 1997. "Trade Reform and Labor Market Adjustment in Morocco." *Journal of Labor Economics* 15(3): S44–S72.

Datt, G., and M. Ravallion. 1998. "Farm Productivity and Rural Poverty in India." *Journal of Development Studies* (34): 62–58.

Davis, D.R. 1996. "Trade Liberalization and Income Distribution." NBER Working Paper 5693. August.

Deininger, K., and L. Squire 1996. "A New Data Set Measuring Income Inequality." *The World Bank Economic Review* (10): 565–91.

Diakosavvas, D. 2001. "The Uruguay Round Agreement on Agriculture in Practice: How Open are OECD Markets?" Presented at the World Bank Conference on Leveraging Trade, Global Market Integration, and the New WTO Negotiations for Development. July 23–24. Washington, D.C.

Dollar, David. Forthcoming. "Post-1980 Globalizers." In "Globalization" Policy Research Report. World Bank, Washington, D.C.

Fosu, A. K., S. M. Nsouli, and A. Varoudakis. 2001. *Policies to Promote Competitiveness in Manufacturing in Sub-Saharan Africa*. Development Centre Seminars with the International Monetary Fund, and the African Economic Research Consortium. OECD, Paris.

Francois, J., H. Glisman, and D. Spinanger. 2000. "The Cost of EU Trade Protection in Textiles and Clothing." Working Paper No 997, Kiel Institute for World Economics, Kiel, Germany. August.

Freeman, F., J. Melanie, I. Roberts, D. Vanzetti, A. Tielu and B. Beutre, 2000. "The Impact of Agricultural Trade Liberalization on Developing Countries." ABARE Research Report 2000.6. Canberra.

Gaiha, R. 1993. "Design of Poverty Alleviation in Rural Areas." United Nations Food and Agriculture Organization, Rome.

Harrison, G. W., T. F. Rutherford, and D. G. Tarr. 1997. "Trade Policy Options for Chile: A Quantitative Evaluation." Policy and Research Working Paper No 1783. World Bank, Washington D.C. June.

Hoekman, B., F. Ng, and M. Olarreaga. 2001. "Tariff Peaks in the Quad and Least-Developed Country Exports." February. World Bank, Washington, D.C. Processed.

IMF (International Monetary Fund)–World Bank. 2001. "Market Access for Developing Countries Exports." Joint Paper. April, Washington, D.C.

Ianchovichina, E., A. Mattoo, and M. Olarreaga. 2001. "Unrestricted Market Access For Sub-Saharan Africa: How much Is It worth and Who Pays?" World Bank, Washington, D.C. February. Processed.

Ingco, M., and L.A. Winters, (eds). 2001. Agricultural Trade Liberalisation in a New Trade Round. Discussion Paper No. 418. The World Bank, September, Washington, D.C.

Ingco, M., T. Kandiero, and J. A. Mistiaen. 2001. "Sub-Saharan Africa and the New WTO Trade Negotiations in Agriculture: Economic Analyses of Interests and Options." Presented at the World Bank Conference on "Leveraging Trade, Global Market integration, and the New WTO Negotiations for Development." Washington, D. C. July 23–24.

ITCB (International Textiles and Clothing Bureau). 1999. "Agreement on Textiles and Clothing: Evaluation of Implementation." August. Geneva.

Kanaan, O. 2000. "Tanzania's Experience with Trade Liberalization." *Finance & Development* (37) June: 30–33.

Kathuria, S., W. Martin, and A. Bhardwaj. 2001. "Implications of MFA Abolition for South Asian Countries." World Bank, Washington, D.C. April. Processed.

Khan, M. H. 2000. "Rural Poverty in Developing Countries." *Finance & Development* December. International Monetary Fund, Washington, D.C.

Laird, S. Forthcoming. "Market Access For Merchandise: How Large Are the Barriers?" In "*Trade Policy for Developing Countries in a Global Economy: A Handbook*." Washington, D.C.: World Bank.

Maier, Leo, and M. Shobayashi. 2001. "Multifunctionality: Towards an Analytical Framework." Summary and Conclusions. April, Paris.

Martin, W. Forthcoming. "Trade Policies, Developing Countries, and Globalization." In "Globalization" Policy Research Report. World Bank, Washington, D.C.

Nogues, J. J. 2000. "El Sistema Multilateral de Comercio y el Desbalance de la Rueda Uruguay." December. Buenos Aires.

OECD 1999a. "Post–Uruguay Round Tariff Regimes: Achievements and Outlook." Paris.

——— 1999b. "National Climate Policies and the Kyoto Protocol." Paris

——— 2001a. "The Uruguay Round Agreement on Agriculture: An Evaluation of Its Implementation in OECD Countries." Paris.

——— 2001b. "Agricultural Policies in OECD Countries: Monitoring and Evaluation 2001." Committee for Agriculture. May. Paris.

——— 2001c. "Trade and Development Issues in Non-OECD Countries." Trade Committee. April. Paris.

——— 2001d. "Improving the Environmental Performance of Agriculture: Policy Options and Market Approaches." Paris.

Oxfam International. 2001. "Rigged Trade and Not Much Aid: How Rich Countries Help to Keep the Least-Developed Countries Poor." May. London.

Ravallion, M. 1999. "Protecting the Poor in Crisis." PREM Note no. 12, The World Bank. Washington, D.C.

Revenga, A. 1995. "Employment and Wage Effects of Trade Liberalization: The Case of Mexican Manufacturing." Policy Research Working Paper 1524. World Bank, Washington, D.C.

Sheales, T., S. Gordon, A. Hafi, and C. Toyne. 1999. "Sugar: International Policies Affecting Market Expansion." ABARE Research Report 99.14. Canberra.

Sheperd, A. W., and S. Farolfi. 1999. "Export Crop Liberalization in Africa: A Review." Food and Agriculture Organization Agricultural Services Bulletin No. 135. Rome.

Subramanian, A., E. Gelbard, and others. 2000. "Trade and Trade Policies in Eastern and Southern Africa." IMF Occasional Paper No. 196. August. Washington, D.C.

Townsend, R. 1999. "Agricultural Incentives in Sub-Saharan Africa." World Bank Technical Paper No. 444. August. Washington, D.C.

Tyers, R., and Anderson, K. 1992. Disarray in World Food Markets: A Quantitative Assessment. Cambridge University Press, Cambridge.

UNCTAD (United Nations Conference on Trade and Development). 2001. "Duty and Quota Free Market Access for LDCs: An Analysis of Quad Initiatives." London and Geneva.

Winters, L. A. 1990. "The So-Called Non-Economic Objectives of Agricultural Support." OECD Economic Studies No. 13: 238–66.

Winters, L. A. 1994. "The LDC Perspective," in K. A. Ingersent, A. J. Rayner, and R. C. Hine (eds.). Agriculture in the Uruguay Round, St. Martin's Press, New York, 157–181.

———. 2000. "Trade and Poverty: Is there a Connection?" In *"Trade, Income Disparity and Poverty,"* Geneva: World Trade Organization.

Wood, A. 1997. "Openness and Wage Inequality in Developing Countries: The Latin American Challenge to East Asian Conventional Wisdom." *The World Bank Economic Review* (11): 33–57.

World Bank. 1997. *Global Economic Prospects and the Developing Countries 1997*. Washington, D.C.

———. 1999a. "Bangladesh Trade Liberalization: Its Pace and Impacts." South Asia Region. November. Washington, D.C.

———. 1999b. "Bangladesh. From Counting the Poor to Making the Poor Count." Washington, D.C.

———. 2000a. *World Development Report 2000/2001*. Washington, D.C.

———. 2000b. "Vietnam Development Report 2000: Attacking Poverty." Washington, D.C.

———. 2000c. *Global Economic Prospects and the Developing Countries 2001*. Washington, D.C.

———. 2000d. *Trade Blocs*. Washington, D.C.

———. 2001a. "Uganda Poverty Status Report 2001." February. Washington, D.C. Draft.

———. 2001b. "Leveraging Trade for Development." Development Committee. April. Washington, D.C.

World Bank. 2001c. "Trade Policy and Poverty," in Poverty Reduction Strategy Sourcebook. Washington, D.C.

World Bank. forthcoming. Agriculture and the Global Trading Systems, (draft) M. Ingco (ed), May 2001, Washington, D.C.

WTO (World Trade Organization). 2001. "Market Access: Unfinished Business." Special Studies. May. Geneva.

3

Trade in Services: Using Openness to Grow

Services are vital for economic development—

Services are the fastest growing sector of the global economy, and trade and foreign direct investment in services have grown faster than in goods over the past decade. Developing countries have witnessed even faster growth rates, and their share in world services exports increased from 14 percent in 1985–89 to 18 percent in 1995–98. Technological progress has greatly enhanced the scope for trade in conventional services, such as education and finance, and also created a host of new tradable services, such as software development and Internet access. Moreover, liberalization in many countries is leading for the first time to the private and foreign provision of services such as telecommunications, transport, and finance.

In virtually every country, the performance of the services sectors can make the difference between rapid and sluggish growth (box 3.1). Developing countries, in particular, are likely to benefit significantly from further domestic liberalization and the elimination of barriers to their exports. The income gains from a reduction in protection to services are estimated to be multiples of those from trade liberalization in goods.

—but the benefits from liberalization are not automatic

Flawed reform programs can substantially reduce gains. The largest gains come from *eliminating barriers to entry,* but many developing countries have given priority to a change in ownership through privatization, while retaining limitations on new entry. *Effective regulation* ranging from prudential regulation of financial services to procompetitive regulation of telecommunications is critical to the success of liberalization, but regulatory weaknesses are too prevalent in developing economies. Liberalization also frequently requires complementary policies to help improve *access to essential services* for the poor. The experience of several countries has demonstrated that universal service goals can be achieved in competitive markets.

Multilateral engagement can be an important catalyst for liberalization

Even though governments can initiate reforms of services individually, multilateral engagement can help in two ways. First, negotiations under the General Agreement on Trade in Services (GATS) could help accelerate domestic reform and improve access to foreign markets for developing countries. However, for these negotiations to be fruitful, both developed and developing countries must recognize mutual interests in reciprocal liberalization. In particular, developed countries must see the advantages of allowing the temporary movement of individual service providers. Developing countries must see the advantages of multilateral agreements to increase competition, enhance credibility of potential domestic reform, and strengthen domestic regulation. Recognizing

Box 3.1 Why do services matter for development?

In developing countries, the average share of services in GDP increased from around 40 percent in 1965 to around 50 percent in 1999, while in the OECD countries the average share increased over the same period from 54 percent to over 60 percent. Among the fastest growing sectors in many countries are services such as telecommunications, software, and finance.

Efficient services not only provide a direct benefit to consumers, but also help shape overall economic performance. An efficient and well-regulated *financial sector* leads to the efficient transformation of savings to investment, ensuring that resources are deployed wherever they have the highest returns; and facilitates better risk-sharing in the economy. Improved efficiency in *telecommunications* generates economywide benefits, because this service is a vital intermediate input and also crucial to the dissemination and diffusion of knowledge. The spread of the Internet and the dynamism that it has lent to economies around the world is telling testimony to the importance of telecommunications services. Similarly, *transport services* contribute to the efficient distribution of goods within a country, and are particularly important in influencing a country's ability to participate in global trade. Although these are the more prominent services, others are also crucial. *Business services* such as accounting and legal services are important in reducing transaction costs—the high level of which is considered one of the most significant impediments to economic growth in Africa. *Education and health services* are necessary in building up the stock of human capital. Retail and wholesale services are a vital link between producers and consumers, and influence the efficiency with which resources are allocated to meet consumer needs. *Software development* is the foundation of the modern knowledge-based economy. *Environmental services* contribute to sustainable development by helping alleviate the negative impact of economic activity on the environment.

Source: World Bank staff.

these potential mutual gains will allow reciprocal "concessions" that benefit both.

In parallel, global cooperation is needed to provide support for developing countries at four levels: in devising sound policies, strengthening the domestic regulatory environment, enhancing their participation in the development of international standards, and in ensuring access to essential services in the poorest areas.

Surging trade and investment in services

Trade in services: four modes of supply

Services include activities as disparate as transport of goods and people, financial intermediation, communications, distribution, hotels and restaurants, education, health care, construction, and accounting. In contrast to merchandise trade, services are often intangible, invisible, and perishable, and usually require simultaneous production and consumption.[1] The need in many cases for proximity between the consumer and the producer implies that one of them must move to make an international transaction possible. Since the conventional definition of trade—where a product crosses the frontier—would miss out on a whole range of international transactions, it is now customary to define "trade in services" to include four modes of supply:

- Mode one: *cross-border supply,* which is analogous to trade in goods; arises when a service crosses a national frontier, for example, the purchase of software or insurance by a consumer from a supplier located abroad.
- Mode two: *consumption abroad;* occurs when the consumer travels to the terri-

tory of service supplier, for example, to purchase tourism, education, or health services.

- Mode three: *commercial presence;* involves foreign direct investment, for example, when a foreign bank or telecommunications firm establishes a branch or subsidiary in the territory of a country.
- Mode four: *movement of individuals;* occurs when independent service providers or employees of a multinational firm temporarily move to another country.[2]

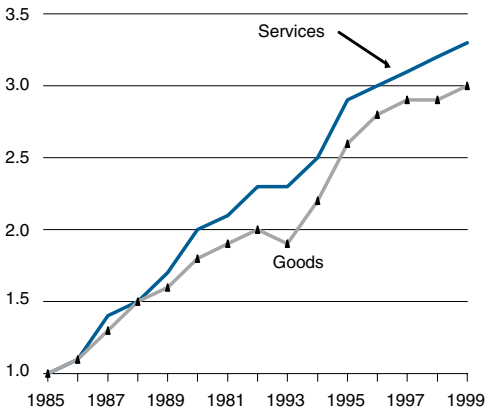
Services have been among the fastest growing components of world trade over the last 15 years. Over the period 1985–99, the compound annual growth rate for services exports on a balance-of-payments basis—which covers primarily cross-border supply and consumption abroad—was over 9 percent per annum, compared to 8.2 percent per annum for merchandise (figure 3.1 left). As a result, services trade more than trebled its size in fifteen years to $1.2 trillion in the year 1999, and now accounts for a quarter of all cross-border trade.[3]

Developing countries as a group have witnessed an even more rapid (nearly four-fold) increase in their services exports, and a consequent increase in their share in world service trade from 14 percent in 1985–89 to 18 percent in 1995–98 (figure 3.1 right). From a regional perspective, Europe and Central Asia (ECA) and East Asia and Pacific (EAP) increased their services exports by a factor of six; South Asia (SAR) and Latin America and the Caribbean (LAC) kept up with world growth; and Sub-Saharan Africa (SSA) and the Middle East and North Africa (MNA) lagged behind. Even so, most trade in services still takes place between rich countries.

Over the last two decades, there has been a significant decline in the relative importance of transport services in total services exports—from around one-third to around one-fifth of total exports—which may in part reflect a decline in the relative price of transport services

Figure 3.1 Trade in services has grown faster than trade in goods—

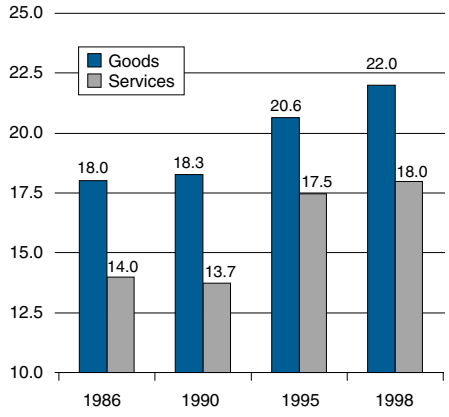
(compound growth, 1985=1)



Note: Population estimate from a sample of 100 countries for period 1985–98. Figure for 1999 is estimate from 69 countries. World trade defined as (X+|M|)/2
Source: IMF BoP Rev. 5, through SIMA; EPPG staff calculations.

—and developing countries share in world exports have increased, 1986–98

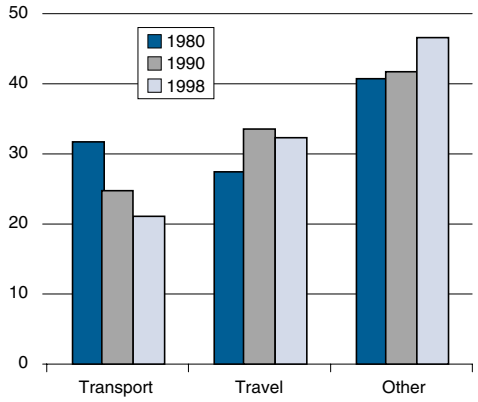
Percent



Note: Population estimate from a sample of 100 countries.
Source: IMF BoP Rev. 5, through SIMA; EPPG staff calculations.

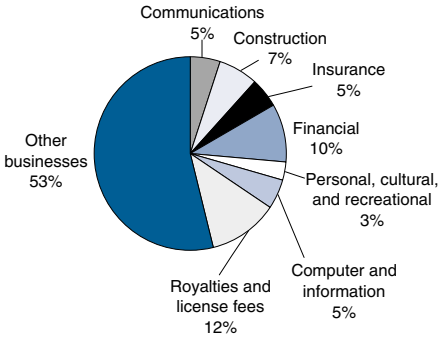
Figure 3.2 Transport has declined, while "other" services have increased

Percent of world total services exports



Note: Population estimate from a sample of 89 countries.
Source: IMF BoP Rev. 5, through SIMA; EPPG staff calculations.

"Other" services



Source: Trade Handbook, based on IMF BoP rev. 5.

(figure 3.2). While the 1980s witnessed a growth in the relative importance of travel, the 1990s witnessed a significant increase in the share of other commercial services. Detailed information on this last category is not available for most countries. Estimates suggest that financial services are probably the most important, followed by construction, communications, and computer and information services.

Most FDI in services goes to OECD economies—

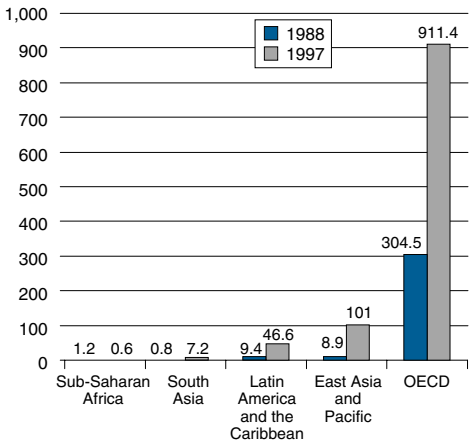
A large amount of "trade" in services takes place through an established presence, for example through foreign direct investment (FDI). The available evidence suggests that commercial presence has been the most dynamic mode of services supply in recent years.[4] This may reflect the fact that there has been far greater liberalization of foreign investment than of cross-border supply of services, which was either already open or did not witness significant new opening. At the level of individual sectors, despite the growing use of information and communications technology, commercial presence is the dominant mode of supply in all sectors except transport, and to a more limited extent telecommunications.[5]

—but the growth rates of FDI flows to developing countries are higher

The limited evidence available suggests that the bulk of FDI stocks are in the Organisation for Economic Co-operation Development (OECD) countries (figure 3.3). However, over the period 1988–97, stocks in developing countries have witnessed much faster rates of growth, increasing ten-fold in EAP, seven-fold in SSA, and five-fold in LAC, compared to a three-fold increase in the OECD.[6] The only exceptions are the three countries in SSA for which data are available, where the stock declined by a half. In all regions except SSA, the services sector now accounts for nearly half of the entire FDI stock—from 1988 levels of less than one-fifth in LAC and less than one-third in SAS. The limited information on sectoral composition of FDI stocks suggests that nearly half the stock in SAS is in financial services, whereas the stocks in EAP and LAC are more uniformly

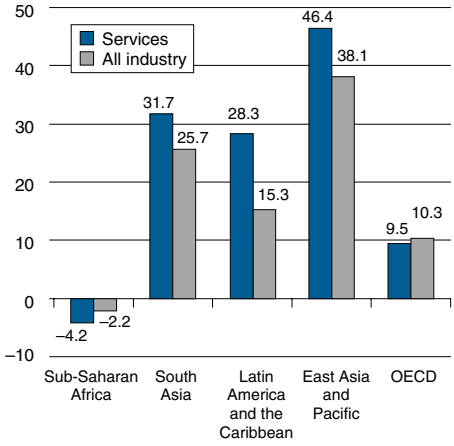
Figure 3.3 FDI in services is concentrated in the OECD countries—

Billions of dollars



—but the growth rates are higher for many developing countries

Simple average compound annual growth rates



Source: UNCTAD, FDI/TNC database.

distributed across finance, transport, storage and communications, hotels and restaurants, real estate, and other business services.

Developing countries are becoming players in exporting services

While some developing countries are increasingly investing in other countries to export services—for example, Malaysia in environmental services, and South Africa in telecommunications—most supply services via cross border sales (for example, data processing), to visiting foreign consumers (for example, tourism), and through the movement abroad of individual services providers (for example, professional services). Developments in information and communication technology have dramatically increased the scope for cross-border exports of services, ranging from software development in the Philippines to data processing in Barbados. Rough estimates suggest that the size of the potential market for developing-country exports of long-distance services could be in the range of 1 to 5 percent of the total employment in services in the seven richest economies—implying exports valued at between $40 billion and $120 billion (World Bank 1995). This mode of delivery is still free of explicit barriers, though regulatory barriers may impede trade (see box 3.2).

One of the most striking recent examples of a developing-country service export success story is the Indian software industry. Indian software exports grew from $225 million in 1992–93 to $1.75 billion in 1997–98 (at an annual growth rate of approximately 50 percent).[7] A recent report projects annual revenues of $87 billion, 2.2 million jobs, and a market capitalization of $225 billion for the Indian information technology (IT) sector by the year 2008.[8] By the same year, the IT sector could account for 35 percent of India's exports and attract $5 billion of FDI per year.

These figures are not implausible because India still accounts for only half a percent of the world software market, and there are still wide differences across countries in the cost of software development and support. The average cost per line of code in Germany (the most expensive country) exceeds by more than four times that of India (the cheapest country)

Box 3.2 Whose regulations and for what purpose? Challenges in electronic commerce

Domestic regulations that affect trade pose the main challenge to ensuring open conditions for electronic delivery of services. Two examples illustrate how difficult it is to distinguish between regulations that incidentally impede trade in the pursuit of legitimate objectives and regulations that deliberately discriminate against foreign provision for the sake of protection.

Privacy

An issue that could have a profound effect on electronic commerce is privacy. In late 1998, the European Union issued a wide-ranging directive that aims to safeguard the privacy of personal data of EU citizens and prevent its misuse worldwide. It is backed by the power to cut off data flows to countries that the EU judges not to have adequate data protection rules and enforcement. The directive caused frictions with the US, which accused the EU of trying to impose laws beyond its own frontiers. A compromise was reached under which the US agreed to set up arrangements for the processing by companies of personal data from the EU, but the issue has not been fully resolved.

The issue could have an impact on developing countries exports of data processing services, and poses a difficult choice for these countries. If they choose not to enact laws deemed adequate, they could be shut off from participation in this growing market. In the absence of such laws and given the weakness of local legal systems, it might be difficult for private firms in developing countries to emulate United States firms like Microsoft and credibly commit to meet the required high standards.

If they do enact stringent laws, it is unlikely that they could be made specific to trade with particular jurisdictions, and so the result could be an economy-wide increase in the costs of doing business. For instance, if private sector estimates generated in the United States are to be believed, information sharing saves the customers of 90 financial institutions (accounting for 30 percent of industry revenues), $17 billion a year ($195 per average customer household) and 320 million hours annually (4 hours per average customer household) (Glassman, 2000). It is of course true that reporting of personal credit histories is critical to consumer credit, and, even in theory, excessively, strict privacy laws could create significant asymmetries of information and affect the efficiency of markets (Kitchenman, 1999). This is not to suggest that there might not be good reasons to protect privacy. However, achieving diverse national objectives without creating unnecessary impediments to trade is ideally accomplished through a multilateral process in which developing countries participate.

Offshore financial services

Several Caribbean countries have become off-shore financial services centers. However, in recent years, their tax and regulatory regimes have drawn fire and elicited increased scrutiny. For example, the Financial Stability Forum (FSF), which assesses conformity with international regulatory standards (including cross-border cooperation) placed many of the Caribbean offshore centers in the lowest category; the Financial Action Task Force (FATF), which is concerned with protecting financial systems from money laundering and criminal use, placed a number of Caribbean centers in its list of "non-cooperative jurisdictions," from the standpoint of willingness to cooperate with the FATF on the basis of a list of its own criteria; and the countries also attracted the attention of the OECD for tax practices deemed harmful.

While the regulatory objectives are legitimate, several concerns have been raised about these initiatives. First, most developing countries have not participated in the development of the standards that are being applied. Second, the standards are not always applied uniformly. For example, the FATF applies the FATF 40 Criteria when conducting mutual evaluations of its members, but uses a different standard, the FATF 25 Criteria, to assess jurisdictions that are not FATF members. Third, in some cases the assessment processes are not transparent. For example, the FSF does not specify how a country classified in a low category can improve standards and graduate to a higher category. And FATF deliberations determining "non-cooperative jurisdictions" are held in closed sessions. Finally, the evaluation processes are

Box 3.2 *(continued)*

in some instances not voluntary and involve a "name and shame" approach to induce compliance.

These issues have provoked continuing discussions in the international financial institutions and other fora, but much work needs to be done before international consensus can be established. The Bank and the Fund are assisting many jurisdictions to assess their compliance with international standards with the aim to help them address any underlying weaknesses. Key in this is the Bank-Fund Comprehensive Financial Sector Assessment Programs and the recent IMF-led program of voluntary off-shore financial center assessments. Several Caribbean off-shore financial centers have endorsed these initiatives.

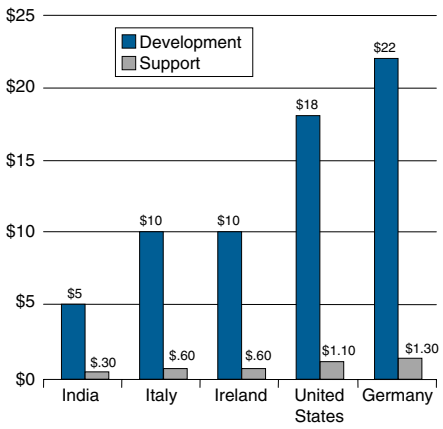
Source: Bank staff.

(figure 3.4). Against the background of a total market for software services worth about $58 billion in the United States, $42 billion in Europe, and $10 billion in Japan, cost savings could well be substantial.[9] Other gains from trade liberalization include a more competitive market structure for software services, increased choice (because countries may develop a special expertise for certain development or support services), and greater diffusion of knowledge.

The movement of service-supplying personnel remains a crucial means of delivery. Even though the share of on-shore services in total Indian software exports has been in continuous decline (in 1988, the percentage of on-site development was almost as high as 90 percent), about 60 percent of Indian exports are still supplied through the temporary movement of programmers to the client's site overseas.[10]

Figure 3.4 Software is cheaper to develop in India

Cost per line of code (dollars)



Source: Adapted from Rubin (1999).

Barriers to mode four deprive both home and host country of benefits

Many more developing countries could "export" at least the significant labor component of services such as construction, distribution, environmental, and transport with greater liberalization in the movement of individuals (mode four). If the movement is temporary, then we can be fairly confident that both the host and home country will gain. For exporting countries, it is clear that both the financial and knowledge benefits would be greatest if service suppliers return home after a certain period abroad.[11] For importing countries, such temporary movement should create fewer social and political problems than immigration.

Today, many different barriers constrain the movement of individuals. The most obvious barriers are explicit quotas or economic needs tests—for example, requirements that employers take timely and significant steps to recruit and retain sufficient national workers in the specialty occupation and that no worker has been laid off for a certain period preceding and following the filing of any work permit or visa application.[12] Then the many formalities (for

example, to obtain a visa) make red tape related to FDI seem trivial by comparison. The entry of foreigners can be impeded by nonrecognition of their professional qualifications, burdensome licensing requirements, or by the imposition of discriminatory standards on them. The requirement of registration with, or membership of, professional organizations can also constitute an obstacle for a person wishing to provide the service on a temporary basis.

Health services could be an area of comparative advantage—

Health services are another area in which developing countries could become major exporters, either by attracting foreign patients to domestic hospitals and doctors, or by temporarily sending their health personnel abroad. In Cuba, the government's strategy is to convert Cuba into a world medical power. SERVIMED, a trading company created by the government, prepares health and tourism packages. During 1995–96 25,000 patients and 1,500 students went to Cuba for treatment and training respectively, and income earned from sales of health services to foreigners was $25 million. Cost savings for patients and health insurers can be significant. For example, the cost of coronary bypass surgery could be as low as 70,000 to 100,000 Indian rupees in India, about 5 percent of the cost in developed countries. Similarly, the cost of a liver transplant in India is one-tenth of that in the United States (UNCTAD and WHO 1998).

—but will require greater portability of insurance

A major barrier to *consumption abroad* (mode two) of medical services is the lack of portability of health insurance. For example, U.S. federal or state government reimbursement of medical expenses is limited to licensed, certified facilities in the United States or in a specific U.S. state. The lack of long-term portability of health coverage for retirees from OECD countries is also one of the major constraints to trade. In the United States for instance, Medicare covers virtually no services delivered abroad. Other nations may extend coverage abroad, but only for limited periods (two or three months). This constraint is significant because it tends to deter some elderly persons from traveling or retiring abroad. Those who do retire abroad are often forced to return home to obtain affordable medical care. If individual concerns about the quality of care received abroad are addressed, then the potential impact of permitting portability could be substantial. If only 3 percent of the 100 million elderly persons living in OECD countries retired to developing countries, they could bring with them possibly $30 to $50 billion annually in personal consumption and $10 to $15 billion in medical expenditures (UNCTAD and WHO 1998).

Service reforms can promote efficiency and growth

Liberalization of trade in services, accompanied by the reform of complementary policies, can lead to sectoral and economywide improvements in performance.

At the sectoral level—

Removing barriers to trade in services in a particular sector is likely to lead to lower prices, improved quality, and greater variety. As in the case of trade in goods, restrictions on trade reduce welfare because they create a wedge between domestic and foreign prices, leading to a loss to consumers that is greater than the increase in producers' surplus and government revenue.[13] Several empirical sectoral studies support this contention.[14] Because many services are inputs into production, the inefficient supply of such services acts as a tax on production and prevents the realization of significant gains in productivity. As countries reduce tariffs and other barriers to trade, effective rates of protection for manufacturing industries may become negative if they continue to be confronted with input prices that are higher than they would be if services markets were competitive.[15]

A major benefit of liberalization is likely to be access to a wider variety of services whose production is subject to economies of scale.

Consumers derive not only a direct benefit from diversity in services such as restaurants and entertainment, but also an indirect benefit because a wider variety of more specialized producer services, such as telecommunications and finance, can lower the costs of both goods and services production (Ethier 1982; Copeland 2001). In such circumstances, smaller markets can be shown to have a strong interest in liberalizing trade in producer services, since this can offset some of the incentives that firms have to locate in larger markets (Markusen 1989).[16]

—and economywide—

Estimates of benefits vary for individual countries—from under 1 percent to over 50 percent of gross domestic product (GDP)—depending on the initial levels of protection and the assumed reduction in barriers.[17] In simulations of global service trade liberalization, developed countries gain more in absolute terms—which is not surprising given the relative size of their economies—but developing countries also see significant increases in their GDP. One model predicts gains of between 1.6 percent of GDP (for India) to 4.2 percent of GDP (for Thailand) if tariff-equivalents of protection were cut by one-third in all countries (Chadha and others 2000). The gains from liberalizing services may be substantially greater than those from liberalizing trade in goods (box 3.3), because current levels of protection are higher and because liberalization would also create spillover benefits from the required movement of capital and labor. For instance, one model finds that the welfare gains from a 50 percent cut in services sector protection would be five times larger than those from nonservices sector trade liberalization (Robinson and others 1999). These results are particularly striking because they are derived from models that do not fully allow for the temporary movement of individual service suppliers—potentially a major source of gain.

—with accelerator effects on growth

Certain services industries clearly possess growth-generating characteristics (see box 3.1). Furthermore, barriers to entry in a number of services sectors, ranging from telecommunications to professional services, are maintained not only against foreign suppliers but also against new domestic suppliers. Full liberalization can, therefore, lead to enhanced competition from both domestic and foreign suppliers. Greater foreign factor participation and increased competition together imply a larger scale of activity, and hence greater scope for generating the special growth-enhancing effects.[18] Even without scale effects, the import of foreign factors that characterizes services sector liberalization could still have positive effects because they are likely to bring technology with them.[19] If greater technology transfer accompanies services liberalization—either embodied in foreign direct investment or disembodied—the growth effect will be stronger.[20]

Econometric evidence—relatively strong for the financial sector and less strong but nevertheless statistically significant for the telecommunications sector—suggests that openness in services influences long-run growth performance (figures 3.5 and 3.6). After controlling for other determinants of growth, countries that fully liberalized the financial services sector grew, on average, about 1 percentage point faster than other countries. An even greater impetus on growth was found to come from fully liberalizing both the telecommunications and the financial services sectors. Estimates suggest that countries that fully liberalized both sectors grew, on average, about 1.5 percentage points faster than other countries. While these estimates indicate that there are substantial gains from liberalizing key services sectors, it would be wrong to infer that these gains can be realized by a mechanical opening up of services markets.

A flawed reform program can undermine the benefits of liberalization

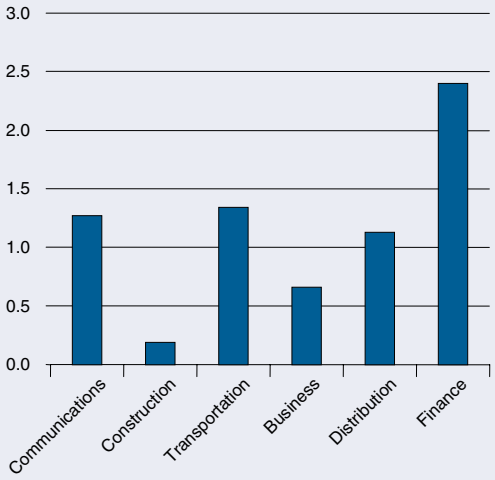
If privatization of state monopolies to private owners (sometimes foreigners) is conducted without concern for creating conditions of competition, the result may be merely transfers of monopoly rents to private owners. Similarly,

Box 3.3 Welfare gains from service liberalization: The case of Tunisia

The implications of services liberalization for the Tunisian economy have been analyzed by Konan and Maskus (2000) using a computable general equilibrium model. Using actual data as the foundation, they analyze the effect of liberalizing six service sectors: communications, construction, transportation, business and insurance, distribution, and finance. The Tunisian economy is relatively closed, and also faces constraints on its exports through the movement of individuals. The model is developed so as to consider three different modes of liberalization: "import" liberalization of cross-border trade and the right of establishment by foreign investors, as well as increased "exports" through cross-border movement of natural persons.

The main finding is that services liberalization could provide significant gains to Tunisia, with welfare gains equivalent to 7 percent of GDP. These are twice as large as the gains the model predicts for Tunisia from its preferential agreement with the EU. The largest benefits come from the liberalization of foreign investment in financial services, communications, and transportation. Liberalization vitalizes the economy by eliminating inefficiency through increased international competition. Services are available not only at lower prices but also in greater varieties through an increase in the number of firms that would operate in Tunisia. More efficient financial, communications, and transportation sectors are also likely to attract foreign firms to other industries in Tunisia. As more and more foreign firms start to operate in Tunisia, the number of varieties of goods and services made available to consumers and producers also increases, which further improves welfare. The possible cost in terms of restructuring the economy turns out to be small. For example, it is predicted that a mere 3 percent of the workforce would have to change sectors—a much lower figure than the 6.6 percent adjustment the model predicts as a consequence of the Tunisia-EU free trade agreement on goods trade. The gentler impact on the labor market is a consequence of the fact that services liberalization induces foreign investment, so that workers simply change employers within the same sector. Finally, if Tunisia were to obtain a 20 percent increase in overseas permits for its guest workers in foreign markets, then there would be an additional gain in welfare equivalent to 0.4 percent of GDP.

Percentage change in GDP resulting from liberalization of selected service sectors

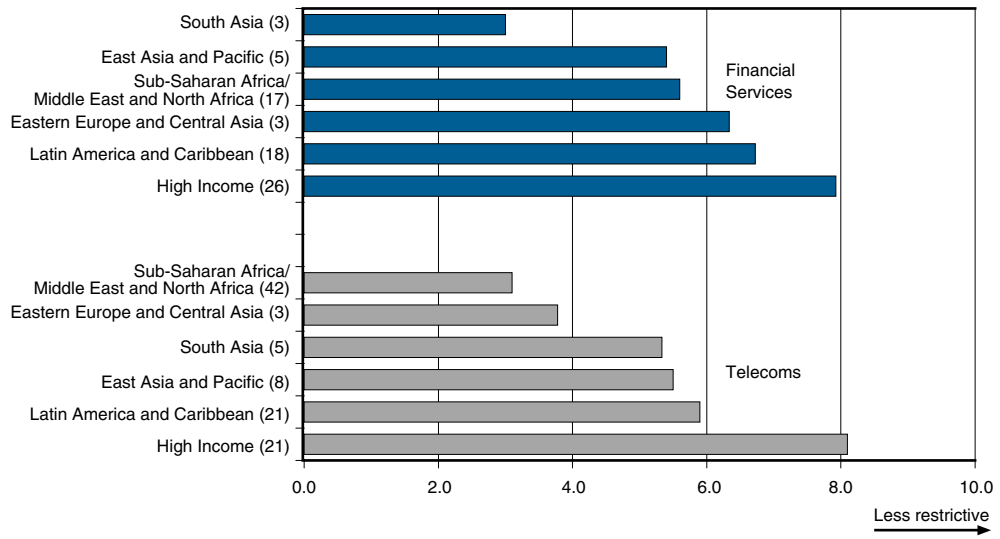


Source: Konan and Maskus 2000.

Source: Konan and Maskus 2000.

if increased entry into financial sectors is not accompanied by adequate prudential supervision and full competition, insider-lending and poor investment decisions may result. Also, if policies to ensure universal service are not put in place, liberalization need not improve access to essential services for the poor. Managing reforms of services markets therefore requires integrating trade opening with a careful combination of competition and regulation.

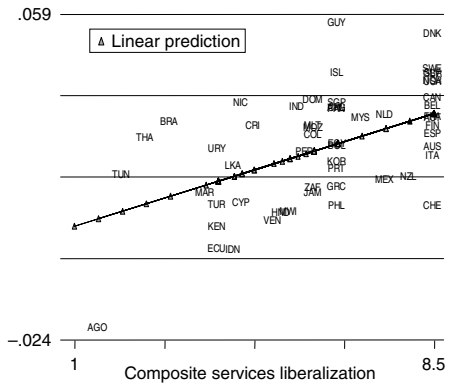
Figure 3.5 Services liberalization indices: telecoms & financial services



Note: The openness index for telecommunications captures the degree of competition, restrictions on ownership and the existence of an independent regulator (needed to enable competitive entry), and draws on an ITU-World Bank database for 1998. The index for financial services captures the restrictions on new entry, foreign ownership and capital mobility, and draws primarily upon commitments made by countries under the GATS, which are known to reflect closely actual policy, and data in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions.
Source: Mattoo, Rathindran, and Subramanian 2001.

Figure 3.6 Greater liberalization in services is associated with more rapid growth

Growth rate (adjusted for other factors)



Source: Mattoo, Rathindran, and Subramanian 2001.

South Africa's experience with liberalizing telecommunications services is instructive. The government recognized the need for a more efficient supply of services. It decided to sell a 30 percent equity stake of the public incumbent, Telkom, to a strategic investor and to grant the newly privatized entity a five-year monopoly period for fixed-line telephone services. It was hoped that market exclusivity would facilitate rapid infrastructure rollout to previously underserviced areas, but the program has had mixed results. Even though network growth picked up, Telkom did not meet its rollout obligations and sought to renegotiate the targets specified in its monopoly license. The cost of the fixed-line monopoly was also reflected in Telkom's rising price-cost margin, with gains in productivity leading to higher margins rather than lower prices (Hodge 1999). Finally, despite some improvement, la-

bor productivity was only a quarter that of leading international operators, with the lack of competition in the domestic market identified as a major contributing factor. Continued restrictions on domestic and foreign entry appear to have prevented the realization of the full benefits of competitive markets.

In addition to competition, the institutional and regulatory framework plays a critical role. For example, in the 1990s financial reforms were introduced in many African countries, but have been less successful than expected (World Bank 2001a). Some of the reasons for the disappointing results are directly related to the financial system, while others pertain to the general economic environment. The restructuring of state-owned banks was not sufficient to change the behavior of the financial institutions. Public authorities still pressured these institutions to lend money to loss-making public enterprises. Liberalization failed to trigger competition in the banking sector and governments were generally reluctant to close down distressed state banks. Furthermore, liberalization of interest rates in a setting characterized by uncontrolled fiscal deficits had a pernicious effect on domestic public debt, which in turn led to larger deficits. Finally, and crucially, there was a lack of adequate regulation and supervision mechanisms to monitor the functioning of the financial system.

The collapse of the Republic of Korea's economy in 1997 also reveals the precariousness of financial liberalization in an imperfect policy environment. Korea did liberalize its financial markets substantially, but it encouraged the development of a highly fragile financial structure.[21] By liberalizing short-term foreign borrowing, the Korean authorities made it possible for the larger and better-known banks and conglomerates (chaebols) to assume heavy indebtedness in short-term foreign currency debt. Meanwhile, the second tier of large chaebols greatly increased their short-term indebtedness in the domestic financial markets (funded indirectly through foreign borrowing of the banks). The funds borrowed were being invested in the over-expansion of productive capacity. At the same time, financial regulation and supervision were fragmented with responsibilities spread unclearly between the Bank of Korea and several parts of the Ministry of Finance. In addition, Korea had a restrictive regime in terms of foreign bank entry. Until the 1997 crisis, the Korean banking system was virtually closed to foreign banks, in contrast to some other East Asian economies, such as Hong Kong (China), which was almost completely open for all financial services. This restrictive regime impeded the development of the local institutions, and may have contributed to the large capital outflows as foreign creditors refused to rollover their loans.

Liberalization could increase prices of some services for the poor—

Opening up essential services to foreign or domestic competition could have an adverse effect on the poor—which is often cited as a reason for the persistence of public monopolies. However, a more efficient solution is to have regulations with a social purpose.

If a country is a relatively inefficient producer of a service, liberalization and the resultant foreign competition are likely to lead to a decline in domestic prices and improvement in quality. But there is a twist. Frequently, the prices before liberalization are not determined by the market but set administratively, and are kept artificially low for certain categories of end-users or types of services products. Thus rural borrowers may pay lower interest rates than urban borrowers, and prices of local telephone calls and public transport may be kept lower than the cost of provision.[22] This structure of prices is often sustained through cross-subsidization within public monopolies, or through government financial support.

Liberalization threatens these arrangements. Elimination of restrictions on entry imply an end to cross-subsidization, because it is no longer possible for firms to make extranormal profits in certain market segments. New entrants may focus on the most profitable market segments ("cream-skimming"), such as urban areas, where network costs are lower

and incomes higher. And privatization could mean the end of government support. The result is that even though the sector becomes more efficient and average prices decline, the prices for certain end-users may actually increase or availability decline, or both.

The evidence on the relationship between competitive market structures and wider access to services is mixed. In some cases, a positive relationship has been observed in services such as basic telecommunications, especially in countries where initial conditions are feeble, as exemplified by a low teledensity or service rationing (long waiting lists for obtaining connections). However, there is also evidence that financial services liberalization in some countries has had an adverse affect on access to credit for rural areas and the poor.[23] These point to the need to create mechanisms to ensure that the poor have adequate access to services in liberalized markets.

—and entail adjustment costs

Different modes of supply have different effects on factor markets. Cross-border trade and consumption abroad resemble goods trade in their implications. The impact of the movement of factors depends critically on whether the factors are substitutes or complements for domestic factor services. Given the structure of factor prices in poor countries, we would typically expect liberalization to lead to an inflow of capital and skilled workers. Such inflows would tend to be to the advantage of the unskilled poor, increasing their employment opportunities and wages.[24] Interestingly, it has been shown that even when foreigners compete with local skilled workers in a services sector, the productivity boost to the sector from allowing foreigners access could lead to an increase in the demand for domestic skilled workers—the scale effect could outweigh the substitution effect (Markusen, Rutherford, and Tarr 2000). Given these predictions, why are workers in developing countries sometimes skeptical about the benefits of liberalization? One concern is the possible reduction in employment in formerly public monopolies that have frequently employed surplus labor. For example, Alexander and Estache (1999) find that the privatization of electricity distribution in Argentina led to a 40 percent reduction in the workforce after privatization.

But there is also evidence that pessimism may not always be justified. For example, a number of developing countries have managed to maintain or even increase employment in their liberalized telecommunications sectors. Since many developing countries have low teledensities (in the vicinity of five lines per 100 people), roughly 70 percent of telecom investment in developing countries is directed toward building wire line and mobile networks, which are labor intensive and hence help maintain or raise employment levels. Petrazzini and Lovelock (1996) find in a study of 26 Latin American and Asian economies that telecom markets with competition were the only ones that consistently increased employment levels, while two-thirds of the countries with monopolies saw considerable declines in their telecom workforce.[25] Nonetheless, reform programs will generally require complementary policies to mitigate any social and economic costs of adjustment in factor markets.

Domestic policy: emphasizing competition and regulation

Increasing competition is the first order of business

Many developing countries have moved away from public monopolies in sectors such as communications, financial, and transport services, but are still reluctant to allow unrestricted new entry. Privatization does not axiomatically mean greater competition. Restrictions on foreign presence assume particular significance in the case of services where cross-border delivery is not possible, because consumer prices then depend completely on the domestic market structure. Several studies have concluded that larger welfare gains arise from an increase in competition than from a simple change in ownership from public to private hands (Armstrong and

others 1994). Foreign investment clearly brings benefits even in situations where it does not lead to enhanced competition. Foreign equity may relax a capital constraint, can help ensure that weak domestic firms are bolstered (for example, via recapitalizing financial institutions), and serve as a vehicle for transferring technology and know-how, including improved management. However, if restrictions on competition artificially inflate the returns on investment, the net returns to the host country may be negative.

Are there good reasons to limit entry? In some cases, technical limitations may prevent competition—such as those imposed by the scarcity of radio spectrum needed for the provision of mobile telecommunications services, and scarcity of space for department stores or airports in a city. More generally, entry restrictions might be justified by the existence of significant economies of scale. For example, if there are substantial fixed costs of networks, competitive entry could lead to inefficient network duplication.[26] However, entry restrictions are increasingly hard to defend in principle, in the face of technological change and in the face of mounting evidence that competition works.

First of all, entry restrictions change the nature of interaction between incumbents and may well make collusion more likely. Second, such restrictions dampen the impact of competition on productive efficiency. Third, the regulator is usually not better placed than the competitive process to determine the optimal number of firms in the market, especially given the difficulty of obtaining information about the cost structure of firms and other sources of regulatory failure. Furthermore, technological advances have significantly lowered network costs in a unisector such as telecommunications, and vertical separation (for example, through network unbundling) has widened the scope for competitive entry (Smith 1995). Therefore inefficiencies introduced by duplication of networks may be small compared to operational inefficiencies that can result from a lack of competitive pressure.[27] For example, even in telecommunications, a sector where fixed costs are significant, countries in Latin America that granted monopoly privileges to telecom operators of six to ten years to the privatized state enterprises saw connections grow at one and a half times the rate achieved under state monopolies, but only half the rate in Chile, where the government retained the right to issue competing licenses at any time (Wellenius 1997). A recent study of countries in Asia found that the largest increases in mainline penetration and productivity were witnessed in countries where a change of ownership was accompanied by the introduction of competition and the strengthening of regulation (Fink and others 2001).

Efficient regulation: Making competition work

Regulation in services, as in goods, arises essentially from market failure, which is attributable to the problems of natural monopoly and inadequate consumer information, and from considerations of equity and protecting the poor.

The existence of natural monopoly or oligopoly is a feature of the so-called locational services. Such services require specialized distribution networks: roads and rails for land transport, cables and satellites for communications, and pipes for sewerage and energy distribution (UNCTAD; and World Bank 1994).

Many countries have instituted independent regulators for basic telecommunications services to ensure that monopolistic suppliers do not undermine market access by charging prohibitive rates for interconnection to their established networks (see box 3.4).[28] A similar approach is being taken in a variety of other network services, including transport (terminals and infrastructure), and energy services (distribution networks).

Regulation of the interconnection price may not, however, be sufficient. Small markets may not be able to create conditions for effective competition in the supplies of certain telecommunications, transport, and financial services, even if they eliminate all barriers to entry—for

Box 3.4 Challenges in implementing procompetitive regulation

It is now widely recognized that in basic telecommunications procompetitive regulation is needed to deliver effective competition and gains from liberalization. But the experience of different countries reveals a range of political and economic difficulties that are only gradually being overcome.

In India a conflict between the department of telecommunications (DOT) and the regulatory agency, Telecommunications Regulatory Authority of India (TRAI), as it was initially constituted, hampered progress toward an efficient telecom infrastructure. Underlying a number of these problems was the DOT's joint role in awarding licenses for both basic and cellular services while remaining as the main telecommunications service provider. Absent an independent regulator, empowered to rebalance tariffs, enforce fair interconnection agreements, and ensure rapid, equitable issuance of radio spectrum, the benefits of a sector opened to allow private participation and foreign investment were significantly limited.

The government announced a new telecommunications policy on March 26, 1999 that addressed several of these key outstanding issues. The DOT's policymaking and service provision functions were separated, and the operations arm was corporatized. TRAI was reconstituted in 2000, and its dispute resolution powers are now vested in a new quasi-judicial agency. The authority announced a new telephone tariffs decision that will substantially restructure telephone service prices over a three-year period, significantly improving incentives for local network investment. The regulator has also programmed an agenda of activity to address several other important regulatory matters, such as interconnection arrangements; a numbering plan; quality of service; rules of business; and customer satisfaction.

For smaller countries, a different problem arises: the creation and operation of an efficient regulatory agency involves substantial fixed costs that could place a significant resource burden. Apart from spectrum monitoring equipment, computers, and programs, there is the cost of professional assistance for activities such as interconnection, cost estimation, and spectrum management. For example, the total cost of government in Dominica is $41 million a year, whereas the budget of the U.S. telecom regulator (the Federal Communications Commission) runs to $210 a year. It is estimated that even a bare-bones regulatory authority is likely to cost in the region $2 million each year, or 5 percent of Dominica's government budget.

In response to these problems, in May 2000, St Lucia, Dominica, Grenada, St Vincent and the Grenadines, and St Kitts and Nevis set up, with World Bank support, the Eastern Caribbean Telecommunications Authority (ECTEL), the first regional telecommunications authority in the world. ECTEL is in the process of developing from a legal entity into a functioning institution. Although the member countries will retain their sovereign power over licensing and regulation, ECTEL will provide technical expertise, advice, and support for national regulations. Apart from the economies of scale in establishing a common regulator, there are at least three other advantages. It will promote the development of harmonized and transparent regulation in the region, allow for a greater degree of independence (and hence credibility) in regulatory advice, and enhance bargaining power in negotiations with incumbents and potential entrants. In fact, there is evidence that the creation of ECTEL, along with other reforms, has already prompted a decline in the prices of telecommunication services in the region. One example is that the per-minute cost of a daytime call to the United States has fallen between 24 and 42 percent in these countries.

Source: DeFreitas, Kenny, and Schware 2001; and World Bank staff.

two related reasons. First, with services, unlike in the case of goods, national markets are often segmented from the international market due to the infeasibility of cross-border delivery. Second, changing technologies may have reduced the optimal scale of operation as well as sunk costs in these sectors, but not enough for small markets to sustain competitive market struc-

tures. Some form of final price regulation may, therefore, be unavoidable. In some cases, such regulation can be implemented at the national level although, in practice, many developing countries today lack the means to do so. In other cases, the limited enforcement capacity of small states strengthens the case for multilateral initiatives.[29]

Regulation to remedy inadequate consumer information

In many intermediation and knowledge-based services, consumers have difficulty securing full information about the quality of service they are buying (UNCTAD and World Bank 1994). Consumers cannot easily assess the competence of professionals such as doctors and lawyers, the safety of transport services, or the soundness of banks and insurance companies. When such information is costly to obtain and disseminate, and consumers have similar preferences about the relevant attributes of the service supplier, the regulation of entry and operations in a sector could increase social welfare. However, the establishment of institutions competent to regulate well is a serious challenge, as is revealed by the difficulties in the financial sector—not only in a number of developing countries but also in the United States, Sweden, and Finland in the 1980s and 1990s. The fact that regulatory inadequacies cannot be quickly remedied raises the issue of how different elements of reform—particularly prudential strengthening and trade and investment liberalization—are best sequenced (see box 3.5).

A separate problem is that domestic regulations to deal with the market failure may themselves become impediments to competition and trade, as a result of differences across jurisdictions in technical standards, prudential regulations, and qualification requirements in professional, financial, and numerous other services (see box 3.2). In many cases, the impact on trade is an incidental consequence of the pursuit of a legitimate objective, but in some cases regulation can be a particularly attractive means of protecting domestic suppliers from foreign competition.[30] The issue of how multilateral trade rules might sift the legitimate from the protectionist is an issue to which we return in the final section of this chapter.

Regulation to ensure universal service

Reform programs can accommodate universal service obligations by imposing this requirement on new entrants in a nondiscriminatory way. Thus such obligations were part of the license conditions for new entrants into the fixed network telephony and transport in several countries. However, subsidies have often proved more successful than direct regulation in ensuring universal access (Estache and others 2001).[31] In 1999, Peru adopted a universal service levy of 1 percent to finance a fund dedicated to providing universal access in remote areas. Funds were allocated through a competitive bidding process that encouraged operators to adopt the best technology and other cost-saving practices at minimum subsidy. The Chilean government adopted a similar scheme that permitted it to leverage over $2 million in public funds into $40 million in private investment; this resulted in installation of telephones in 1,000 localities at about 10 percent of the costs of direct public provision. Household ownership of a telephone in Chile increased from 16 to 74 percent from 1988 to 2000, and all but 1 percent of the remaining households were provided with public access to telephones.

Public subsidies may also be directed to the consumer rather than the provider (Cowhey and Klimenko 1999). Governments have experimented with various forms of vouchers, from education to energy services. This last instrument has at least three advantages: first, it can be targeted more directly to those who need the service and cannot afford it; second, it avoids the distortions that arise from artificially low pricing of services to ensure access; and finally, it is an instrument that does not discriminate in any way between providers. Of course, no single approach will fit all sectors and countries, and the appropriate model to ensure service delivery to low-income groups will depend on local circumstances, particularly regulatory capacity.

Box 3.5 Financial sector liberalization: the need for policy coherence

Financial reform is especially complicated. It is useful to distinguish three types of financial liberalization and the scope of each.

- *Domestic financial liberalization* allows market forces to work by eliminating controls on lending and deposit rates and on credit allocation and, more generally, by reducing the role of the state in the domestic financial system.
- *Capital account liberalization* removes controls on the movement of capital in and out of a country and restrictions on the convertibility of currency.
- *Internationalization of financial services* eliminates discrimination in treatment between foreign and domestic financial services providers, and removes barriers to the cross-border provision of financial services.

Internationalization has raised several fears: the threat to the survival of local banks and financial companies; the loss of monetary autonomy; and the increased volatility of capital flows. Many of these concerns do not relate just to internationalization of financial services, but also to the processes of financial deregulation and capital account liberalization. But the extent of benefits and costs of internationalization depends, to a great extent, on how it is phased in with these other two types of financial reform, and, in particular, the strengthening of prudential regulation and supervision.

Many countries that have successful experiences opening up to foreign financial firms (Brazil, Chile, Hungary, Ireland, Poland, Portugal, Spain, and others) also engaged in a process of domestic deregulation and, consequently, reaped substantial gains (World Bank 2001b). The experience of the countries acceding to the EU suggests that internationalization and domestic deregulation can be mutually reinforcing. Increased foreign entry bolstered the financial sector framework by creating a constituency for improved regulation and supervision, better disclosure rules, and improvements in the legal and regulatory framework for the provision of financial services. It also added to the credibility of rules. These benefits of opening up to foreign entry followed from both top-down actions on the part of government, as well as from bottom-up pressures from the market as best international practices and experiences were introduced.

While the two reform processes (internationalization and domestic financial deregulation) are mutually reinforcing, they are not sufficient in themselves. More than in other sectors, the gains and costs of financial reform depend on the regulatory and supervisory framework, (Barth and others 2001). Experience shows that it is vital to strengthen the supporting institutional framework in parallel with domestic deregulation and internationalization. In the absence of such strengthening, foreign entry may entail risks. Foreign bank entry can destabilize local banks by taking away the lowest risk business—including large, exporting firms—leaving local banks to venture further out on the risk frontier. Also several countries, especially in Africa, discovered with the failure of banks—such as BCCI and Meridien—that a foreign name did not guarantee safety and soundness even when these foreign banks were operating in industrial economies or had some ownership links with reputable foreign sources.

Having a supportive institutional framework is even more obvious when it comes to capital account liberalization. Experiences in the past, most recently in Asia, have shown that achieving the potential gains, and avoiding the risks, of capital account liberalization depend to a great extent on whether domestic institutions and prudential authorities have developed sufficiently to ensure that foreign finance will be channeled in productive directions (Eichengreen forthcoming). Recent experiences also shows the potential benefits of foreign financial institutions in stabilizing capital flows. Several countries with significant foreign presence, such as Argentina and Mexico, benefited from the access of these institutions to foreign capital during periods of economic presence (Dages, Goldberg, and Kinney 2000). More generally, studies show that diversity in ownership contributes to greater stability of credit in times of crises (Barth and others 2000a; b); and La Porta and others 2000). In so far as foreign presence leads to a stronger regulatory and supervisory framework, it contributes to making capital account liberalization and internationalization mutually reinforcing.

Source: World Bank staff.

Multilateral engagement: Buttressing domestic reforms

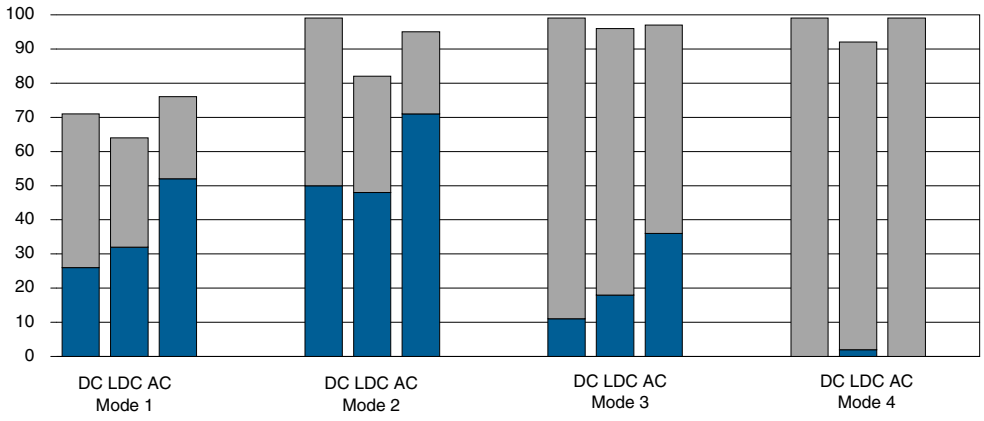
In principle, a country can liberalize its markets and strengthen its regulatory institutions unilaterally, but four types of issues create benefits from multilateral engagement. First, liberalization may be constrained by domestic opposition from those who benefit from protection. Second, a country cannot on its own improve access for its exports to foreign markets. Third, a small country may not be able to deal adequately with anticompetitive practices by foreign suppliers. Finally, a country may lack the expertise and resources to devise and implement optimal policy, especially in the area of domestic regulation.

The WTO is the natural forum to pit the first two elements—opposition to reform at home and barriers to access abroad—against each other constructively through the process of mercantilist negotiations. But there is also a need for complementary multilateral efforts to ensure that the gains from liberalization are not undermined by inadequacies in policy choice and regulation.

Using the current round of GATS negotiations to deliver liberalization at home and access to markets abroad

The General Agreement on Trade in Services (GATS) had a deliberately symmetric structure, encompassing the movement of both capital and labor for services provision. In theory, developed and developing countries could indeed bargain to exploit their modal comparative advantage: improved access for capital from developed countries being exchanged for improved temporary access for individual service providers from developing countries. In practice, all countries have been unwilling to grant greater access for foreign individuals (except for the limited class of skilled intracorporate transferees), and a tradeoff between modes of delivery simply has not occurred

Figure 3.7 WTO members have been reluctant to make market access commitments on the movement of natural persons (Mode 4)



Note: Calculated on the basis of a sample of 37 sectors deemed representative for various services sectors.
Source: See WTO Document S/C/W/99, March 2, 1999.

Legend
The upper part of each bar represents partial commitments, the lower part full commitments.
DC = Developed countries
LDC = Developing and transition economies
AC = Acceding countries

(figure 3.7). Moreover, even the negotiating links across services sectors and between services and goods sectors do not seem to have been particularly fruitful. And so, since governments could not demonstrate improved access to foreign markets as a payoff for domestic reform, GATS commitments reflect for the most part the existing levels of unilaterally determined policy—rather than liberalization achieved through a reciprocal exchange of "concessions."[32]

This may change with time. With severe shortages of skilled labor in the United States and Europe and the powerful constituency of high-technology companies lobbying for relaxation of visa limits, the prospects for serious intermodal tradeoffs—such as obtaining temporary labor movement in return for allowing greater commercial presence for foreign service providers—are now greater. The challenge is, first, to devise mechanisms that provide credible assurance that movement is temporary rather than a stepping-stone to migration; and second, to devise negotiating formulae that credibly link Mode 4 liberalization to reductions in restrictions in other areas.

Strengthening GATS rules and commitments

In line with the WTO's central concern with securing market access, it would also be natural to use the GATS to enhance the credibility of policy at home and security of access to markets abroad through legally binding commitments; to ensure that domestic regulations support trade liberalization; and to prevent discrimination between trading partners by ensuring effective application of the most-favored nation (MFN) principle.[33]

First, the GATS could help secure access to markets that are already open. Trade in electronically delivered products, in which more and more developing countries are beginning to participate, must continue to remain free of explicit barriers—should such barriers ever become feasible. It would be far more effective to widen and deepen commitments under the GATS on cross-border trade (see box 3.6).

At home, policies that are believed in are most likely to succeed. Developing countries themselves could take greater advantage of the opportunity offered by the GATS to lend credibility to reform by committing to maintain current levels of openness or to greater levels of future openness. In basic telecommunications, the one sector where countries have been willing to make such commitments, there is evidence that the commitments have facilitated reform.

Developing countries have much to gain from stronger multilateral rules on domestic regulations. Such rules can play a role in promoting and consolidating domestic regulatory reform, as happened to some degree in the telecommunications negotiations. The rules are also needed to equip developing-country exporters to address regulatory barriers in foreign markets in the form of burdensome licensing and qualification requirements for professionals, or restrictive standards in electronic commerce.

It is desirable also to remedy the current weaknesses in the application of the MFN principle in the GATS. One obvious problem is the explicit departure from the MFN obligation through numerous MFN exemptions listed by countries. Less visible, but potentially more serious, is the possibility of implicit discrimination through preferential recognition agreements and allocation of quotas. Rules in these areas need to be clarified and strengthened to protect developing countries both from discrimination in their export markets and from pressure to grant particular foreign suppliers privileged access to their markets—as, for instance, is reported to be happening in the Chinese insurance market.

Dealing with anticompetitive practices

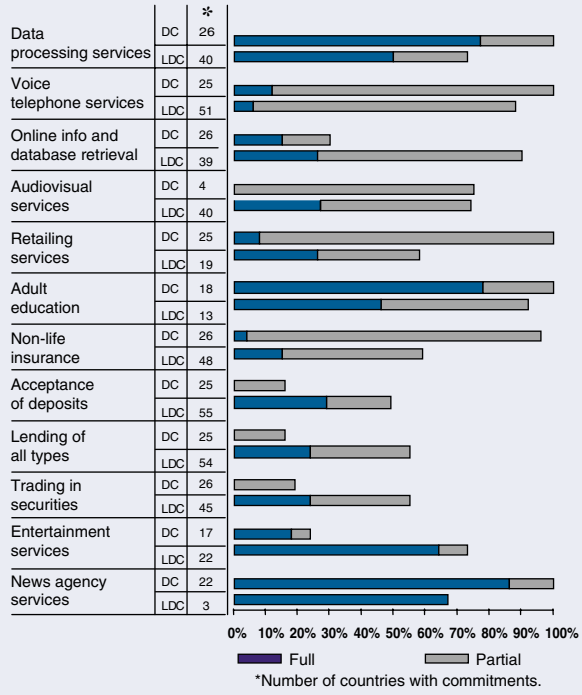
Anticompetitive practices that fall outside the jurisdiction of national competition laws may be important in sectors such as maritime, air transport, and communication services. The current GATS provision in this area provides only for information exchange and consultation. Strengthened multilateral rules are needed to reassure small countries with weak enforcement capacity that the gains from liberaliza-

Box 3.6 Ensuring barrier-free trade in electronically delivered products

Trade in electronically delivered products, in which more and more developing countries are beginning to participate, and which offers an increasingly viable alternative to the movement of individuals, is today largely free of explicit barriers. The main concern should be preventing the introduction of new barriers if they become technically feasible. What is the best route to preventing the imposition of explicit restrictions, such as tariffs and quotas? (The issue of regulatory barriers is discussed in box 3.2.)

WTO Members have so far focused on prohibiting the imposition of customs duties on electronically delivered products. It is ironic that considerable negotiation energy has been invested in prohibiting the economically superior (and probably not feasible) instrument of protection whereas little attention has been devoted to inferior (and possibly more feasible) instruments such as quotas and discriminatory internal taxation. In any case, since the bulk of such commerce concerns services, open trading conditions are more effectively secured through deeper and wider commitments under the GATS on cross-border trade regarding market access (which would preclude quantitative restrictions) and national treatment (which would preclude all forms of discriminatory taxation).

Commitments on cross-border supply in selected services sectors



Source: World Trade Organization.

There is considerable scope for an improvement in such commitments. For instance in data processing, of the total WTO Membership of over 130, only 66 Members have made commitments; and only around two-thirds of these commitments guarantee unrestricted market access. Many developing countries have not made sectoral commitments, but the commitments of the few which have, are frequently superior to those of developed countries. It is particularly striking that in some of the core financial services, about a third of the developing countries which have made commitments guarantee unrestricted cross-border supply, whereas none of the 26 developed countries does so. Developing countries have also been more forthcoming than developed countries in audiovisual and entertainment services. One possible approach to improving commitments would be for all Members to agree that no restrictions would be imposed on cross-border delivery, either of all services or of a bundle whose composition could be negotiated.

These commitments have additional value because other GATS disciplines, for example, on domestic regulations, would only meaningfully kick in once these commitments are in place. For instance, if there were excessively restrictive regulatory barriers to cross-border trade in the core banking services in developed countries, it would be difficult today to challenge them, since these countries have not even committed to provide market access and national treatment.

Source: Mattoo and Schuknecht 2000.

tion will not be appropriated by international cartels. For instance, the United States and the EU could begin by ending the exemption of cooperative price-setting and related practices in maritime transport from the scope of their competition law. Ending the exemption would enable a careful assessment by competition authorities of the social costs and benefits of these collusive arrangements. Competitive discipline could also be strengthened by creating a right for foreign consumers to challenge anticompetitive practices by services firms in the national courts of countries whose citizens own or control these firms—a variant of the precedent in the WTO rules on intellectual property and government procurement.

Global cooperation to support liberalization

Beyond WTO negotiations multilateral support is needed at four levels: in devising sound policy, strengthening the regulatory environment, enhancing developing country participation in the development of international standards, and ensuring access to essential services in the poorest areas.

While there is growing consensus on the benefits of liberalization, there is less agreement on the precise route to liberalization. Certain issues have prompted differing strategies. Should all barriers to entry be eliminated in sectors with significant economies of scale? How far should trade and investment liberalization be conditioned on strengthened prudential regulation? Developing countries in particular could benefit from the experience of other countries on these issues—but the experiences with electricity in California and rail transport in Britain suggest that there is scope for learning in all countries. More work is needed at the national and international levels to take stock of individual and cross-country experience to identify the areas where there are clear prescriptions for policy and those where there is a need for further research, and therefore for humility in policy advice and formulation.

Sound domestic regulation—ranging from prudential regulation in financial and professional services to procompetitive regulation in a variety of network-based services—is critical to realizing the benefits of services liberalization. We have also seen that devising and implementing such regulation is not easy, and that there are acute regulatory problems in many developing countries. Regulatory institutions can be costly and may require sophisticated skills. To some extent such costs can be recovered through fees or regional cooperation—but external assistance could help ensure that adequate regulation is in place. Some technical assistance is already being provided, but often on an ad hoc basis either bilaterally or through international organizations. More systematic efforts—along the lines of the Integrated Framework for least-developed countries—are needed to assess the needs of individual developing countries and to ensure that the most appropriate assistance is provided in key sectors.

Improvements in domestic standards and qualifications are also needed in order to export services. For example, in the case of professional services, low standards and disparities in domestic training and examinations can become a major impediment to obtaining foreign recognition. Thus inadequacies in domestic regulation can legitimize external barriers to trade. At the same time, developing countries need to participate more actively in the development of international regulations and standards, especially in new areas such as electronic commerce. Otherwise, standards could evolve to reflect the concerns only of developed countries and impede the participation of developing countries in services trade.

There will remain certain poor countries, or certain regions within poor countries, where improvements in services policy and regulation will not be sufficient to ensure access to essential services. The criterion for determining whether assistance is needed could be the absence of private sector provision despite comprehensive policy reform. International assistance effectiveness could be maximized by allocating it in a manner similar to that used domestically by countries such as Chile and

Peru to achieve universal service. For instance, once a country (or a region within a country) has been selected for assistance, funds—such as those provided by certain countries to bridge the digital divide—could be pooled and allocated through international competitive tenders to the firm that offers to provide the necessary infrastructure at least cost. Providing international assistance in meeting the costs of the required subsidy programs could increase the benefits of, and facilitate, liberalization by ensuring that the needs of the poor would be met.

Notes

1. There are, however, exceptions to each of these characteristics of services: a software program on a diskette or an architect's design on paper are both tangible and storable, many artistic performances are visible, and automated cash-dispensing machines make face-to-face contact between producers and consumers unnecessary. These exceptions do not, however, detract from the usefulness of the general definition of services presented above.

2. This view of trade originated in Bhagwati 1984 and Sampson and Snape 1985, and has been formalized in the General Agreement on Trade in Services (GATS).

3. The invisibility and intangibility of most services imply that when they are delivered across borders, their passage is not recorded by a customs official. Data on services are therefore unreliable and volatile. Furthermore, statisticians in most countries do not keep track of the sales of services by foreign investors or foreign individuals who stay for longer than a year. Despite these difficulties, it is possible to put together a rough picture of trade in services by drawing on three complementary sources. The International Monetary Fund (IMF) balance of payments statistics are the only services trade statistics available on a global basis, and capture cross-border supply, consumption abroad (as part of the category "travel"), and some temporary movement of service suppliers. The more limited United Nations Conference on Trade and Development (UNCTAD) data on FDI in services capture the flows through which commercial presence is established. Finally, the United States is the only country that has regularly collected data on the sales of services by foreign affiliates.

4. The United States is the only country that has regularly compiled data on sales of services to foreign persons by majority-owned foreign affiliates of U.S. companies, and on sales of services to U.S. persons by majority-owned U.S. affiliates of foreign companies. A comparison of the balance of payments and foreign affiliates transactions reveals in broad terms the relative importance of sales through cross-border delivery and commercial presence.

5. It must be borne in mind, though, that the relative importance of trade by different modes in a particular sector reflects the choices of economic agents given the constraints of both technological feasibility and policy restrictions.

6. The FDI data are extremely thin, with data missing for many countries and only available for three SSA countries.

7. See the National Association of Software and Service Companies (NASSCOM) Web site <http://www.nasscom.org>. These exports consist mainly of standardized coding and testing services.

8. This report was prepared by McKinsey and Company for NASSCOM.

9. These figures were computed from WTO 1998, table 3. Data refer to 1997.

10. See http://www.nasscom.org. The dominance of on-shore delivery is due, among other things, to a reduction in information asymmetries with regard to the performance of programmers, the need for continuous client-developer interaction, and demands by Indian programmers to be sent abroad, in part to improve their skills and expose themselves to international markets (see Heeks 1998).

11. With permanent movement, the gains to the host country must be weighed against the possible cost to the home country in terms of "brain drain." Over 50 percent of all migrating physicians come from developing countries. In Ethiopia, for example, during 1984–94, 55.6 percent of the pathology graduates from the Addis Ababa Faculty of Medicine left the country. In Ghana, of the 65 who graduated from the Medical School in 1985, only 22 had remained in the country by 1997. If these countries had adequate medical staff at home, these figures would be less cause for concern.

12. Other barriers to movement of natural persons include double taxation, wage-matching requirements (wages paid to foreign workers should be the similar to those paid to nationals in that profession, eliminating the cost advantage for foreigners), and local training requirements (to replace foreign with national labor within a certain time frame).

13. This is strictly true in static models without market imperfections—such as monopolistic market structures, internal and external economies of scale, or other distortions. The presence of imperfections opens up a plethora of possibilities in which the effects of trade policies are typically indeterminate, depending on the prior distortion.

14. See Hoekman and Braga (1997) for a review.

15. Consider, for instance, the case of the Arab Republic of Egypt, where the import-weighted tariff was 31 percent in 1997, and the average manufacturing-wide effective rate of protection (ERP) was much higher at 70 percent (Hoekman and Djankov 1997). However, services inputs used by Egyptian industry, including construction, communications, financial, business, distribution, transport, and storage, were more expensive than they might have been if competition had been allowed. If it were assumed that prices were higher by, say, 15 percent, then the average ERP for manufacturing would not only be lower, but negative for several industries (chemicals, crude petroleum, and other extractive industries), implying that the tariff on intermediate goods, together with the implicit tariffs on services inputs, outweighed the tariff protection on the final goods.

16. If no trade in either goods or services is possible, the production of final goods is cheaper in larger markets, because a larger market can support a greater variety of services. If trade in only goods is possible (for instance if services must be supplied through a local establishment), then goods production tends to agglomerate in the larger country. The large country gains from this as productivity increases since a larger final goods sector can support a wider variety of intermediate goods production. For the same reason, the smaller country can lose from goods trade as final goods production shrinks. However, if there is free cross-border trade in services, then all countries have access to the full range of producer services. As a result, productivity in final goods production increases in all countries, and so all countries gain from trade.

17. The last few years have seen a profusion of national and global computable general equilibrium models seeking to estimate the economywide effects of services liberalization. The models suffer from weaknesses, particularly the inadequate treatment of different modes of supply, the poor data on the levels of protection in different services sectors, and an inability to capture the regulatory institutional detail that is a key determinant of the consequences of services liberalization. The models are, nevertheless, useful in providing a rough idea of the costs of maintaining services barriers and the corresponding welfare gains from their removal.

18. As pointed out by Rodriguez and Rodrik (1999), there are two contradictory impulses on growth emanating from the scale effect described above. Protecting a sector increases its size, leading to higher growth, but it also creates a wedge between domestic and foreign prices imposing a production inefficiency that rises over time exerting a negative impact on growth. The larger the size of the protected sector the larger this impact. By contrast, liberalization of the services sector, in which the country is assumed to have a comparative disadvantage, will also lead to increased static efficiency. This will strengthen the growth impact of liberalization.

19. For example, there is evidence to suggest that foreign bank entry qualitatively changed Turkish banking by introducing financial and operations planning and improving the credit evaluation and marketing system (Denizer). Foreign banks also took the lead in spreading electronic banking and introduced new technologies. They raised the human capital level of Turkish workers through domestic training programs, and by sending local recruits to training centers abroad.

20. Coe, Helpman, and Hoffmaister (1999) and Lumenga-Neso and others (2001) are among those who present empirical evidence demonstrating the impact of technology diffusion—in their case through trade in goods—on total factor productivity growth. In principle, the same should hold true for technology that is diffused through factor flows

21. In terms of the financial instruments employed (too much reliance on short-term bills), in terms of the financial intermediaries that were unwittingly encouraged (lightly regulated trust subsidiaries of the banks, and other newly established near-bank financial intermediaries), and in terms of market infrastructure development (failure to develop the institutions of the long-term capital market). See, for instance, Claessens and Glaessner (1999)

22. Sometimes the object is to ensure access to all consumers at the same price, irrespective of the cost of provision (for example, in transport and postal services). At other times, the object is ensure cheaper access for certain categories of users (for example, in financial services).

23. Mosely (1999) estimates the impact of financial liberalization on access to rural credit in four African countries Uganda, Kenya, Malawi, and Lesotho. Using sample survey data, Mosely reports that between 1992 and 1997, the percentage of sampled households with access to rural credit rose in Kenya and Uganda from 13.1 percent and 9.2 percent to 25 percent and 21 percent respectively. However, in Malawi, there was in a decline in the corresponding number from 12 to 8 percent. Access to credit of the poorest 10 percent (by income) remained unchanged in Uganda and Kenya, but in the case of Malawi and Lesotho declined from 1.9 and 2 percent to .9 and 1.9 percent respectively. Mosely's study also shows that financial reform by way of financial innovation in rural areas and development of financial institutions catering to the poor has strong and significant effects on improving access to rural credit and lowering poverty. But simply privatizing state micro-finance agencies has proven to be unsuccessful, as illustrated by the experience of Malawi.

24. The poor are likely to be unskilled, so the question arises as to the services sectors in which they are

likely to be employed. Unfortunately, data on the skill composition of the workforce in services sectors are only available for some OECD countries and that at a rather aggregate level. Still a certain pattern can be inferred. Construction, distribution and personal services tend to be unskilled–labor intensive, whereas communications, financial and business services tend to be skilled–labor intensive.

25. In India, the incumbent operator—the department of telecom expanded its workforce over the 1996–2000 period. In the face of competition, it was forced to improve its marketing strategy, expand its network and opened up thousands of public call offices all over India.

26. One such possibility is the case of "nonsustainability" of natural monopoly. This could arise, for instance, under some natural monopoly cost conditions, when there exist no prices that will not attract entry, even though single firm supply is efficient. Armstrong and others (1994, p. 106) conclude that, "Notwithstanding the logical possibility of this happening, we are doubtful whether it provides a good case for entry restrictions in the utility industries, which are not for the most part remotely contestable and where there is little evidence that cost conditions give rise to nonsustainability."

27. Interesting evidence in this context is available from the Indian telecommunications sector. Das (2000) estimates a frontier multi-product cost function of the incumbent fixed-line operator, covering 25 years from 1969 to 1994. The study finds the existence of very high economies of both scale and scope in the technology used—the parameter estimates even suggest that telecommunications in India is a natural monopoly. However, the incumbent operator displays great inefficiency, leading to a 26 percent increase of the operator's cost of production. Based on these findings, Das concludes that India's market liberalization program, started in the mid-1990s, is justified, but he argues that there may be a need to regulate entry in order to reduce unnecessary duplication of common costs. Moreover, with continued improvements in technology, the fixed costs of entrants are likely to fall, reducing losses of scale economies and thus increasing the costs of entry restrictions.

28. Several countries have found it difficult to create an open, competitive telecommunications sector because of a weak regulatory environment. Poland opened up its telecommunications sector to private competition as early as 1990. There was a rush to invest, and about 200 licenses were awarded in the first six years of the newly liberalized regime. The dominant state operator, operating in a weak regulatory system, limited access to its network and benefited from unequal terms for revenue sharing, however. By 1996, only 12 of the 200 licenses were still being used by the few competitive operators who had managed to survive.

29. Studies of Argentina show that all income classes gain from services reforms but that the rich (and the foreign investors) gain relatively more if the regulator is weak and that the poor win relatively more if the regulator is effective in ensuring that the rents of the sector are shared with the rest of the economy (Chisari and Romero 1999; and FIEL 2000). The additional gains from good regulation are estimated to be about 0.35 percent of GDP on an annual basis.

30. As UNCTAD and World Bank (1994) argue, "Service providers are likely to prefer the higher incomes that result from control of entry into their occupation, or form restrictions on competition between those who are admitted to it . . . whenever regulation is judged necessary, a major concern must be to ensure that regulatory powers are not captured by the existing providers of a service and used to further their interests."

31. In some cases, though, where the cost of raising revenue is very high, the direct regulation route may be preferable.

32. Hoekman 1996.

33. For a detailed treatment see Mattoo 2000 and forthcoming.

References

Alexander, I., and A. Estache. 1999. "The Role of Regulatory Reform and Growth: Lessons from Latin America." Paper presented at TIPS Annual Forum. Johannesburg. September.

Armstrong, M., S. Cowan, and J. Vickers. 1994. *Regulatory Reform: Economic Analysis and British Experience*. Cambridge, Mass.: MIT Press.

Barth, J. R., G. Caprio Jr. and R. Levine. 2000a. "The Regulation and Supervision of Banks Around the World: A New Database," Policy Research Working Paper #2588, Development Research Group. Washington, D.C.: The World Bank.

———. 2000b. "Banking Systems Around the Globe: Do Regulation and Ownership Affect Performance and Stability?" Policy Research Working Paper #2325, Development Research Group. : The World Bank, Washington, D.C..

———. 2001. "Bank Regulations and Supervision: What Works Best?" Paper presented at the "13th Annual World Bank Conference on Development Economics." April.

Bhagwati, J. N. 1984. "Splintering and Disembodiement of Services and Developing Nations." *The World Economy* 7: 133–44.

Chadha, R., D. Brown, A. Deardorff, and R. Stern. 2000. "Computational Analysis of the Impact on

India of the Uruguay Round and the Forthcoming WTO Trade Negotiations." Discussion Paper No. 459, School of Public Policy. The University of Michigan, Ann Arbor.

Chisari, O., and C. Romero. 1999. "Winners and Losers from the Privatization and Regulation of Utilities: Lessons from a General Equilibrium Model of Argentina." *The World Bank Economic Review* 13 (2).

Claessens, S., and T. Glaessner. 1999. "Internationalization of Financial Services in Asia." Paper presented at the conference "Investment Liberalization and Financial Reform in the Asia-Pacific Region," Sydney, Australia. August.

Coe, D. T., E. Helpman, and A. W. Hoffmaister. 1997. "North-South R&D Spillovers." *The Economic Journal* 107 (440): 134–49.

Copeland, B. R. 2001. "Benefits and Costs of Trade and Investment Liberalization in Services: Implications from Trade Theory." Paper prepared for the Department of Foreign Affairs and International Trade, Government of Canada.

Cowhey, P., and M. M. Klimenko. 1999. "The WTO Agreement and Telecommunication Policy Reforms." Draft report for the World Bank. Graduate School of International Relations and Pacific Studies, University of California at San Diego. March.

Dages, G. B., L. Goldberg, and D. Kinney. 2000. "Foreign and Domestic Bank Participation in Emerging Markets: Lessons from Mexico and Argentina." *Economic Policy Review* 6(3):17–36. Federal Reserve Bank of New York. September.

Das, N. 2000. "Technology, Efficiency and Sustainability of Competition in the Indian Telecommunications Sector." *Information Economics and Policy* 12: 133–54.

DeFreitas, D., C. Kenny, and R. Schware. 2001. "Caribbean Cooperation: Rise of the Regional Regulator." *Journal of Policy, Regulation and Strategy for Telecommunications Information and Media* 3: 195–201.

Denizer, Cevdet. 2000. "Foreign Entry in Turkey's Banking Sector, 1980–1997." Chapter 14 in S. Claessens and M. Jansen, editors, *Internationalization of Financial Services: Issues and Lessons for Developing Countries*. Boston: Kluwer.

Eichengreen, B. Forthcoming. "Capital Account Liberalization: What do the Cross-Country Studies Tell Us?" *World Bank Economic Review.*

Estache, A., Q. Wodon, and V. Foster. 2001. "Accounting for Poverty in Infrastructure Reform: Learning from Latin America's Experience." World Bank, Washington, D.C.

Ethier, W. 1982. "National and International Returns To Scale in the Modern Theory of International Trade." *American Economic Review* June 72: 492–506.

Fink, C., A. Mattoo, and R. Rathindran. 2001. "Liberalizing Basic Telecommunications: The Asian Experience." Paper presented at a workshop on "Trade, Investment and Competition Policies in the Global Economy." Hamburg Institute of International Economics. January.

FIEL (Fundacion de Investigaciones Economicas Latinoamericanas). 2000. "La Regulacion de la Competencia y de los Servicios Publicos: Teoria y experiencia Argentina Reciente." Buenos Aires.

Glassman, C. A. 2000. "Customer Benefits from Current Information Sharing by Financial Services Companies." A study for the Financial Services Roundtable. December.

Heeks, R. 1998. "The Uneven Profile of Indian Software Exports." Working Paper No 3, Institute for Development Policy and Management. University of Manchester, U.K.

Hodge, J. 1999. "Liberalizing Communications Services in South Africa." Trade and Industrial Policy Secretariat, Johannesburg.

Hoekman, B. 1996. "Assessing the General Agreement on Trade in Services." In *The Uruguay Round and the Developing Countries*, W. Martin, and L. A. Winters, editors. Cambridge, U.K.: Cambridge University Press.

Hoekman, B., and S. Djankov. 1997. "Effective Protection and Investment Incentives in Egypt and Jordan: Implications of Free Trade with Europe." *World Development* 25: 281–91.

Hoekman, B., and C. Primo Braga. 1997. "Protection and Trade in Services: A Survey." *Open Economics Review* 8: 285–308.

Kitchenman, W. F. 1999. "U.S. Credit Reporting: Perceived Benefits Outweigh Privacy Concerns." *The Tower Group*.

Konan, D., and K. E. Maskus. 2000. "Service Liberalization in WTO 2000: A Computable General Equilibrium Model of Tunisia." February. Processed.

La Porta, R., F. Lopez de Silanes, and A. Shleifer. 2000. "Government Ownership of Banks." Harvard Institute of Economic Research Discussion Paper Series (U.S.). 1890:1–55. March.

Lumenga-Neso, O., M. Olarreaga, and M. Schiff. 2001. "On Indirect Trade-Related Research and Development Spillovers." Policy Research Working Paper No. 2580. World Bank, Washington, D.C.

Markusen, J. R. 1989. "Trade in Producers Services and in Other Specialized Intermediate Inputs." *American Economic Review* 79: 85–95.

Markusen, J., T. F. Rutherford, and D. Tarr. 2000. "Foreign Direct Investment in Services and the Domestic Market for Expertise." Policy Research Working Paper No. 2413, World Bank, Washington, D.C.

Mattoo, A. 2000. "Developing Countries in the New Round of GATS Negotiations: Towards a Pro-Active Role." *World Economy* 23 (4): 471–489.

———. Forthcoming. "Shaping Future Rules for Trade in Services: Lessons from the GATS." In T. Ito, and A. O. Krueger, *Trade in Services*. Cambridge, Mass.: NBER.

Mattoo, A., and L. Schuknecht. 2000. "Trade Policies for Electronic Commerce." *World Bank Policy Research Working Paper* No. 2380. World Bank, Washington, D.C.

Mattoo, A., R. Rathindran, and A. Subramanian. 2001. "Measuring Services Trade Liberalization and its Impact on Economic Growth: An Illustration." World Bank Policy Research Working Paper No. 2655. World Bank, Washington, D.C.

Mosely, P. 1999. "Micro-Macro Linkages in Financial Markets: The Impact of Financial Liberalization on Access to Rural Credit in Four African Countries." *Journal of International Development* 11: 367–384.

Petrazzini, B. A., and P. Lovelock. 1996. "Telecommunications in the Region: Comparative Case Studies." Paper presented at the "International Institute for Communication Telecommunications Forum." Sydney, Australia. April 22–23.

Robinson, S., Z. Wang and W. Martin. 1999. "Capturing the Implications of Services Trade Liberalization." Paper presented at the *Second Annual Conference on Global Economic Analysis*, GL Avernaes Conference Center, Ebberup, Denmark. June 20–22.

Rodríguez, F., and D. Rodrik. 1999. "Trade Policy and Economic Growth: A Sceptic's Guide to the Cross-National Evidence." Discussion Paper No. 2143, Center for Economic Policy Research. May.

Rubin, Howard A. 1999. Global Software Economics. Hunter College, Department of Computer Science, and Rubin Systems Inc. New York.

Sampson, G., and R. Snape. 1985. "Identifying the Issues in Trade in Services." *World Economy* 8 (June): 175–82.

Smith, P. 1995. "End of the Line for the Local Loop Monopoly." Public Policy for the Private Sector, Note No. 63. December. World Bank, Washington, D.C.

UNCTAD (United Nations Conference on Trade and Development) and World Bank. 1994. "Liberalizing International Transactions in Services, A Handbook." New York and Geneva.

UNCTAD (United Nations Conference on Trade and Development) and WHO (World Health Organization). 1998. *International Trade in Health Service—A Development Perspective*. Simonetta Zarilli and Colette Kinnon, editors. Geneva: World Health Organization.

Wellenius, B. 1997. "Telecommunications Reform—How to Succeed." Public Policy for the Private Sector, Note No. 130. October. World Bank, Washington, D.C.

World Bank. 1995. *Global Economic Prospects*. Washington, D.C.

———. 2001a. Can *Africa Claim the 21st Century?* Washington, D.C.

———2001b. *Finance for Growth: Policy Choices in a Volatile World*. New York: Oxford University Press.

WTO (World Trade Organization). 1998. "General Agreement on Trade in Services: Results of the Negotiations on Financial Services." March.

4

Transport Services: Reducing Barriers to Trade

High transport costs are a barrier to trade—

The costs of international transport services are a crucial determinant of a developing country's export competitiveness. Shipping costs often represent a more binding constraint to greater participation in international trade than tariffs and other trade barriers. Across economies, a doubling of shipping costs is associated with slower annual growth of more than one-half of a percentage point. Transport costs determine the potential access to foreign markets, which, in turn, explains up to 70 percent of variations in countries' gross domestic product (GDP) per capita.

—reflecting geography and income—

Transport costs depend on a mixture of geographic and economic circumstances. Adverse geographic locations and low-income levels—the latter being associated with poor infrastructure and low traffic volumes—pose an inherent challenge for many countries' trade and development prospects—at least in the short to medium term.

—but also competitive forces in service markets

Public trade barriers and private commercial practices hamper the provision of international maritime and air transport services. Policies toward maritime transport, such as cargo reservation and limitations on the provision of port services, often protect inefficient service providers and unduly restrain competition. At the same time, competition restraining practices among shipping lines and port terminal operators around the world pose the risk that the benefits of government reforms will be captured by private firms. International air transport is one of the services sectors most protected from international competition. The current regime of bilateral air service agreements largely denies access to efficient outside carriers. International airline alliances, while enhancing network efficiency, can also be detrimental if they impede effective competition.

Policy reform can lower costs—

In most countries, policy can make better use of existing transport resources and significantly improve the efficiency of services. At the domestic level, targeted infrastructure investments, regional cooperation on transportation, and trade facilitation initiatives can play an important role in improving the transport competitiveness of exporters. As discussed in chapter 3, liberalizing services policy can produce substantial cost reductions and widen the availability and choice of services. The preponderance of anticompetitive practices by transport service providers also demands the development of efficiency-oriented competition policies.

—and multilateral policies can be supportive of domestic reforms

Multilateral negotiations on transport services under the General Agreement on Trade in Services (GATS) Agreement have, so far, not un-

leashed substantial liberalization, nor have countries bound existing policies to gain credibility in their domestic reforms. Indeed, the negotiations on maritime transport were the only post–Uruguay Round services negotiations that completely failed. International air transport services are largely outside the scope of the GATS. The new round of services negotiations offers the possibility of creating a rules-based services regime for maritime transport, as well as an opportunity to develop a framework under which a multilateral regime for air transport services could be phased in. Moreover, the multilateral trading system can play a useful role in developing procompetitive regulatory principles for the transport sector, and in fostering international cooperation on competition policy matters more generally.

High transport costs penalize exports

High transport costs push down profits and wages

The efficiency of transport services greatly determines the ability of firms to compete in foreign markets. For a small economy—for which world prices of traded goods are largely given—higher costs of transportation feed into import and export prices. To remain competitive, exporting firms that face higher shipping costs must pay lower wages to workers, accept lower returns on capital, or be more productive. The pressure on factor prices and productivity is even higher for industries with a high share of imported inputs. In these cases, small differences in transport costs can easily determine whether or not export ventures are at all profitable. In developing countries, for labor-intensive manufacturing industries such as textiles, high transport costs most likely translate into lower wages, directly affecting the standard of living of workers and their dependents.

The cost structures of firms are equally affected by the quality of transport services. If services are unreliable and infrequent, or if a country lacks third party logistics providers who efficiently handle small shipments, firms are likely to maintain higher inventory holdings at every stage of the production chain. The costs of financing large inventories can be significant, especially in countries with high real interest rates. Gausch and Kogan (2001) find that inventory holdings in the manufacturing sector in developing countries are two to five times higher than in the United States, and estimate that cutting inventory levels in half could reduce unit costs of production by over 20 percent. At the wholesale and retail levels, firms depend greatly on high quality transport services in distributing products to geographically dispersed markets. For example, seamless transport services were critical to Kodak's decision to integrate once-separate national warehousing operations in the Mercosur countries into one trade bloc–wide operation located in Brazil, thus reaping economies of scale in distribution.[1]

Long journeys have a similar effect. They delay payments if goods are exported on a cost, insurance, and freight (c.i.f.) basis or importers may demand a time discount if goods are delivered free on board (f.o.b.). If products are perishable (such as food) or subject to frequent changes in consumer preferences (such as high-fashion textiles), longer journeys lead to additional losses in terms of a product's shortened lifetime in the export market. Box 4.1 illustrates the complex logistical arrangements that ensure the timely delivery of Kenyan cut flowers to European consumers. One recent estimate, based on comparisons between air and ocean freight rates for U.S. imports, puts the per day cost for shipping delays at 0.8 percent of the value of trade for manufactured products. Only a small fraction of these costs can be attributed to the capital costs for the goods during the time they are on board the ship.[2] Delivery time is found to have a more pronounced effect for imports of intermediate products (Hummels 2000), suggesting that the fast delivery of goods is crucial for the maintenance of multinational vertical product chains. Quality aspects of transportation are thus likely to be an important factor in the location decisions of multinational companies.

Box 4.1 The Kenyan-European cut-flower supply chain

Kenyan exports of cut flowers to Europe have grown remarkably in recent years, increasing by 217 percent in value from 1992–98. The competitiveness of Kenyan cut flower exports stems from favorable climatic conditions, the use of modern farming technology and skilled manpower, and their counter-seasonality to the patterns of production in Western Europe. Although a wide range of flower varieties are cultivated in Kenya, the industry's growth in the 1990s was primarily due to expanded rose production—sparked by strong consumer demand and relatively high prices in Europe.

Cut flowers are highly perishable commodities, having a vase and marketable life ranging from a few days to not more than two weeks. International flower trade demands cold storage and transportation facilities, efficient inland and air-freight shipping arrangements, and mechanisms for rapid distribution in the export markets. Prior to packing, harvested flowers are placed in solutions to maintain post harvest quality, then graded, bunched and placed in cold storage. Refrigerated or insulated trucks carry the flowers to specialized freight handlers, which consolidate consignments from various growers, palletize them, record temperatures, and load them directly onto commercial or charter airlines. They also facilitate customs, inspections, and proper documentation, which serves as the basis for claims should flowers arrive in Europe at exceedingly higher temperatures.

Import functions at the European end (cutting, rehydrating, and repacking) are typically handled by independent agents, who also provide a wider array of services including consultancy and product and marketing information. Several large Kenyan produces have established forward linkages with freight firms and clearance and import agents, in order to ensure supply continuity and gain greater control over production, distribution, and sales.

About 40 percent of Kenyan flowers enter European wholesale markets through one of the seven flower auctions in the Netherlands. Dutch auctions trade, on average, 15 million flowers and potted plants daily, with total sales amounting to $1.9 billion in 1998. After the flowers are collected and checked for quality, ripeness, grading, and packing, selling takes place with the help of computerized "auction clocks," which provide information on the grower, product, quality, unit of currency, and minimum purchase required. The financial transactions are settled immediately following the auction process, and flowers are then distributed to the buyers, who repackage and box the flowers for further air or land transport.

Aside from the Dutch auction system, importers are directly sourcing cut flowers from Kenyan growers for European supermarkets and traditional retailers. In the United Kingdom, for example, supermarkets have contractual arrangements with Kenyan exporters (via import agents) and send daily orders to growers, which form the basis for harvesting, processing and shipping schedules. Through fully integrated supply chains, products can be harvested and on U.K. supermarket shelves within 24 hours from harvest. The final retail price in the United Kingdom is more than four times the farm gate price in Kenya, with the difference between the two prices accounted for by freight charges, fees and commissions, retail margin, and value-added tax.

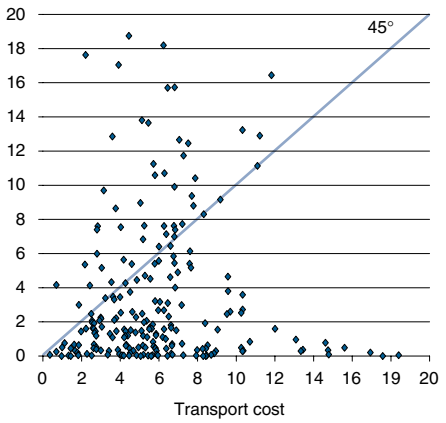
Source: Thoen and others 2000.

Shipping costs often represent a greater burden than tariffs—

Transport costs are important relative to other trade barriers. Figure 4.1 compares countries' transport cost incidence for exports to the United States (the share of international shipping costs in the value of trade) and their tariff incidence (the trade-weighted ad valorem duty actually paid). For 168 out of 216 U.S. trading partners, transport cost barriers outweigh tariff barriers. Only a few developing countries—including, among others, Bangladesh, the Arab Republic of Egypt, Lesotho, Mauritius, Mongolia, Nepal, Pakistan, and Sri Lanka—are more constrained by trade taxes than by shipping costs. For the majority of Sub-Saharan African countries, the tariff incidence typically amounts to less than 2 percent, while the transport cost incidence often exceeds 10 percent. Most striking is the example of Benin, where

Figure 4.1 Transport costs are often higher than tariffs

Nominal tariff



Note: Data refer to 1998. Five countries (Benin, Guinea, Solomon Island, Togo, and Western Samoa) exhibit a transport cost incidence greater than 20 percent and are not shown.

Source: U.S. Bureau of Census.

exports faced duties equivalent to 0.6 percent of total exports, but shipping costs represented 22.7 percent of trade. Amjadi and Yeats (1995) confirm that freight rates for African exports to the United States are considerably higher than on similar goods originating in other countries—contributing to the region's lackluster trade performance over the last two or three decades.[3]

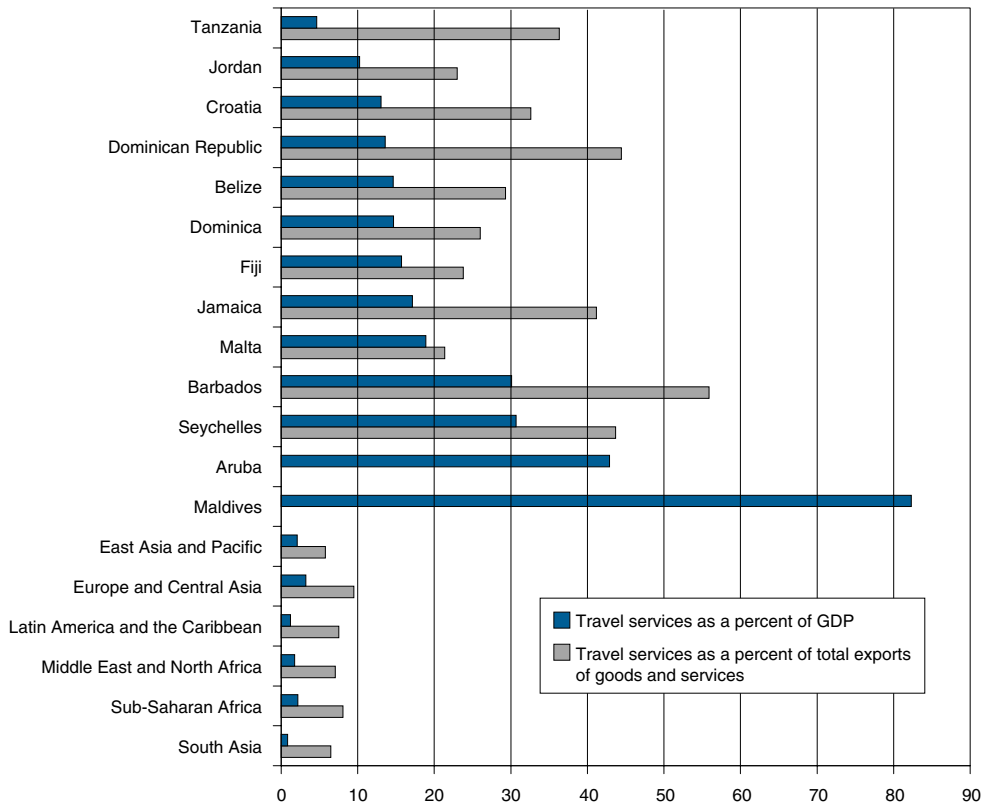
In interpreting the relative importance of transport costs and tariffs, several points should be kept in mind. First, the freight rate calculations, based on c.i.f/f.o.b. comparisons, *understates* the true door-to-door shipping cost, because only the international leg of the transport journey is considered. The importance of port and inland transportation costs vary substantially by country and exporter location, but can take up as much as two-thirds of the total door-to-door costs (see below). Second, the U.S. tariff schedule is lower compared to other countries, and exporters face other policy-induced barriers to trade besides tariffs.[4] Indeed, for some product groups, restrictions implied by standards or domestic regulations represent a bigger obstacle to trade than import taxes. Third, it is somewhat arbitrary to look only at transport services and ignore the costs of other producer services critical to the supply of foreign markets. High costs of communications, legal assistance, or export finance, for example, represent other sources of inefficiencies that may erode exporters' competitiveness.[5] Finally, transport costs—as distinct from tariffs—cannot be brought down to zero.

One recent estimate finds that a doubling of the ad valorem freight rate leads, on average, to a fall in aggregate import values between five- and six-fold.[6] These are rough calculations, however, and the effect is likely to vary substantially across countries and industries. Much depends on the degree to which higher shipping costs are directly passed on to consumer prices. Another factor is the price sensitivity of final demand and the degree to which imports from one location can be substituted with imports from another location, or from domestic sources. If final demand is highly price sensitive, and goods from different locations are good substitutes, small changes in shipping costs can have a substantial effect on bilateral imports.[7]

—and restrain trade in services—

Transport costs also represent a barrier to trade in services. Though difficult to quantify, this is important for developing countries that rely heavily on tourism services as a source of foreign exchange (figure 4.2). Tourists are sensitive to travel costs, especially where close substitute destinations exist. Estimates vary substantially across locations, but a doubling in travel costs may reduce tourism demand as much as eight-fold.[8] More than 90 percent of tourists arrive in developing countries by air, underscoring the importance of efficient air transport services for this export industry. For example, air transport costs in East and Southern Africa are reported to be up to ten times higher than for Florida, in the United States, limiting the pool of lower- and middle-

Figure 4.2 Tourism earnings in developing countries, 1998



Source: World Bank Development Indicators.

income tourists able to afford a holiday in these regions.[9] The price of international passenger transport also dictates the extent to which firms can afford business trips necessary to maintain ties with foreign companies and to gather information about market demand in other countries. In addition, the mobility of businesspeople is key to the formation of multinational production networks, which have emerged as a dynamic driver of world trade over the past decades.

Transport costs affect growth rates— Shipping costs can affect economic growth in several ways. First, higher transport costs reduce rents earned from the exports of primary products, lowering an economy's savings available for investments. They push up import prices of capital goods, directly reducing real investments. Second, all things being equal, countries with higher transport costs are likely to devote a smaller share of their output to trade. Those countries are also less likely to attract export-oriented foreign direct investment (FDI). Since trade and FDI are key channels of international knowledge diffusion, higher transport costs may lead an economy to be farther removed from the world technology frontier and slow its rate of productivity growth.[10] Third, transport costs determine a country's selection

of trading partners. If export markets largely consist of poor, slow-growing markets and there are significant costs (including transportation) of switching to new, richer, and faster-growing markets, countries may be constrained in their growth potential. This dilemma may be especially severe for small landlocked countries far away from major economic centers.[11]

Controlling for a large number of socioeconomic, geographic, and institutional factors, Radelet and Sachs (1998) find that developing countries with lower shipping costs experienced more rapid growth of manufacturing exports relative to GDP in the period from 1965 to 1990. In addition, when exploring the relationship between shipping costs and overall economic growth across economies, the study concludes that a doubling of the cost of transportation is associated with slower annual growth of slightly more than one-half of a percentage point.

—and help to explain regional variations in income

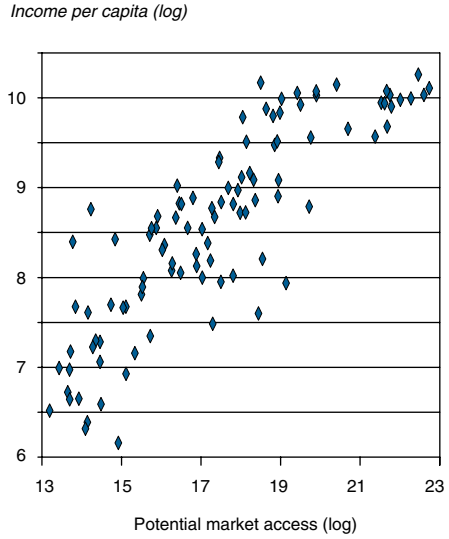
Transport costs—as opposed to tariffs faced by exporters—vary widely across trading nations. The availability, price, and quality of transportation services therefore have strong implications for what countries produce and with whom they trade.

In a theoretical analysis, Venables and Limão (1999) find that transport costs may cause the world to be divided into "zones of specialization." The more transport-intensive a good is, the more likely it is that it is exported by countries that exhibit lower shipping costs to the economic center. By contrast, exceedingly high shipping costs to a major economic center can lead a country to be self-sufficient in a particular good—despite the fact that it may not hold a comparative advantage in its production solely based on its factor endowments. Countries with higher transport costs but identical factor endowments also exhibit lower real incomes, as more resources are devoted to transportation and the gains from trade are smaller.

Redding and Venables (2001) estimate the potential access of a country's manufacturing goods to the domestic and foreign markets, as determined by shipping costs.[12] This measure of market access explains up to 70 percent of variations in countries' GDP per capita in 1996 (figure 4.3). Admittedly, the study lends strong causative weight to transport costs, as other factors explaining income variation—notably capital accumulation—are taken, themselves, to be determined by market access. At the same time, the inclusion of characteristics of physical geography and social, political, and institutional variables does not fundamentally alter the study's result. While more research is necessary to verify and refine these findings, they support the view that a country's development prospects are greatly affected by their economic geography, of which shipping costs are an important determinant.

As much as transport costs explain the location of production across countries, they are

Figure 4.3 Potential market access explains variations in income



Note: Countries' potential access to the domestic and foreign markets are estimated by a gravity equation, whereby bilateral trade flows are explained by characteristics of the importing and exporting countries, as well as bilateral transport costs.

Source: Redding and Venables 2001.

equally important in affecting the location of exporting firms within countries. As foreign trade barriers are removed, firms have an incentive to move to regions with good access to foreign markets, such as border areas or port cities—especially if exports account for a large fraction of total sales. For example, closer ties between the United States and Mexico caused a rapid expansion of manufacturing employment in northern Mexico at the expense of the Mexico City manufacturing belt.[13] Agglomeration forces may create a self-reinforcing process, whereby entire industries move toward exporting centers, causing sharp regional inequalities in production and income. The severity of this process depends on the efficiency of internal transport systems—as illustrated in box 4.2 on China.[14]

Transport services thus matter for trade competitiveness. Even if tariff and nontariff barriers to trade were removed, cross-country evidence suggests that the penalty of high shipping costs will continue to hold down growth rates and income of countries with poor international transport links. Furthermore, inefficient internal transport systems can sharpen economic inequalities within countries, with hinterland regions being disconnected from international commerce. Two questions that immediately arise in this context are why some countries pay more for transport services than others, and what governments can do to improve the transport competitiveness of trading firms.

Why some countries pay more for transport services: geography and income

International transport costs vary dramatically

Transport costs vary widely across countries. According to the price quotes of one U.S. freight forwarder, it costs $1,000 to ship a 40-foot container from Baltimore to Dar es Salaam, the largest port city in Tanzania (figure 4.4). Yet the price of shipping the same container to Durban (South Africa) is $2,500 and goes up to $4,000 for Vienna (Austria), $6,500 for Asunción (Paraguay), $7,800 for Yerevan (Armenia), $10,000 for Bujumbura (Burundi), and $13,000 for Kathmandu (Nepal). The geographic distance from Baltimore alone cannot explain these dramatic price differences. Transport costs are determined by factors that can be changed in the short run by policy, and those that cannot. This section concentrates on the second set of determinants. Despite advances in transport *technology*, a large number of developing countries continue to be challenged by *geography* in terms of being landlocked or far away from the world's economic centers. In addition, poor physical *infrastructure* and thin *traffic densities*, typically associated with low-income economies, represent additional impediments to transport competitiveness (although policy can alter these constraints in the longer term). Thus, high shipping costs undeniably represent a constraining factor in the trade and development prospects of many developing countries.

Advances in transport technology—

Innovations in transportation have been an important factor in the globalization of goods markets observed in the late twentieth century. An examination of ad valorem freight rates for U.S. imports, for which detailed data are available, suggests that the share of shipping costs in the value of trade in 1998 was smaller for all major commodity groups compared to 1938, and for all but two goods classes compared to 1974 (see table 4.1).[15] However, declining ad valorem freight rates may also be due to changes in the composition of trade or in unit values of traded commodities, due, for example, to improvements in the quality of goods.

Ocean, air, road, and railway shipping have each seen a different mix of technological and institutional innovations, with profound implications on how traded goods are shipped from one location to another.[16] *Ocean shipping* is a relatively mature industry, yet there have been important advances in maritime transport technology over the past decades. Specialized ships have emerged for dry bulk commodities, oil,

Box 4.2 Inefficient internal transport systems contribute to the concentration of China's export industries in coastal regions

A remarkable feature of China's dramatic expansion in international trade over the past two decades has been the concentration of export-oriented industries in coastal regions. The four main coastal provinces (Guangdong, Jiangsu, Fujian, and Shangkai) have been the main recipients of outward-oriented foreign investment, with the remaining portion going to either other coastal provinces or regions adjoining coastal areas. The provinces in the central core—usually referred to as lagging provinces—barely benefited from the incoming investment. While dispersion of export-oriented units have narrowed coastal income disparities—with the south coast regions catching up with the hitherto affluent east coast—the export boom has exacerbated the coastal-inland gap. Thus, while China's economic reforms have been successful in raising living standards for a considerable share of the population, a large number of Chinese people in inland provinces still live below the poverty line.

Another contributing factor to coastal agglomeration has been various inefficiencies in China's internal transport systems. Transport infrastructure disparities between the coastal and inland provinces narrowed considerably following policies aimed at promoting more regionally balanced economic development since 1990. However, indications of increasing interprovincial trade between inland regions, and between inland and coastal regions, suggests that it is not the availability of transport infrastructure per se that have precluded inland provinces from actively participating in foreign trade. Rather the inadequacies associated with transport services are the more binding constraint to better integrating China's hinterland economy.

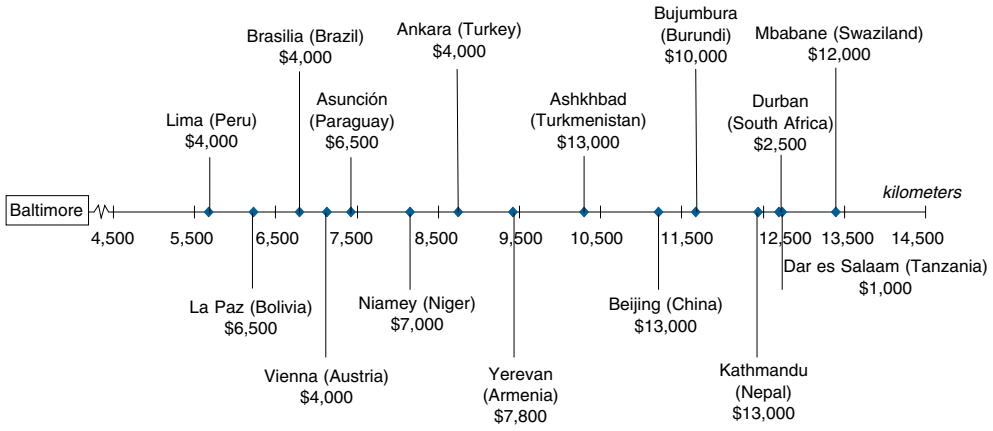
The compositional shift of exports from low-value raw materials to high-value manufactured goods has made transport increasingly suitable for containerization. Though there has been significant increase in the volume of container traffic in China since 1990, the increase is largely confined to coastal regions, and associated with the oceangoing leg of travel. Container traffic in inland areas is much less, with no significant change in the percentage of sea-borne containers traveling beyond port cities and coastal provinces. Truck rates for moving a container 500 kilometers inland are estimated to be about three times more, and the trip time five times longer, than they would be in Europe or the United States. China's railways still charge what is, in effect, a penalty rate for moving containers. Priority on the congested rail network is still given to low-value bulk freight (mostly coal), rather than to high-value freight, such as containers.

Surveys based on major foreign shippers, shipping lines, and freight forwarders based in the United States, Japan, and Hong Kong (China) indicate that China's transport systems, particularly inland transport, are well below international standards. First, respondents pointed to the lack of container freight stations, yards, and trucks in inland regions. Second, border procedures were perceived to be cumbersome and time-consuming, due to the many certification requirements and duplication of documents—in part, a consequence of the lack of coordination between the different government agencies involved in the various modes of transport. Third, container-tracking capability was particularly poor, with shippers often unaware of their containers' whereabouts. Shippers attributed this to poorly trained staff, the lack of a reliable recovery system, and the poor accountability system in government agencies. Fourth, the intermodal transport system was found to be poorly integrated, with no streamlined procedures to support the continuous movement of containers between the coast and inland.

Another source of inefficiencies is the dominance of state-owned enterprises and the lack of competition in transport service markets. Since pricing in many of the intermediate transport service activities is controlled, the companies have little incentive for aggressively pursuing cost-cutting methods. Due to a lack of competition, intermediate service providers represent the interests of transport operators. Hence value-added service and reliability, hallmarks of winning business confidence in a modern economy, are not practiced by most participants. Investment by foreign enterprises or joint ventures between foreign and domestic enterprises in intermediate transport services is limited in inland regions. Though foreign investment is not prohibited, there are restrictions on investors' activities.

Source: Atinc 1997; Graham and Wada 2001; Naughton 2001; and World Bank 1996.

Figure 4.4 Shipping a container from Baltimore, Maryland, around the world: Distance is only half the costs story



Note: Shipments refer to loosely packed freight and do not include insurance costs.

Source: Limão and Venables 1999.

chemicals, automobiles, forest products, and other goods. Probably the most far-reaching development in maritime transport has been the growth of containerized cargo shipping, which has allowed investments in larger and faster ships. Today, more than 60 percent of global general cargo trade moved by sea is carried in containers. On trades between industrialized countries the percentage is just over 80 percent.[17] However, evidence from major developed-country shipping routes suggests that the real price of ocean liner shipping has not declined over the past decades, while tanker and tramp shipping has arguably become cheaper (Figure 4.5). Unfortunately, no information is available to assess the development of real ocean freight rates for developing country routes in past decades.

Table 4.1 Ad valorem freight rates for U.S. imports: 1938, 1974, and 1998

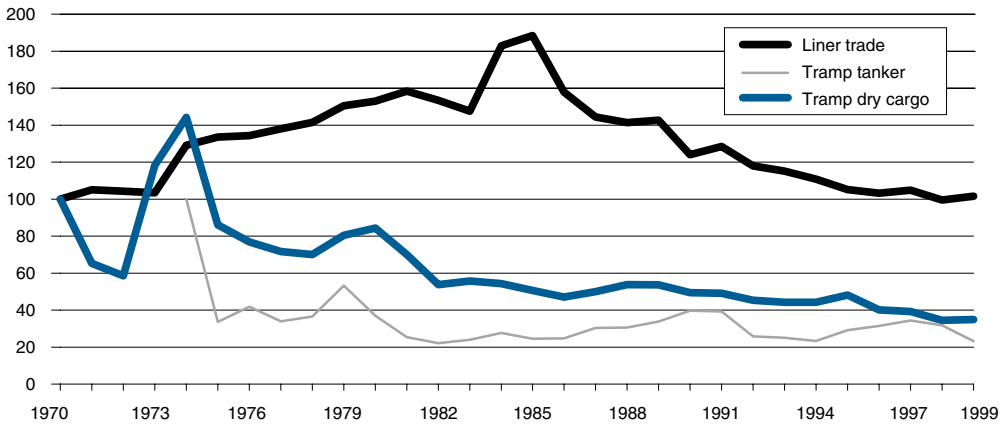
(As percent of total import values)

	All countries			Developing countries		
	1938	1974	1998	1938	1974	1998
Foods	9.3	9.4	7.0	12.5	8.3	8.4
Agricultural raw material	7.5	11.4	6.5	10.3	14.3	10.2
Crude materials and ores	65.2	44.5	12.0	57.3	30.4	13.9
Fuels	14.3	7.7	7.8	21.5	13.0	9.3
Chemicals	10.4	14.3	3.3	6.7	16.0	6.4
Metals	10.0	7.7	5.2	10.2	6.8	5.5
Other manufactures	10.1	10.6	4.6	5.2	7.5	4.5

Note: Ad valorem freight rates are based on comparisons between f.o.b export and c.i.f. import values, as reported by U.S. customs. They therefore do not include inland transportation costs and charges incurred at the port of exportation.

Source: Yeats 1981 for 1938 and 1974; and U.S. Bureau of Census for 1998.

Figure 4.5 Ocean freight rates, 1970–99



Note: The liner trade series is based on freight rates observed in Germany seaborne trade and deflated by the German consumer price index (CPI). Freight rates are typically quoted in U.S. dollars, but shippers often apply currency adjustments to compensate for fluctuating exchange rates. using the U.S. CPI, the overall trend in prices is very similar, although freight rates would decrease over the 1970–99 period due to higher U.S. inflation. The tramp tanker and tramp dry cargo (trip charter) series are deflated by the U.S. CPI, since charter prices are typically quoted in U.S. dollars and set in highly competitive markets.

Source: UNCTAD Review of Maritime Transport (various issues), based on data from the German Federal Statistical Office (for liner trade) and Lloyd's ship manager (for tanker and dry cargo).

—have boosted air transport—

Air transport is still a relatively young industry that has gained in significance only after the emergence of long-distance jet airliners in the late 1950s and the introduction of the wide-body jet in 1967. The liberalization of air transport services, starting domestically with the United States in 1978, provided an additional impetus to the industry's growth, as airlines were granted greater freedom in determining their routes and schedules, and service competition intensified. Since 1980 airlines' freight operating revenues per ton-kilometer have fallen by 55 percent in real terms. As air shipping prices have fallen relative to prices for ocean transport, the share of world trade shipped by air has continuously grown over the past decades—from 7 percent in 1965 to 30 percent in 1998 in terms of value for U.S. imports.[18] In terms of ton-miles shipped worldwide, air cargo shipping has grown by almost 10 percent annually from 1970–96, compared to only 2.6 percent growth for ocean shipping.[19]

Air passenger transport has also experienced a dramatic real price decline, which has led to a sharp increase in international air travel, growing at an average annual rate of 5.8 percent in terms of passenger-kilometers since 1980.

—and have improved the quality of services

Due to the introduction of faster ships and the growth of air transport services, the average time of cargo delivery has fallen sharply in the past decades—from an estimated 40 days in 1950 to 14.3 days in 1998 in the case of U.S. imports.[20]

Managerial innovations and closer integration of transport services into production, inventory, and distribution systems have been additional drivers of change in the international transport industry. Just-in-time delivery of intermediate inputs, for example, has allowed firms to outsource certain stages of production, cut inventories, and geographically disperse production. Better management of the

supply chain has enabled producers of perishable commodities to compete in distant consumer markets. These managerial changes have, in turn, led many transport operators to become multidimensional providers of logistics services—including packing and labeling, freight forwarding, insurance and banking, the processing of border formalities, tracking of shipments, and other services. The growth of these services has, in part, been propelled by the falling cost and increasing power of communications and computing, as logistics primarily involves the processing of information.

Geography continues to exert its own tyranny—

Despite technological advances, however, geography continues to be an important determinant of international variations in transport costs. The distance between the origin and destination points of a transport journey directly affects the variable cost of shipping in the form of fuel, wear and tear of vehicles, and the amount of time that goods are traveling.

Due to the existence of fixed costs of transportation, however, the effect of distance on transport costs is less than proportionate, suggesting that distance matters more where the costs of packaging, documentation, port services, and other distant-invariant activities are small.[21] Typically, a 1 percent increase in distance causes trade volumes to fall by slightly more than 1 percent—although this large effect is also due to factors other than transport costs.[22] Countries that share a common border are found, on average, to trade significantly more than countries without a common border, which can in many instances be attributed to more integrated transport networks and the existence of bilateral customs agreements that reduce transit times.

—especially for landlocked countries

The effect of distance depends greatly, however, on the mode of transport. By one estimate, an additional kilometer of overland transport adds seven times more to transport costs than an additional kilometer by sea.[23] It is thus not surprising that landlocked countries pay, on average, more for shipping exports and imports than coastal economies. Multiple studies have documented the "penalty" of being landlocked, and estimates usually put the additional cost of transportation at more than 50 percent of that paid by countries with maritime ports.[24] For many shipments to landlocked countries this "penalty" is likely to be higher. For example, the price quotes for container shipments from Baltimore reveal that the cost of shipment to Durban (South Africa) is $2,500, whereas the cost to Mbabane (Swaziland) via Durban comes to $12,000—a landlocked "penalty" of 380 percent (figure 4.4). Aside from longer overland distances, traffic to and from landlocked economies often suffers from higher transaction costs due to the complexities of coordinating multimodal transport journeys and the crossing of multiple borders.

It is thus not surprising to find that landlocked countries have only 30 percent of the trade volume of average coastal economies; that none of the 15 developing countries with the fastest export growth is landlocked; and that all 15 of those economies are located either directly on major shipping routes or close to a major developed-country market.[25] The study by Redding and Venables (2001) provides additional proof of the burden of geography: access to the coast raises per capita income by 64 percent, while halving the distance to all trading partners increases per capita income by 74 percent. While these figures provide a pessimistic view on the trade and development prospects of geographically disadvantaged countries, in the long run new economic centers emerge. High-income landlocked economies such as Switzerland, or the state of Colorado in the United States demonstrate that such disadvantages need not be permanent.

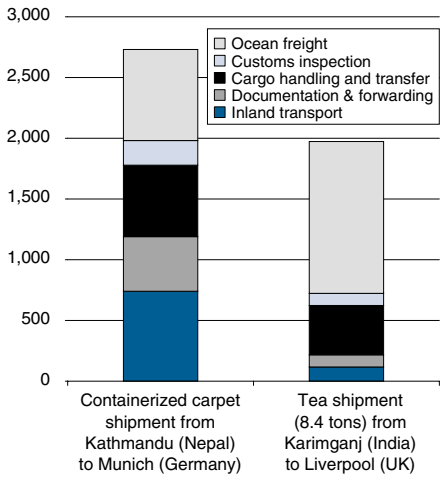
Infrastructure links the hinterland to the world—

Transport infrastructure, encompassing road, railway, and internal waterway networks, seaports and airports, warehousing facilities, and supporting communications systems, is a key

prerequisite to efficient transport services. When goods originate or terminate in remote regions, inland shipping accounts for a substantial share of the total door-to-door transport charge (figure 4.6). If internal transportation networks are dense, remote regions are in a better position to supply foreign markets. In countries with well-developed infrastructures, exporters can typically choose among alternative modes of transport (truck, railroad, or internal waterway) and alternative seaports and airports to ship their goods abroad. Aside from greater flexibility, increased modal and port choice directly promotes competition and limits the potential abuse of market power by transport operators serving chokepoints. Based on an index that captures the densities of countries' road, railway, and telecommunications networks, Limão and Venables (1999) confirm that better infrastructure translates into significantly lower transport costs.[26] Moreover, a higher infrastructure density in transit countries reduces transport costs to landlocked economies. Both own and transit country infrastructures are found to be important determinants of bilateral trade flows.[27]

Figure 4.6 Decomposing the costs of door-to-door shipments

U.S. dollars



Note: Costs refer to the cheapest route of shipment. Insurance and bank processing charges are excluded.
Source: Subramanian and Arnold 2001.

—and poor countries are at a disadvantage

Poor infrastructure conditions are often the direct result of low income levels, as the resources available for infrastructure investments are limited. Nonetheless, governments play an important role in expanding the reach and improving the quality of existing infrastructure. Investments in transport infrastructure often take a significant share of developing countries' GDP.[28] Governments in many countries—in part driven by the need to cut public expenditures—have increasingly turned to the private sector for financing such large investments. Successful involvement of private investors necessitates an attractive investment climate, transparent and carefully designed concession contracts, and a credible overall policy regime.[29] Yet where commercial risks are too high, public sector investments are still required—especially in the poorest countries that are typically not able to attract private investment. Governments also play a crucial role in infrastructure planning. Road, railway, and port capacities need to accommodate projected growth in trade. The design and construction of transport networks need to be coordinated with neighboring countries, which is especially important for small and landlocked economies.

Economies of scale and scope

There are large economies of scale in the provision of shipping services. Greater transportation flows allow service providers to operate larger vehicles and to spread fixed route costs over a larger number of shipments. The capacity of containerships operating on the major East-West trading routes is several times that of those operating on North-South routes, where traffic density is substantially smaller. Controlling for other determinants of liner freight prices, shipments from the port of Lagos, Nigeria, to southern California would be 24 percent cheaper, if traffic on this route would be the same as from the port of Hong Kong (China)

to the same region.[30] Furthermore, due to relatively low trading volumes, developing countries often face longer travel times and less frequent services, as ocean carriers require a larger number of stops to fill vessels.[31]

At sufficiently large traffic volumes, transport operators can reap economies of scope by offering services on connected routes. Through hub-and-spokes systems, maritime and ocean transport operators have been able to cut costs, while at the same time offering transport links between a larger number of locations at higher frequencies. The overwhelming share of intercontinental ocean trade is today delivered by hub-and-spoke systems, through major ports such as Hong Kong (China), Los Angeles, Rotterdam, or Singapore. By contrast, most ocean carriers serving the routes to and from West Africa still operate under so-called multiple ports of call systems. However, given current traffic levels, commodity mix, port infrastructures, and inland transportation systems, Pálsson (1997) finds that the adoption of a hub-and-spoke system would not systematically yield substantial cost savings. Future growth in trade as well as infrastructure improvements may change this calculus. Yet the implementation of a hub-and-spoke system would still require the willingness of the spoke countries to accept lower traffic volumes to the benefit of the hub port.

Why some countries pay more: policy-driven factors

Government policy can inadvertently inflate transport costs. Most developing countries enact rules that detract from using existing transport resources efficiently. These rules drive up transport-related transaction costs and often preserve monopolies in service markets.

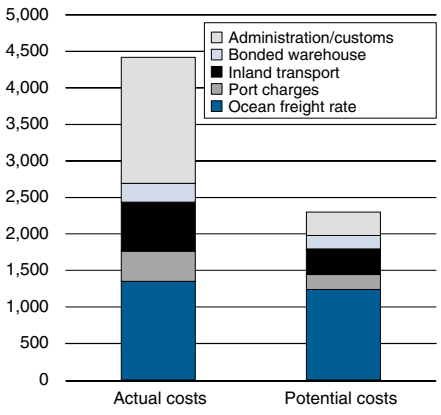
Reducing high transaction costs in-country—

High costs of transport-related transactions—such as frequent reloading of goods, customs clearance, fulfillment of documentation requirements, and others—add to the overall logistical costs of international shipments. Uncertainty about the enforceability of legal documents (such as bills of lading or letters of credit) increases the risks faced by importers and exporters as well as transport operators. One study on Brazilian ports reports the average costs per container related to administration and customs clearance at $1,727, which could be reduced to $320 according to international best-practice estimates (figure 4.7).[32] In many cases, transport-related transaction costs do not even show up in the final freight bill, but take up a firm's resources that could be used more productively.

Multiple changes of transport modes during the transport journey create costs in the form of frequent reloading of goods, coordination problems that result in shipment delays, and the need to contract several transport operators instead of a single door-to-door service provider—often exacerbated by legal provisions preventing foreign multimodal oper-

Figure 4.7 Potential door-to-door cost savings on containerized imports in Brazil

U.S. dollars



Note: Figures are based on the port of Santos. Insurance charges are excluded. Potential costs are estimated based on international best practice.

Source: World Bank 1997.

ators from undertaking door-to-door contracts. Containerization has substantially reduced the reloading costs of multimodal journeys, as goods are packed once at the factory's door and unpacked at the importer's site. Indeed, containerization has fostered the integration of transport service providers toward multimodal operations, which internalizes transaction costs resulting from modal switches. Even though containerization of general cargo has taken hold in many developing country–ports, containers are less frequently used for inland transport (especially in Africa)—obviating one of the main cost-saving characteristics of container shipping.[33] The main reasons for this are long inland turnaround times for containers, risks of loss or damage to containers, and inadequate road infrastructure unsuited to container loads. Limitations on the cross-border provision of trucking services create bottlenecks at the border, because goods have to be reloaded onto different carriers. Different national standards regarding safety requirements, vehicle sizes, railway gauges, or coupling and braking systems similarly constrain the smooth cross-border movements of goods.

Although official customs fees are typically only a small portion of overall transportation costs, inefficiency in customs procedures can result in congestion and long queues at the border. For example, at the key border crossing-point between India and Bangladesh as many as 1,500 trucks queue up on both sides of the border, and waiting times vary between one and five days.[34] Inefficiencies often are the result of understaffing, burdensome documentation requirements, poorly defined procedures, and the need to obtain approval from many officials. High trade protection typically results in more complex customs requirements—for example, through the need to obtain import licenses before goods are shipped. Corruption is endemic in many developing country ports and is more widespread the more opaque are the customs procedures, and the greater the discretion of customs officials.

Advances in information technologies have created a large scope for reducing transport-related transaction costs. The development of the electronic data interchange (EDI) system, for example, has substituted the traditional paper documentation routines for customs clearance. Through the global positioning system, firms can monitor the location of vehicles and better time loading and reloading. The Internet has opened new ways of organizing transport movements, creating more flexible and efficient transport markets with reduced uncertainty regarding the quality of shipments. Yet use of these technologies is still primarily confined to developed countries and large ports. Lack of communications infrastructure and the necessary skills, as well as an inadequate legal framework for electronic signatures, often present obstacles to the dissemination of transport-related information technology in the developing world.

—requires coordinated government action

There is much that governments can do to reduce transport-related transaction costs, usually under the umbrella of so-called trade facilitation initiatives. Such programs can result in significant reductions in direct and indirect shipping costs in relatively short time periods. They are most effective if implemented in partnership with the private sector (box 4.3). Another role for governments is to create an appropriate legal and regulatory framework for multimodal transport, which often represents one of the most pressing constraints to the provision of efficient door-to-door services. Cooperation on standard-setting and the conclusion of mutual-recognition agreements with neighboring countries can facilitate the cross-border movement of goods by trucks. While countries should remain free to adopt their preferred regulatory standards, it is important to ensure that such standards do not unnecessarily discriminate against foreign–service providers (see chapter 3).

From public monopoly to private competition

For a long time the provision of many transport services was the domain of public monop-

Box 4.3 Lessons from customs reforms in Mexico

Just years before joining the North American Free Trade Agreement, Mexico introduced a series of customs reforms as part of its ongoing trade reform in 1989. An important part of the modernization initiative was reducing customs clearance time, through risk management and selective testing of cargo, in line with similar initiatives in North America and Australia.

Prior to 1989, customs procedures were highly centralized, a reflection of the then inward-oriented bias of the economy. The directorate general of customs (DGC)—part of the ministry of finance—had unlimited authority over customs, with little accountability enforced on customs officials. The import-export guidelines were either not published ahead of time, or subject to frequent and arbitrary revisions. Adjudications of customs-related disputes were time-consuming. The approval of customs brokers' licenses was strictly regulated, thereby providing incentives for collusion between customs officials and customs brokers.

As part of the reform program, DGC was divested of all ancillary functions and the customs administration was decentralized. To ensure transparency, the rights and obligations of the traders were widely published. Traders under the new guidelines were required to pay tariffs through commercial banks that opened branches in customs facilities. An important component of the modernization program was targeting enforcement efforts on mainly "high risk" consignments, while allowing the cargo of usually compliant importers with minimum or no inspection. Customs uses a random system that determines whether or not goods will be inspected. This system relies on data—including the country of origin, importer or exporter, type of merchandise, tariff item number, and other variables—to determine whether a particular passenger or consignment is to be inspected. The system is not entirely random, because it uses information in its database to determine the level of risk. Upon completion of customs formalities in respect of a passenger or a consignment, the system is interrogated by pressing the appropriate button. In 90 percent of the cases the green light flashes indicating that no further formalities are required.

The benefits of the reforms, reduction in customs transit time and attendant reductions in the costs of interest, storage, and transport, as well as lower broker fees, were estimated to be about 5 percent of the total value of the merchandise.

Source: World Bank 1997.

olies, and indeed state-owned enterprises continue to be a dominant force in many countries' transport sectors. Public monopolies were often justified by natural monopoly arguments, such as in the case of port operations, which require large infrastructure investments. Prestige arguments (for example, the desire to operate a national flag airline) and security concerns (self-sufficiency in times of war) afforded a justification for limiting the participation of foreign service providers in domestic transport operations. Such arguments are becoming increasingly harder to defend. Private entry and competitive market structures have proved to be feasible for virtually all transport services and, to a large extent, have led to efficiency gains and lower prices for consumers. Moreover, the principle of comparative advantage fully applies to the provision of transport services, as it does to other traded commodities. By opening up domestic markets to foreign competition, shippers can choose among a broader spectrum of services and opt for service operators with superior technologies or lower operating costs.

Maritime transport—

Due to differences in commodity type as well as to technological improvements in the shipping industry—most importantly, containerization—international maritime freight transport has developed specialized branches. *Liner shipping*, meaning maritime transport of commodities by regular lines, which publish in advance their calls in different harbors, is distinct from *tramp shipping*, which refers to

transport performed irregularly, depending on momentary demand. Typically, liner carriers transport commodities with a higher degree of industrial processing using containers, while noncontainerized raw materials (such as crude and refined oil, iron ore, grain, coal, or bauxite) tend to be carried in tramp carriers.

—is affected by government policies—

Tramp shipping is generally believed to be a highly competitive market that is, as a rule, free from restrictions.[35] Prices are set in spot markets based on either time charter or voyage charter contracts. In contrast, liner shipping has traditionally been subject both to trade restrictions and private cooperation. The most important policy-imposed barriers applied to international maritime transport have been various cargo reservation schemes. These require that part of the cargo carried in trade with other states must be transported only by flagships (ships carrying a national flag) or ships interpreted as national by other criteria.

Cargo reservation takes various forms. It can be imposed unilaterally if ships flying national flags are given the exclusive right to transport a specified share of the cargo passing through the country's ports. An alternative form involves cargo sharing with trading partners on the basis of bilateral or international agreements. A specific form of multilateral cargo reservation scheme is the United Nations Conference on Trade and Development (UNCTAD) Liner Code of Conduct, which was conceived to encourage the development of the shipping industry of developing countries by guaranteeing domestic lines a minimum (40 percent) share of traffic, and ensuring their participation in international liner conferences.[36]

Cargo reservation schemes have probably declined in significance, as more and more countries have phased them out. In addition, the increased transfer of ships to open registries to enable the ship owners to benefit from more efficient cost conditions has further diluted the importance of cargo sharing. The UNCTAD Liner Code, which was never applied on a large scale, is even less visible today, being applied mostly to routes between West Africa and Europe (box 4.4). Nevertheless, countries ranging from Benin to India still have in place reservation policies that at least nominally restrict the scope for trade.

—and the practices of ocean carriers

Competition-restraining practices in liner transport take the form of cooperative agreements among maritime carriers on technical or commercial matters. Carriers' cooperative habits are deeply rooted in the history of maritime transportation. The first shipping cartels, covering the routes between the United Kingdom and Calcutta, India, date back to 1875. By joining carrier agreements, shipping companies retain their juridical independence, but consent to common practices with the other members regarding pricing, traffic distribution, or vessel capacity utilization. One of the most common types of agreement are *liner conference agreements,* which typically provide for the fixing of and adherence to uniform freight tariff rates and conditions of service. Liner conferences also employ exclusive contracts and other loyalty-inducing instruments to deter entry of outside shipping lines.[37] Another type of carrier agreement includes *cooperative working and discussion agreements*, which establish exclusive or preferential working relationships between shipping lines, and provide a forum for information sharing but do not necessarily engage in unique price setting. A more recent form of private cooperation is *strategic alliances*, which aim at closely integrating vessel operation activities and service networks.

It has been frequently pointed out that in recent years the power of liner conferences and other cooperative arrangements has been eroded. In the 1990s efficient outside shipping lines were able to gain a significant share of the market on many routes. Moreover, more liberal regulations affecting international shipping have weakened the command of rate-fixing agreements. For example, the Ocean Shipping Reform Act of 1998 in the United States introduced the confidentiality of key service contract terms, allowing greater scope for price com-

Box 4.4 Maritime shipping in West Africa

West Africa has lagged behind the rest of Africa and the world in terms of growth of sea-borne trade over the last two decades. Sea-borne transport increased by an average annual growth rate of 1.2 percent since 1990. This compares to 1.6 percent for all developing countries in Africa and just over 3 percent for total world sea-borne trade. Between 1980 and 2000, West Africa averaged about 4 percent of total goods loaded in the world's seaports. For goods unloaded, the region averaged about 2 percent of world sea-borne trade.

West African nations adopted the UNCTAD Liner Code in the 1980s and rapidly expanded their fleets, hoping to be in a position to take full advantage of the code's cargo sharing formula. However, most of the shipping lines based in West Africa either collapsed or went bankrupt. Today the market share of West African lines is very slim in the containerized trade to and from Europe, with five national lines mustering up about 6–7 percent of total capacity offered. They run a fleet of small and generally old vessels and offer exclusive service between their home countries and Europe, consequently limiting themselves to a small cargo base. Low traffic levels in West Africa restrict the number of regional carriers that can be sustained and limit market entry by commercially oriented carriers.

Due to low volumes, there is also concern about abusive practices by private operators. Interesting evidence on such practices was revealed in the Associated Central West Africa Lines (CEWAL) liner conference court case, which was initiated by the European Commission (EC) against three liner shipping conferences operating on routes between continental North Seaports and West Africa. Although European Union (EU) regulations provide for a block exemption for liner conferences, the abuse of a conference's dominant position still falls under the realm of the competition rules provided in the EC's treaty of Rome.

The members of the CEWAL conference were found to have abused their collective dominant position in several ways. First, the conference established a system of loyalty agreements, whereby loyal shippers received rebates on routes between Northern Europe and Zaire, while disloyal shippers were "blacklisted" and could no longer count on "normal" services from CEWAL members. Second, a special agreement with the Zairian Maritime Freight Administration granted the conference the power to prevent any intrusion of competition on its market and allowed it to monitor sea-borne trade. Third, the conference employed "fighting ships" to eliminate competition from its most direct competitor and potential market entrants. "Fighting ships" were identified as those vessels that sailed at dates close to the sailings of its principal competitor. Special freight tariffs—identical or less than those offered by the competing line—were established for those ships.

These agreements and practices enabled the conference to maintain a high market share, which contrasts with other Euro-African trades for which the market share of the conferences is sometimes less than 60 percent. After the court hearing, members of the CEWAL conference had to amend the terms of their loyalty contracts to prevent infringement of EC competition rules. Moreover fines were imposed on several members of the conference. The CEWAL case demonstrates the positive spillover of competition law enforcement by a large trading bloc, such as the EU. Since the final decision by the European Court of Justice in March 2000, liner transport prices on routes between northern Europe and West Africa have reportedly fallen.

Notwithstanding the dominance of certain liner conferences, there is growing competition from independent service providers in specific port to port markets, including niche operators (operating in special, well defined market segments, sometimes with special equipment) and operators without vessels who rely on chartering space from liner companies—so-called non-vessel-owning common carriers. These corporations frequently keep at arm's length from the large operators and can be quite successful within their particular markets. In view of West Africa's stagnant trade volumes, however, there is continued need to closely monitor competitive conditions in this critical trade-supporting industry.

Sources: Audige 1995; European Union 1999 and 2000; Pálsson 1997; and WTO 2000.

petition. It is also important to recognize that private cooperation can bring benefits to consumers of shipping services—notably due to improved network coordination, which can generate economies of scope and a wider choice of services available to shippers.

Yet one recent study, which examines the impact of price-fixing and cooperative working agreements on liner freight rates for U.S. imports, concludes that private practices continue to exercise a significant influence on liner freight rates, and that the hypothetical breakup of carrier agreements could lead to cost savings of as much as 20 percent (see box 4.5). In practice, the extent to which liner freight rates are pushed up by private anticompetitive practices is likely to differ across routes. Developing country routes are arguably more prone to such practices, since low overall traffic volumes limit the number of competitors that can be commercially sustained (see box 4.4).

Seaport services are increasingly driven by private capital and competition—

In performing their function as the interface between various modes of transport, seaports provide multiple services. The management of ships in ports requires a mixture of services related to berthing, including pilotage, towing, and tug assistance. Cargo handling is the most important service in moving goods through seaports, accounting for 70 to 90 percent of total port charges. Other services related to cargo manipulation include customs clearance, storage, and warehousing. Specialized agents or consignees take on the paperwork and all matters related to the use of port facilities by a ship. Finally, there is a series of ancillary services to crew members and ships, including provisioning, fueling and watering, garbage collecting, and repair facilities.[38]

The last decades have seen profound changes in the organization of seaports—the general trend being toward increased private sector participation and greater competition within and between ports. A variety of ownership and operational structures have emerged with regard to port management and coordination, the provision of infrastructure, and the supply of services. For example, under the Landlord Port concept—which is becoming widespread worldwide—the public Port Authority owns the basic infrastructure—land, access, and protection assets—and leases it out to private operators on a long-term concession basis. Under the Tool Port concept the Port Authority owns the infrastructure, the superstructure, and heavy equipment, and rents it to private operators, which carry out commercial operations under licenses. The Port Authority usually retains all regulatory functions in the case of landlord and tool ports. In only a few ports in the world has port land been sold to private operators, and all public management and regulatory functions been transferred to the private sector.[39]

—but smaller ports are at a disadvantage—

The feasibility of competitive provision of port services, especially cargo handling, depends on several factors. The availability of port space poses a constraint to the number and the degree of specialization of port terminals. Second, traffic levels have to be sufficiently large, such that it is feasible to operate several terminals at full capacity. Experience has shown that the operation of more than one container terminal only becomes viable if port traffic exceeds 150,000 twenty-foot equivalent units (TEUs) per year. Third, competition between ports depends on geographic factors, the density and quality of inland transport networks, and overall traffic volumes in the greater port region. In practice, competitive forces are likely to lead to a cost-efficient provision of services only in large seaports and regional hubs. For smaller ports, ex ante competition, in the form of auctions where private firms bid for the right to operate a terminal, can extract potential monopoly or oligopoly rents that service providers expect to generate. Furthermore, it is necessary to accompany private port participation with appropriate regulation over tariffs charged by service providers. Indeed, the

Box 4.5 How important are public and private barriers to trade in maritime services?

A recent study by Fink and others (2001) has attempted to quantify the absolute and relative importance of public and private barriers to trade in maritime services. Using data on liner transport charges for U.S. imports, broken down to the six-digit Harmonized System commodity level, the study estimates a model that explains port-to-port liner prices with their standard determinants, ranging from distance to containerization, as well as various proxies for public and private restrictions that exist across countries and on different routes. Public policy restrictions include cargo reservation and the extent to which certain port services, such as pilotage and towing, are mandatory for incoming ships. Private restrictions considered are price-fixing and cooperative working agreements on routes between U.S. trading partners and selected U.S. coastal districts.

The econometric results show that both public policy and private practices exercise a significant influence on liner transport prices. Of public restrictions, the cargo reservation policies that proliferated in the 1970s and 1980s seem to be largely ineffectual, but restrictiveness in the form of mandatory port services significantly raises prices. Most striking is the even more powerful effect that private carrier agreements have in keeping prices high. The table below presents the estimated reductions in transport prices due to policy liberalization and the hypothetical breakup of private carrier agreements. While port liberalization would lead to an average reduction in transport prices by 8 percent and cost savings of up to $850 million, the breakup of private carrier agreements would cause prices to decline further by 20 percent and there would be additional cost savings of up to $2 billion on U.S. routes.

Estimated reductions in liner transport prices

	Liberalization of port services	Breakup of cooperative working agreements	Breakup of price-fixing agreements	*Cumulative effect of the breakup of private carrier agreements*	*Cumulative total effect*
1. Average percentage price reduction	8.27	5.29	15.73	20.05	26.37
2. Projected total savings for all U.S. imports (in millions of dollars)	850.4	544.1	1618.4	2063.0	2712.5

Note: The average percentage price reductions are computed from the sample of 59 countries included in the study, while the projected total savings apply to all U.S. trading partners. Given the functional form of the underlying regression equation, the individual effects do not sum to the cumulative effects. See Fink and others 2001 for additional explanatory notes.

While the study provides important evidence on the forces constraining competition in maritime transport, several important questions fall outside the scope of the empirical analysis. First, the overall restrictiveness of the port services regime is only imperfectly captured by the extent to which certain port services are mandatory for incoming ships. The efficiency of cargo handling—the most important service in bringing moving goods through ports—is not considered in the analysis. Moreover, the data employed only capture inefficiencies in the provision of port services to the extent that they push up liner freight rates. More research is needed to evaluate how public and private restrictions directly affect charges for port and auxiliary services. Second, due to data availability, the study only considers liner traffic to the United States, where recent reforms have increased the scope for price competition, potentially reducing the role of private carrier agreements. Evidence for other routes involving developing countries is needed to evaluate how public and private barriers to competition affect maritime shipping.

Source: Fink and others 2001.

creation of regulatory capacity is an important element in every port reform package—not only to monitor and set tariffs, but also to ensure the safety and quality of services supplied.

With few exceptions, such as Singapore, public port monopolies are typically associated with inefficient and expensive services; experience has shown that liberalization programs can, in principle, greatly improve performance (see box 4.6). Yet achieving successful liberalization is a complex task—even in developed countries. To attract long-term private investors, the overall policy regime has to be credible and consistent over time. At the same time, governments need to ensure that efficiency gains are passed on to port users, which requires carefully designed concession contracts ex ante and appropriate regulatory mechanisms ex post. Thus a country with weak institutions, high overall economic uncertainty, a reputation for policy reversal, and limited regulatory capacity arguably faces a significantly more difficult task in managing the liberalization process. Another frequently encountered obstacle in reforms is the adjustment to the labor force in port. Due to technological progress, port operations have, over the past decades, become more capital-intensive, such that modernization typically requires the reduction of excess labor. Forming consensus with workers on the design of reforms, retraining programs, and measures to soften the social impact of labor reductions can overcome some of the resistance of often-powerful port unions.[40]

—and powerful operators are emerging at the global level

Opening port services to the participation of foreign operators can bring special benefits, as multinational companies often bring technology, experience, and managerial know-how. Large global port operators can also offer a loyal customer base, networking possibilities, and access to finance. Yet a number of observers have voiced concerns about the rising global concentration of the industry. A relatively small group of port operators has established a regional or worldwide presence; by one estimate this small group now accounts for about 40 percent of the world's annual container liftings.[41] While consolidation may bring benefits to port users, there is the danger that dominant operators may abuse their market power—for example, by offering exclusive contracts to shipping lines if they use their worldwide facilities. Such practices may pose the risk that the benefits from port liberalization are to some extent captured by foreign firms.

International air transport services are heavily restricted—

International air transport is divided into scheduled passenger, freight, and mail services, and chartered services that depend on momentary demand. In 1998, scheduled services represented 87 percent of revenues, of which the overwhelming share (88 percent) came from the movement of passengers.[42] International airfreight transport can be further divided into passenger belly-hold freight and dedicated freight services. Passenger belly-hold freight is typically cheaper, because freight rates are set at marginal cost, whereas dedicated freight services need to recover the full costs of operating the aircraft.

Trade in international air transport services is heavily restricted by governments around the world—more so than international maritime transport. Market access of foreign passenger and cargo carriers is largely determined through a complex system of bilateral air service agreement (ASAs), which typically designate the airlines allowed to operate on bilateral routes, the number and frequency of flights they operate, what types of aircraft they use, and how much they charge.[43] ASAs also determine the traffic rights of airlines operating on bilateral routes, which are defined by so-called freedoms of the air. Under third and fourth freedom rights, airlines are allowed to carry traffic between their home countries and foreign countries. Fifth freedom rights permit an airline of one country to carry traffic between two other countries, provided the flight originates or terminates in its own country. The most liberal—yet rarely granted—traffic rights

Box 4.6 Lessons from reforming Argentina's ports

As part of its overall program of macroeconomic stabilization, liberalization, and public sector reform, in the 1990s the government of Argentina initiated a comprehensive reform of the port sector. The reform was a major success, in that it greatly improved the performance of Argentina's largest seaports, sustaining a rapid expansion in the volume of sea-borne trade, growing more than four times from 249,000 in 1990 to 1,070 million twenty-foot equivalent units (TEUs) in 2000.

Before 1990, Argentinean ports were characterized by institutional inadequacies, including a major corruption problem, inefficient cross-subsidization, and insufficient investment in the modernization of the sector. Tariffs charged by the publicly operated ports were reportedly among the highest in the world. Total cargo moved in the ports fell by 10 percent between 1970 and 1989, with the port of Buenos Aires alone experiencing a 52 percent reduction in traffic.

The overall reform program consisted of a combination of devolution of most port responsibilities to the provinces, private sector participation, and promotion of service competition. Provinces were given the freedom to operate, concession, or close ports, with the exception of large ports, for which the creation of independent autonomous companies was foreseen. In the case of the port of Puerto Nuevo (Buenos Aires), six terminals were competitively concessioned to the private sector, with a payment of a leasing fee to the government for use of infrastructure assets—following the landlord port model. To improve the contestability of port operations, the government also established free entry into the sector by allowing any operator to build, manage, and operate a port for public or private use. A new regulatory agency (*Autoridad Portuaria Nacional*) was created under the ministry of the economy. Finally, the restructuring process included a major labor reform that eliminated restrictive work regulations and softened the social impact of labor reductions.

The main economic effect of the overall reforms was to transform Argentinean ports from the most expensive ones in Latin America into the cheapest ones—as illustrated in the table below for the port of Buenos Aires. Private investment picked up significantly in the second half of the 1990s, leading to a substantial expansion in capacity. Productivity has picked up sharply, significantly reducing operational costs and duration of stay in ports. Combined with more intense competition between port service providers, this has resulted in a reduction in overall container terminal handling prices.

Improved performance in the port of Buenos Aires

Indicator	1991	1997
Cargo (thousand tons)	4,000	8,500
Containers (thousand TEUs)	300	1,023
Capacity (thousand TEUs)	400	1,300
Cranes	3	13
Productivity (tons per employee)	800	3,100
Average container time at port (days)	2.5	1.3
Charges per container ($/TEU)	450	120

Despite these impressive achievements, unresolved issues from the first wave of port reforms as well as changes in the competitive environment in the sector, although not pressing, demand solutions in the long run. While intraport competition is working effectively, the likelihood of future mergers between terminal operators at the port of Buenos Aires raises the risk of collusion. Improved monitoring and benchmarking mechanisms, as well as the fine-tuning of price regulations, may be necessary to ensure that services continue to be provided on a cost-efficient basis. Inefficient customs operations pose a key constraint toward further productivity gains in the sector and represent a priority for future reform. Finally, some aspects of Argentina's port policy, such as restrictions on the circulation of containers, are reported to restrain intermodal integration. Addressing this issue in the context of the wider policy framework on multimodal transport would contribute to a better performance of the transport system nationwide.

Source: Trujillo and Nombela 1999; and Trujillo and Estache 2001.

are seventh freedom rights, which allow an airline of one country to operate flights between two other countries without the flight originating or terminating in its own country.[44]

—but bilateral arrangements are becoming more liberal—

Over time, ASAs have become increasingly more liberal. For example, so-called Bermuda-type agreements do not regulate capacity on each route, but leave it to the designated airlines to negotiate the number and frequency of flights. "Open skies" agreements are an even less restrictive type of ASA, which originally emerged on selected routes to and from the United States. Under a multiple open skies agreement, airlines can typically fly on all routes between two countries without any ex ante controls on capacity or fares, and are granted unrestricted fifth freedom rights. Domestic reforms, especially the entry of second and third carriers to compete with the former national flag carriers have also led to more intense competition on a considerable number of international routes. In addition, unilateral and bilateral policies toward air cargo services are, in most countries, more liberal than passenger services. Governments have often been willing to authorize dedicated freight services when demand for services exceed what national flag carriers could provide.[45]

Another noteworthy development is the conclusion of liberal regional air service agreements that, at least partially, attempt to overcome the distortions introduced by bilateral preferences. These are often linked to regional trade agreements, such as in the case of the common aviation market in the EU or the Andean Pact open skies agreement. The "Yamoussoukro Declaration" adopted by African countries provides for liberalization of air transport on the continent by 2002. The foreseen regime would replace bilateral air services arrangements and eliminate all restrictions in traffic rights up to the fifth freedom.

Privatization of state-owned airlines has also progressed in the 1990s. More than 70 percent of airline companies now have a majority of private capital. In addition, governments have become less willing to come to the rescue of distressed national flag carriers. Indeed, selected countries—notably in the developing world—have allowed the bankruptcy and closure of national carriers. While privatization is frequently driven by short-term fiscal needs, there is growing recognition that direct or indirect subsidies to national flag carriers distort the allocation of resources. The tightening of competition policies in relation to state aids has also contributed to a more commercially oriented climate in which airlines operate today.

Besides restrictive bilateral agreements, market access of foreign airlines is sometimes limited due to regulatory standards and requirements. While it is legitimate for more developed countries to seek higher safety and environmental standards, they can potentially have adverse effects on air services with developing countries, which should be taken into account when adopting new standards (box 4.7). International cooperation on technical standards, for example under the umbrella of the International Civil Aviation Organization (ICAO), can play a useful role in forming consensus about what are legitimate safety or environmental concerns and what can be considered unnecessarily discriminatory.

—fostering consolidation—

A large number of studies have documented the benefits of liberal international air service markets in developed economies. In principle, competition between airlines has been shown to result in overall lower prices, and an increased range and quality of services.[46] Little formal research has been conducted to evaluate the effects of air service liberalization in developing countries, but anecdotal evidence points to significant inefficiencies as a result of restrictive air service policies. At the same time, the experience of developed countries has shown that liberalization may foster consolidation in the industry, as airlines seek to expand the reach of their networks to generate hub-and-spoke economies.

Box 4.7 EU noise regulations and their potential effect on air service to Central Asian countries

The EU has been continuously framing regulations to curb noise pollution within the Community caused by older types of civil jet aircrafts. A trade dispute between the United States and the EU has thus been brewing over the issue of hushkits—retro-fitted noise muffling systems used extensively in U.S. carriers to bring older aircraft in conformity with ICAO standards. The hushkits law, effective from April 2002, would ban all non-EU aircraft with built-in hushkits that are not already flying in the EU.

The IL76, an aircraft with high cross-country carrying capacity will be prevented from operating as a result of these regulations. According to one air transport operator, almost 90 percent of all humanitarian and disaster relief operations around the world are performed by the IL76. Such aircrafts play a role in the advancement of emerging industries by carrying maintenance equipment and spare parts worldwide. They have also been used widely in servicing regions such as Kazakhstan, which lack sufficient infrastructure to support Western aircrafts.

The noise level near airports is determined not only by the fleet mix serving the airport, but also by the quantity of aircraft movements. A regulation that bans such aircrafts in populated areas but not in areas with low population density is an alternative that can be applied for a limited period until the aircrafts are re-engineered in accordance with the environmental standards. That could also imply channeling some of the air cargo through specialized remote cargo airports.

The negative implications for developing nations are evident. Delays in urgent relief could have catastrophic results. Cargo traffic between developing countries and the EU would also be adversely affected, as the costs of maintaining a fleet that is in line with stricter noise regulations would increase. Taking into account the implications for developing countries when setting environmental laws and regulations would make better development policy.

Source: Council of the European Union 1999; and www.coyneair.com.

A regional market with limited traffic may only sustain a number of airlines that is smaller than the number of states in the region. Some observers have, for example, pointed out that consolidation would be a likely consequence if air services were further liberalized in Africa. Consolidation may be in the consumer's best interest, if economies of scale and scope result in lower airfares and freight rates, yet it also raises the danger that "spoke" routes with thin traffic densities will become monopolized and airfares increase once price and capacity controls are removed.[47] Achieving successful liberalization may require the regulation of prices and the imposition of service requirements on thin routes—at least temporarily until competition has sufficiently intensified.

—and increasing the relevance of private practices.

A related concern stems from the emergence of a large number of airline alliances and code-sharing agreements between airlines of different countries. One of the main rationales of these arrangements has been to expand the reach of existing networks in an environment where cross-border trade and direct investments are restricted by bilateral ASAs.[48] In addition, regulation and market structure in industries upstream or downstream from air services can strongly affect competitive conditions for both passenger- and cargo-transport. Chiefly, the allocation of landing and takeoff slots at airports can be used to favor domestic incumbents and lead to a high concentration

of services in city-specific markets. Similarly, passenger carriers need access to computer reservation systems, which are provided globally by only a small number of operators.

Unleashing competition in international transport: policy implications

Domestic policy action is needed—
Government policies can play an important role in improving the efficiency of international transport services. Creating a favorable climate for private investments, targeted public infrastructure investments, and regional cooperation on transport matters can serve to lessen constraints imposed by adverse geographic or economic circumstances. As pointed out in chapter 3, the liberalization of service markets should focus on the removal of entry barriers in the form of public monopolies or specifically government policies that directly limit competition. Such policy-imposed restrictions are present in a large number of countries and can apply to virtually all transport services, ranging from public shipping lines, port monopolies, and national flag air carriers, to controlled freight forwarding, and agency and third party logistics markets.[49]

Cargo reservation in maritime transport, while still applied in a number of developing countries, has arguably become less relevant. Liberalization of port services is a much newer phenomenon, but has proved to be a successful strategy in improving the performance of port operations in both developed and developing economies.

Notwithstanding the recent progress toward more commercially oriented and liberal air service markets, the current system governing international air transport remains one that essentially grants preferential access to airlines that reside at one end of an international route. Even the most liberal bilateral open skies agreements and regional accords do not grant seventh freedom rights. Preferential liberalization entails costs, in that market access may be denied to the world's most efficient airlines, unless those airlines fall under the ambit of a bilateral agreement. Despite the spread of airline alliances, which has led to improved international network coordination, limitations on foreign ownership of airlines similarly prevent foreign airlines from fully integrating service networks and achieving economies of scale and scope. In the long term, the goal should be to move toward a nondiscriminatory trade and investment regime in air transport. Further liberalization at the domestic level would contribute to an environment in which such a regime would become feasible in the future.

—as well as a strong regulatory and competition policy framework
Liberalization needs to be accompanied by the development of appropriate regulatory mechanisms. Regulatory intervention is necessary to remedy market failures, to protect consumer interest and the environment, and to ensure the safety of services supplied. Good regulation is often the key to successful liberalization. Although there is no unique model of a good regulator, experience has shown that clearly defined responsibilities, institutional and some degree of financial independence, well-trained staff, and credibility in the market are important ingredients to the regulator's effectiveness. Assistance from bilateral or multilateral donors can be supportive, especially for newly created agencies with limited resources.

An adequate competition policy framework is needed to address potentially anticompetitive business practices by operators, and to ensure that the gains from policy liberalization are passed on to consumers of services. In principle, greater scrutiny of private carrier agreements by competition policy would not automatically imply the breakup of all forms of private cooperation, but would require a static and dynamic efficiency test as to whether carrier agreements, alliances, and other private practices—whether in maritime or air trans-

port—seek to lower operational costs or work to the detriment of consumers.

Yet effective application of competition policy may be difficult—

Many developing countries lack an adequate national competition policy framework to deal with private practices by transport operators. Although a large number of countries have recently adopted antitrust laws, examination and enforcement capabilities often remain weak and take time to develop. There are also significant extraterritoriality problems related to the application of national laws to transport services that are inherently international. Large states can probably tackle such practices unilaterally, but small states with limited enforcement capacity are at a disadvantage. Cooperation on antitrust matters (such as the collection of evidence) can help in pursuing multijurisdictional practices, but, again, such cooperation currently is most pronounced only among developed countries.

—in part due to developed country antitrust exemptions

Undoubtedly antitrust scrutiny of international transport operators in big trading nations, such as the United States and the EU, is likely to generate positive spillovers for developing countries; yet such positive spillovers are likely to be limited, for several reasons. First, the United States, the EU, and other countries have historically exempted—at least partially—shipping conferences from the realm of antitrust law, on the grounds that they provide price stability and limit uncertainty regarding available tonnage.[50] In some countries, governments even facilitate price-fixing by requiring ocean carriers to officially file their rate and schedule information. Similarly, the United States has exempted selected airline alliances from the realm of its antitrust law—justified by airlines' need to share scheduling and pricing information, which could be challenged under existing competition regulations. Second, developed country competition laws typically do not take into account the interests of foreigner consumers, and foreign persons usually do not have standing in developed country courts.

A case can therefore be made to review competition regulations—including sectoral exemptions—in the major industrial countries in terms of their potential development implications. This would not only make for better overall development implications, but in many cases it could lead to better outcomes in developed countries.

Multilateral negotiations can be supportive of domestic reforms—

Reform programs aimed at improving the performance of transport services are primarily a challenge for domestic policy. Nonetheless, multilateral agreements can help in several ways to achieve good policy—as chapter 3 has discussed in greater detail. Transport services fall under the scope of the General Agreement on Trade in Services (GATS), which was one of the outcomes of the Uruguay Round of trade negotiations. Measures listed in member countries' specific commitments include, for example, quotas such as cargo reservation policies, foreign ownership limitations of service providers, requirements regarding the legal form of commercial presence, discriminatory taxes and subsidies, restrictions on the hiring of foreign crew members, and the terms of access to port services and other essential facilities such as computer reservation systems.

—but little has been achieved so far—

Notwithstanding the broad coverage of the GATS, relatively little has been achieved to date on disciplining transport services by multilateral trade rules. Take the case of maritime transport services, where negotiations stretched over a period of nearly ten years.[51] Liberalization was a central concern in the Uruguay Round, but at the end of the process only 39 WTO–Member countries were willing to offer commitments, most with significant limitations. As in other sectors, such as telecommunications and financial services, it was decided to extend

negotiations in this sector until the end of June 1996. However, no agreement could be reached and negotiations were suspended. Thus even though the maritime transport sector is an integral part of the GATS, it is not subject to the most favored nation (MFN) rule, and existing commitments are limited to those that certain Members have been willing to make unilaterally. The suspension of the MFN obligation was prompted by the difficulty in eliminating MFN-inconsistent measures in the maritime sector. Examples of such measures are the bilateral cargo-sharing arrangements under the UNCTAD Liner Code of Conduct, and certain unilateral retaliatory actions—such as those maintained by the United States—against trading partners who are perceived to resort to restrictive foreign trade practices.

Liberalization of air transport services under the GATS has also been very limited. Current commitments only apply to three ancillary services—aircraft repair and maintenance services, selling and marketing services, and computer reservation services. The GATS expressly excludes the core issue of air traffic rights. Because the bilateral structure of the international air service regime is fundamentally at odds with the MFN principle of the World Trade Organization (WTO), exclusion was preferred to the possibility of scheduling a large number of MFN exemptions. Several developed countries—in part supported by their airlines—also preferred to pursue the liberalization of air services in a bilateral context. The fact that these countries can obtain a rapid and timely resolution of disputes under the existing bilateral system contributed to the lack of enthusiasm for a strong GATS framework.

—leaving the door open for mutually beneficial negotiations in the new round

In 2000, new negotiations on services were initiated, as called for in the GATS. If a broader new round were to be launched at the Ministerial Meeting in Doha, Qatar, in November 2001, the scope for intersectoral bargaining would substantially widen and encourage a broader and deeper exchange of commitments by Members. Although specific negotiating interests on transport services are likely to vary from country to country, there are general guiding principles that would arguably contribute to beneficial outcomes. First, developing countries are likely to gain credibility in their domestic reforms by binding existing transport policies in a multilateral commitment. Holding on to commitments that are "below" actual policy—for example, motivated by the desire to preserve future negotiating leverage—entails significant costs, in that investors may be deterred by the risk of policy reversal. In maritime transport, the prospects for locking in existing policies have arguably improved since the last round of negotiations, as unilateral liberalization in this sector has gathered steam, and a larger number of countries appreciate that restrictions on maritime trade impose a significant cost on the whole economy.[52]

Second, developing countries should use the negotiating process to advance liberalization of transport services—especially in sectors where there are powerful interest groups, such as in port services, which resist reforms. At the same time, market access demands by trading partners need to be reconciled with domestic reform priorities and overall development objectives. This "balancing act" requires careful analysis prior to negotiations, which should be supported by bilateral and multilateral development agencies.

Third, and specifically regarding the coverage of air transport services under the GATS, a stronger multilateral framework for aviation would, in principle, be desirable and could contribute to a more level playing field for smaller countries. Realistically, application of the MFN principle to air transport—for example, by substituting bilateral quotas with nondiscriminatory taxes—would require major changes in the way the industry is currently governed, which seems unlikely in the short to medium term. One way forward would be to negotiate the inclusion of air cargo and so-

called express integrated cargo services, which are already relatively more liberal than air passenger services. In the long term, multilateral rules for these subsectors can create the momentum for a more comprehensive treatment of air transport under the GATS.

Finally, it may be beneficial to create multilateral disciplines on transport regulation and measures that address anticompetitive business practices. Such disciplines could unleash a deeper exchange of liberalization commitments, as countries would be more confident that market access concessions are not reversed by regulatory barriers and that the gains from more liberal policies are not captured by private parties. The Reference Paper on Regulatory Principles, which is part of the 1997 GATS Agreement on Basic Telecommunications, has demonstrated that multilateral disciplines can play a positive role in this regard, without aiming at harmonizing regulatory standards or practices. The experience with these behind-the-border issues in the WTO is still young; further work is necessary to evaluate possible options in the transport sector. For example, extending nondiscrimination principles under the GATS to essential facilities in transportation, such as seaports and airports, or computer reservation systems, could make a positive contribution toward a secure trading regime for transport services. Competition disciplines could call for an end to exemptions of particular sectors—such as air and maritime transport—from domestic antitrust law. Another useful role the WTO might play in this regard is to uncover anticompetitive practices, for example in the context of the already existing trade policy reviews mechanism, or in the form of dedicated competition assessments. Developing countries that have limited resources available for this kind of analysis would likely be the main beneficiaries.

Notes

1. See Lakshmanan 2001.

2. If one assumed a 6.26 interest rate (the average U.S. Treasury Bill rate in the year of estimation), the daily capital would be 0.017 percentage ad valorem, roughly 47 times smaller than the measured cost.

3. Amjadi and Yeats (1995) also show that African countries use a larger share of their foreign exchange earnings on net payments for transport services compared to other developing country regions.

4. Hummels (1999a) makes similar comparisons between freight rates and import tariffs for several Latin American countries and, in many cases, finds that tariffs do exceed transport costs, especially among manufactured goods.

5. Note that insurance services are included in the definition of freight rates shown in figure 4.3.

6. See Limão and Venables 1999. Geraci and Prewo (1977) estimate a similar elasticity of trade with respect to shipping costs.

7. Hummels (1999a) directly estimates the degree of goods' substitutabilities, controlling for the transport and tariff incidence on import prices. The study suggests an even larger trade-inhibiting effect of transport costs for individual product categories than the aggregate estimate by Limão and Venables 1999.

8. For an overview of travel cost elasticity estimates of tourism demand, see Witt and Witt 1995.

9. See Christie and Crompton 2001.

10. A recent study on productivity spillovers in Organisation for Economic Co-operation and Development countries finds that foreign research and development (R&D) stocks in distant economies have a much weaker effect on domestic total factor productivity than do R&D stocks in closer economies (Keller 2001).

11. Indirect evidence for the role of export market choice on growth is provided by Vamvakidis 1998. This study finds that the size of open neighbors' market and their level of economic development has a positive effect on home country economic growth, although a faster growth rate of the neighboring economy was found to not provide any positive spillovers.

12. Since direct data on transport costs are unavailable, Redding and Venables (2001) use geographic distance and the existence of a common border to approximate the effect of shipping costs. Estimations are performed for a group of 101 developed and developing economies, using 1994 bilateral trade data.

13. See Hanson 1998.

14. Interesting new work even suggests that transport costs—as an element of trade costs—help explain a variety of puzzles in the field of international macroeconomics. Their role in explaining countries' home bias in consumption may be the most straightforward, but Obstfeld and Rogoff (2000) also demonstrate that trade costs can be an explanatory factor of why savings in most countries are typically invested domestically, or even why exchange rates are excessively volatile.

15. It should be pointed out that 1974 is an unfortunate year for comparisons, however, because freight rates were pushed up by the oil price shock in the preceding years. Based on similar data from New Zealand, Hummels (1999b) finds that freight costs increased by at least 30 percent between 1973 and 1974, such that the decline in ad valorem freight rates between 1974–98 would be nearly eliminated.

16. Most of the discussion on ocean and air transport is based on Hummels 1999b. This study provides an excellent treatment of available evidence on the evolution of international shipping costs.

17. See World Bank 2000.

18. See Hummels 2000.

19. These estimated growth rates are based on Hummels 1999b.

20. See Hummels 2000. Based on an estimated daily ad valorem cost of 0.8 percent of the import value, this study concludes that, ". . . the advent of relatively fast shipping is equivalent to reducing tariffs from 32 to 11.4 percent."

21. In the case of maritime transport, Fink and others (2001) estimate that a 1 percent increase in distance pushes up liner transport prices by 0.2 to 0.3 percent. Besides fixed transport costs, it is also possible that differences in the variable costs of shipping across ships and routes cause freight rates to increase less than proportionately with distance.

22. See, for example, Rose 2000 or Limão and Venables 1999.

23. See Limão and Venables 1999.

24. See, for example, Radelet and Sachs 1998, and Limão and Venables 1999.

25. See Radelet and Sachs 1998, and Limão and Venables 1999.

26. Improving the infrastructure density index in the export destination country by one standard deviation reduces transport costs by the equivalent of 6,500 kilometers by sea or 1,000 kilometers by land.

27. Raising infrastructure density of the median landlocked economy to the 25th percentile reduces the disadvantage of being landlocked by 12 percentage points; improving the infrastructure of the transit economy reduces the disadvantage by a further 7 percentage points.

28. For example, one study for Latin America estimates investment needs of $18 billion annually in Latin America for 2000 to 2005, in order to bring road infrastructure to the upper-middle-income country average of 2.32 kilometers per capita. See Fay 2000.

29. For a more detailed discussion of the role of the private sector in transport infrastructure investments, see Estache 1999.

30. This estimate is based on the empirical model of ocean liner shipping by Fink and others 2001.

31. See Hummels 2000.

32. Admittedly, such best-practice estimates are often crude and sometimes do not fully take into account that practices or technologies employed abroad may not be applicable at home. Moreover, the study is based on the performance of Brazilian ports in 1997. Since then, port charges have been significantly reduced through the concessioning of private container terminals to private operators.

33. See Pálsson 1997.

34. See Subramanian 2001.

35. See World Trade Organization 1998a.

36. The UNCTAD Liner Code was adopted in 1974 and entered into force in 1983 through its ratification by more than 70 countries. Signatories are required to divide the cargo transported according to the following rule: 40 percent for ships belonging to the exporting country, 40 percent for ships belonging to the importing country, and 20 percent for ships belonging to other countries.

37. Marín and Sicotte (2001) provide historical evidence of how the stock returns of ocean lines respond to anticipated changes in the legal treatment of exclusive contracts.

38. See Trujillo and Nombela 1999.

39. For a more detailed description of port ownership and management structures, see World Bank 2001a.

40. See World Bank 2001b.

41. See World Bank 2000.

42. These shares were computed from operating revenue data published in the *Statistical Yearbook of the International Civil Aviation Organization*. They refer to the revenue of scheduled airlines, which in 1996 accounted for more than 97 percent of all carrier revenue.

43. With some exceptions, chartered air services remain outside the scope of the bilateral ASAs. Their authorization remains largely at the discretion of individual countries; airlines must satisfy the charter requirements of both the origin and destination countries before commencing services.

44. First and second air freedoms grant the right to fly over another country's territory or to land in another country for nontraffic purposes such as refueling or maintenance. Sixth freedom rights are a combination of two sets of third and fourth freedom rights—they allow an airline of one country to carry traffic between two other countries via its own country.

45. See WTO 1998b.

46. See, for example, Dresner and Tretheway 1992, Gillen and others 1999, Gonenc and Nicoletti 2000, and Productivity Commission 1998.

47. For example, Brueckner and Spiller (1994) simulate the effect of industry consolidation based on structural estimates of cost and demand parameters in

the U.S. domestic market. They find that a merger of two carriers who share the same hub results in a fare increase for passengers traveling on routes where previously only the merging carriers operated. Fares on routes that remain competitive after the merger, however, fall, indicating that density gains compensate for the loss of competition. Because the merger leads to a substantial increase in total airline profit, its net welfare effect is positive.

48. A recent study on global airline alliances concludes that, while the existing alliances are not stable enough to threaten competition of global airline markets, individual alliances may be able to dominate certain hubs or even city pairs (Laaser and others 2000).

49. For example, one study on container transport in China identified ineffective competition for freight forwarding services—with 80 percent of the market being controlled by two state-owned enterprises—as a reason for limited inland container use (World Bank 1996). Similarly, entry restrictions in the provision of third party logistics providers in Brazil are found to adversely affect Brazil's distribution economy (World Bank 1997).

50. The exemptions from competition law in the United States and the European Union are arguably accompanied by a strong regulatory framework and mechanisms that monitor competitive conditions in the affected transport markets. At the same time, the interests of foreign consumers are either not or only marginally taken into account by authorities in these countries.

51. See Mattoo 2001.

52. See WTO 1998b.

References

Amjadi, Azita, and A. J. Yeats. 1995. "Have Transport Costs Contributed to the Relative Decline of Sub-Saharan Exports?" Policy Research Working Paper No. 1559. World Bank, Washington, D.C.

Atinc, Tamar Manuelyan. 1997. Sharing Rising Incomes: Disparities in China. Washington, D.C.: World Bank.

Audige, Michel. 1995. "Maritime Transport Serving West and Central African Countries: Trends and Issues." Sub-Saharan Africa Transport Policy Program (SSATP), Working Paper No. 16. World Bank, and Economic Commission for Africa, Washington, D.C.

Brueckner, Jan K., and P. T. Spiller. 1994. "Economies of Traffic Density in the Deregulated Airline Industry." *The Journal of Law and Economics* 37 (2): 379–415.

Christie, Iain T., and D. E. Crompton. 2001. "Tourism in Africa." Africa Region Working Paper Series No. 12. World Bank. [available at http://www.worldbank.org/afr/wps/wp12.htm]

Council of the European Union. 1999. *Official Journal* L 115, 04/05/1999: 1–4.

Dresner, Martin E., and M. W. Tretheway. 1992. "Modelling and Testing the Effect of Market Structure on Price: The Case of International Air Transport." *Journal of Transport Economics and Policy* 26 (2): 171–84.

European Union. 1999. "Community Legislation in Force." Document No. 393D0082. [available at http://europa.eu.int/eur-lex/en/lif/dat/1993/en_393D0082.html]

———. 2000. "Proceedings of the Court of Justice and the Court of First Instance of the European Communities." [available at http://curia.eu.int/en/act/act00/0009en.htm]

Estache, Antonio. 1999. "Privatization and Regulation of Transport Infrastructure in the 1990s: Successes and Bugs to Fix for the Next Millennium." World Bank, Washington, D.C. [available at http://www.worldbank.org/wbi/regulation/pdfs/2248bugstofix.pdf] Processed.

Fay, Marianne. 2000. "Financing the Future: Infrastructure Needs in Latin America, 2000–05." World Bank, Washington, D.C. Processed.

Fink, Carsten, A. Mattoo, and I. C. Neagu. 2001. "Trade in International Maritime Services: How Much Does Policy Matter?" Policy Research Working Paper No. 2522. World Bank, Washington, D.C.

Gausch, Luis J., and J. Kogan. 2001. "Inventories in Developing Countries: Levels and Determinants, a Red Flag on Competitiveness and Growth." World Bank, Washington, D.C. Processed.

Geraci, Vincent J., and W. Prewo. 1977. "Bilateral Trade Flows and Transport Costs." *Review of Economics and Statistics* 59(1): 67–74.

Gillen, David, R. Harris, and T. H. Oum. 1999. "A Model for Measuring Economic Effects of Bilateral Air Transport Liberalization." Working Paper No. 99-08. Wilfrid Laurier University, Waterloo, Ontario, Canada. Processed.

Gonenc, Rauf, and G. Nicoletti. 2000. "Regulation, Market Structure and Performance in Air Passenger Transportation." *Economics Department Working Paper* No. 254. Organisation for Economic Co-operation and Development, Paris.

Graham, Edward, and E. Wada. Forthcoming. "Foreign Direct Investment in China: Effects on Growth and Economic Performance." In Peter Drysdale, editor. *Achieving High Growth: Experience of Transitional Economies in East Asia*. Oxford: Oxford University Press.

Hanson, Gordon H. 1998. "North American Economic Integration and Industry Location." *Oxford Review of Economic Policy* 14 (2): 30–44.

Hummels, David. 1999a. "Toward a Geography of Trade Costs." University of Chicago. Processed.

———. 1999b. "Have International Transportation Costs Declined?" University of Chicago. Processed.

———. 2000. "Time as a Trade Barrier." Purdue University, W. Lafayette, Ind.

International Civil Aviation Organization. Various issues. *Statistical Yearbook*. Montreal, Canada.

Keller, Wolfgang. 2001. "The Geography and Channels of Diffusion at the World's Technology Frontier." University of Texas. Processed.

Laaser, Claus-Friedrich, H. Sichelschmidt, R. Soltwedel, and H. Wolf. 2000. "Global Strategic Alliances in Scheduled Air Transport—Implications for Competition Policy." Kiel Discussion Paper No. 370. Kiel Institute of World Economics, Germany.

Lakshmanan, T.R. 2001. "Transport and Trade in Mercosur." In T. R. Lakshmanan, U. Subramanian, William P. Anderson, and F. A. Léautier, editors, *Integration of Transport and Trade Facilitation*. Washington, D.C.: World Bank.

Limão, Nuno, and A. J. Venables. 1999. "Infrastructure, Geographical Disadvantage, and Transport Costs." Policy Research Working Paper No. 2257. World Bank.

Marín, Pedro L., and R. Sicotte. (2001). "Exclusive Contracts and Market Power: Evidence from Ocean Shipping." CEPR Discussion Paper No. 2828. London, United Kingdom.

Mattoo, Aaditya. Forthcoming. "The Maritime Negotiations in the WTO." In *Trade Policy for Developing Countries in a Global Economy*. Washington, D.C. World Bank.

Naughton, Barry. 2001. "Problems of Lagging Regions in China." Background Paper submitted to the World Bank Beijing Resident Mission.

Obstfeld, M., and K. Rogoff. 2000. "The Six Major Puzzles in International Macroeconomics: Is There a Common Cause?" NBER Working Paper No. 7777. Cambridge, Mass.

Pálsson, Gylfi. 1997. "Containerized Maritime Trade Between West Africa and Europe: Multiple Ports of Call versus Hub-and-Spoke." World Bank, Washington, D.C. Processed.

Productivity Commission. 1998. "International Air Services." Inquiry Report No. 2. Australian Productivity Commission, Canberra, Australia.

Radelet, Steven, and J. Sachs. 1998. "Shipping Costs, Manufactured Exports, and Economic Growth." Harvard Institute for International Development. Processed.

Redding, Stephen, and A. J. Venables. 2001. "Economic Geography and International Inequality." Centre for Economic Performance Discussion Paper No. 495. London School of Economics.

Rose, Andrew K. 2000. "One Money, One Market: The Effect of Common Currencies on Trade." *Economic Policy* 15 (30): 7–46.

Subramanian, Uma. 2001. "Transport, Logistics, and Trade Facilitation in the South Asia Subregion." In T. R. Lakshmanan, Uma Subramanian, William P. Anderson, and Frannie A. Léautier, editors. *Integration of Transport and Trade Facilitation* Washington, D.C.: World Bank.

Thoen, Ronaldt, Steven Jaffee, Catherine Dolan, and Lucy Waithaka. 2000. "Equatorial Rose: The Kenyan-European Cut Flower Supply Chain." [Available at http://www1.worldbank.org/wbiep/trade/c_papers/Roses2KenyaSupplychain.pdf]. Processed.

Trujillo, Lourdes, and Antonio Estache. 2001. "Surfing a Wave of Fine Tuning Reforms in Argentina's Ports." World Bank, Washington, D.C.

Trujillo, Lourdes, and Gustavo Nombela. 1999. "Privatization and Regulation of the Seaport Industry." Policy Research Working Paper No. 2181, World Bank, Washington, D.C.

UNCTAD Review of Maritime Transport. Geneva.

U.S. Bureau of Census. Washington, D.C.

Vamvakidis, Athanasios. 1998. "Regional Integration and Economic Growth." *The World Bank Economic Review* 12(2): 251–70.

Venables, Anothony J., and Nuno Limão. 1999. "Geographical Disadvantage: a Heckscher-Ohlin-von Thunen Model of International Specialization." Policy Research Working Paper No. 2256. World Bank, Washington, D.C.

Witt, Stephen F., and Christine A. Witt. 1995. "Forecasting Tourism Demand: A Review of Empirical Research." *International Journal of Forecasting* 11: 447–75.

World Bank. 1996. "Container Transport Services and Trade: Framework for an Efficient Container Transport System." Report No. 15303-CHA.

———. 1997. "Multimodal Freight Transport: Selected Regulatory Issues." Report No. 16361-BR.

———. 2000. "The Evolution of Ports in a Competitive World." Port Reform Toolkit, Module 2. [available at http://www.worldbank.org/transport/ports/toolkit.htm].

———. 2001a. "Alternative Port Management Structures and Ownership Models." Port Reform Tool-

kit, Module 3. [available at http://www. worldbank.org/transport/ports/toolkit.htm].

———. 2001b. "Labor Reform." Port Reform Toolkit, Module 7. [available at http://www.worldbank.org/transport/ports/toolkit.htm].

World Trade Organization. 1998a. "Maritime Transport Services." Background Note by the Secretariat. (S/C/W/62).

———. 1998b. "Air Transport Services." Background Note by the Secretariat. (S/C/W/59).

———. 2000. "Communication from the European Community and its Member States." (WT/WGTCP/W/140).

Yeats, Alexander. 1981. *Shipping and Development Policy: An Integrated Assessment*. New York: Praeger Scientific Publishers.

5

Intellectual Property: Balancing Incentives with Competitive Access

Intellectual property rights can promote development—

One of the most fundamental changes in global commercial policy set out by the Uruguay Round of trade negotiations was the commitment by all World Trade Organization (WTO) Members to adhere to the requirements of the Agreement on Trade-Related Intellectual Property Rights (TRIPS). TRIPS defines minimum standards of protection for intellectual property rights (IPRs) and their enforcement. IPRs seek to balance the incentives necessary to encourage future innovations (such as the ability to recoup the costs and risks of development, and still earn a profit) against the desire to provide wide access to those products in a competitive market. Because the overwhelming majority of intellectual property—new inventions, proprietary commercial information, digital entertainment products, software, trade names, and the like—is created in the industrialized countries, TRIPS decidedly shifted the global rules of the game in favor of those countries. Nonetheless, TRIPS may lead to several long-run benefits for countries that take advantage of its standards in an appropriate and flexible manner, while complementing those standards with broader development and competition regimes.

—but should be appropriate to local capacities and benefits—

Developing countries went along with the TRIPS agreement for a variety of reasons, ranging from the hope of additional access to agricultural and apparel markets in rich nations, to an expectation that stronger IPRs would encourage additional technology transfer and innovation. However, the promise of long-term benefits seems uncertain and costly to achieve in many nations, especially the poorest countries. In addition, the administrative costs and problems with higher prices for medicines and key technological inputs loom large in the minds of policy makers in developing countries. Many are pushing for significant revision of the agreement.

There are reasons to believe that the enforcement of IPRs has a positive net impact on growth prospects. On the domestic level, growth is spurred by higher rates of innovation—although this tends to be fairly insignificant until countries move into the middle-income bracket. Nonetheless, across the range of income levels, IPRs are associated with greater trade and foreign direct investment (FDI) flows, which in turn translate into faster rates of economic growth.

—so the poorest countries may require assistance and time—

The most appropriate level of IPRs enforcement therefore varies by income level. In particular, poorer countries—which are less able to absorb the associated costs, and least likely to benefit from domestic innovation—may find it advantageous to stage implementation of some aspects of IPRs. Since industrial countries are the main beneficiaries of IPRs, and given the challenges facing developing countries, the former may find it in their interest to

provide assistance to the poorest countries for the implementation of TRIPS.

—and they also may require special consideration in the case of essential medicines

The least-developed countries face critical needs for access to new drugs and vaccines that may be developed for treating human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), malaria, tuberculosis, and other diseases. Patent protection will raise incentives marginally for drug firms to invent such treatments but could also support considerably higher prices. A mechanism needs to be found to reward innovation in this area while providing new medicines to poor countries at low cost.

Intellectual property rights and development

Rationale

At their most basic level, intellectual property rights exist to strike a balance between the needs of society to encourage innovation and commercialization of new technologies, products, and artistic and literary works, on the one hand, and to promote use of those items, on the other. Intellectual property takes several forms (box 5.1). The need for intellectual property protection arises from the fundamental characteristics of information. It is often costly to develop new technologies and products, requiring considerable investment in research and development (R&D) with uncertain payoffs. The investment extends further to the costs of bringing new ideas to the marketplace.

These costs must be recovered through a temporary ability to set prices above marginal costs of production. If an intellectual creation is potentially valuable but easily copied and used by others, there will be free riding by competitive rivals. Such behavior would quickly drive the price to marginal production cost and prevent the inventor from recouping investment costs, thereby discouraging innovation. Society has a dynamic interest in limiting free riding to benefit from the introduction of new products and technologies. This goal is achieved by the exclusive market positions afforded by IPRs.

At the same time, society has an interest in promoting widespread access to new products and information. Countries therefore limit the scope and duration of protected exclusivity in order to place goods into the public domain after an adequate expected return has been earned. There is an obvious tension between invention and dissemination.

Despite the inherent difficulty of measurement,[1] a growing body of empirical work suggests that IPRs, as represented by legislated patent rights, influence international economic activity and growth performance.[2]

Like other economic policies, IPRs are chosen by governments in response to competing interests. Thus the strength of intellectual property protection depends on economic and social circumstances, which in turn affect perceptions of the appropriate tradeoff between invention and dissemination. Historically, countries have adopted stronger IPRs only when domestic interests in their favor became sufficiently strong to decide policy. This is further supported by the wide variation in standards across countries. The stronger the capabilities of a nation's enterprises to develop distinctive products and new technologies, the greater the preferences of consumers for quality guarantees among similar products; the wider the markets in which artists wish to sell their music and literature, and the easier it is to misappropriate the returns to invention through imitation, the more pronounced will be interests in protection.

Enforcement of rights increases with income—

Several stylized facts emerge from the literature about the level of development and IPRs. First, countries with a high ratio of R&D in gross domestic product (GDP) or a high proportion of scientists and engineers in the labor force have markedly stronger patent rights than others. Clearly such countries desire to protect returns to inventive activity.

Box 5.1 An overview of intellectual property rights

At the broadest level, intellectual property has traditionally been divided into *industrial property,* or inventions and identifying marks that are useful for industry and commerce, and *artistic and literary property,* or works of culture. This distinction reflected a perception that cultural creations differed fundamentally from functional commercial inventions. However, this distinction has blurred considerably in the age of information technology and digital products.

There are four primary forms of industrial property rights. First, a *patent* awards an inventor the right to prevent others from making, selling, or using the protected product or process without authorization for a fixed period of time within a country. In return, society requires that the application be published in sufficient detail to reveal how the technology works, thereby increasing the stock of public knowledge. The minimum period of protection required under TRIPS is 20 years from the date an application is filed. Many countries recognize *utility models* or *petty patents,* which award rights of shorter duration to small, incremental innovations requiring some investment in design and development.

A second form is *industrial designs* which protect the aesthetic aspects of a useful commercial article. TRIPS requires that designs be protected for a minimum of 10 years.

A third mechanism includes *trademarks* and *service marks,* which protect rights to use a distinctive mark or name to identify a product, service, or firm. The fundamental objective of these marks is to reduce consumer search costs and remove consumer confusion over product quality and origin.

A related device is *geographical indications,* which certify that such products as wines, spirits, and foodstuffs were made in a particular place and embody quality characteristics of that location.

Artistic, musical, and literary works are protected by *copyrights,* which grant exclusive rights to the particular expression of the work for a period of time, typically the life of the creator plus 50 years (70 years in the United States and the European Union). Copyrights cover only expressions rather than ideas, and therefore provide thinner protection than patents. Rights extend to the duplication, display, performance, translation, and adaptation of the works. The primary limitation on copyright protection stems from the fair-use doctrine, which defines conditions under which copying for noncommercial purposes is permitted.

TRIPS requires that computer programs be protected, at least by copyrights, under the principle that software code is a literary expression. However, countries may vary in the degree to which reverse engineering of computer programs is permitted under the fair-use doctrine.

Because computer programs may constitute a commercially useful process, a number of developed countries permit firms to patent them. This policy is pushing patent protection more deeply into new areas, including methods of doing business on the Internet. A similar evolution explains the tendency toward awarding patents for biotechnological research tools.

For some technologies sui generis, or special, protection regimes exist. One is the design of integrated computer circuits. These are more than literary expressions, but the inventive step is often minimal, suggesting a compromise between patent and copyright. Indeed, a 10-year protection term is provided and requires only novelty in expression. Another is plant breeders' rights (PBRs), which permit developers of new, distinctive, and genetically stable seed varieties to control their marketing and use for a fixed term. Many countries limit these rights by permitting an exception for farmers to use seeds for subsequent replanting, and for researchers to study the seeds.

Although not literally IPRs, a related area of business regulation lies in defining the boundaries of protection for proprietary *trade secrets* of rival firms. A production process or formula may be kept secret within the firm, but if a competitor learns the confidential information through legitimate reverse engineering, the originator has no rights to exclude its use. Unfair competition includes such activities as industrial espionage, inducing employees to reveal trade secrets, and encouraging defection of technical employees to produce their own versions of a product based on proprietary information. However, there is considerable variability in such definitions across countries.

Source: World Bank staff.

Second, the evidence suggests that interests in encouraging low-cost imitation dominate policy until countries move into a middle-income range with domestic inventive and absorptive capabilities.[3] Only at high income levels do patent rights become strongly protective. These findings may be explained by the nature of technological development. Least-developed countries devote virtually no resources to innovation and have little intellectual property to protect. As incomes and technical capabilities grow to intermediate levels, some adaptive innovation emerges but competition flows primarily from imitation. Thus, the majority of economic interests prefer weak protection. As economies mature to higher levels of technological capacity and demands shift toward higher-quality products, domestic firms come to favor protective IPRs. Finally, the strength of IPRs shifts upward at the highest income levels (Evenson and Westphal 1997). Not only do legislated IPRs become stronger, but enforcement and compliance also rise with income levels.

—and with greater openness of trade

Third, countries that are more open to trade tend to have stronger patent rights. This result suggests that trade interacts positively with the demand for intellectual property protection and, possibly, domestic innovative efforts. Finally, the size of an economy, as measured by absolute GDP, has no detectable correlation with patent rights. Thus, even in large developing countries such as India and China it may be some time before patent rights are effectively enforced.

IPRs and international economic activity

In strengthening their IPRs regimes—either unilaterally or through adherence to TRIPS—developing countries may be able to attract greater inflows of technology. The three channels through which technology is transferred across borders include international *trade* in goods and services, *foreign direct investment,* and contractual licensing of technologies.

IPRs can boost trade volumes—

Imports of goods and services can transfer and diffuse technology. For example, imports of capital goods and technical inputs could reduce production costs and raise productivity. An important question is whether IPRs affect such trade flows. Maskus and Penubarti (1995, 1997) estimated changes in imports of manufacturing goods and high-technology manufactures that could be induced by stronger patent rights. A patent index from Rapp and Rozek (1990) was increased by various amounts for different countries to reflect roughly the commitments required by TRIPS. The anticipated impacts on trade volumes depended on the extent of patent revisions, market size, and reductions in the imitation threats from complying with TRIPS. Estimated effects on trade ranged from small impacts in the United States and Switzerland, which were not required to undertake much legal revision, to substantial increases in imports in China, Thailand, Indonesia, and Mexico, which must adopt stronger rights.[4] Mexico updated its IPRs regime early because of commitments made under NAFTA.

The study found significant impacts of IPRs change on import volumes of developing countries. For example, there was an anticipated increase in manufactured imports into Mexico of $6.3 billion, amounting to 9.4 percent of its real manufactured imports in 1995. Thus, evidence suggests that the long-run impacts could be substantial. The estimated increase in China's high-technology imports was $2.8 billion, or just under 2 percent of its total imports in 1995. Note that Coe, Helpman, and Hoffmaister (1997) found that total factor productivity (TFP) is enhanced in developing nations through such imports. In principle there could be a notable bonus to productivity performance.

However, most of the largest predicted impacts were in nations with strong imitation capacities, such as Argentina and Brazil. In contrast, India and Bangladesh would experience relatively weak, though positive, trade impacts.[5]

—and attract FDI inflows and licenses

A primary channel of technology transfer is FDI. IPRs should have varying importance across sectors with respect to encouraging FDI. Investment in low-technology goods and services should depend less on the strength of IPRs and more on input costs and market opportunities. Investors with technologies that are costly to imitate also would pay little attention to local IPRs. However, firms with easily copied products and technologies, such as pharmaceuticals and software, would be quite concerned about the ability of the local IPRs system to deter imitation. Firms considering investing in a local R&D facility would pay particular attention to protection of patents and trade secrets (Mansfield 1994, 1995).

Thus, the strength of IPRs and the ability to enforce contracts could have important effects on decisions by multinational firms in certain sectors on where to invest and whether to transfer advanced technologies. Table 5.1 reports results from the econometric estimation of a model of FDI and patent rights (Maskus 1998).[6] Using the Ginarte-Park index, there was a negative elasticity of FDI assets with respect to patents in high-income economies, but a strongly positive elasticity among developing economies. Applying these impacts to anticipated changes in patent laws from TRIPS generates the estimated impacts on asset stocks in column 2. Reductions in asset stocks in Japan and Canada would amount to over $2 billion, for example.[7] However, FDI assets would rise significantly in Brazil, Mexico, Chile, and Indonesia as a result of stronger patents. Indeed, the increase in the Mexican FDI assets would be 2.6 percent of the 1994 stock of U.S.-owned assets in that country, and in Brazil that would be 7.4 percent. Note that these figures related solely to U.S.-owned assets. If multinational firms headquartered in other developed nations were to react similarly, there would be even larger increases in overall inward FDI stocks.

Other studies of FDI and intellectual property protection bear mixed messages. Lee and Mansfield (1996) statistically related the investment decisions of U.S. multinational enterprises to their perceptions of the weaknesses of IPRs in a sample of developing countries. They found that FDI is negatively affected by weak protection. Using firm-level data, Smarzynska (2001) discovered that foreign investors considering operations in the countries of Eastern Europe and the Former

Table 5.1 TRIPS: who gains?

Estimated changes in Payments for Technology and in FDI Flows for selected countries for full application of TRIPS (millions of 2000 dollars)

Country	Net patent rents	U.S.-owned FDI Assets	U.S. receipts from Unaffiliated Royalties and License Fees
United States	19,083	n/a	n/a
Germany	6,768	–1,180	100
Switzerland	2,000	–102	0
France	3,326	n/a	n/a
Australia	1,097	–279	2
Ireland	18	–267	14
New Zealand	–2,204	–83	4
Portugal	–282	97	n/a
Greece	–7,746	51	n/a
Netherlands	241	–1,503	32
Spain	–4,716	–341	47
Japan	5,673	–2,533	783
United Kingdom	2,968	–1,369	29
Canada	–574	–2,396	69
Panama	n/a	309	n/a
Israel	–3,879	6	0.6
Colombia	n/a	1,190	n/a
South Africa	–11	25	11
Rep. of Korea	–15,333	270	388
Mexico	–2,550	3,465	148
India	–903	139	63
Brazil	–530	3,505	124
Argentina	n/a	721	64
Chile	n/a	1,062	n/a
China	–5,121	687	n/a
Indonesia	n/a	1,966	181

Source: World Bank staff and Maskus (2000a). Figures for net patent rents update McCalman's (2001) coefficients applied to 1995 data. Calculations for the stock of FDI assets use coefficients from an econometric analysis of the impacts of patent rights on patent applications, affiliate sales, exports, and affiliate assets, using data over 1986–94 for the foreign operations of U.S. majority-owned manufacturing affiliates in several developed and developing countries. These coefficients were applied to 1994 asset stocks and updated to year 2000 dollars. Computations for royalties and license fees use coefficients from an econometric analysis of the effects of patent rights on U.S. licensing volumes in manufacturing for 26 countries in 1985, 1990, and 1995. These coefficients were applied to 1995 royalty fees and updated to year 2000 dollars.

Soviet Union pay attention to patent rights. In particular, investment in technology-intensive sectors is deterred by weak protection; in all sectors weak protection discourages investment in production facilities but does not deter investment in distribution. Smith (2001) also found that international FDI flows are positively related to IP protection. Using a different econometric approach, however, Fink (1997) could not detect a significant impact of patent rights on various measures of FDI activity by U.S. or German multinational enterprises. Thus, there remains statistical ambiguity about the nature of the relationships between IPRs and FDI, though most studies suggest it is positive.

Yang and Maskus (2001) studied technology licensing. The figures in the last column of table 5.1 update their results of estimating the impacts of international variations in patent rights on the volume of unaffiliated royalties and licensing fees (a measure of arm's length technology transfer) paid to U.S. firms. Japan had a large absolute response, reflecting the importance of licensing in the Japanese economy. However, large impacts were also discovered in the Republic of Korea, Mexico, Brazil, and Indonesia. Indeed the analysis suggested that licensing volumes would double in Mexico and India, and would go up by a factor of nearly five in Indonesia.

The findings discussed here are econometric predictions of long-run impacts of patent reforms on imports, FDI, and market-based technology transfer. The figures are not definitive but do support the view that stronger IPRs could have potentially significant and positive impacts on the transfer of technology to developing countries. This conclusion is strongest for middle-income developing countries. The results are less positive for the least-developed economies, where the potential for market-power effects looms larger.

IPRs and innovation in developing countries

Developing nations also hope that stronger intellectual property protection could encourage domestic innovation, product development, and technical change. It is possible to structure IPR systems in ways that promote dynamic competition through technology adaptation, learning, and follow-on innovation. However, many developing countries have regimes that favor imitation of foreign products and technologies and discourage domestic technical change. Indeed, inadequate IPRs can limit innovation even at low levels of economic development. This is because much invention and product development are aimed at local markets and could benefit from domestic protection of patents, utility models, and trade secrets (see box 5.1). In the vast majority of cases, invention involves minor adaptations of existing technologies and products. The cumulative impacts of these small inventions can be critical for growth in knowledge and productive activity.

An example is that protection for utility models (or "petty patents")—minor adaptations to existing technologies—improved productivity in some countries (Evenson and Westphal 1997). In Brazil, utility models helped domestic producers gain a significant share of the farm machinery market by encouraging adaptation of foreign technologies to local conditions. Utility models in the Philippines encouraged successful adaptive invention of rice threshers.

In another example, the Japanese patent system (JPS) affected postwar Japanese technical progress (Maskus and McDaniel 1999). The JPS in place over the period 1960–93 was designed to encourage incremental and adaptive innovation and diffusion of technical knowledge into the economy. It stimulated large numbers of utility model applications, which were based in part on published prior applications for invention patents. In that study utility models had a strongly positive impact on real TFP growth over the period, because they were an important source of technical change and information diffusion. It is interesting to note that as Japan has become a global leader in technology creation, its patent system has shifted away from encouraging diffusion and more toward protecting fundamental technologies.

If constructed well, IPRs also stimulate acquisition and dissemination of new information. *Patent* claims are published, allowing rival firms to use the information in them to develop further inventions. A recent study on *trademark* use in Lebanon suggests that innovation through product development and the entry of new firms is motivated in part by trademark protection, even in poor nations (Maskus 2000b). Firms in the Lebanese apparel industry are capable of designing clothing of high quality and style aimed at Middle Eastern markets. Their efforts have been frustrated by trademark infringement in Lebanon and in neighboring countries. Firms in the food products sector suffered from rivals passing off goods under their trademarks. The problem has restrained attempts to build markets for Lebanese foods in the Middle East and elsewhere. Related difficulties plagued innovative producers in the cosmetics, pharmaceuticals, and other sectors. Thus, product development and enterprise growth have been stifled by trademark infringement targeted largely at domestic enterprises.[8]

Copyright protection can induce investments in creative activities and also stimulate innovation. Where protection is weak, such copyright industries as publishing, entertainment, and software are dominated by counterfeiting rather than domestic creation. Thus, lower-quality copies are widely available, but the economy's cultural and technological development may be hampered. For example, Lebanon has a small but vibrant film and television industry that could successfully export to neighboring economies if those countries adopted stronger copyright protection (Maskus 2000b). In the face of difficulties in expanding their markets, Chinese software enterprises are now playing a role in promoting enforcement (Maskus, Dougherty, and Mertha 1998). Finally, work in such countries as Jamaica and Senegal shows that weak copyrights and the absence of supporting institutions, such as professional collection societies, significantly reduce incentives for local musicians to record and market their compositions (World Bank 2000).

At the same time, in many poor countries, the effectiveness of all types of intellectual property instruments is held back by inadequate administration and enforcement procedures. These inadequacies may be due to corrupt and inflated bureaucracies or weaknesses in the legal system at large—frequently affecting also the security of real and physical property rights. Hence, a weak overall governance structure typically poses one of the biggest challenges to harnessing the positive contribution IPRs can make to the development process.

IPRs can boost growth prospects

The analysis reviewed here suggests that selecting appropriate IPRs systems could boost economic growth. History does not provide strong guidance on this hypothesis. At different times and in different regions of the world, countries have realized high rates of growth under varying degrees of IPRs protection.

Two recent empirical studies have considered this question in a cross-country econometric framework. Gould and Gruben (1996) related economic growth rates across many countries to a simple index of patent strength and other variables. They found no strong direct effects of patent rights on growth, but there was a significantly positive impact when those rights were interacted with a measure of openness to trade. The impact of stronger patent laws in open economies was to raise growth rates by 0.66 percent, on average. This suggests that market liberalization and IPRs jointly increase growth.

Park and Ginarte (1997) studied how IPRs affect growth and investment. They found no direct relation between patent strength and growth, but there was a strong and positive impact of patent rights on physical investment and R&D spending, which in turn raised growth rates.

While these results are encouraging, the link between IPRs and long-term economic growth remains poorly understood, and is likely to remain controversial. More research is necessary to provide better guidance to policymakers.

Costs of enforcing IPRs

While developing countries may enjoy long-run gains from strengthening their systems, the transition to stronger protection involves short-run costs that are not trivial.

Administrative costs

It is costly to develop the administrative and enforcement mechanisms necessary to support a modern system of intellectual property protection. Costs include upgrading offices for registering and examining patents and trademarks, and for accepting deposits of plant materials; training examiners, judges, and lawyers; improving courts to manage intellectual property litigation; and training customs officers and undertaking border and domestic enforcement actions. The United Nations Conference on Trade and Development (UNCTAD 1996) provided some estimates of the administrative costs of complying with TRIPS in various developing countries. In Chile, additional fixed costs from this upgrade were estimated at $718,000 and annual recurrent costs at $837,000. Egyptian fixed costs would be perhaps $800,000, with additional annual training costs of around $1 million. Bangladesh anticipated one-time costs of administrative TRIPS compliance (drafting legislation) amounting to $250,000, and over $1.1 million in annual costs for judicial work, equipment, and enforcement efforts. If training costs were included it is likely that a comprehensive upgrade of the IPRs regime in the poorest countries could require an up-front expenditure of $1.5 to $2 million, plus recurrent costs. Finger and Schuler (1999) report World Bank surveys finding that these costs could be far higher.

Given other pressing needs in education, health, and policy reform it is questionable whether the least-developed countries would be willing to absorb these costs, or indeed whether they would achieve much social payoff from investing in them. Moreover, note that poor countries are extremely scarce in trained administrators and judges, suggesting that one of the largest costs would be to divert scarce professional and technical resources out of potentially more productive activities. Indeed, in many poor countries, devoting more resources to the protection of tangible property rights, such as land, could benefit poor people more directly than the protection of intellectual property.

Three factors could help offset these costs. First, intellectual property offices may charge fees to defray their costs. Fees should be set to meet the innovation and commercialization needs of each country. Second, poor countries may petition for technical and financial assistance from industrial countries and from the World Intellectual Property Organization (WIPO) and the WTO. Unfortunately, the resources available are small in relation to the underlying needs. Third, authorities may take advantage of cooperative international agreements to reduce administrative costs. Membership in the Patent Cooperation Treaty, for example, provides significant economies because examiners may read the opinions made by major patent offices about novelty and industrial applicability, rather than undertake such technical examinations themselves.

Rent transfers

Patents are overwhelmingly owned by inventors in the industrialized countries. For example in Mexico in 1996, only 389 patent applications came from domestic residents, while over 30,000 came from foreign residents, mostly in the United States and the EU. Brazil's domestic applications were just 8 percent of total applications in that same year. In the poorest countries virtually no patents are granted to domestic residents. As patent rights are strengthened, this relative imbalance could be reversed to some degree, particularly in countries that develop innovation systems and inventive enterprises. However, inventors from developed countries are expected to apply for most patents for the foreseeable future.

As patents and trade secrets are better protected, imitation costs rise and the ability of patent holders to set higher prices and license and royalty fees is enhanced. Thus, one impact of TRIPS will be to transfer economic rents from technology importers to technology developers.

Suggestive evidence is provided in table 5.1. Firms own patents in various countries, the values of which depend on local protection and market size. In an interesting study, McCalman (2001) used an econometric model to compute the value of these patents in 1988. World Bank staff used his methods and regression coefficients to compute the values of international patents among 28 nations in 1995, using the Ginarte-Park patent index, patent applications, and GNP levels. Note that both patent applications and GNP had reached far higher levels in the later year, thereby raising the value of patent portfolios. To assess the change in patent rents associated with stronger IP protection, the index for each country was increased to reflect obligations accepted in the TRIPS Agreement.

The figures in the first column of table 5.1 show that overwhelmingly the United States would gain the most income in terms of static rent transfers, with a net inflow of some $19.1 billion per year. U.S.-headquartered firms owned numerous patents in many countries that were required by TRIPS to strengthen their intellectual property protection, while U.S. law was subject to little change. Germany would earn an additional net income of $6.7 billion on its patent portfolio. Many countries would experience a rising net outflow of patent rents because they tend to be net technology importers. Korea would register the largest net outward transfer of some $15.3 billion because of the large rise in volume of patents registered there. Developing countries also would pay more on their patent stocks, with China experiencing a net outward transfer of around $5.1 billion per year. These calculations are static and ask only what the additional income on existing patents would have been under TRIPS. They suggest that TRIPS could have a significant impact on net incomes earned from foreign patents.

Prices of patented drugs

By January 1, 2005, developing countries must provide patents for new pharmaceutical products and most have already implemented patents or exclusive marketing rights. Nothing is more controversial in TRIPS. It is conceivable that patent protection will increase incentives for R&D into treatments for diseases of particular concern to poor countries. However because purchasing power is so limited in the poorest countries, there is little reason to expect a significant boost in such R&D. Accordingly, many developing countries see little potential benefit from introducing patents.

In contrast, potential costs could be significant. Pharmaceutical supplies in many developing countries often come from domestic or imported generic competition. Such competition for drugs on patents in the industrialized countries helps sharply lower drug costs in developing nations with active pharmaceutical industries. In the future, enterprises in these countries must wait until patent expiration before they can compete with generic versions, or else must produce under license to patent holders. It should be noted that if firms choose not to register patents in certain countries, this issue will not arise.

There is some scope for stronger patents to encourage local firms to develop patentable drugs themselves. Several Indian enterprises claim to be developing treatments that may be patentable abroad, although they currently refuse to place them on the Indian market for fear of imitation.[9] In most cases, however, local enterprises will come under pressure to close down or form alliances with larger firms, resulting in a concentration of the industry. There is evidence that patents generate considerably higher prices for protected drugs than for copied and generic drugs (Lanjouw 1998; Fink 2001). Watal (1999) computed that static price impacts of patent coverage in India could raise average patented drug prices by at least 26 percent from a 1994 base.

In light of this possibility, developing countries need to gird themselves with policies that, while consistent with TRIPS, bear potential to moderate the price impacts of new patents. Recent attempts by South Africa and Brazil to push the boundaries of TRIPS in this regard have proven contentious, as discussed in box 5.2.

Box 5.2 Pharmaceutical policies and the limits of TRIPS

In response to TRIPS, South Africa and Brazil recently introduced new laws bearing directly on the ability of those countries to react to price increases that may emerge from patents. The greatest spur to these attempts to limit patent rights came from a desire to procure AIDS drugs at affordable prices in order to manage that enormous health-care crisis. Both laws are controversial.

South African Medicines Law

In November 1997 South Africa enacted significant amendments to the Medicine and Related Substances Control Act. The amendments permit the health minister to revoke pharmaceutical patent rights in South Africa if he deems the associated medicines to be too expensive. They further empower the minister to order compulsory licensing if the patentee engages in abusive practices, defined basically as a failure to sell a drug in adequate amounts to meet demand, or a refusal to license the product on reasonable terms so that domestic firms may meet demand. They also permit parallel importation (imports of original or generic versions without the authorization of the South African patent holder) of drugs, and allow the health minister to override regulatory decisions concerning the safety and registration of medicines. The law requires pharmacists to employ generic substitution (prescribe generic versions of patented drugs) unless the doctor or patient forbids it, sets limits on pharmacy markup rates, and bans in-kind inducements from drug manufacturers to physicians.

While it may be a heavy dose of regulation, South Africa's law is probably consistent with TRIPS (Abbott 2000). While some legal scholars claim that patent rights necessarily extend to an ability to preclude parallel imports, the bulk of opinion is that Article Six of TRIPS provides full latitude for each country to choose its own policy on exhaustion. Beyond this issue, Article 31 of TRIPS provides ample grounds under which compulsory licenses may be issued, subject to certain conditions (Watal 2001). In particular, licensing may be compelled where a prospective user has failed to achieve a license from the patent holder on reasonable commercial terms within a reasonable period of time, so long as market-based compensation is paid. Compulsory licenses may be issued without observing even these constraints in cases of national emergency. Finally, the price-control provisions of the South African amendments do not seem to be restrained by TRIPS, which does not address domestic health regulation.

Brazilian Industrial Property Law

Brazil passed an industrial property law (Law No. 9,279) that came into effect in 1997. The law updated most aspects of Brazil's industrial property regime to comply with TRIPS. It provides patents for pharmaceutical products as required. However, it permits the issuance of compulsory licenses in cases where patent holders choose to supply the market through imports rather than local production. That is, Brazil's law does not recognize imports as a method for meeting its "working requirements" on the Brazilian market. The legislation explicitly defines "failure to be worked" as "failure to manufacture or incomplete manufacture the product" or "failure to make full use of the patented process." While the Brazilian industrial property law refers to all patents, its most aggressive use is aimed at transferring production of AIDS drugs to domestic firms and government agencies in order to reduce their prices below those on the U.S. and European markets. Media reports indicate that this active intervention has dramatically reduced treatment costs in Brazil.[10] In combination with prevention programs and effective methods for distribution and clinical stays, the country has limited AIDS mortality to far lower levels than those in Sub-Saharan Africa.

It remains to be seen whether Brazil's insistence on local production as a working requirement may be sustained within TRIPS. Because it applies to all patented items and not solely to medicines, the law may generate less sympathy among the WTO membership than the South African law, despite its evident value as a threat to bring down prices. In negotiating TRIPS, patent advocates strongly favored an end to domestic production requirements, lending support to the American view on their inconsistency.

Source: World Bank staff.

Agricultural inputs

Under TRIPS, patents must be awarded to agricultural chemicals and biotechnological inventions, and effective protection must be provided for plant breeders' rights (PBRs). Because farming is the mainstay of economic activity in many developing countries, policies that increase costs of key agricultural inputs could be damaging. Plant strains bioengineered for pest- and drought-resistance are of particular interest to many developing countries. Note that plant patents preclude the breeder's research exemption and, unless explicitly allowed for in the rules, also the farmer's privilege to retain seeds for replanting. Experience from Latin America suggests that providing PBRs while retaining this privilege does not much disadvantage farmers (Maskus 2000a).

Genetic materials and indigenous knowledge

Because firms can attain patents in some industrialized countries on products developed from plant and animal resources they find anywhere, incentives exist to extract such materials as sources for new drugs, food products, and cosmetics. New patents in developing countries will increase such incentives. This "bioprospecting" raises several concerns. First, foreign patents have been awarded to products and formulas that were already known in the source countries, or were simple improvements, preventing those with the original know-how from marketing abroad (Duran and Michalopoulos 1999). Second, genetic materials often do not bear adequate property rights. Plants may be extracted from public lands or from farms and villages that cannot assert ownership or represent collective interests. The resources may be acquired without compensation or attention to socially optimal extraction rates.

There is much know-how in developing countries among tribes, villagers, and other collective units about how to produce foodstuffs, apparel designs, and artistic works. Because the knowledge is a collective good, and therefore of uncertain ownership, it has proven difficult to apply standard intellectual property tools to its protection. Many such products and designs have found their way into international commerce under protection in foreign countries, however, as firms abroad copy and register them.

These problems point to a shortcoming in TRIPS. That agreement makes it clear that inventions from genetic resources are patentable except in unusual circumstances. However, it is silent on the issue of how nations may regulate their extraction, an issue in which IPRs are only one consideration. Similarly, it contains no provisions for defining and protecting rights in collective knowledge. It is important for the global community to work out appropriate mechanisms for ensuring the appropriate valuation of resources and knowledge and for effecting payments that both conserve the materials and provide incentives for efficient innovation.

IPRs policies for promoting development

Despite the significant costs, stronger intellectual property protection could produce gains in the long run through greater domestic innovative activity and cultural creation, profitable international exploitation of that activity, enhanced structural transformation, and increased technology transfer. These gains are more likely to materialize if countries adopt standards and supporting policy regimes that promote competitive processes on their markets.

IPRs standards at varying levels of development—

TRIPS prevents countries from discriminating between domestic and foreign firms in the treatment of IPRs. Beyond this basic stipulation, however, TRIPS contains considerable flexibility in implementing and enforcing standards that are conducive to development. One important principle of a pro-competitive development of IPRs policy is that the standards adopted tilt the balance in favor of second-coming rival firms. A second principle is that governments should not discourage inward

transfer of technology and should not suffocate innovative efforts of domestic firms. The essential goal is to move local entrepreneurs from "free-riders" to "fair-followers" in Reichman's apt phrase.[11]

Table 5.2 divides developing countries into three types and lists IPRs standards that are likely to be most appropriate for each group.[12] The first country type is low-income nations, or the least-developed countries and some countries in transition, which have weak environments for advanced invention but some capability at small-scale innovation and cultural creation. The second is middle-income nations, which have a strong imitative capacity and a reasonable degree of human capital. Such countries need to encourage technology adoption and incremental innovation. The third is high-income nations, which have a strong human capital stock and a growing capacity for innovation. It is evident that as countries become more developed they may choose to strengthen their IPRs. Table 5.2 is only a guideline; individual countries may choose to pursue their own standards as interests require. This section analyzes possibilities for the low-income and middle-income nations.

—allowing poor countries the possibility of exemptions

While countries must meet the general obligations of TRIPS, there are some areas in which poor nations are afforded special status. Under Article 66, those least-developed countries experiencing difficulties in implementing legislation may petition the TRIPS Council for time extensions, and there is no specified limit on the number of such petitions. While it is important to consider carefully the signals a delay would send to the global community, some countries may wish to take advantage of it, particularly as regards the complex and controversial subject of patents.

Both low-income and middle-income countries would benefit from greater flows of technical and financial assistance to develop, implement, and enforce IPRs. Poor developing countries also should push the developed countries to do more to encourage private technology transfer. The weakness of such action to date remains a sore point leading some observers to question the balance of interests in TRIPS.

Administration

Administration and enforcement are costly. Authorities in low-income nations could achieve some gains by publicized raids and consumer awareness programs. While such actions would face opposition among infringing enterprises, they would signal some commitment to IPRs and also encourage domestic creative interests to become more active. The awareness itself may be the most valuable, and authorities could limit economic damages by imposing moderate penalties for first offenses, with the severity of the fines rising with the extent of the piracy and the number of violations.

Low-income countries cannot readily afford patent examination offices and should rely on patent registration instead. However, authorities need to consult international patent offices and databases to see if applications were denied elsewhere. Thus, developing countries would benefit from the cost savings of using foreign sources of information, such as the Patent Cooperation Treaty. Countries could also gain from adherence to regional examination systems. Electronic access to international patent and trademark registries also cuts costs of performing prior art examinations. As countries grow richer and technologically more sophisticated, the patent system could move toward domestic examinations.

Application and renewal fees for patents and trademarks may be set to cover the costs of administering those regimes. It is sensible to select fees in ways that promote desirable innovation and use of IPRs. It is possible, for example, to set lower patent application fees for small and medium enterprises than for large firms. Patent renewal fees may rise over time in order to encourage firms to let protection lapse on less-valuable inventions. This can be an important means of pushing technologies into the public domain.

Table 5.2 TRIPS-consistent IPRs standards: options for developing countries

Area of TRIPS	Low-Income	Middle-Income	High-Income
General transition periods	Consider Article 66 extensions in patents, trade secrets		
Assistance	Push for technical and financial assistance, including an international fund	Push for technical and financial assistance	
Technology transfer	Push for fulfillment of technology transfer commitments		Consider providing technology transfer
Administration Enforcement and customs	Reduce piracy and counterfeiting through raids and awareness Moderate fines and civil penalties Train customs officers for periodic inspections Upgrade professionalism	Reduce piracy and counterfeiting through raids and awareness Stronger fines and civil penalties Train customs officers for inspections on demand	Full enforcement Deterrent penalties
Judiciary	No special IP court Training for judges and attorneys	No special IP court Training for judges and attorneys	Consider special IP court
Patents Administration	Registration system Rely on international grants data Rapid and full disclosure Post-grant opposition Differential fees by applicant size Rising renewal fees	Registration or limited examination system Rely on international grants data Rapid and full disclosure Pre-grant opposition Differential fees by applicant size Rising renewal fees	Examination system Consult international grants data Full disclosure Pre-grant opposition More uniform fee Structure Rising renewal fees
Standards and scope	Fullest exemptions from patent eligibility High inventive step using rigorous international examinations Oral prior art considered Narrow claims Narrow or no doctrine of equivalents Permit experimental use	Broad exemptions from patent eligibility High inventive step Oral prior art considered Narrow claims Narrow doctrine of equivalents Permit experimental use	Consider appropriate exemptions Moderate inventive step Oral prior art considered Broader claims Broader doctrine of equivalents Permit experimental use
Compulsory licenses	National emergency use Public non-commercial use Antimonopoly tool	National emergency use Public non-commercial use Antimonopoly tool	National emergency use Antimonopoly tool
Working requirements	Permit imports to satisfy Liberal definition of demand	Permit imports to satisfy	Limited working requirements
Utility models	Recognize utility models	Recognize utility models	
Industrial designs	Recognize design rights Originality requirement Supplement with copyrights Nonvoluntary licenses of right	Recognize design rights Originality requirement Supplement with copyrights Non-voluntary licenses of right	Recognize design rights Originality and novelty Supplement with copyrights Nonvoluntary licenses of right
Plant breeders' rights	Provide PBRs Recognize farmers' privilege Permit breeders' exemption UPOV 1978 model with national treatment Public research and extension	Provide PBRs Recognize farmers' privilege Permit breeders' exemption UPOV 1991 model Public research and extension	Consider patents Limited exemptions for farmers Permit breeders' exemption UPOV 1991 model or patents Extension services

(continued)

Table 5.2 TRIPS-consistent IPRs standards: options for developing countries *(continued)*

Area of TRIPS	Low-Income	Middle-Income	High-Income
Biotechnology	Maintain exemptions from patentability Strict standards for patent eligibility Narrow claims Contracts for efficient and equitable extraction	Maintain exemptions from patentability Weaker standards for patent eligibility Broader claims Contracts for efficient and equitable extraction	Limited exemptions from patentability Weaker standards for patent eligibility Broader claims
Integrated circuits	TRIPS minimum standards	TRIPS minimum standards	TRIPS standards plus possible patents
Trademarks	Indefinite registration with rising renewal fees Registration contingent on use after 3 years Fair use of descriptive terms Register service marks Define sector broadly for which trademark is "well-known" Limits on protecting marks against dissimilar goods Protect domain names	Indefinite registration with rising renewal fees Registration contingent on use after 3–5 years Fair use of descriptive terms Register service marks Narrower definition Protect domain names	Indefinite registration Registration contingent on use after 5 years Register service marks Narrower definition Protect domain names
Geographical Indications (GI)	List generic and semi-generic names Registration system for indications to be protected Oppose or cancel registration of own GI abroad Push for common WTO list for wines and spirits Expand TRIPS protection for relevant products	List generic and semi-generic names Registration system for indications to be protected Oppose or cancel registration of own GI abroad Push for common WTO list for wines and spirits Expand TRIPS protection for relevant products	List generic and semi- generic names Registration system for indications to be protected Oppose or cancel registration of own GI abroad Push for common WTO list for wines and spirits Expand TRIPS protection for relevant products
Copyrights	Reduce piracy and raise awareness TRIPS minimum period Liberal fair use and compulsory licenses for education, research Reverse engineering in software Non-voluntary licenses of right in software Establish collection societies, contracts, infrastructure Identify copyrightable works Compliance with minimum standards in WIPO treaties Require creativity for data compilations	Reduce piracy TRIPS minimum period Liberal fair use and compulsory licenses for education, research Reverse engineering in software Non-voluntary licenses of right in software Improve infrastructure Compliance with minimum standards in WIPO treaties Require creativity for data compilations	Liberal fair use Permit patents under tight criteria Adopt WIPO treaties Require creativity for data compilations
Trade secrets and test data	Minimum definition of unlawful disclosure methods Limit employment restraints in hiring High standard for defining" new chemical entity" No period for excluding prior applicant's test data	Moderate definition of unlawful disclosure methods Limit employment restraints in hiring High standard for defining" new chemical entity" Short period for excluding prior applicant's test data	Moderate definition of unlawful disclosure More permissive toward employment restraints Longer period for excluding prior applicant's test data

Source: World Bank staff.

Encouraging innovation

For reasons of promoting dynamic competition, developing countries should require rapid publication of patent applications (most of which will have been published elsewhere in any case), with full disclosure of the technical processes involved in producing the inventions, and how to reduce them to commercial practice. This should encourage local firms to invent around patents and use the disclosed knowledge to improve their manufacturing methods. Countries with a registration system should permit active opposition after grants are made, in order to invalidate inappropriately awarded patents. Those countries that undertake examination could permit pre-grant opposition.

Developing countries could permit oral prior art to defeat claims of novelty. They could also provide a limited grace period in order to maximize the inventions available in the public domain to domestic firms. Authorities could also preserve the rights of prior users of newly patented inventions to continue to use them with appropriate license fees.

For patents, countries could set high standards for the inventive step, thereby preventing routine discoveries from being patented. Regarding patent scope, it is sensible to exercise strict claims and discourage multiple claims in patent applications.

Under limited circumstances governments may resort to compulsory licensing to promote the public interest in health, welfare, security, competition, and other grounds. Low-income countries may wish to ensure that their patent legislation and health regulations permit the issuance of compulsory licenses in patented medicines under sharply defined conditions. In addition to being consistent with the requirements of TRIPS, compulsory licensing should be transparent and not arbitrary in order to avoid discouraging entry of foreign firms and development of new technologies by domestic firms. Compulsory licenses are available also as a primary restraint on monopolistic behavior. Indeed, the United States has an extensive record of compelling licensing from technology owners to rival firms as a remedy for anticompetitive activity.

Protection for industrial designs can also promote innovation in developing countries. Providing rights to registered designs with a small novelty requirement, for a limited time period, can promote product innovation. Such rights may be supplemented in two ways. First, designs may be protected under copyright law, even without registration. Second, countries could experiment with systems in which, after a shorter defined period of protection, rivals are able to acquire licenses to use the designs in their own work.

Protection of plant varieties remains controversial. When establishing PBRs, poor countries would be advised to follow the UPOV 1978 model,[13] providing the farmers' privilege and a wide exemption for rival breeders to use protected seeds to develop their own strains. There is a role for public agencies to undertake research and disseminate new seed varieties. Middle-income economies are seeing development of plant breeders, and there are potential gains from protection.

In biotechnology, lower-income economies may prefer to recognize narrow patent claims and retain exemptions from patentability where allowed by TRIPS. Countries with stronger industries, such as China and Brazil, might award stronger protection in order to promote technology transfer and domestic invention.

Recognition of trademarks can promote domestic enterprise development. In developing countries it is often domestic entrepreneurs who are frustrated in building their enterprises because their marks are infringed by inferior products. This problem raises confusion on the part of consumers about the inherent quality of commodities they wish to purchase. Thus, recognition of trademarks can be an important development spur, even for poor countries.

Geographical indications may be of particular interest to numerous developing countries. Again, such indications reflect the quality characteristics of products coming from a particular location. Because many developing nations have a comparative advantage in agricultural

products and processed foods and beverages, significant gains could be realized from registration of such place names. This is one area in which developing countries might be advised to push for extended global standards.

Cultural resources—including folkloric arts, designs, and traditional remedies—could be protected by a combination of copyright and trademark principles. The difficulty here is that such resources are often collective knowledge and effectively in the public domain. Efforts are needed to work out appropriate standards for protecting such knowledge and the economic advantages that can be earned from it.

A distinction should be made between straightforward duplication of published and recorded goods—also called piracy—and access to new information. While the former activities only yield short-run benefits, they do little to enhance the technological capabilities of copying nations.

Countries are free to determine the fair-use exceptions they will permit in the copyright area. Copyrighted materials may be made available on a limited and noncommercial basis for use in teaching, research, libraries, museums, and charitable organizations. Indeed, the preamble to the 1996 WIPO Copyright Treaty contains language promoting this balance of interests and encouraging nations to carry forward such limitations into the digital network environment.

TRIPS requires copyright protection for data compilations. The EU has gone well beyond TRIPS' standards in specifying strong protection for databases even when their compilation involves no creative step. Developing countries should insist upon a demonstration of creativity before recognizing such protection.

Recognition of the need to protect confidential business information can also be procompetitive. A natural lead-time is provided to the owners of trade secrets because rivals must invest in learning the technical information they embody. This effort can contribute to the technical knowledge capital of an economy and encourage follow-on innovation. Followers may prefer to acquire trade secrets by purchasing licenses from the originator, thereby paying some share of the invention rents and raising incentives for future inventive activity. Trade secrets are also instrumental in encouraging technology transfer from abroad.

Poor nations would be advised to adopt the least stringent regulations set out in the Paris Convention and perhaps also actively encourage technology transfer. Middle-income countries could establish more protective regimes, for example by imposing more stringent requirements on technical employees who are induced to change employment.

Governments have some obligation to prevent the public disclosure of confidential test data submitted for approval of medicines and agricultural chemicals for some period. Developing countries could establish a high standard for what constitutes a new chemical entity and deny such protection to simple reformulations or repackaging. For those submissions meeting the originality test, data need to be protected, even though denying such information to rivals would extend the time before generic competition ensues.

Other policies can support technological progress

While the standards sketched above are important in promoting competition and innovation, simply adopting a stronger set of IPRs cannot be sufficient to ensure a positive outcome. Intellectual property protection is but a component of broader business regulation, innovation promotion, and consumer protection that must be conjoined in an effective overall system.[14]

Perhaps the most important complementary factor is a commitment to *education*, training, and skill development. The positive role of educational attainment in economic growth is well established empirically. It is plausible that a positive relationship exists between the strength of IPRs and the level (or growth) of human capital, given the results reviewed earlier.

Economies that are more *open to trade* and FDI experience a growth premium from strengthening their IPRs relative to closed economies. Competitive markets help limit the scope of intellectual property rights to their intended function, which is to encourage investments in new products but not to prevent fair entry. In addition, a liberal stance on inward trade and FDI improves a country's access to available international technologies, intermediate inputs, and producer services. As discussed earlier, IPRs are a factor that encourages inward FDI under appropriate conditions.

Making IPRs stronger invites consideration of *competition rules* to discipline anticompetitive practices. To abuse an intellectual property right is to try to extend its exclusive use beyond permissible limits. Claims that a rights holder has engaged in anticompetitive behavior are complex, and resolving them requires significant judicial and legal expertise. Administrative costs may limit a country's ability to undertake competition enforcement but the issue is sufficiently important to merit a high priority.[15]

IPRs need to be supplemented by *programs to promote national technical change*. However, there are opportunity costs to the allocation of scarce budgetary resources to R&D programs. To the extent that investment in product development is underprovided by the private market, there is a rationale for public assistance. The limited R&D could be caused by such factors as an inadequate environment for risk-taking, taxation systems that fail to recognize R&D as a business cost, and missing information about technological opportunities. Policies could aim to relax such restraints. This could be particularly important for small- and medium-size enterprises, which remain the source of much innovation in developing countries.

Multilateral actions and IPRs in a development round

The TRIPS Agreement ushered in a new global regime for protecting intellectual property. There are numerous means by which developing countries may benefit from this change, at least in the long run, although there are bound to be significant short-run costs. However in the short run, the developed countries are likely to be the primary beneficiaries. Moreover the introduction of global IPRs into such areas as pharmaceutical products, agricultural inputs, biotechnology, environmental technologies, and electronic databases has serious development consequences that merit careful consideration. This situation suggests policies in three general areas:

1. Collective international actions that can be combined with the new protection regime to help achieve important public goods
2. Ways developed countries can ease the transition burden for poor countries
3. Approaches to IPRs that developing countries could take in the "Development Round"

International collective goods

The new global IPRs system could affect the willingness and ability of the international community to find effective solutions to a number of critical public-goods problems. Consider three of the most important issues.

First, the health status of impoverished people in the least-developed countries continues to deteriorate. Beyond the debilitating costs diseases impose on patients, medical systems, and government budgets, it has spillover effects on other countries through exposure to infection and reduced productivity. A role for public intervention exists in resolving the crisis.

By requiring countries to provide patents for new pharmaceutical products, TRIPS sets up incentives that may work at cross-purposes. By slowing down generic competition, patents could raise prices of new drugs in developing countries and reduce the ability of patients to acquire drugs at reasonable cost. At the same time, the promise of wider and stronger patent protection could raise incentives for private pharmaceutical firms to engage in more R&D into the diseases of poverty. There is little private research undertaken in

such diseases (Sachs and others 1999). This situation stems from both the absence of patent protection and the extremely low purchasing power of patients in poor countries. TRIPS affords a solution to the former problem but not to the latter. Consequently, TRIPS could raise costs without providing much incentive for innovation.

Effectively addressing the diseases endemic to poor countries requires separation of the dynamic incentives for R&D from the need for widespread distribution at low cost.

Any comprehensive solution to the problem requires significant increases in foreign assistance from industrialized countries and financial support from multilateral organizations and private donors. These resources would be used for two purposes. One is to provide an incentive to firms to engage in R&D into new and effective vaccines and medicines. This incentive could involve purchasing targeted drugs at negotiated prices or paying royalties for licenses that permit designated countries to produce and distribute them. By their recent actions in the area of HIV/AIDS drugs, pharmaceutical firms have indicated a willingness to sell medicines cheaply, provided that exports back to developed countries, where prices would be higher, are prevented. The other task is to fund the development of effective health-care delivery systems in poor countries.

A second issue relates to incentives set up by TRIPS to extract biogenetic resources from developing countries. In principle contracts could be devised to manage extraction of genetic materials. However it is not easy to determine appropriate royalties when the resources are developed in areas without clear rights in natural property. Ownership may be collective within a village or even undefined.

Thus contracts need to be developed that pay attention to both private incentives and public objectives. A role for governments arises here to ensure equitable and efficient sharing of the economic rents to IPRs earned on products from extraction of domestic resources. For example, some countries now require firms to demonstrate that they have attained the approval of local villages before going bioprospecting or removing resources.

A third issue is how TRIPS affects incentives to develop new transgenic crops through biotechnological research. Widespread introduction of new crops raises concerns about biodiversity. The rapid increase in output of genetically modified plants attests to their advantages in terms of enhanced disease resistance, reduced use of chemical inputs, and higher yields. It also suggests that traditional varieties could be pushed out of the market. IPRs provide incentives for producing better crops but ultimately might limit consumer choice.

It makes little economic sense to retard incentives for developing new plants and food products by restricting exploitation of IPRs beyond their usual limitations. A more promising and direct approach would be labeling programs that permit consumers to express preferences for traditional crops and provide market incentives to sustain their production. Further if the disappearance of plant varieties were seen as potentially damaging in environmental terms, an argument would exist for domestic and international public agencies to stockpile such strains for purposes of keeping them alive as a form of social insurance.

To some extent the global IPRs system is inconsistent with public interests in resource conservation and biodiversity. For example, the United Nations Convention on Biological Diversity stipulates that countries have sovereign rights over biological resources, while TRIPS recognizes private rights to own microorganisms and microbiological processes. Developing countries that are the sources of genetic resources and natural plant strains need to assess their interests in revising TRIPS to deal with this inconsistency. If Article 27 of TRIPS (dealing with patents in life forms and protection for plant varieties) is revised, many developing countries should push for a resolution of the concept of resource rights and collective ownership, along with the obligations of firms that extract resources. Thus for example, countries could push to forbid patents

on plant-based products obtained from materials in international germplasm banks and other deposit institutions.

In many of these new areas, the legal and technical expertise needed to design carefully balanced intellectual property and related regulations is likely to exceed the capacities of least-developed countries and even middle-income countries. Multilateral assistance can play an important role in ensuring that policies promote development and in complementing direct funding for research on technologies addressing poor country needs.

Policy options for developed countries on TRIPS

Technology-exporting countries have a strong interest in sustaining TRIPS. Because of systemic difficulties among developing countries in adjusting to the new obligations and concerns about its implications, industrialized nations could consider several options to make the agreement more directly supportive of development.

First, in recognition of extreme budgetary and institutional difficulties, least-developed countries should be afforded latitude in exercising delays in implementation of TRIPS, especially in the technically complex and controversial areas of pharmaceutical patents and plant protection. Similarly, noncompliance problems should not be the subject of dispute resolution unless they constitute willful departures from basic TRIPS obligations.

Second, it should be recognized that developing countries need to have lower and more flexible IPRs standards than do their developed counterparts. TRIPS provides such flexibility in many areas and the developing countries should be afforded the opportunity to operate at the lower limits if it is in their development interests to do so.

Third, developed countries could go a long way toward raising enthusiasm for TRIPS if they would actively implement their "best efforts" commitments to encourage technology transfer to the least-developed countries and to provide technical and financial assistance for developing countries. While some assistance is on offer now, it is insufficient for the major job of reforming IPRs administration. The current approach, whereby grants are made to such organizations as WIPO and UNCTAD for undertaking specific projects, is inadequate given various bureaucratic constraints.

A valid justification for expanding assistance is found in the asymmetric costs and benefits from TRIPS. Intellectual property developers in rich countries stand to be the primary gainers from the new systems, while there is little promise of gains for poor countries, at least for a considerable period of time. It could also be a wise investment in promoting compliance with TRIPS and enforcement of IPRs, which might otherwise emerge only slowly. Thus, developed countries could convert their "best efforts" promises to binding commitments, with benefits on both sides.

Finally, the most important action developed countries could take to affirm confidence in TRIPS is to meet and expand their obligations to provide greater market access for the exports of developing countries. Especially important would be new attempts to reduce barriers to agricultural trade, which would greatly benefit many developing nations. Moreover, agricultural liberalization would raise the incentives of firms in developing countries to invest in new agricultural technologies protected by IPRs, thereby cementing faith in TRIPS.

Developing countries and TRIPS reform

The interests of developing countries in altering or extending TRIPS vary greatly because, in part, they have different levels of income and technological sophistication. To rebalance the agreement in some measure toward the interests of the poorest countries, while allowing for the quite diverse circumstances of countries, would help promote development.

First, extending the transition periods beyond 2005 for the least-developed countries would ease their administrative burdens. Although they have a limited opt-out procedure as discussed earlier, a general recognition by the WTO membership of needs for extensions could be beneficial in avoiding disputes. Such extensions should

be accompanied by serious commitments to work toward ultimate implementation.

Second, the low-income and middle-income countries should weigh carefully the introduction into TRIPS of significant new protection for IPRs that would reduce their access to information and technology. Extending patents in biotechnology to additional life forms and to plant variety protection could impose significant costs on developing countries, as would any attempt to globalize the highly protective database systems in place in the European Union or under contemplation in the United States. Another form of protection to weigh carefully is patents for software and methods for doing business. Similarly, erecting global restraints on parallel trade might have adverse potential competitive effects on future prices. On the other hand, many developing countries have economic interests in extending protection for geographical indications to their food products and handicrafts. This may help to ensure that valuable geographic indications do not become generic terms. Further, there are sound reasons for introducing the WIPO Copyright and Phonograms Treaties into TRIPS obligations, so long as they retain flexibility for establishing liberal fair use of Internet transmissions.

Third, despite proposals to remove from patent eligibility those drugs that are on, or will be on, the WHO "Essential Drugs" list, it is unlikely that such discrimination by product would be acceptable and, moreover, it could significantly reduce incentives to develop critical new drugs. A better alternative, discussed above, is to use public funds to purchase drugs or licenses. So long as the financial offers cover anticipated R&D costs the incentives to develop new drugs would improve.

Fourth, current TRIPS rules may not allow governments to grant a compulsory license to foreign firms, and may not permit firms producing under compulsory licenses to export much of their production.[16] This situation threatens to raise the costs of drugs in countries where domestic production capacities cannot ensure adequate supply of essential medicines. A revision of the Agreement in this regard may be necessary to permit small, poor, countries the right to import from foreign producers offering low-cost or generic products prior to patent expiration. Such a provision would provide greater flexibility in addressing public health crises. Even if such licenses may not actually be granted, the option itself would likely increase the bargaining power of governments with regard to pharmaceutical multinationals.

Fifth, many developing countries are interested in establishing new forms of IPRs over collective and traditional knowledge. Such knowledge covers literary creations, such as oral histories, artistic works, music, designs, pharmaceutical preparations, and methods of production. It is difficult to protect these items with traditional IPRs precisely because they are traditional (and therefore not novel) and collectively known, without easily assigned property rights. Thus, development of new rights, combining elements of trademarks, copyrights, and trade secrets along with sui generis recognition of traditional practices, could be beneficial. A global principle that patents are not available for items that had been known to the public by means of oral tradition or written description also would be beneficial for poor countries. Coordinated public efforts may be required to catalogue these pieces of traditional information.

As these final comments suggest, IPRs evolve dynamically over time to meet the needs of inventors and creators in market economies. The TRIPS Agreement significantly increased the requirements for protecting intellectual property incumbent upon nations that wish to be part of the global trading system. While promising some eventual benefits, the new regime is asymmetric in its likely effects across countries. Low-income economies may expect to incur net costs for some time, suggesting that patience and assistance are needed, along with programs to limit potentially negative effects in such areas as new medicines. The picture in middle-income economies is more complex as they feature a mix of interests between intellectual property developers, users, and imitators. Experience with the negotiation and

implementation of TRIPS should improve the ability of developing countries to participate effectively in the further evolution of international norms.

Notes

1. It is difficult to quantify the strength of IPRs because they are rules concerning conditions of dynamic competition rather than taxes or subsidies applied to particular sectors. Moreover, those rules have different impacts under different economic circumstances.

2. This material is summarized from Maskus 2000a.

3. Controlling for other influences, there is a quadratic (U-shaped) statistical relationship between the strength of patent rights and real per capita GDP. Specifically, patent rights become weaker as incomes grow to a level of approximately $2,000 per capita in 1985 international dollars ($3,000 today assuming an average growth rate of 2.5 percent), then become increasingly stronger as countries get richer.

4. China has largely met TRIPS requirements in its legislation in anticipation of joining the WTO.

5. Smith (1999) found a similar outcome.

6. The figures in column 2 of table 5.1 use coefficients developed in a four-equation simultaneous decision framework, which incorporated the impacts of patent rights on patent applications, affiliate sales, exports, and affiliate assets. The model was estimated with data from 1986 to 1994 for the foreign operations of U.S. majority-owned manufacturing affiliates in several developed and developing countries. The assets equation had a negative coefficient on patent rights, suggesting that, on average, across countries stronger patents would diminish the local asset stock. However, there was a large positive coefficient on patents interacted with an indicator variable for developing countries, resulting in a positive and significant net impact in those nations. This result likely means that at low protection levels internalization decisions encourage FDI as patents get stronger. However, as protection exceeds some level there emerges a substitution effect favoring licensing over investment.

7. One possible explanation for this negative impact is that firms may exploit their IPRs in richer countries relatively more through arm's length licensing relationships. Indeed, economic theory suggests that as IPRs are strengthened, firms would choose to substitute licensing contracts for FDI (Horstmann and Markusen 1987).

8. Similar problems exist in China (Maskus, Dougherty, and Mertha 1998). Interviews suggested that trademark infringement negatively affected innovative Chinese enterprises. Numerous cases were cited of difficulties facing Chinese producers of consumer goods. Establishing brand recognition in China requires costly investments in marketing and distribution channels; enterprises that achieved it found their trademarks applied to counterfeit products. Such products were of lower quality and damaged the reputation of the legitimate enterprise. This problem deterred enterprise development and prevented interregional marketing.

9. *The Economist,* June 22, 2001.

10. *New York Times,* "Look at Brazil," January 28, 2001.

11. See Reichman 1996/1997, which provides the basis for some of the analysis in this section. See also Watal 2001.

12. Evenson and Westphal (1997) provide a more nuanced categorization of countries but provide little concrete guidance regarding IPRs.

13. UPOV refers to a series of revisions of a treaty for the protection of plant varieties, which is known by its French acronym. The 1978 revision serves as a model for developing countries, but is not now available for accession. The 1991 version provides stronger protection for breeders and is available for membership.

14. Maskus 2000a provides extensive discussion.

15. The papers in Anderson and Gallini 1998 provide an excellent and comprehensive overview.

16. The European Union submitted a paper to the WTO TRIPS Council arguing that such licenses are acceptable under the Agreement ("Paper Submitted by the EU to the TRIPS Council for the Special Discussion on Intellectual Property and Access to Medicines," 20 June 2001, IP/C/W/280), but legal opinion is divided.

References

Abbott, Frederick M. 2000. "The TRIPS-Legality of Measures Taken to Address Public Health Crises: Responding to USTR-State-Industry Positions that Undermine the WTO." Manuscript. Florida State University, Talahassee, Fla.

Anderson, Robert, and N. T. Gallini. 1998. *Competition Policy and Intellectual Property Rights in the Knowledge-Based Economy*. Calgary: University of Calgary Press.

Coe, David T., E. Helpman, and A. W. Hoffmaister. 1997. "North-South R&D Spillovers." *The Economic Journal* 107: 134–49.

Duran, Esperanza, and C. Michalopoulos. 1999. "Intellectual Property Rights and Developing Countries in the WTO 'Millenium Round'." *Journal of World Intellectual Property*. November.

Evenson, Robert E., and L. E. Westphal. 1997. "Technological Change and Technology Strategy." In Jere Behrman and T. N. Srinivasan, editors, *Handbook of Development Economics: Volume 3A*. Amsterdam: Elsevier North-Holland.

Finger, J. Michael, and P. Schuler. 1999. "Implementation of Uruguay Round Commitments: The De-

velopment Challenge." Manuscript. World Bank, Washington, D.C.

Fink, Carsten. 1997. "Intellectual Property Rights and U.S. and German International Transactions in Manufacturing Industries." Manuscript. World Bank, Washington, D.C.

———. 2001. "Patent Protection, Transnational Corporations, and Market Structure: A Simulation Study of the Indian Pharmaceutical Industry." *Journal of Industry, Competition, and Trade* 1: 101–21.

Ginarte, Juan Carlos, and W. G. Park. 1997. "Determinants of Patent Rights: a Cross-National Study." *Research Policy* 26: 283–301.

Gould, David M., and W. C. Gruben. 1996. "The Role of Intellectual Property Rights in Economic Growth." *Journal of Development Economics* 48: 323–50.

Horstmann, Ignatius, and J. R. Markusen. 1987. "Licensing Versus Direct Investment: A Model of Internalization by the Multinational Enterprise." *Canadian Journal of Economics* 20: 464–81.

Lanjouw, Jean O. 1998. "The Introduction of Pharmaceutical Product Patents in India: Heartless Exploitation of the Poor and Suffering?" NBER working paper 6366, Cambridge, Mass.

Lee, J.-Y., and E. Mansfield. 1996. "Intellectual Property Protection and U.S. Foreign Direct Investment." *Review of Economics and Statistics* 78: 181–86.

Mansfield, Edwin. 1994. "Intellectual Property Protection, Foreign Direct Investment, and Technology Transfer" International Finance Corporation Discussion Paper 19. Washington, D.C.

———. 1995. "Intellectual Property Protection, Direct Investment and Technology Transfer: Germany, Japan, and the United States." International Finance Corporation Discussion Paper 27. Washington, D.C.

Maskus, Keith E. 1998. "The International Regulation of Intellectual Property." *Weltwirtschaftliches Archiv* 134: 186–208.

———. 2000a. *Intellectual Property Rights in the Global Economy.* Washington DC: Institute for International Economics.

———. 2000b. "Strengthening Intellectual Property Rights in Lebanon." In B. Hoekman, and J. E. Zarrouk, editors, *Catching Up with the Competition*. Ann Arbor: University of Michigan Press.

Maskus, Keith E., S. M. Dougherty, and A. Mertha. 1998. "Intellectual Property Rights and Economic Development in China." Manuscript prepared for the Southwest China Regional Conference on Intellectual Property Rights and Economic Development. Chongqing. September.

Maskus, Keith E., and C. McDaniel. 1999. "Impacts of the Japanese Patent System on Productivity Growth." *Japan and the World Economy* 11: 557–74.

Maskus, Keith E., and M. Penubarti. 1995. "How Trade-Related Are Intellectual Property Rights?" *Journal of International Economics* 39: 227–48.

———. 1997. "Patents and International Trade: An Empirical Study." In K. E. Maskus, P. Hooper, E. E. Leamer, and J. D. Richardson, editors, *Quiet Pioneering: The International Economic Legacy of Robert M. Stern*. Ann Arbor: University of Michigan Press. 95–118.

McCalman, Philip. 2001. "Reaping What You Sow: An Empirical Analysis of International Patent Harmonization." *Journal of International Economics* 55: 161–86.

Park, Walter G., and J. C. Ginarte. 1997. "Intellectual Property Rights and Economic Growth." *Contemporary Economic Policy* 15: 51–61.

Rapp, Richard T., and R. P. Rozek. 1990. "Benefits and Costs of Intellectual Property Protection in Developing Countries." *Journal of World Trade* 24: 75–102.

Reichman, J. H. 1996/1997. "From Free-riders to Fair-followers: Global Competition Under the TRIPS Agreement." *New York University Journal of International Law and Politics* 29: 11–93.

Sachs, Jeffrey, M. Kremer, and A. Hamondi. 1999. "The Case for Vaccine Purchase Fund." Harvard University, Cambridge, Mass. Manuscript.

Smarzynska, Beata. 2001. "Composition of Foreign Direct Investment and Protection of Intellectual Property Rights: Evidence from Transition Economies." Manuscript. World Bank, Washington, D.C.

Smith, Pamela J. 1999. "Are Weak Patent Rights a Barrier to U.S. Exports?" *Journal of International Economics* 48: 151–77.

———. 2001. "How Do Foreign Patent Rights Affect U.S. Exports, Affiliate Sales and Licenses?" *Journal of International Economics* 55: 411–39.

UNCTAD (United Nations Conference on Trade and Development). 1996. *The TRIPS Agreement and Developing Countries*. Geneva.

Watal, Jayashree. 1999. "Introducing Product Patents in the Indian Pharmaceutical Sector: Implications for Prices and Welfare." *World Competition* 20: 5–21.

———. 2001. *Intellectual Property Rights in the WTO and Developing Countries*. London: Kluwer Law International.

World Bank. 2000. Workshop on "Developing the Music Industry in Africa." June. Washington, D.C.

Yang, Guifang, and K. E. Maskus. 2001. "Intellectual Property Rights and Licensing: an Empirical Investigation." *Weltwirtschaftliches Archiv* 137: 58–79.

6

Envisioning Alternative Futures: Reshaping Global Trade Architecture for Development

Deepening global trade and investment integration holds the promise of more rapid increases in standards of living around the world, particularly in developing countries. Greater openness and expanded trade, partly attributable to the Uruguay Round, contributed to new opportunities for growth. Trade and incomes of developing countries grew during the 1990s at twice the rate of the previous decade, and those developing countries that deepened their integration with the global economy have seen their incomes rise at more than three times the pace of those that did not (Collier and Dollar forthcoming).

The challenge ahead is to expand those opportunities and ensure that the poorest countries and poorest people benefit. Today developing countries' exports confront higher levels of border protection than those of developed countries. The average poor person selling into globalized markets confronts barriers that are twice as high as the typical worker in developed countries (chapter 2). Said differently, products that the world's poor produce are more likely to be subject to high tariffs, quotas, disadvantageous subsidies, and antidumping claims than are those produced by the better-off. Although only partly because of disadvantageous external circumstances, the 49 least-developed countries have fared particularly badly during the last decade. Thirty percent of exports from least-developed countries face tariff peaks in at least one of the Quad countries (United States, EU, Japan, and Canada). Besides merchandise trade barriers, restrictions on global trade in services also have impeded development. On the one hand, the lack of progress in the high-income countries to grant access on temporary movement of workers (mode 4 under General Agreement on Trade in Services—GATS) has foreclosed a potential source of earnings for developing countries. On the other, restrictions that developing countries place on foreign direct investment (FDI) in services industries have left unrealized their own full productivity potential. Moreover, costs of transporting developing-country exports are higher because of quasi-cartel restrictions, which, when added to the "behind the border" under-investments in ports, customs efficiency, and domestic infrastructure, drive up the landed price of exports and reduce volume.

Trade can only realize its potential if developed and developing countries alike take action to reshape the global trade architecture to promote development. This chapter discusses in summary form the key policy foundations of a new trade global architecture for development, and then shows how a phased program putting in place those policies might affect the long-term growth prospects of developing countries. Our conclusion: a reshaped global architecture can have dramatically positive effects on the lives of the world's poor.

Reshaping global trade architecture for development

While the global trade architecture is likely to evolve only slowly, the discussion among world leaders on a future trade round can forge the first underpinnings. This report has focused on four policy domains:

- Policies to ignite a successful *development round* in the World Trade Organization (WTO) that would produce tangible and durable benefits for developing countries
- Policies for *global cooperation outside the WTO* necessary to expand trade on a sustainable basis, and to promote development
- *Policies of high-income countries* to ensure continued global growth and to facilitate trade expansion through provision of access and aid
- *Domestic policies* that developing countries might undertake to promote trade-led development—with or without the help of the international community

This report has not addressed other aspects of global trade architecture that have been taken up in previous Bank reports and numerous other studies. These include issues such as standards and environment[1] as well as the workings of trade-related global institutions (such as the World Intellectual Property Organization, World Customs Organization, and International Air-Transport Association). Similarly, we have not dealt with another element of trade architecture—regional trading arrangements—which are particularly germane to the objectives of this report, hence the digression below.

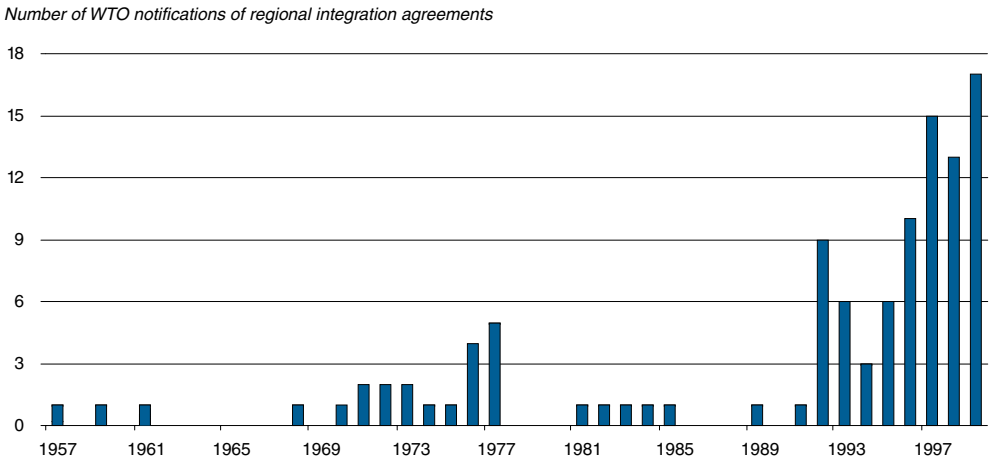
A digression: regional arrangements

Regional arrangements to expand trade continue to proliferate. Governments, now more receptive to openness than in previous periods, have sought to expand existing trade by locking in increased market access with trading partners—most often neighbors. Moreover, regional arrangements are attractive because they can increase the credibility of reforms and may be less cumbersome to negotiate than multilateral reforms. Smaller memberships may also make it easier to negotiate the increasingly important issues inherent in regulatory regimes, a sharp contrast with complicated multilateral negotiations involving more than 100 countries. Also, small countries can exercise greater influence in regional arrangements.

Regional arrangements, properly designed, have the potential to stimulate global trade through improving the efficiency, and hence the competitiveness, of regional producers and expanding demand for inputs from nonregional sources. But regional agreements behind trade barriers may artificially shift import supply from external countries to countries within the trade area, and this may lead to reduced efficiency for participants if displaced external suppliers would provide goods at lower cost. This trade diversion may disadvantage global export competitiveness in much the same way that national barriers do. "Rules of origin" arrangements in some regional agreements can raise costs and stifle local industry. This is also true of mutual recognition agreements that may shield regional partners behind discriminatory testing and certification protocols or regional standards. Smaller countries with less technical capacity to evaluate these schemes may find themselves at a net disadvantage, and be better off with first-best unilateral trade reform.

Whether a particular agreement improves national incomes depends on its design, and on the trading partners involved. Key design tests include whether regional arrangements involve lowering common external trade barriers, whether they stimulate increased competition, and whether they reduce transaction costs and extend to nondiscriminatory investment and services policies—all elements central to "open regionalism." The World Bank Policy Research Report *Trade Blocs* (World Bank 2000a) concludes that North-South regional agreements are more likely to improve welfare than South-South agreements, simply because experience shows they usually result in lower trade barriers with less trade diver-

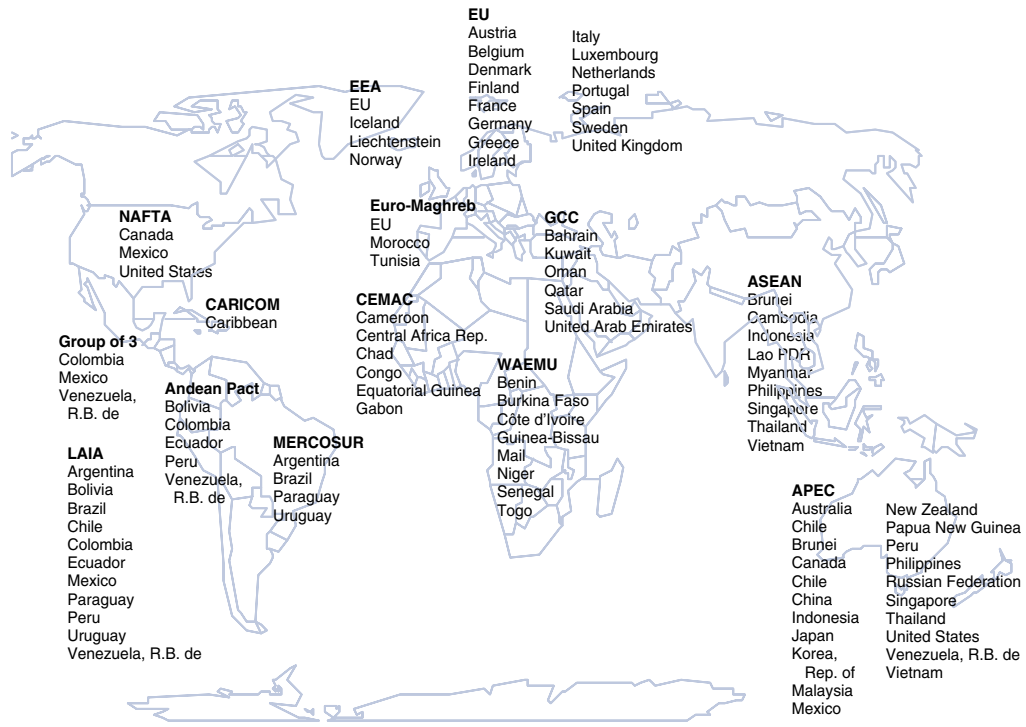
Figure 6.1 Regional integration agreements are proliferating



Source: World Trade Organization.

—and now span the globe.

Selected regional integration agreements



Source: World Bank staff.

sion, and because the greater structural differences in North-South economies usually produce greater potential gains from trade creation.[2] The EU arrangements under the 1992 Single Market Program are a clear case in which the analysis shows income-increasing effects. The North American Free Trade Agreement (NAFTA) also appears to have had a positive impact on its Members, particularly Mexico.

Regional arrangements are likely to remain an enduring feature of the trade panorama. To realize possible benefits of trade and investment expansion, arrangements have to be designed in a way that they become steppingstones to greater openness and development, rather than a vehicle for protection and unintended inefficiency. An important component of making them steppingstones rather than stumbling blocs to greater openness is for the countries involved to have low protection against non-Member countries. For example, Harrison, Rutherford, and Tarr (1997) estimate that Chile was able to gain from its free trade agreement with Mercosur due to the fact that it lowered its external uniform tariff from 11 to 6 percent. Regional agreements can facilitate the deep integration—reduction of border barriers, promotion of cross-investments, adoption of common regulations, and even cultural and political exchange—in ways that reinforce and enhance multilateral efforts.

Nonetheless, the world market is bigger than the market next door, so for all their coordination difficulties, multilateral efforts to expand market access can have greater impact on development. For these reasons this report has focused on a four-part agenda: a development round, global cooperation to expand trade, policies of high-income countries, and policies of developing countries (box 6.1).

A development round: policies in the WTO to expand trade opportunities for the world's poor

Market access. For the world's 2.8 billion poor, reducing barriers to agricultural products, textiles, clothing, apparel, and other labor-intensive manufactures are critical. Both the high-income countries, and even the middle-income countries, will have to reduce their levels of protection in agriculture. In manufactures, political commitment is necessary to phase out the quotas of the Agreement on Textiles and Clothing (ATC) in 2004 and reduce the high levels of tariff protection that would otherwise impede access once the quotas are ended. These efforts should be accelerated. It also means a commitment from the high-income countries (HIC) to reduce tariff escalation and tariff peaks that now discourage the creation of new industrial activities in developing countries. Trade in services can be expanded—opening new vistas of productivity gains for developing and developed countries alike—if countries permitted more movement of temporary workers and reduced anticompetitive and discriminatory restrictions on foreign investment. Electronic commerce (e-commerce) deserves greater attention under GATS to provide maximum competition. Using GATS to eliminate anticompetitive aspects of the private carrier agreements in maritime transport and to engender new competition in air transport could lower the costs of delivering developing-country exports to foreign shores.

Antidumping, recourse to other forms of unilateral contingent protection, and overly stringent produce standards have dampened the access that developing countries have to the world's major markets. Whether it is shiitake mushrooms entering Japan, steel entering the United States, or products entering the EU, raising barriers to trade to protect domestic markets has too often hurt development. Applications of contingent protection are not limited to developed countries. Middle-income countries have increasingly sought refuge from the competitive pressures of their neighbors. One immediate measure would build confidence and show convincing movement on the ATC: an agreement to limit the use of antidumping on trade in textiles and clothing that will be liberalized as negotiated in the Uruguay Round. Over the longer term, the use of antidumping ought to be phased out (Finger

1998). Other "safeguard" instruments might be disciplined by giving standing to users of the goods concerned in the decision process.

Implementation issues. No less important than market access is tailoring implementation of existing and new agreements to the local capabilities of developing countries. Developing countries, given power asymmetries, have an interest in avoiding a two-track multilateral system that relegates them to a particular position; however, implementing global agreements can be better calibrated to domestic capacities. For example, the administrative costs of implementing Uruguay Round agreements on The Agreement on Trade-Related Intellectual Property Rights (TRIPS) and customs procedures can run into the tens of millions of dollars, and could easily swamp the investment budgets of many poor countries (see Finger and Schuler 2000). As developing countries have emphasized in several recent meetings (e.g., LDC3, Abuja and Zanzibar Trade Ministers' conferences), these implementation concerns are paramount if a negotiation round is to promote development.

Moreover the benefits they would receive in terms of greater access to low-cost technology are, relative to the implementation costs, questionable. New trade rules recognizing these constraints would allow flexibility and provide for transition periods linked to development capacities. To be effective, implementation would have to be linked to a long promised financing facility that would provide technical assistance to implementation, and the high-income countries could convey their seriousness by agreeing to bind this commitment. Note that all of these issues could be decided during negotiations, and none need hold a new round hostage to prior action.

WTO transparency and participation. Beyond these elements, the convening of a round of talks is likely to promote development only if agreements enjoy full ownership among WTO Members. For agreements to realize their potential mutual benefits, major constituencies in both developing and developed countries must understand them, participate fully in their formulation, and buy into them.

Two elements would serve that end. First, transparency is vital for ownership and implementation. Enhancing the transparency of WTO operations and improving access to and dissemination of WTO databases, reports, and information (for example, data underlying national trade policy reviews) would broaden the basis for participation of developing countries to engage in the policy formation process (Francois 2001).[3]

Second, a determinant of ownership of agreements is the ability of countries to participate in the WTO process. Many countries have inadequate representation in Geneva, impeding active engagement in negotiations. Although options have been identified to expand representation in Geneva at relatively low cost, expertise is still in short supply.[4] Funding could be made available to allow low-income countries to finance the cost of hiring experts that can undertake the required analyses (Winters 2001). The annual cost of such an assistance program to least-developed countries could be in the $10 million range.[5]

Global actions outside the WTO to expand trade: beyond negotiation to cooperation

Expanding trading opportunities for the world's poor requires going beyond negotiations in the WTO to cooperation in other policy domains. Two sets of complementary policies are particularly important.

Increasing multilateral development assistance to expand trade can help countries take advantage of existing global markets, respond to global and domestic trade policy reforms, and link the poor to new opportunities. Multilateral cooperation among bilateral donors can provide "aid for trade." One important example: The EU has taken the lead in providing generous assistance to the Integrated Framework (IF), a program designed to analyze obstacles to trade for least-developed countries and provide assistance in overcoming them (see box 6.2). A similar approach could usefully be applied to

Box 6.1 Reshaping global trade architecture for development: The four-part policy agenda

1. Convening a development round in the WTO

Market access

Agriculture

- Reduce applied tariffs, phase out tariff rate quotas, and bind tariffs at applied rates in both developed and developing countries
- Phase out export subsidies in high-income countries and commit to eliminate domestic support linked to production levels
- Reduce tariff escalation and cut off tariff peaks

Manufactures

- Reduce applied rates further, and bind tariffs to levels that equal or are close to applied rates
- Reduce tariff escalation and cut off tariff peaks
- Accelerate implementation of ATC quota eliminations and reduce tariffs in lines now covered by quotas
- Negotiate tighter disciplines on antidumping and other forms of contingent protection

Services

- Liberalize entry of foreign services suppliers through elimination of restrictions on entry and promoting increased competition, with wider use of GATS to bind nondiscriminatory access and lend credibility to domestic programs
- Enhance scope of services provision through the temporary movement of service providers (both skilled and unskilled)
- Secure openness of e-commerce in services, through wider and deeper GATS commitments on cross-border supply
- Strengthen multilateral rules to deal with anticompetitive practices in services
- Adopt a nondiscriminatory trading regime for air transport, including traffic rights, under GATS

Implementation procedures and phasing

- Adopt a phased implementation of TRIPS and other administrative-intensive agreements for low-income countries, based upon development capacity.
- Establish a consensus that the TRIPS Agreement allows developing countries with no domestic production capacity to grant compulsory licenses to foreign firms
- Convert "best endeavor" promises to binding commitments to provide low-income countries with financial and technical assistance to implement WTO accords

Improving WTO transparency and participation

- Require WTO disclosure of databases; reports and their full associated information; and analyses for particular decisions
- Provide assistance to strengthen capacity of all members to participate effectively in negotiations

2. Global cooperation to support trade outside the WTO

Provide "aid for trade" through stepped up development assistance

- Expand "Integrated Framework" assistance to all low-income countries
- Provide assistance to enhance the efficiency of the customs clearance process in developing countries, notably the good customs practices that are laid out in the revised Kyoto Convention (World Customs Organization)
- Expand multilateral assistance to overcome country-specific bottlenecks to improving competitiveness and trading potential (for example, in finance, transportation infrastructure, education for low income workers, and public sector trade-related institutions) and to promote trade

Box 6.1 *(continued)*

- Fund mechanisms to help developing countries use intellectual property protection to their benefit by protecting intangible assets such as traditional knowledge, designs, music, and ethnobotanicals, and patent protection for industrial goods as well as improve enforcement of IPRs
- Establish a global health fund to purchase licenses from developers of new medicines essential to treating debilitating diseases in poor countries

Expand global efforts beyond trade to improve the environment, raise labor standards, and adopt adequate product standards outside the WTO

- Expand global environmental cooperation with financing to improve environmental protection in developing countries, and create multilateral forum of environmental exchange
- Strengthen international actions on labor standards through the International Labour Organisation (ILO), with project collaboration from multilateral development banks
- Create a Standards Development Facility to introduce science and other professional evidence into standard setting for products, with adequate representation from developing countries; and provide assistance to developing countries' standard setting bodies

3. Policies for high-income countries

Market access

- Grant to all low-income countries duty-free and quota-free access to markets of all countries of OECD
- Reduce uncertainty of market access by harmonizing rules of origin, and by reducing threats of antidumping

Expand bilateral "aid for trade"

- Provide financial and technical assistance to developing countries for "behind the border" trade-related investments necessary to take advantage of market access
- Improve policy coherence by establishing coordinating mechanisms between development policies and trade policies to ensure effective development outcomes
- Assist developing countries to strengthen competition agencies and improve legislation, and require antitrust agencies to provide to developing countries information on third market effects of domestic mergers as well as pending cases of price-fixing and restrictive business practices; and review the anticompetitive consequences of antitrust exemptions in transport and other sectors that adversely affect development

Domestic policies that facilitate adjustment of labor to economic change

- Review domestic policies to ensure displaced workers have adequate social support to deal with rapid changes in labor market conditions, including unemployment insurance, social safety nets (particularly health and pensions), and access to training and education

4. Policies for developing countries

- Adopt program of trade reform, including phased lowering of border protection for goods and services as part of a poverty reduction strategy
- As part of the trade reform program, adopt companion policies to cushion any impact on the poor of adjustment to new trade incentives, and ensure investment responses; solicit foreign assistance when necessary to implement administrative requirements of programs
- Spur development of industries essential to trade, such as transport, telecommunications, financial sector, and business services, particularly through introduction of regulatory policies that, where feasible, harness competition
- Invest in upgrading public sector institutions related to trade, including customs, administration of drawback programs, and financial supervision agencies
- Encourage domestic intellectual property development through TRIPS-consistent standards appropriate to country needs, and pursue protection of domestic intellectual property abroad
- Ensure adequate macroeconomic policy framework to provide sound investment climate

Box 6.2. The recently renovated integrated framework

The Integrated Framework (IF) is a program set up by bilateral donors to increase the effectiveness of trade-related technical assistance to the least-developed countries. The IF was established in 1996; participating agencies include the WTO, the International Monetary Fund, the International Trade Center, United Nations Development Programme, United Nations Conference on Trade and Development, and the World Bank. Its purpose is to analyze options for trade-led integration, determine the relative payoff to trade-related reform, and work with local counterparts to design appropriate policy reform packages that both promote growth and protect the poor during the reform transition as options the government might consider in preparing its poverty reduction strategy papers (PRSP). The process starts with analysis: how trade might fit into national development strategies, followed by assistance in the design and financing of projects (drawing on cross-country experience). An interagency task force was formed during 2000, and a trust fund has recently been established to fund the "integration studies" and technical assistance that can be built into the country assistance strategies as appropriate.

Source: World Bank staff.

other low-income countries, and this too will require resources. "Aid for trade" could also help speed adoption of best practices in customs administration as contained in the revised Kyoto Convention and administered by the World Customs Organization. It could help with financing of infrastructure related to trade (ports, transport, and related services), logistics, trade facilitation, and trade promotion; in many cases bottlenecks in one or another area impedes export expansion from a particular country. Over the medium term, development assistance devoted to education can help upgrade schools to increase the productivity of poor workers. Finally, if specific assistance were available it might be possible to help stakeholders in developing countries use intellectual property protection to their benefit by protecting intangible assets such as traditional knowledge, designs, music, and ethnobotanicals as well as patent protection for industrial goods.

A second set of policies outside the WTO is to expand global efforts to improve the environment, raise labor standards, and adopt adequate product standards. Environmental protection agencies from all over the world are already engaged in a broad range of bilateral collaborations—joint studies, exchanges, seminars, and conferences—often in collaboration with global nongovernmental organizations (NGOs). However, the potential for collective action in the environment has barely been scratched. The phenomenal success of the Montreal Protocol in reducing ozone-depleting substances (ODS), with the felicitous reversal of trends toward an ever larger ozone hole over the Antarctic, is worthy of study and emulation. The Global Environmental Facility to reduce greenhouse gases has also had some success, if somewhat more limited. Besides administering bilateral trust funds to reduce ODS and greenhouse gases, the World Bank now finances environmental projects worth several billion dollars in developing countries, as do the regional multilateral development banks. Much more could be done. These positive efforts should replace efforts to use negative instruments such as trade sanctions and recourse under the WTO, which are likely to be ineffectual and even counterproductive (see box 6.3).

Finally, more has to be done to make patented drugs available in times of health crises, such as acquired immune deficiency syndrome (AIDS), in a way consistent with incentives to invest in research and development. One option: developed country governments, interna-

Box 6.3. Environmental standards and trade

Environmental standards are at the forefront of the public debate on trade. The WTO's Technical Barriers to Trade Agreement and the Agreement on Sanitary and Phytosanitary Standards both include some references to environmental protection and trade, although to date there have been few formal disputes brought before the WTO.

The links between trade and the environment are complex.[6] One effect is that trade can raise scales of production. These effects will be positive because the amount of resources that used to produce the same level of output will decline. However, if trade induces a change in output composition, it is possible that dirty industries (even at larger scales) may increase, and clean industries contract, counteracting the effects of scale. Trade may also permit greater access to more advanced and cleaner technology. The net effect depends on the change in output mix and technology that occurs with trade-induced growth.

What are the trade consequences of environmental regulation? One hypothesis is that pollution-intensive industries take flight to countries with lax environmental standards. However, there is limited evidence to date to support this hypothesis. For example, Pearson (1987) and Leonard (1988).[7]

A second analytical approach considers the environment as a factor of production, such as capital and labor. The idea is that countries with lax environmental regulations (for example, environmental abundance) tend to specialize in pollution-intensive goods. Here, too, the evidence is ambiguous. For example, Tobey (1990), looking at five pollution-intensive industries in 23 countries, found that environmental regulations have caused trade patterns to deviate from the predictions of the model. Wilson, Sewadeh, and Otsuki (2001), in a study of 24 countries with five different pollution-intensive industries, found that stringency of environmental regulation reduces net exports of the five pollution-intensive industries. On the other hand, Grossman and Krueger (1993) investigate the environmental impact of NAFTA, and conclude that lax environmental regulations do not create a comparative advantage in Mexico. Xu (1999), using a gravity model to investigate whether differences in environmental regulations have affected bilateral trade between a sample of developed and developing countries in pollution-intensive goods, found no evidence that countries with stricter environmental standards lower their total exports of pollution-intensive goods. In sum, the evidence on the specific linkages between environmental regulation and trade is mixed.

So what policy tools and institutions are best suited to promoting higher levels of environmental protection? Trade sanctions to support environmental protection can restrict developing-country market access. Indeed they may be counterproductive: since environmental regulations tend to improve as incomes rise, policies that restrict trade and restrict growth also undermine a driver of environmental improvement (see World Bank 2001). Second, sanctions penalize whole industries, the clean firms, as well as the polluters in an industry. Third, many polluters produce for the local market and are unaffected by sanctions. Finally, domestic pollution and environmental protection can be controlled most effectively they are targeted at the source—through taxes and other domestic policy instruments. A more productive approach is to establish policy coordination among countries. This would allow for joint regulation of common watershed and air basin controls in areas of transborder pollution, and for development assistance to transfer clean technology and environmental aid to strengthen environmental protection over time. Global environmental agreements (such as the Montreal Protocol that bans certain ozone-depleting chemicals) and others, if based on sound cost benefit analysis, can raise environmental quality over time. Voluntary ecolabeling programs also can provide incentives for environmental protection.

Source: Wilson 2001.

tional organizations, and foundations could establish a global health fund that could be used in part to purchase licenses from developers of new drugs and vaccines that are essential for the treatment of debilitating diseases in poor countries. These licenses would contribute to an adequate return on research and development costs in order to promote new drug development and also permit distribution of drugs to patients at low cost.

Similarly, collective action to improve labor standards could also contribute to poverty reduction. Some actions are primarily developmental in scope, such as providing educational subsidies to ensure that children can attend school and do not have to enter the workplace (see Indonesia's highly successful "Stay in School Program"). Other actions have to do with the propagation of core labor standards. Leadership of these activities are—and should continue to be vested—in the ILO, with project collaboration from multilateral development banks (see box 6.4).

Product standards are becoming increasingly important in international trade to protect consumers. However, standard setting can quickly become a ruse for protecting domestic producers. One solution is to create a Standards Development Facility to introduce science and other professional evidence into standard setting for products, with adequate representation from developing countries. This Facility could also collaborate with governments to provide unbiased assistance to developing countries' standard setting–bodies (see box 6.5).

Countries could also undertake a program of collective action on government procurement. The World Bank's Development Gateway may be a vehicle to help countries implement transparent and competitive processes in government procurement of goods and services, an area where the multilateral development banks have accumulated vast experience. Agreeing on key principles, procedures, and policies, supplemented with provision of technical and financial assistance to implement them could go far toward encouraging trade, engendering competition, and augmenting efficiency.

Policies of high-income countries

A major objective of a new round of trade talks whose rationale is to promote development must be to lower the barriers to trade in goods that the world's poor produce and to the services they can provide. An important first step would be to reduce barriers to trade with the low-income countries as an effort to promote their development. This could be done if all high-income countries were to emulate the EU's "Everything but Arms" preferential scheme. This would provide an impetus to LDC exports that could increase their revenues by more than 10 percent and the trade from Sub-Saharan Africa by some 14 percent. Broadening this access for the 49 least-developed countries to the 70 low-income countries would provide an important impetus to trade-led development in those countries that need it the most. The effects in trade diversion would be minimal, and the benefits important to the low-income countries. If high-income countries were to reduce antidumping threats, the effects would be even greater.

Resources are essential to creating a supply response to incentives created through market access. Much can be accomplished from debt-based multilateral flows, but some portion ultimately falls on bilateral developmental assistance, often as grants, that can fill in the gaps. If the high-income countries really wish to see developing countries become more vigorous participants in global trade, they must make additional efforts to augment extant programs with trade-related assistance. Bilateral grant aid can help with many aspects of trade facilitation—customs reform, disseminating technical standards, and trade law reform, to name a few areas.

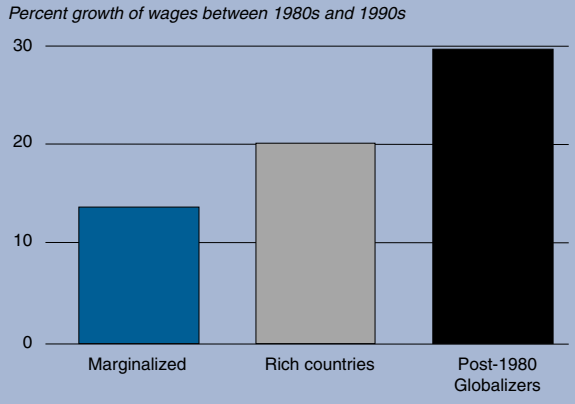
Technical assistance can be as important as financial assistance. One area where high-income countries could help immeasurably is competition policy. Simply requiring antitrust authorities to present the structural effects of mergers and acquisitions in home markets on third country markets to be publicly available would aid authorities in developing countries to enforce competition policy in their own jurisdictions. Moreover as analyzed in chapter 4, conducting a regular review of antitrust exemptions and their adverse consequences for developing countries could be helpful, particularly in international transport.

It would be a mistake to infer that policies in developed countries should be designed solely to promote trade in developing countries. No less

Box 6.4 Improving labor standards in a way that works

Improving labor standards is a fundamental aspect of development. However many developing nations have resisted efforts to include labor standards in world trade agreements. Proponents argue that trade sanctions should be used to enforce labor standards and to raise wages, while developing countries fear that international labor standards could become masks for protection. Their inclusion in the WTO threatens a main comparative advantage of developing countries.

Numerous studies have shown that low labor standards that affect working conditions do not grant a competitive edge to developing countries. According to a 1996 OECD study, countries with lower core labor standards (that is, the elimination of exploitative child labor, abolition of forced labor, nondiscrimination in employment, freedom of association, and the right to collective bargaining) do not have an improved export performance. The study finds no correlation between real wage growth and the degree of respect for freedom of association. On the contrary, it supports the view that higher national income levels and open-market reforms are both associated with improved labor standards.



Source: Collier and Dollar 2001.

At the same time, trade sanctions to improve labor conditions are likely to be counterproductive. By limiting trade between nations, sanctions shackle the growth in wages that expanded trade would otherwise bring. Historically, the growth rate of wages has been twice as rapid in the developing countries that increased their trade participation in the world economy as compared with those that did not (Collier and Dollar forthcoming). Moreover, their wage growth has been even faster than in the rich countries. Depriving poor nations of export opportunities in the name of raising wages is fatuous.

There are other problems with trade sanctions. Trade sanctions penalize whole countries and industries when violators are firms—and often they are firms that do not export. Firms serving the domestic market usually have worse labor standards than export industries (Aggarwal 1995). Wages and working conditions in export processing zones, for example, tend to be higher than the average for the domestic economy. Trade sanctions would in effect target the better performing export firms. Second, trade sanctions are an inherently unequal instrument: they are likely to be imposed only by developed countries against developing countries. Finally, trade sanctions can hurt the very people they are intended to help. For example, in Bangladesh, children displaced from garment factories due to the fear of sanctions found alternative employment in activities with even lower standards, such as street vending and prostitution (Panangariya 1999).

Fortunately, the international community has more effective instruments to promote better labor standards. A main purpose of the ILO is to promulgate good labor practices and legislations, and it, rather than the WTO, is far better positioned to lead international efforts. Governments should be encouraged to monitor and enforce their own legislation by, if necessary, imposing fines on enterprises that violate core labor standards (Elliot 2001). Revenues from these fines could be channeled back into enforcement programs and investments to upgrade labor conditions. This has several advantages over trade sanctions: violators are punished rather than all firms; revenues stay in the country and are used to improve standards rather than imposing income losses on countries; and improvements occur in a manner consistent with indigenous social values and mores rather

Box 6.4 *(continued)*

than according to the dictates of people in rich countries. If violations are pervasive and egregious and international sanctions are needed, withholding development assistance is potentially more effective (Torres 1996). The role of NGOs is important, too. The aggressive campaigns of NGOs have called attention to firm violations around the world, and these can help promulgate stricter codes of conduct, encourage enforcement, and call public and international attention to the most egregious violations (Gereffi and others 2001). The international community can help developing countries improve wages and working conditions, but can do so better through the ILO than through the WTO.

Source: World Bank staff.

important are policies at home to help domestic workers adjust to sudden changes in labor market conditions. Since it is impossible to separate out trade-related dislocation from technology-related or "other"-related dislocations, these policies should focus on providing support and flexibility to workers as they adjust to whatever forms of shocks to the labor market.

Domestic policies of developing countries

Governments in developing countries do not have to wait for international negotiations, other international collective actions, or policies in high-income countries to revamp trade policies in a way that promotes development. *Country policies still hold the potential for the greatest gains from trade for most countries.* For this reason, countries and economies as diverse as Chile, China, Hong Kong (China), and Singapore, as well as Costa Rica and Uganda have chosen to reduce tariffs unilaterally and to use multilateral agreement to legitimate and lock in the resulting more-efficient price incentives for investors.

Many developing countries still have high levels of protection that implicitly tax their export and growth potential. Border trade barriers continue to be high in three regions—Africa, the Middle East, and South Asia. Average (unweighted) tariffs in these regions are 20 percent or higher, nearly double the 10 percent average now found in East Asia, Latin America, and Europe and Central Asia. Moreover in many countries, tariff dispersion remains large, and so nominal tariff averages may understate the resulting economic distortion. In the small number of countries where nontariff barriers continue to be used, elimination of such instruments should be a priority. Their conversion into tariffs will generally generate revenues. As South-South trade is becoming increasingly important, developing countries can help themselves through lowering barriers that impede access to their own markets.

However, to be effective, reduction in border barriers must be accompanied by other policies and institutional improvements in the investment climate, so that the potentially powerful instrument of trade reform results in improved productivity and growth. Weaving reforms that lower border protection together with reforms to elicit a supply response and promote propoor growth is more complicated than first-generation reforms. Openness, in combination with sound macroeconomic, financial, and governance policies, is one determinant of sustained rapid growth, which has a direct and positive relation to increases in the incomes of the poor (see World Bank 2000b; and Dollar and Kraay 2001).

Trade liberalization affects the poor differently depending on the country (see World Bank 2000b: 49 ff). The immediate effects of trade reform on the poor depend (among other things) on the initial nature of protection, the structure of production, the effects of reforms on relative prices, and whether reforms increase the demand for labor (the basic asset of the

Box 6.5 Standards development facility: coordinated action to bridge the standards gap

Product standards are a critical part of trade in the 21st century. These include product standards and sanitary and phytosanitary standards necessary for market access in agriculture. Standards are directly linked to poverty reduction and human welfare through health, safety, and other channels. The development challenge posed by standards and border barriers are particularly important to future trade prospects of the least developed nations (World Bank 2001).

The costs of barriers in standards are likely much higher than tariffs to global trade (Maskus and Wilson 2001). Moreover, testing, and certification requirements in global market remain a serious obstacle for developing countries seeking to expand exports. The OECD estimates that standards alone represent between 2 and 10% of final product costs (OECD 1999). Changes in product standards can have serious repercussions for developing country exporters. World Bank research and operational experience indicates that standards are today one of the fundamental "behind the border" barriers to poverty alleviation through trade (Wilson 2000).

Most developing countries do not have the resources to apply standards. In Guatemala, for example, the total budget for standards in 2000 totals $119,000 (Hufbauer, Kotschwar, Wilson 2001). This represents a small fraction of the total government budget. The World Bank's experience with standards in the 1990s shows that investments of $ 3.5m (Vietnam) $155 million (Turkey), and $5 million in Morocco, for example, had to be undertaken to simply begin the process of modernization. The Bank along with other multilateral institutions and bilateral donors support standards-related projects in Africa and elsewhere. The international community needs, however, a coordinated and sustained effort to leverage work now done in an ad hoc fashion. A new commitment to action is needed that compliments the WTO agenda and trade negotiations. In order to secure the benefits that market-driven standards offer and integration of developing nations into the world trading system, a new commitment is needed. Action to bridge the rapidly widening divide between developed and developing countries. A two-part strategy to meet this challenge over a 10 year period.

First, the G-8 leaders in Genoa in July 2001 committed to better coordinate trade-related assistance to "provide bilateral assistance on technical standards" and stressed the "paramount importance of food safety." A new Standards Development Facility (SDF) could be created to move these commitments forward. The program, to be coordinated in cooperation with the WTO, the Bank, and other multilateral institutions and bilateral donors, would develop the framework for a long-term assistance plan to (1) expand access to standards for developing countries, and (2) facilitate modernization of standards infrastructures. This work could start with the PRSP countries and build upon pilot programs in coordination with the G-8.

The second goal of the SDF would center on promoting trade expansion through regulatory reform and removal of technical barriers in discriminatory standards, testing, and certification regimes. This work is in the long-term economic benefit of both the developed and developing countries. A framework to promote the wider use of "supplier's declaration of conformity" to regulatory requirements should be developed. A systematic review of products subject to mandatory government testing and certification that can be moved to declaration of conformity status should be undertaken. A multilateral "Global Conformity Agreement" (GCA) could then be developed based on this list for international negotiation and agreement (Wilson 2001). Funding to support standards modernization and capacity building in the least developed countries, as outlined above, must be part of this goal.

Source: World Bank staff.

poor). For example in cases where the poor primarily produce for export or rely on imports for consumption, lowering tariff barriers can improve their situation through changes in relative prices, but when the poor work mainly in import-competing sectors, trade liberalization can cause dislocation that adversely affects them. That trade reforms can produce increases

in income and, in the long term, offset negative effects offers little solace to those poor suffering transitional costs. For these reasons, trade reform programs have to identify the effects of reforms on the poor, design targeted compensation where possible, and build propoor social protection into Poverty Reduction Strategies of low-income countries and development programs of middle-income countries. For *least-developed countries*, because much analytical and capacity-building work remains to be undertaken, donors have agreed to adopt an Integrated Framework for the Least-Developed Countries (see box 6.2).

Envisioning alternative futures

Making these changes in global trade architecture requires political leadership around the globe and within countries. Policymakers will ask: Are the benefits worth the political effort? How will it affect poverty and income distribution?

Answering these questions in a quantitative sense poses challenges. Trade is only one of many factors affecting the long-term prospects of developing countries. Chapter 1 presented a discussion of the long-term growth dynamics of developing countries in the world economy. This constitutes a baseline view about the likely evolution of developing countries, based upon best guesses about generally stable parameters—savings, investment, population growth, trade, and productivity growth. To distinguish the effects of changes in trade policies, we then simulate the removal of trade restrictions discussed in the foregoing chapters, and analyze their development consequences as measured against the baseline scenario. Although economists' ability to measure these changes is limited (for reasons discussed below), the effort is intended to give us some idea of relative magnitudes of effects.

Assessing the effects of trade openness: a fast-integration scenario

In chapter 1 recall that we had indicated that income growth in low- and middle-income countries under the baseline scenario will reach around 3.6 percent on per capita terms, about 1.1 percentage points above the per capita growth rate of the high-income countries, with the highest growth rates anticipated in Asia. The countries of Eastern Europe and Central Asia were expected to grow quite rapidly in the next decade, while Africa and the Middle East would revert to modest growth rates. This performance over the 2000–15 period expands income by nearly 60 percent—some $18 trillion (in 1997 dollars).

The baseline scenario establishes a path of growth against which to assess the effects of eliminating trade barriers. It is important to bear in mind that the baseline incorporates only those changes to the global trading regime up through 1997 carried forward to 2015. The key policy change to be simulated is the phased elimination of all import tariffs, export subsidies, and domestic production subsidies. These are modeled to begin in 2005 and last through 2010. Said differently, in each year between 2005 and 2010, restrictions are reduced by one-sixth from their initial levels. The structural transformation therefore starts in 2005, and it has five years to complete (2011–15) after full removal. In reality, of course, this type of policy change would not come about only through multilateral negotiations; but a development round, together with regional agreements[8] and unilateral domestic policy reforms, could well advance policy toward this framework by 2010.

Two versions of the trade reform scenario are presented. In the first version it is assumed that trade reform has no impact on productivity. These are the *static* gains.[9] For the most part, the source of these gains comes from reducing the economic inefficiencies linked to trade policy distortions. These may have some dynamic impacts as they change savings and investment outcomes. The gains are sometimes counteracted, partially or even completely, by changes in a nation's terms of trade.[10] (Annex 1 below provides summary information on the design of the simulations and the underlying model.)

The second version entails *dynamic* gains. It assumes that productivity is a function of the degree of openness of the economy. While

much more work needs to be done in this area, the evidence available to date suggests a clear link between openness and productivity. This has been implemented in the model assuming a direct relation between productivity growth and a measure of openness. Productivity *growth* is linked to the export-output ratio using a constant elasticity function.[11] There are several potential channels through which this mechanism operates. As firms' exports grow and they increase their penetration of world markets, they learn new technologies (through comparison with their competitors' products); they improve production processes to match international standards (such as safety, health, packaging, style, and others); and they can benefit from scale economies as they produce for a larger market.[12] There are other channels through which openness could impact on productivity that are not incorporated here. The key channels are imports of technology-laden intermediate imports or capital goods, or both.

Impacts on real incomes. Measured in static terms, world income in 2015 would be $355 billion more with trade liberalization than in the baseline (figure 6.2).[13,14] Measured in dynamic terms, this would translate into cumulative additional income of $1.5 trillion to developing countries over the 2005–15 period (valued at net present value in 2005).

About 48 percent of total gains accrue to the high-income countries, with Western Europe garnering the highest static gains at $83 billion. This largely reflects its highly distorted agricultural policies, which not only are costly for European consumers and taxpayers, but also place a burden on more competitive farmers outside the EU, who face lower world prices due to these distortions. Developing countries as a whole would benefit from a rise in real incomes of 1.6 percent in the final year 2015, compared to baseline income (figure 6.2). There are wide variations in the income gains across developing regions reflecting two opposing forces. On the one hand, removal of tariffs leads to greater economic efficiency and higher growth. By contrast, terms-of-trade losses can partially counteract the gains from efficiency improvements.

The introduction of a link between openness and productivity increases the static gains described above by a factor of over two, with the global gains jumping to over $830 billion using our base-case parameters. As a percentage of the global gains in 2015, developing countries do much better, improving their share from 52 percent to 65 percent. The gains as a percent of initial income rises to almost 5 percent for developing countries, and represents significantly higher gains than observed in the static version. The relative gains will be highest in countries observing the greatest rise in their export-to-output levels. Typically, these will be countries with either high initial tariffs, inducing a large shift in both imports and exports; or countries facing large tariffs and able to increase market penetration; or both.[15] These results are broadly comparable in similar studies (see box 6.6)

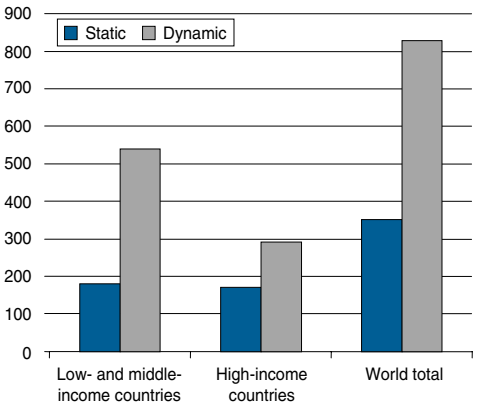
Agriculture provides the greatest opportunity

The gains from further opening of the global economy can be decomposed in a number of directions. Table 6.1 illustrates the sources of the income gains from two angles—regional and sectoral. Along the regional angle it shows that the greater source of income gain among developing countries is from their own reforms. Thus full trade reform by developing countries generates an income gain of $121 billion (in the *static*) simulation, some two-thirds of their gains from global trade reform. Needless to say, full market access by the high-income countries leads to gains for developing countries of nearly $125 billion if productivity gains are taken into account.

The sectoral decomposition is similarly illuminating. Reflecting the high distortions in agriculture, the largest gains from merchandise trade liberalization are to be realized from eliminating all forms of agricultural protection. In both the *static* and *dynamic* simulations, agricultural reform in itself accounts for 70 percent of the global gains. Free market access in the high-income countries could result in gains to developing countries of as much as $100 billion. On a lesser scale, but nonetheless

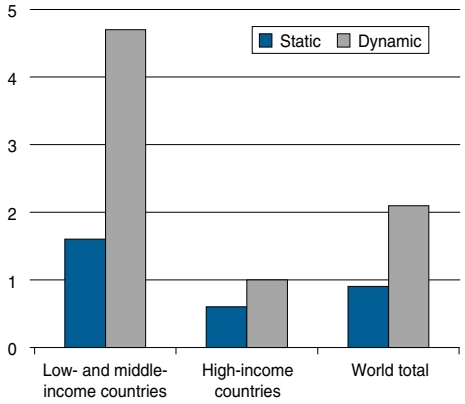
Figure 6.2 Developing countries could reap income gains of over $500 billion from full trade liberalization

(billions of 1997 dollars, additional income in 2015 compared with baseline)



—which implies up to a 5 percent boost in incomes

(percent of baseline income in 2015)



Note: Static gains refer to the results holding productivity constant. Dynamic gains allow productivity to respond to sector-specific export-to-output ratios.
Source: World Bank model simulations.

far from trivial, elimination of existing protection on textiles, clothing, and footwear would generate global income gains ranging from $40 billion, in the case of fixed productivity, to almost $190 billion with endogenous productivity. Both of these sectors, as reflected in chapter 2, harbor the larger share of the working poor in developing countries.

Results are sensitive to assumptions

While there is little doubt regarding the productivity-enhancing impacts of greater openness, there has been relatively little econometric analysis at either the macro or micro level to determine more precisely the magnitude of the relation. In light of this uncertainty, table 6.2 illustrates some potential range of the global impacts of full trade liberalization with varying assumptions regarding the key parameters in the relation between openness and productivity.

Two parameters determine the relation. The first is the responsiveness of sectoral productivity to sectoral openness (as measured by the export-to-output ratio). The second is the share of total sectoral productivity affected by openness in the baseline simulation.[21] The estimate of the gains in the baseline simulation corresponds to a productivity elasticity of one and a share of 40 percent, that is, $832 billion. The first column represents the static gains—an elasticity of 0. As one would anticipate, the gains increase as both parameters rise. Since trade reform typically increases the export-to-output ratio, an increase in the responsiveness of productivity to this ratio will increase the openness-related productivity results. Similarly, the larger the share of productivity accounted for by the openness factor, the greater will be the impact on growth.[22]

Service sector liberalization

The liberalization scenario described so far has concerned only the goods sectors. However, chapter 3 of this volume clearly illustrates the importance of liberalizing the service sectors. With details to follow below, we conservatively demonstrate that, for develop-

Box 6.6 The complexities of measuring openness and growth

Studies of the relation between openness and growth have followed two main lines. One line of research has been to estimate econometrically the relation between openness and growth using cross-country time series data and panel estimation techniques (see, for example, Sachs and Warner 1995, and Dollar and Kraay 2001). These studies conclude that there is indeed a strong link between openness and growth.[16] A second line of research has been the development of increasingly sophisticated general equilibrium models. Model and data development have focused on the various channels through which trade openness can affect growth. While the early models essentially estimated the static inefficiency losses from imposing tariffs and other trade barriers, more recent models have extended the analysis along four main research paths—dynamic accumulation of static gains, allowing for imperfect competition and scale economies, endogenous growth in which productivity is responsive to trade openness, and endogenous capital flows models in which capital is responsive to trade opening.[17] All of these magnify the measured static efficiency gains by a factor of two to four, depending on the methodology.

Comparisons of the gains from full trade liberalization
(all gains are in billions of dollars)

Study	Nature of reform	Type of simulation	Base year	Gain for industrial countries	Gain for developing countries	World total
GKV[a]	Full pre-UR trade liberalization	Dynamic	1992	290	160	450
AFHHM[b]	Full pre-UR trade liberalization	Steady-state	1995	146	108	254
GEP[c]	Full trade liberalization (from 1997 base)	Dynamic	1997	171	184	355
		Dynamic w/productivity	1997	293	539	832
DFS[d]	Full trade liberalization (from 1995 base)	Dynamic w/productivity	1995	450	760	1210
DFAT[e]	Full trade liberalization (from 1995 base) including services	Static	1995			750
BDS[f]	Full post-UR trade liberalization including services	Static	1995	1490	370	1860

Notes: a. Goldin, Knudsen and van der Mensbrugghe (1993).
b. Anderson, Francois, Hertel, Hoekman and Martin (2000).
c. Global Economic Prospects (2002).
d. Dessus, Fukasaku, and Safadi (1999).
e. Department of Foreign Affairs and Trade, Australia (1999).
f. Brown, Deardorff and Stern (2001).

(continued)

Box 6.6 *(continued)*

The box table summarizes several studies using applied general equilibrium models.[18] The differences in results can be essentially explained by three factors: (a) the base from which the reform is simulated, together with its assumptions about initial levels of trade barriers (for example, pre- or post-Uruguay Round); (b) whether productivity is fixed or responsive to trade opening; and (c) whether service trade liberalization is included.

The first three studies—Goldin and others (GKV 1993), Anderson and others (AFHHM 2000), and *Global Economic Prospects 2002 (GEP)* (that is, the study you are reading), use similar model specifications and estimate the long-term *efficiency* gains from full merchandise trade liberalization. The aggregate gains from reform are roughly similar across these three studies, and the differences can largely be explained by the nature of the reform scenario. The first estimates the pre-Uruguay Round (UR) impacts of full trade reform, the second the post-UR impacts, and the third the impacts of trade reform before complete implementation of the UR.

Only two of the studies cited here have some form of *endogenous* growth—the GEP and Dessus and others (DFS 1999) studies. The DFS model assumes a relation between aggregate openness (as measured by the ratio of exports plus imports to gross domestic product—GDP). The GEP model assumes that the economic response to opening is sector-specific. As a result, in the *GEP* study, productivity increases are limited to the agriculture and manufacturing sectors, thereby capping to some extent the additional gains from introducing the openness productivity link.[19]

Finally, the table in this box shows the impacts of including service trade liberalization in the complete package.[20] The Department of Foreign Affairs and Trade (DFAT 1999) study shows a gain of $750 billion, and a tripling of the gains of merchandise trade reform (compared with AFHHM); and the Brown and others (BDS—2001) study shows a massive gain of nearly $1.9 trillion. The study incorporates scale economies and imperfect competition that could readily explain the differences in results.

ing countries, the income gain from service liberalization amounts to multiples of the gains from merchandise trade reform. There are several reasons for this. First, services play a growing role in all economies as they develop, both from the point of view of the consumer, as well as their importance as inputs into an efficient modern economy. Second, liberalization of services has lagged far behind liberalization of goods, where average tariffs are today generally low.

However quantification of services sectors' trade barriers and other forms of protection is still more art than science. Even the more straightforward accounting of bilateral flows and the value of sales of foreign affiliates in the services sectors is sketchy, at best. Several efforts have been undertaken to measure the barriers and assess the impacts of their removal. Two global studies are cited in box 6.6, and the Tunisian case is developed more thoroughly in box 3.3 in chapter 3. These studies, not surprisingly, show the tremendous potential gains from liberalizing the services sectors, gains that are multiples of merchandise trade liberalization.

Rather than relying on imprecise estimates of the barriers to services delivery, results presented below provide a very conservative estimate of the potential gains using the same model used to assess merchandise trade liberalization, though in a simpler context. The framework is completely static using the 1997 base.[23] The services sectors were disaggregated into six categories:[24] (1) trade and transportation; (2) communications; (3) financial services (including banking and insurance); (4) other private services, including legal, accounting, accommodation, and restaurants; (5) public services; and (6) housing. The scenario assumes that reforms are undertaken in four of these sectors—excluding public services and housing.

The barriers in the services sectors, as implemented in this framework, take three

Table 6.1 Agriculture accounts for the bulk of the gains from merchandise trade liberalization

(billions of 1997 dollars, additional income in 2015 as compared with baseline income)

	Agriculture and food	Textile and clothing	All other sectors	Total
	Simulations with fixed productivity			
Liberalizing region:				
Benefiting region:				
High-income				
High-income	73	–3	–25	49
Low- and middle-income	31	19	26	75
Total	104	16	1	124
Low- and middle-income				
High-income	23	20	78	118
Low- and middle-income	114	7	–5	121
Total	136	27	73	239
All regions				
High-income	106	17	50	171
Low- and middle-income	142	24	20	184
Total	248	41	70	355
	Simulations with endogenous productivity			
High-income				
High-income	144	–10	12	149
Low- and middle-income	99	20	7	124
Total	243	10	20	273
Low- and middle-income				
High-income	53	78	22	151
Low- and middle-income	294	104	21	424
Total	346	182	43	575
All regions				
High-income	196	66	35	293
Low- and middle-income	390	123	27	539
Total	587	189	62	832

Source: World Bank model simulations.

Table 6.2 Global gains are sensitive to productivity—openness linkages

(billions of 1997 dollars)

	Elasticity			
(Share percent)	0.0	0.5	1.0	1.5
20	355	435	578	674
40	355	515	832	1,026
60	355	596	933	1,174
80	355	677	1,031	1,340

Note: Sectoral productivity is decomposed into two factors. The first is sensitive to an openness indicator represented by the sectoral ratio of exports to output. The second is a residual determined by other factors. In the baseline simulation, the trade-sensitive factor is calibrated so that its share in determining total sectoral productivity is fixed. The sensitivity analysis shows how the gains vary with respect to this share, respectively 20, 40, 60, and 80 percent. The table also shows the sensitivity of the aggregate gains with respect to the elasticity linking trade openness with productivity.

Source: World Bank model simulations.

forms.[25] The first is a cost penalty measuring the relative inefficiency of firms operating as monopolies or otherwise protected from competition. The second is a price markup over average cost, representing the ability of firms to price to market in the absence of competition (be it domestic or foreign). The third captures barriers to cross-border trade.[26] The barriers were set at conservative levels. Both the cost and trade penalties were set at 10 percent, and the markup was also fixed at 10 percent. (By comparison, in the Tunisian study cited in chapter 3 [Konan and Maskus 2000], barriers in these same sectors varied from 3 to 200 percent, with most ranging from 30 to 50 percent.) The results presented below are limited to services liberalization in developing coun-

tries only; that is, there is no assessment of the impact of high-income country reform on developing countries.

The results are telling. So-called joint reform, where all three instruments are relaxed simultaneously, yields an incremental income gain for developing countries of nearly $900 billion, some 4.5 times greater than their gain from global merchandise trade liberalization alone, or $190 billion (table 6.3).[27] In total, this represents a 9.4 percent income gain compared to base levels.[28]

Table 6.3 also reveals the decomposition of the "joint reform" into its three components. It is clear that reducing the cost penalty has the greatest impact. It is equivalent to shifting the production possibilities frontier outwards (in the four service sectors). Though the markup allows for some decline in the producer price, it will be attenuated to some extent by higher wages and returns to capital. In many ways the markup is similar to a producer tax.[29] In that sense, one would not anticipate that a reduction in the markup would lead to the same boost as an improvement in efficiency.[30] Moreover, similar to a tax, elimination of a markup can also produce perverse results if it leads to increasing losses due to other inefficiencies (so-called second-best effects). Finally, the impacts of the trade barrier instrument are also significantly smaller than the efficiency gains. In part this reflects the low level of penetration of cross-border trade in services. The long-run potential would be much larger.

Table 6.3 also reports the decomposition of the gains by category of service. The source of the largest impact is the trade and transportation sector, which accounts for roughly double of the aggregate gains. This largely corresponds to this sector's share in demand (compared to

Table 6.3 Services liberalization generates substantial windfall gains for developing countries

	Goods trade alone	Cost penalty	Markup removal	Trade penalty	Joint reform	Total
	Static income gain for developing countries ($1997 billion)					
Reforming sector						
Merchandise trade	190.0					
All four service sectors		800.4	27.5	54.4	883.5	1073.4
Trade and transportation		443.0	7.9	26.0	477.7	667.6
Communications		39.0	1.1	1.3	41.4	231.3
Financial services		96.1	8.1	4.0	108.5	298.4
Other private services		209.0	6.4	23.1	235.6	425.5
	Static income gain for developing countries (percent of base income)					
Merchandise trade	1.7					
All four service sectors		7.0	0.2	0.5	7.7	9.4
Trade and transportation		3.9	0.1	0.2	4.2	5.8
Communications		0.3	0.0	0.0	0.4	2.0
Financial services		0.8	0.1	0.0	0.9	2.6
Other private services		1.8	0.1	0.2	2.1	3.7

Note: Though the results come from a comparative static simulation with a 1997 base, in order to make them comparable with previous results, they have been scaled by the projected income of 2015. For example, the merchandise trade gain of $190 billion is equivalent to $84.2 billion when scaled to 1997 income. The results as a percent of base income are invariant to the choice of reporting year. The first column represents the gains from merchandise trade liberalization only (in the comparative static framework). The next four columns represent the incremental gains from services liberalization, that is, those gains on top of the gains from merchandise trade liberalization. The "Cost penalty" column reports the impacts of a 10 percent increase in efficiency in the four private services sectors. The "Markup removal" column reports the impacts of the removal of a 10 percent markup in the same four sectors. The "Trade penalty" column reports the impacts of reducing the trade penalty parameter by 10 percent. And the fifth column, "Joint reform," represents the incremental impact of implementing all three reforms simultaneously. The final column represents the total gains: "Joint reform" added to merchandise trade liberalization. The instruments are only applied in developing countries.

Source: World Bank model simulations.

the other three service sectors). For example, on average in developing countries, input of trade and transport services accounts for 6.6 and 7.4 percent of output in the manufacturing and services sectors, respectively. And trade and transport accounts for nearly 22 percent of private consumption. Other private services, the next largest sector, has only 3.2 percent cost share in manufacturing and a 7 percent share in private consumption.[31]

Despite the somewhat tentative nature of these results, they clearly illustrate the importance of services liberalization for developing economies. They also illustrate the need for significantly more research in the area of services—both in fundamental data gathering, as well as in improving our knowledge of the economic mechanisms through which protection in the services sectors operate.

Consequences for inequality and poverty

While all too frequently the focus of trade reforms is on the aggregate economic impact, i.e. the big number, policy makers, businesses and the general public are often concerned about the more direct impacts to specific segments of society—who is likely to benefit and who may be hurt. The next sections shed some light on the more detailed economic impacts of merchandise trade reform—leaving the effects of any service sector liberalization in abeyance.

Four headlines are noteworthy. First, trade reform tends to improve income distribution toward greater equality. Second, it leads to sharp reductions in poverty. Third, the majority of economic sectors tend to expand in the wake of reform. Finally, there is a significant expansion in trade, particularly in agriculture and textiles, two of the most protected sectors in the global economy.

Income distribution. The current framework, although aggregate in nature, can elucidate some of the underlying factors determining income distribution, notably factor returns and structural changes.[32] Table 6.4 presents the final year–impacts on real factor returns

Table 6.4 Labor's share of national income rises substantially

(percent change in real factor returns in 2015 as compared with baseline)

	With exogenous productivity			With endogenous productivity		
	Capital returns	Unskilled wages	Skilled wages	Capital returns	Unskilled wages	Skilled wages
High-income countries						
United States	0.1	0.5	0.4	0.4	0.5	1.0
Western Europe	0.1	0.7	2.6	0.7	0.7	3.1
Japan	1.2	1.5	2.7	2.2	1.9	3.4
Other high-income OECD countries	0.8	3.1	0.6	0.7	2.3	1.3
Newly industrialized economies	0.5	4.1	2.9	–0.4	4.1	3.8
Low- and middle-income countries						
Sub-Saharan Africa	0.8	6.9	4.5	3.4	5.4	6.8
East Asia and Pacific	4.6	6.2	7.8	9.3	11.2	15.0
South Asia	1.7	6.0	3.4	3.7	5.7	5.8
Eastern Europe and Central Asia	1.4	5.4	4.3	3.3	5.3	6.7
Middle East and North Africa	8.0	4.1	12.5	10.9	6.1	17.0
Latin America and the Caribbean	0.7	5.3	2.5	1.4	4.8	4.3
Rest of the world	0.8	3.3	2.2	3.2	2.7	4.2
Memorandum items						
High-income countries	0.2	1.0	1.6	0.7	1.1	2.2
Low- and middle-income countries	2.7	5.7	5.6	5.1	7.4	9.6
World total	1.0	2.3	2.5	2.1	2.8	3.8

Note: Nominal factor prices deflated by economywide CPI.

Source: World Bank model simulations.

(as percentage changes from the baseline). Unskilled wages improve more than skilled wages, and capital returns in all of the developing regions, except for East Asia and the Middle East and North Africa, and in some cases quite substantially, for example in South Asia and Latin America. This suggests quite strongly that protection has largely been detrimental to unskilled workers, including, of course, those working in agriculture.[33] With endogenous productivity the relative gains of unskilled workers is somewhat dampened. Since the additional productivity is only labor-augmenting, capital becomes relatively scarcer with endogenous productivity, thereby raising its relative return, and could potentially reverse the trend toward improved income distribution, although this will in part depend on the share of capital income in aggregate income.

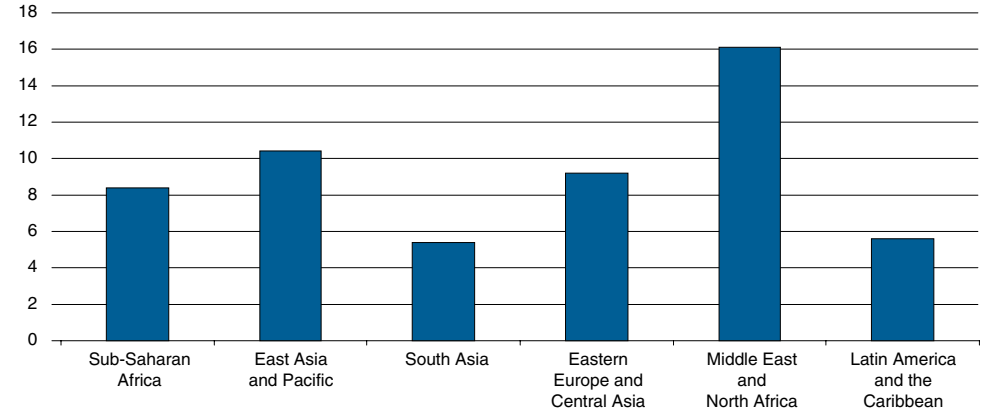
Poverty. Rising unskilled wages, as presented above, are likely to lead to a decrease in poverty. When coupled with changes in the price of the poor people's consumption basket, the reduction in poverty could be quite substantial. Figure 6.3 presents the "food and clothing" wage for unskilled workers in developing countries.[34] The largest increase in real unskilled wages occurs in the Middle East and North Africa region, but all developing regions benefit from a substantial rise. The changes in the real wages of unskilled workers (deflated by the food and clothing index) can be applied to the forecasts of poverty headcounts for the year 2015. Assuming an elasticity of two, a standard assumption for these types of analyses, figure 6.3 shows the implication on poverty of the rise in unskilled real wages. Overall dire poverty (those living on less than $1 per day) would fall by over [110] million under these assumptions, some [15] percent below the baseline forecast for 2015. Sub-Saharan Africa would account for over one-half of the improvement. Poverty would decline by over 320 million persons based on the $2 per day criteria, with the largest absolute improvements in Sub-Saharan Africa and South Asia. This represents a 15 percent decline in poverty globally.

Structural transformation. Removal of trade barriers has multiple structural implications—changes in the composition of production, changes in trade-to-output ratios, and so on. While in aggregate these changes are highly positive, they could cause significant displacement, and potentially some losers. One of the reasons trade reforms are difficult to implement is that the potential losers are easy to identify (and quick to alert and influence policymakers) whereas the gains are more diffused, and devoid of organized partisanship. Even if the losses are small compared to the gains, the political weight of protected sectors can, in many cases, impede improvements in policies. Figure 6.4 reflects the aggregate losses in value added compared with the *net* aggregate gains. For most regions, the negative displacement is small relative to the aggregate gains. One of the exceptions is Western Europe, where the value added losses, particularly in agriculture and food processing, are much larger than the overall gains. Sub-Saharan Africa, South Asia, and the Middle East and North Africa regions also face relatively high negative displacement compared with the aggregate gains. These are the regions with the highest distortions, and therefore are subject to the greatest structural transformation. However, on average for developing countries, the displacement represents only 23 percent of the total gains.

Trade. In the baseline scenario and in the absence of any trade policy change, aggregate world trade of goods and services would rise above $11.2 trillion (table 6.5). Market penetration of developing economies in high-income countries would rise to 32 percent, a rise of 5 percentage points from its level in 1997. Under the openness scenario, world trade would increase by an additional $1.9 trillion in 2015, an increase of 17 percent from baseline levels. Developing-country market penetration would rise to 37 percent in the high-income countries, reflecting an increase of 26 percent in the value of exports from developing countries to the high-income countries. More impressively, South-South trade would jump 59 percent, an increase in value by over $700 billion.

Figure 6.3 Unskilled wages rise substantially relative to cost of living—

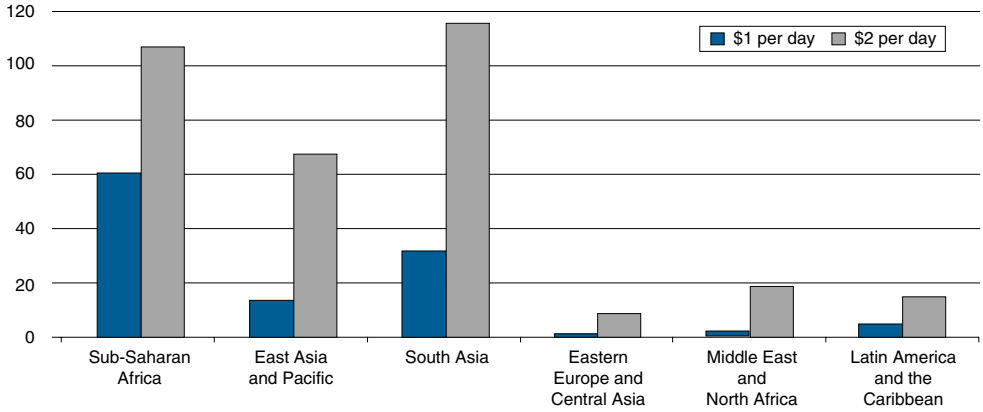
Percent change from baseline in 2015



Note: Figure represents changes in unskilled wages deflated by the food and clothing CPI.
Source: World Bank model simulations.

—implying a substantial reduction in poverty

Number of persons (in millions) compared to baseline in 2015



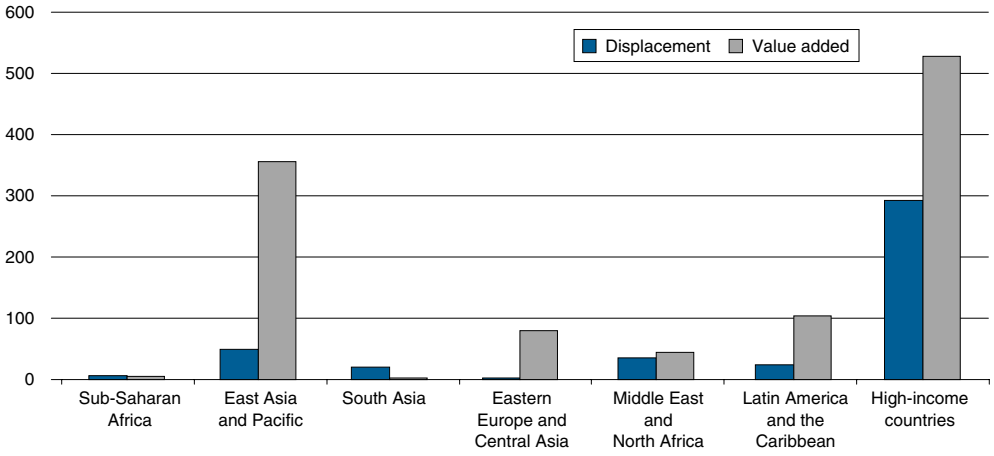
Note: Figure represents potential reductions in number of persons living in poverty. A poverty elasticity of 2 with respect to the improvement in unskilled real wages is applied to the baseline poverty scenario for 2015.
Source: World Bank model simulations.

The sectoral composition of the change in trade is equally revealing (figure 6.5). Except for energy and the nontradable sectors (construction and services), developing-country exports in all sectors increase sharply, particularly in percentage terms from baseline levels. Agricultural exports expand by $200 billion, and textile, clothing, and footwear exports by nearly $180 billion. Reflecting tariff escalation in the food-processing sector, developing-country exports jump 139 percent. Note that high-income exports of food processing also expand considerably.

This outcome reflects several factors. First, tariffs in this sector are high around the world, so industrial-country exporters are able to take

Figure 6.4 Reform has costs, but they are largely outweighed by the gains

Change in billions of 1997 dollars compared to baseline



Note: The displacement bars represent the sum of the difference in value-added in sectors with declining value added. The value-added bars represent the aggregate change in value added. The figures are from the endogenous productivity scenario.
Source: World Bank model simulations.

Table 6.5 Developing countries increase their market share

(trillions of 1997 dollars in 2015)

Importing region	High-income	Low- and middle-income	World
	Trade flows in baseline scenario		
Exporting region			
High-income	5.1	2.4	7.6
Low- and middle-income	2.4	1.2	3.6
World total	7.6	3.6	11.2
	Trade flows with endogenous productivity		
High-income	5.1	3.0	8.1
Low-and middle-income	3.0	1.9	5.0
World total	8.2	4.9	13.1

Source: World Bank model simulations.

advantage of new opportunities. Second, with decline in protection in their own markets, producers shift toward producing for export markets. And third, the decline in agricultural protection in high-income countries reduces the costs of inputs for food processors, making them more competitive internationally.

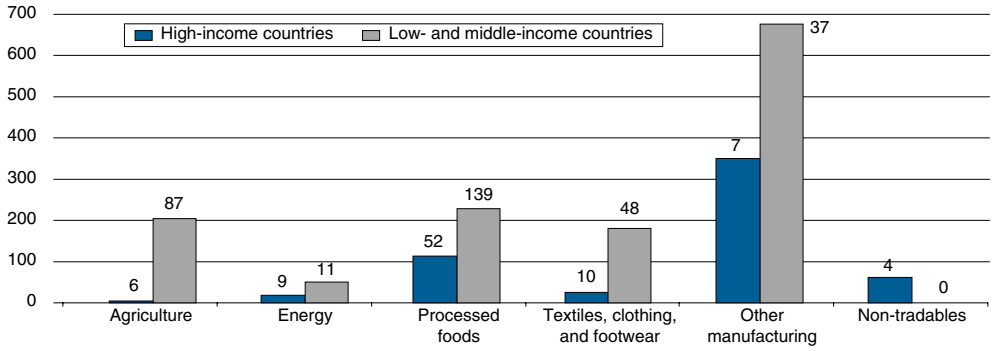
Exports of other manufactured products by developing countries represent the largest absolute increase. A significant portion of the increase represents an increase in South-South trade where barriers to manufactured imports are high in the baseline, compared with barriers to trade in the industrial countries for these same products.

Conclusions

Launching a development round, moving forward on the global cooperation agenda to expand trade, enacting policies in high-income countries to promote trade-led development, and enacting trade reforms within developing countries are all momentous tasks. But the long-term promise is tangible: $2.8 trillion in *additional* global income, $1.5 trillion of additional income for developing countries, reductions in global poverty by an *additional* 320 million people, and fewer infants dying before their fifth birthday. This, in turn, would

Figure 6.5 World trade booms, particularly in food and agriculture

(billions of 1997 dollars in 2015)



Note: Number above columns represents percent increase in exports from baseline level. These represent the results of openness with endogenous productivity.

Source: World Bank model simulations.

Box 6.7 World Bank programs: activities to support trade-led pro-poor growth

The Bank, usually in partnership with other entities, is working to help developing countries create—and take advantage of—new trade opportunities. It is doing so in three policy domains: global, regional, and national.

At the global level, developing countries, more important in size and sophistication than ever before, are now pivotal to the success of the world trading system. Their interests have to be taken into account if any new multilateral trade negotiations are to be successful and if the multilateral system is to be strengthened. The Bank's objective is to help developing countries use the system of multilateral rules to expand their trade and development. In particular, the Bank is focusing intensively on the barriers facing least developed countries (LDCs) in using trade to promote development.

Regional arrangements are becoming increasingly important for trade policymakers in the developing world. The Bank is focusing on analyzing their effects, on helping governments to shape arrangements so that they expand trade and become steppingstones to more effective multilateral participation, and on advising prospective members about costs and benefits. Understanding the effects of the largest arrangements, such as the proposed Free Trade Arrangement of the Americas and the European Union agreements, is especially important.

Finally, and most important, at the country level, work on traditional border barriers remains a priority, particularly for countries in South Asia, the Middle East, and Africa. At the same time, virtually all countries are paying increased attention to "behind the border" issues—for example, investment regulations, transportation infrastructure, trade facilitation, telecommunications, and business services—to ensure that producers can take full advantage of the opportunities globalization presents. This part of the new trade agenda may partially overlap with extant sectoral reform initiatives, and in these cases, a challenger is to ensure consistency between trade-related objectives and the other objectives of sectoral reforms. In all cases, the Bank's goal is to help governments design and implement pro-poor reform programs that can leverage trade into faster growth and poverty reduction. Of particular importance is the Integrated Framework effort, a multilateral initiative designed to help least developed countries respond to market opportunities and accelerate their integration into the multilateral system.

In 2000, the Bank presented 46 projects to its Board with trade components, and was undertaking 35 studies in addition to the IF work—to advise clients.

contribute to a more sustainable standard of living around the globe—and a more stable world community.

Annex 1

Applied general equilibrium (AGE) modeling, in some form, has been the tool of choice for trade economists to analyze the impacts of multilateral trade reforms for over two decades, starting with analyses of the Tokyo Round in the late 1970s and early 1980s (Cline and others 1978; Deardorff and Stern 1981; and Whalley 1985). Their development took off with the rising accessibility of computing power and improved software, and have become increasingly more sophisticated, integrating aspects such as dynamics, market structure (for example monopolistic competition), and financial flows. AGE models proved to be influential in the last round of multilateral negotiations, which culminated in the Uruguay Round Agreement signed in Marrakech in 1994 (see Martin and Winters 1996, for example).

AGE models capture the detailed interactions across the many agents of an economy—producers, consumers, public entities, investors, importers, and exporters. Despite their level of detail, they nonetheless represent a stylized representation of a true economy. For example, the version of the model used for this volume represents economic activity by only 20 goods and services. A detailed domestic model may have 100 to 200 sectors.

The results of the model depend on two key sets of parameters and the so-called closure rules. The first set is the dynamic parameters—population and labor force growth rates, education, savings behavior, and technological progress (or productivity). The second set of key parameters includes the behavioral and technological parameters of the economic agents. How do consumers respond to price changes? How do household budgets change as incomes rise? How flexible is production? Can labor substitute for capital, or vice versa? While many of these parameters are econometrically estimated, there is still a great deal of uncertainty regarding their levels. Systematic sensitivity analysis is desirable to determine the extent to which the impact analysis is robust to changes in these parameters. This in itself is far from a trivial task, given the thousands of parameters these models typically employ.

The closure rules pertain to the actions of certain agents that are not modeled explicitly, or are exogenous to the model. There are three key closure rules in the simulations undertaken for this study.[35] First it is assumed that government expenditures are fixed in real terms. In the baseline scenario, they grow at the same rate as real GDP; in policy simulations they are unchanged from their baseline levels. Government revenues are raised to achieve a targeted level for the fiscal deficit. The latter is held fixed at its base level in order to avoid sustainability concerns.[36] The direct tax schedule adjusts to insure fiscal balance equilibrium. In the case of trade reform, this implies that the reduction in import tax revenues is replaced by direct taxes (to the extent that revenues from other sources of taxation are not significantly altered).

The second closure rule concerns investment. Investment is assumed to be savings-driven, for instance, there is no interest rate mechanism that equilibrates the savings supply and investment demand schedules. Foreign saving can add to or subtract from domestic saving. Trade reform may have little impact on overall domestic savings to the extent that it would do little to modify consumers' choice between current and future consumption. However to the extent that the price of investment goods decline (due to the removal of tariffs on capital goods), investment could rise substantially with positive long-term payoffs. In other words, the amount of investment per dollar saved has very positive dynamic impacts if tariffs impose a high cost on capital goods.

The final closure rule concerns foreign capital flows. In the absence of endogenous determination of foreign capital flows across countries, these are assumed to be exogenous in any given time period.[37] Thus policy shocks are transmitted to a fixed trade balance, the re-

verse side of a fixed capital account balance. The typical impact of this closure rule in a trade reform scenario is a real depreciation. The removal of tariffs generates an increase in import demand. Given the fixed trade balance, this must be met by a rise in exports, achieved through a real depreciation. The extent of the depreciation will depend on the levels of the trade elasticities (import and export). This simplification of foreign capital flows implies foreclosing an important channel for growth, for instance, the increase in foreign direct investment (FDI) in the aftermath of trade reform. Empirically, this channel has proven to be quite important as witnessed by Portugal and Spain with their entry into the EU, or by Mexico when it joined the North American Free Trade Agreement. China has also witnessed a boom in direct foreign investment in anticipation of its accession to the WTO. Some of the potential benefits of increased FDI are captured by the scenarios with endogenous productivity growth.

The version of the model used for this analysis decomposes the world economy into 15 regions and 20 economic activities. The model is calibrated to the latest release of the Global Trade Analysis Program (GTAP) dataset with a 1997 base year.[38] The model is solved forward as a series of linked sequential equilibria, where population and labor force growth rates are given, capital accumulation is based on the previous period's level of investment, and productivity is calibrated to a target GDP growth rate.

After a plausible baseline simulation is developed, policy shock scenarios are undertaken where parameters calibrated in the baseline simulation are taken as given (for example, productivity parameters) and GDP growth is an outcome. Thus, in the absence of any change in the exogenous environment, the policy shock scenario should reproduce the baseline.

Notes

1. See World Bank 2001, chapter 3.

2. This is not to say that South-South arrangements cannot be made to work. However, many South-South regional integration agreements have been formed that have had negative or ambiguous effects on income. The *Trade Blocs* report (World Bank 2000a) found that South-South agreements between richer and poorer developing countries are likely to generate losses for the poorer ones when the poorer members import products from the richer members, whose firms are not internationally competitive. For example, in the 1960s, Kenya had a more developed manufacturing sector than Uganda and Tanzania, and when the three formed the East African Community (EAC), the latter two lost tariff revenue by importing from Kenya at the high protected price rather than at the lower world price, with transfers going from them to Kenya. This asymmetry proved unsustainable and resulted in the demise of the EAC.

3. Of particular importance is that the results of negotiations are made publicly available in user-friendly form. For example, data on tariff bindings are not made available in a database format, preventing analysts from undertaking cross-country research. This is important because it impedes efforts to estimate the magnitude and incidence of costs of protection. It is a truism that to reduce protection and resist protectionist pressures, those that lose (pay) need to be aware of the costs of such policies. The suppliers of, and the clients for, such analysis and information are not only governments, but also civil society (think tanks) and the constituencies in individual countries that are affected by policy. To do this, they need easy access to the relevant data.

4. For example, Blackhurst, Lyakurwa, and Oyejide (2000) propose that governments transfer national representatives from United Nations agencies in New York to the WTO to intensify cooperation by members of regional integration arrangements.

5. However, synergies could be realized through networking and collaboration between advisers. For example, the new Global Development Gateway that is being established by the World Bank in cooperation with numerous public and private sector partners could provide a powerful vehicle for building a trade community and sharing expertise. Such a portal could also be used to assist governments (and NGOs) seeking to identify experts and determine what has already been done in specific countries or on specific issues.

6. For example, Esty (1994) argues that if taxes or other measures compensate for environmental consequences, trade will result in more efficient use of resources, spur innovation, and lower costs of environmental protection everywhere. Ekins and others (1994) add that if commodities for export are produced with serious damage to the environment, then trade may aggravate environmental problems. DeBellevue (1994) and Røpke (1994) share the same view. Another channel of interaction between trade and the environment concerns transboundary problems where pollution

spills over from one country to another. Esty (1994) argues that when a country suffers transboundary harm due to exports of pollution-intensive product, the imposition of trade restrictions on the import of the culpable product can be justified.

7. Pearson (1987) asserts that there is no evidence to establish that lax environmental regulations would be captured by foreign investors as opposed to local firms. Leonard (1988) argues that environmental regulations do not alter plants' location decisions. He presents case studies of foreign direct investment in Ireland, Mexico, and Romania to examine trade data and investment statistics, and concludes that the data do not support an industry flight hypothesis. Smarzynska and Wei (2001) consider the corruption level of the host country and use firm level datasets for 25 transition economies to examine support for the industry flight hypothesis. They find limited evidence to support the assertion that firms move to countries with less strict environmental regulations.

Levinson (1996) uses industry abatement costs, business taxes, wages, energy costs, and roads to measure environmental performance and studies the effects of these factors on the probability that a new industry plant would open in a certain state. The results reveal little evidence that environmental regulations hinder establishment of new plants. In contrast, Lucas, Wheeler, and Hettige (1990); Mani, Pargal, and Huq (1997); and List and Co (1999) find some evidence to support the industry flight hypothesis. Lucas, Wheeler, and Hettige (1990) find that toxic intensity has increased more rapidly in developing countries than in industrial countries. They conclude that stringent environmental regulations in the OECD countries have caused relocation of pollution-intensive industries. According to Mani, Pargal, and Huq (1997), environmental spending in India has a positive impact on plant location. However, they conclude that environmental regulations are not a significant factor in determining plant location, because costs involved with environmental regulations are not large enough to exceed other costs of doing business. List and Co (1999) study the relationship between location decisions and environmental regulations. They use state-level data from 1986–93; their results show that a 10 percent increase in the median state's (West Virginia) regulatory expenditures per manufacturer decreases the probability of attracting a new firm by 3.9 percent for the median state. They conclude that environmental stringency and the location decision of a new firm are inversely related.

8. The proposed Free Trade Agreement for the Americas has a quick timeline for the elimination of most trade barriers in the Western Hemisphere. Asia-Pacific Economic Cooperation (APEC) has proposed a 2010 deadline for eliminating trade barriers among its high-income members, and 2020 for developing-country members. Expansion of the European Union toward the east and south would also eliminate barriers across a broad number of partners. There are also numerous other proposed agreements, many of them bilateral.

9. There are some dynamic gains coming from changes in investment and structure.

10. Depending on the market power of a country's trading partners, and its own market power and the size of the shock, the terms-of-trade impact could be significant. A potentially critical situation is a country that only imports highly differentiated goods from a small set of importers and exports an homogeneous good on world markets. Other factors also influence changes in the terms of trade. For example, the removal of agricultural subsidies by high-income countries is likely to be beneficial for exporters of these commodities from developing countries, because they would profit from a rise in the world price of these commodities.

11. The following functional form is used:

$$\gamma_i^e = \chi_i^0 \left(\frac{E_i}{X_i} \right)^{\eta_i}$$

where γ_i^e is the growth in sectoral productivity due to the change in openness (added to an exogenous growth factor), χ_i^0 is a calibrated parameter, E and X represent respectively sectoral export and output, and η is the elasticity. The parameter χ_i^0 has been calibrated so that (on average) openness determines roughly 40 percent of productivity growth in the baseline simulation, and the elasticity has been set to 1.

12. Scale economies could, of course, be modeled explicitly.

13. Aggregate income gains or losses summarize the extent to which trade distortions are hindering growth prospects and the ability of economies to use the gains to help those whose income could decline. Figure 6.2 summarizes these impacts for the modeled economies. The figure presents the aggregate impacts in terms of the outcome in the final year of the simulation (2015). The results are presented in nominal value terms (expressed in 1997 prices), as well as relative to baseline income. Finally, it shows the results of both scenarios—with and without trade-sensitive productivity.

Real income is summarized by Hicksian equivalent variation (EV). This represents the income that consumers would be willing to forgo to achieve post-reform well-being (u^p) compared to baseline well-being (u^b) at baseline prices (p^b):

$$EV = E(p^b, u^p) - E(p^b, u^b)$$

where E represents the expenditure function to achieve utility level u given a vector of prices p (the b super-

script represents baseline levels, and *p* the post-reform levels). The model uses the extended linear expenditure system (ELES), which incorporates savings in the consumer's utility function. See Lluch (1973) and Howe (1975). The ELES expenditure function is easy to evaluate at each point in time. (Unlike the OECD treatment of *EV*, we use baseline prices in each year rather than base year prices. See Burniaux and others 1993). The discounted real income uses the following formula:

$$CEV = \sum_{t=2005}^{2015} \beta^{(t-2004)} EV_t^a \Big/ \sum_{t=2005}^{2015} \beta^{(t-2004)} Y_t^d$$

where *CEV* is the cumulative measure of real income (as a percent of baseline income), β is the discount factor (equal to $1/(1+r)$ where r is the subjective discount rate), Y^d is real disposable income, and EV^a is adjusted equivalent variation. The adjustment to *EV* extracts the component measuring the contribution of household saving, since this represents future consumption. Without the adjustment, the *EV* measure would be double counting. The saving component is included in the *EV* evaluation for the terminal year. Similar to the OECD, a subjective discount rate of 1.5 percent is assumed in the cumulative expressions.

14. All nominal dollar figures are in 1997 prices; the model does not incorporate nominal inflation. The price anchor of the model is an export price index of manufactures from the OECD high-income countries, similar in concept to the World Bank's Manufactured Export Unit Value index. It is set to one in the base and all subsequent years.

15. Most of the action occurs in the agricultural and manufacturing sectors because this version of the model does not incorporate significant barriers in services.

16. Rodriguez and Rodrik (1999), among others, have criticized these studies on methodological grounds; they have also criticized those who use them to advocate simplistic policy conclusions. Nonetheless, the preponderance of evidence points rather consistently to the fact that countries with more open trade and financial regimes, complemented with other appropriate macroeconomic and social policies, have improved growth performance.

17. These four ideas are described summarily:

Dynamics. The main channels are two-fold. First, higher incomes lead to higher savings and thus greater capital accumulation. The second channel is that tariffs are often imposed on investment goods. Their removal leads to a rise in real investment, because per dollar of saving a buyer can purchase more investment goods. Baldwin (1992) estimates that these dynamic gains could triple the static efficiency gains. See, for example Burniaux and van der Mensbrugghe 1994; Harrison, Rutherford, and Tarr 1996; Francois, McDonald, and Nordström 1996; and Ianchovichina and McDougall 2000.

Imperfect competition and scale economies. Relaxing the assumption of constant returns to scale technology and allowing for imperfect competition can lead to additional sources of gain from trade openness. The ability to increase market size allows firms to spread fixed costs over greater output, thereby reducing average costs—and greater competition from other firms can reduce price markups. Both effects can significantly enhance the gains from openness. See for example Harris 1984, Delorme and van der Mensbrugghe 1990; Harrison, Rutherford, and Tarr 1996; Francois, McDonald, and Nordström 1996; and Brown, Deardorff, and Stern 1992.

Endogenous growth (or productivity). Openness does not occur in a vacuum. As countries open their borders to new products and capital goods, local firms can take advantage of new technologies, foreign research and development, and other innovations to significantly enhance their productivity. Greater market access of local exporters also can generate productivity externalities by gaining more knowledge of foreign markets and processes and improving production to match international norms and standards. See, for example, de Melo and Robinson 1990; Rutherford and Tarr 2001; Diao, Roe, and Yeldan 1999; and Dessus, Fukasaku, and Safadi 1999.

Endogenous capital flows. While many trade models typically abstract from incorporating endogenously determined capital flows, there is significant empirical evidence that the gains from international capital mobility are quantitatively important. There are two channels through which capital flows influence growth. The first is the direct channel leading to capital deepening (although this requires care in evaluating the long-term gains, since eventually this generates a stream of income repatriated back to the foreign owners). The second channel is through productivity since it is often the case that the incoming capital embodies new and improved technologies. See, for example, McKibbin and Sachs 1991; Collado, Roland-Holst, and van der Mensbrugghe 1995; McKibbin and Wilcoxen 1999; Hertel 1997; and Ianchovichina and McDougall 2000.

18. Comparisons of model results are notoriously difficult to make. Models can differ in numerous ways, dimensionality (for instance, regions, sectors), databases (notably policy instruments, such as tariff levels), closure rules, time horizon, functional specification, and elasticities (such as supply, income, trade, and so on), and market structure (both goods and primary factors). Moreover, studies do not necessarily report the same indicator as a measure of the gains from trade. The choices are various: real GDP, real income,

some measure of welfare such as equivalent variation, real absorption, and so on. And the units of measurement are not always identical. The indicators could be reported in different base year dollars, or as some cumulated discounted value, or as a percentage of some base year indicator. Some noteworthy attempts to compare model results include the Martin and Winters 1996 volume on the Uruguay Round simulations, and the OECD 1993 and 1998 and IPPC 2001 studies comparing model results of the potential economic consequences of mitigating climate change.

19. The sensitivity of these results to the openness or productivity relationship is discussed below.

20. Modeling of services trade liberalization is still in its infancy. First, simply assessing the trade (and investment) barriers quantitatively is a much more difficult task than developing tariff data on goods trade. Second, the nature of the barriers is harder to specify and implement in a model. It is currently a very active area of research.

21. For example, assume total sectoral productivity in the baseline is 2.5 percent. If the share affected by openness is 40 percent, total productivity is the sum of two components—1 percent determined by the openness factor (for instance, 40 percent of 2.5) and the residual 1.5 percent determined by other factors. In policy simulations, the trade openness indicator only affects the 1 percent in this example. Thus if openness increases by 10 percent, and the elasticity is 1, productivity will increase to 2.6 percent (=1.5 + 1.1).

22. These results are within the range found in the few comparable studies available. For example Dessus and others (1999) estimate a macro relationship between openness—as measured by the export plus import to GDP ratio—and per capita GDP growth using a panel dataset. Their preferred elasticity is 0.09—that is, an increase in the trade-to-GDP ratio of 10 percent leads to a rise in per capita GDP of 0.9 percent. As a rough approximation, the elasticity of 1 used above in the base simulation implies an elasticity of 0.4 for total sectoral productivity with respect to openness—some four times higher than the 0.09 used in the Dessus and others (1999) study. However, their endogenous productivity applies economywide, that is, including services. If the 0.4 elasticity is multiplied by the agriculture and manufacturing share of the economy, somewhere between 30 and 60 percent, the economywide impact falls to somewhere between 0.12 and 0.24. A second factor to consider is that productivity is only labor-augmenting. Correcting for the labor share in the economy, say, around 50 percent, the final impact on aggregate productivity falls between 0.06 and 0.12. This is roughly in the range of the elasticity of Dessus and others (1999) and explains in part the differences in the estimates of the two studies.

23. Thus, the results represent two different economic equilibria abstracting from any dynamic effects of changes in investment or saving, or both, and other structural transformation.

24. In the merchandise trade liberalization scenarios, the service sectors were aggregated into a single account.

25. See van der Mensbrugghe 2001 for further details.

26. The latter is implemented as a trade penalty, similar to an import tariff, but with no direct revenue implications. Formally, the model implements a version of the so-called iceberg model. For example, if the penalty parameter is set to 0.9, this implies that, of 100 units that are exported, only 90 units actually arrive at destination.

27. For the purposes of comparison, the income gains—as measured in dollar terms—were scaled to projected 2015 income levels. This has no impact on the relative gains.

28. The spillover effects of this scenario for high-income countries are marginal.

29. The difference being that the revenues generated by the markup typically accrue to firms and not the government.

30. In results not reported, the impact of the markup is highly nonlinear. Elimination of a 20 percent markup—i.e., a doubling of the initial markup—generated an incremental income gain of $106 billion, some four times the impact of eliminating a 10 percent markup. The model results were generally linear with respect to the other two instruments.

31. The shares are based on GTAP data.

32. The World Bank has an active research program to improve analysis of the openness distribution linkages. It involves developing both data and methodologies to incorporate multiple representative households directly into AGE models (see, for example, Hertel, Preckel, and Cranfield 2000) as well as to inject the results of the AGE simulations into much more detailed microsimulation models based on country-specific household surveys, typically with thousands of households. More on this research program is available at: http://www1.worldbank.org/wbiep/trade/povertyconf.html.

33. Skilled and unskilled workers are assumed to be imperfect substitutes for one another. An alternative specification would be to have skilled workers as complements to capital and the two together an imperfect substitute for unskilled labor. The distributional outcomes would change, but presumably would favor even more unskilled labor in most developing regions. There is an active debate about the role of trade openness on relative wages. The standard theoretical argument suggests that returns to the relatively abundant factor, unskilled labor in the case of developing coun-

tries, should rise with trade openness. However, the reverse has been observed in some developing countries. Part of the explanation comes from an increase in FDI, which is assumed to require skilled labor. Another partial explanation is that openness frequently was undertaken simultaneously with other reforms, such as privatizations. The latter has often led to shedding of labor to rationalize operations.

34. The figure reflects the results of the scenario with endogenous productivity. It differs only slightly from the results of the scenario with exogenous productivity.

35. See van der Mensbrugghe 2001 for complete model specification.

36. The GTAP dataset merges public savings with the household sector, and thus the public balance is zero in all countries in the base year. The balancing items are net transfers between the government and households.

37. Although exogenous in any given time period, the capital account could vary over time (subject to the constraint that it must sum to zero globally). To avoid sustainability issues, the capital account is assumed to be fixed at its base year level. Alternatively, it could converge toward zero over the time period.

38. GTAP, based at Purdue University, has developed the most widely used dataset for global trade analysis (See Hertel 1997 or GTAP's Web site: www.gtap.org). The latest release (version 5) incorporates data for 66 countries or regions, and 57 sectors.

References

Aggarwal, Mita. 1995. "International Trade, Labor Standards, and Labor Market Conditions: An Evaluation of the Linkages." *Office of Economics Working Paper* 95-06-C. U.S. International Trade Commission, Washington, D.C.

Anderson, Kym, J. Francois, T. Hertel, B. Hoekman, and W. Martin. 2000. "Potential gains from trade reform in the new millennium." Paper presented at the *Third Annual Conference on Global Economic Analysis*, held at Monash University, June 27–30. (Available at http://www.monash.edu.au/policy/conf/65Anderson.pdf.)

Baldwin, Richard E.. 1992. "Measurable Dynamic Gains from Trade." *Journal of Political Economy*, 100 (1), pp. 162–74, February.

Blackhurst, Richard, Bill Lyakurwa, and Ademola Oyejide. 2000. "Options for Improving Africa's Participation in the WTO". *World Economy*. 23(4), pp. 491–510. April.

Brown, Drusilla K., A. V. Deardorff, and R. M. Stern. 1992. "A North American Free Trade Agreement: Analytical Issues and a Computational Assessment." *The World Economy* 15: 15–29. (See also http://www.spp.umich.edu/rsie/model/analytics.html for model specification.)

———. 2001. "CGE Modeling and Analysis of Multilateral and Regional Negotiating Options." *Research Seminar in International Economics Discussion Paper* No. 468. School of Public Policy, The University of Michigan, Ann Arbor. (Available at http://www.spp.umich.edu/rsie/workingpapers/papers451-475/r468.pdf.)

Burniaux, Jean-Marc, and D. van der Mensbrugghe. 1994. "The RUNS Global Trade Model." *Economic & Financial Modelling* Autumn/Winter: 161–282.

Burniaux, Jean-Marc, G. Nicoletti, and J. Oliveira-Martins. 1993. "GREEN: A Global Model for Quantifying the Costs of Policies to Curb CO_2 Emissions." *OECD Economic Studies: Special Issue on the Economic Costs of Reducing CO_2 Emissions* 19 Winter: 49–92. Paris.

Cline, William R., N. Kawanabe, T. O. M. Kronsjö, and T. Williams. 1978. *Trade Negotiations in the Tokyo Round: A Quantitative Assessment*. Washington, D.C.: The Brookings Institution.

Collado, Juan Carlos, D. Roland-Holst, and D. van der Mensbrugghe. 1995. "Latin America Employment Prospects in a More Liberal Trading Environment." In *Social Tensions, Job Creation and Economic Policy in Latin America*, D. Turnham, C. Foy, and G. Larrain, editors. Paris: Organisation for Economic Co-operation and Development.

Collier, Paul, and D. Dollar. Forthcoming. *Globalization: Facts, Fears, and an Agenda for Action*. World Bank Policy Research Report, Washington, D.C.

de Melo, Jaime, and S. Robinson. 1990. "Productivity and Externalities: Models of Export-Led Growth." *PRE Working Papers* WPS 387. World Bank, Washington, D.C.

Deardorff, Alan V., and R. M. Stern. 1981. "A Disaggregated Model of World Production and Trade: An Estimate of the Impact of the Tokyo Round." *Journal of Policy Modeling* 3: 127–152.

DeBellevue, E. B., E. Hitzel, K. Cline, J. A. Benitez, J. Ramos-Miranda, and O. Segura.. 1994. "The North American Free Trade Agreement: An Ecological Economic Synthesis for the United States and Mexico." *Ecological Economics* 9: 53–71.

Delorme, François, and D. van der Mensbrugghe. 1990. "Assessing the Role of Scale Economies and Imperfect Competition in the Context of Agricultural Trade Liberalization: A Canadian Case Study." *OECD Economic Studies* No. 13 (Winter 1989–90): 205–36.

DFAT (Department of Foreign Affairs and Trade). 1999. *Global Trade Reform: Maintaining Momentum*.

Canberra, Australia. (Available at http://www.dfat.gov.au/trade/negotiations/gtr_2000.pdf.)

Dessus, Sébastien, K. Fukasaku, and R. Safadi. 1999. "Multilateral Tariff Liberalisation and the Developing Countries." *OECD Development Centre Policy Brief* No. 18, Paris. (Available at http://www.oecd.org/dev/ENGLISH/publication/Policy-B/pb18a.pdf.)

Diao, Xinshen, T. Roe, and E. Yeldan. 1999. "Strategic policies and growth: an applied model of R&D-driven endogenous growth." *Journal of Development Economics* 60: 343–80.

Dollar, David, and A. Kraay. 2001. "Growth is Good for the Poor." *World Bank Policy Department Working Paper* No. 2587. April. Washington, D.C.

Ekins, P., C. Folke, and R. Costanza. 1994. "Trade, Environment and Development: The Issues in Perspective." *Ecological Economics* 9: 1–12.

Elliot, Kimberly Ann. 2001. "Finding Our Way on Trade and Labor Standards." *International Economics Policy Briefs*. Institute of International Economics, Washington D.C.

Esty, D. C.. 1994.. "Greening the GATT: Trade, Environment and the Future." Institute for International Economics, Washington, D.C.

Finger, J. Michael. 1998. "GATT Experience with Safeguards: Making Economic and Political Sense of the Possibilities that the GATT Allows to Restrict Imports." World Bank Policy Research Working Paper, No. 2000, Washington, DC.

Finger, J. Michael, and Philip Schuler. 2000. "Implementation of Uruguay Round commitments: the development challenge". *World Economy*, 23(4), pp. 511–25. April.

Francois, Joseph F., B. McDonald, and H. Nordström. 1996. "The Uruguay Round: A Numerically Based Qualitative Assessment." In W. Martin and L. A. Winters, editors, *The Uruguay Round and the Developing Countries*. Cambridge, U.K.: Cambridge University Press.

Gereffi, Garri, R. Garcia-Johnson, E. Sasser. 2001. "The NGO-Industrial Complex." *Foreign Policy* July–August.

Goldin, Ian, O. Knudsen, and D. van der Mensbrugghe. 1993. *Trade Liberalization: Global Economic Implications*. Paris: OECD/The World Bank.

Grossman, Gene M., Krueger, A. B. 1993. "Environmental Impacts of a North American Free Trade Agreement." In *The Mexico-U.S. Free Trade Agreement*, Peter M. Garber, editor. Cambridge and London: MIT Press. P.13–56.

Harris, Richard. 1984. "Applied General Equilibrium Analysis of Small Open Economies with Scale Economies and Imperfect Competition." *The American Economic Review* 74 (5–December): 1016–32.

Harrison, Glenn W., T. F. Rutherford, and D. Tarr. 1996. "Quantifying the Uruguay Round." In W. Martin and L. A. Winters, editors, *The Uruguay Round and the Developing Countries*. Cambridge, U.K.: Cambridge University Press.

Harrison, Glenn W., Thomas F. Rutherford and David G. Tarr. 1997. "Trade policy options for Chile: a quantitative evaluation". World Bank Policy Research Working Paper, No. 1783, Washington, DC.

Hertel, Thomas W., editor. 1997. *Global Trade Analysis: Modeling and Applications*. New York: Cambridge University Press.

Hertel, Thomas W., P. V. Preckel, and J. A. L. Cranfield. 2000. "Multilateral Trade Liberalization and Poverty Reduction." Paper presented at the *Conference on Poverty and the International Economy*, jointly sponsored by World Bank and the Parliamentary Commission on Swedish Policy for Global Development (Globkom), October 20–21, 2000, Stockholm, Sweden. (Available at http://www1.worldbank.org/wbiep/trade/papers/cranfield.pdf.)

Howe, Howard. 1975. "Development of the Extended Linear Expenditure System from Simple Savings Assumptions." *European Economic Review* 6: 305–10.

Ianchovichina, Elena, and R. McDougall. 2000. "Theoretical Structure of Dynamic GTAP." *GTAP Technical Paper* No. 17. Center for Global Trade Analysis, Department of Agricultural Economics, Purdue University, West Lafayette, Ind. (Available at http://www.agecon.purdue.edu/gtap/resources/download/160.pdf.)

IPCC (Intergovernmental Panel on Climate Change). 2001. "Climate Change 2001: Mitigation." Contribution of Working Group III to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). Edited by B. Metz, O. Davidson, R. Swart, and J. Pan. Cambridge University Press, Cambridge, U.K. (A technical summary is available at http://www.ipcc.ch/pub/wg3TARtechsum.pdf.)

Leonard, H. J. 1988. *Pollution and the Struggle for World Product*. Cambridge, UK.: Cambridge University Press.

Levinson, Arik. 1996. "Environmental Regulations and Manufacturers Location Choices, Evidence from the Census of Manufacturers." *Journal of Public Economics* 62: 5–29.

List, John A., and C. Y. Co. 1999. "The Effects of Environmental Regulations on Foreign Direct Investment." *Journal of Environmental Economics and Management* 40: 1–20.

Lluch, Constantino. 1973. "The Extended Linear Expenditure System." *European Economic Review* 4: 21–32.

Lucas, Robert E. B., D. Wheeler, and H. Hettige. 1990. "Economic Development, Environmental Regulation and the International Migration of Toxic Industrial Pollution." Paper presented at the symposium on International Trade and the Environment, Washington D.C.

Mani, Muthukumara, S. Pargal, and M. Huq. 1997. "Does Environmental Regulation Matter? Determinants of the Location of New Manufacturing Plants in India." Policy Research Working Paper No. 1718. World Bank, Washington, D.C.

Martin, Will, and L. A. Winters, editors. 1996. *The Uruguay Round and the Developing Countries*. Cambridge, U.K.: Cambridge University Press.

McKibbin, Warrick J., and J. D. Sachs. 1991. *Global Linkages: Macroeconomic Interdependence and Cooperation in the World Economy*. Washington, D.C.: The Brookings Institution.

McKibbin, Warrick J., and P. J. Wilcoxen. 1999. "The Theoretical and Empirical Structure of the G-Cubed Model." *Economic Modeling* 16 (1):123–48.

OECD (Organisation for Economic Co-operation and Development). 1993. "OECD Economic Studies: Special Issue on the Economic Costs of Reducing CO_2 Emissions No. 19." Winter 1992. Paris.

———. 1996. "Trade, Employment and Labor Standards: A Study of Core Workers' Rights and International Trade." Paris.

———. 1998. "Economic Modeling of Climate Change." OECD Workshop Report. September 17–18, 1998. Paris. (Summary available at http://www.oecd.org/dev/news/Environment/summary.pdf.)

Pananagariya, Arvind. 1999. "Labor Standards in the WTO and Developing Countries: Trading Rights at Risk." University of Maryland, College Park.

Pearson, C. 1987. *Multinational Corporation, the Environment and Development*. Washington, D.C.: World Resources Institute.

Rodriguez, Francisco, and D. Rodrik. 1999. "Trade Policy and Economic Growth: A Skeptic's Guide to Cross-National Evidence." NBER Working Paper W7081. NBER, Cambridge, Mass. (Available at http://papers.nber.org/papaers/w7081.)

Røpke, I. 1994. "Trade, Development and Sustainability: A Critical Assessment of the 'Free Trade Dogma'" *Ecological Economics* 9: 13–22.

Rutherford, Thomas F., and D. G. Tarr. 1998.

———. Forthcoming. "Trade Liberalization, Product Variety and Growth in a Small Open Economy: A Quantitative Assessment." *Journal of International Economics*.

Sachs, Jeffrey D., and A. M. Warner. 1995. "Economic Reform and the Process of Global Integration." *Brookings Papers on Economic Activity* (1): 1–118.

Smarzynska, Beata, and S.-J. Wei. 2001. "Pollution Havens and the Location of Foreign Direct investment: Dirty Secret or Popular Myth?" World Bank, Washington, D.C. Processed.

Tobey, James A. 1990. "The Effects of Domestic Environmental Policies." *Kyklos* 43 (2): 191–209.

Torres, Raymond. 1996. "Labor Standards and International Trade" *The OECD Observer* No. 202.

van der Mensbrugghe, Dominique. 2001. "LINKAGE Technical Reference Document." World Bank, Washington, D.C. Processed. (Available at http://www.worldbank.org/prospects/pubs/TechRef.pdf)

Wells, P., and M. Jetter. 1992. *The Global Consumer*. London: Victor Golancz.

Whalley, John. 1985. *Trade Liberalization among Major World Trading Areas*. Cambridge, Mass.: MIT Press.

Wilson, John S. 2001. "Environmental Standards and Trade: A Primer." World Bank, Washington, D.C. Processed.

Wilson, John S., M. Sewadeh, and T. Otsuki. 2001. "Dirty Exports and Environmental Regulation: Do Standards Matter?" World Bank, Washington, D.C. Processed.

World Bank. 2000. *Trade Blocs*. World Bank Policy Research Report. World Bank/Oxford University Press. Oxford, UK.

Xu, Xinpeng. 1999. International Trade and Environmental Regulation: A Dynamic Perspective. Commack, NY. Nova Science Publishers, Inc.

Appendix 1
Regional Economic Prospects

East Asia and Pacific Region

Recent developments

THE YEAR 2001 WAS SHAPING UP AS A DIFficult year for East Asia and Pacific (EAP) even before the September 11 terrorist attacks on the United States. The unexpectedly sharp cyclical downturn in the world economy during the year had centered on a recession in the global high-technology (high-tech) sector, resulting in a plunge in the exports of the many East Asian economies that have become important suppliers of components and finished products for world high-tech markets. East Asian exports were also especially hurt by the fact that the slowdown in global demand has been steepest in the region's largest external markets, the United States and Japan, which together buy almost 40 percent of regional exports. By July or August economies with a high reliance on high-tech, such as the Republic of Korea, Malaysia, the Philippines, Singapore, and Taiwan (China), were seeing U.S. dollar export declines of around 20–25 percent on year earlier levels. There was, nevertheless, some comfort in the fact that, apart from the Philippines, the main impact of the high-tech recession was falling on high income or upper-middle-income countries with low poverty.

In the wake of the terrorist attacks, the region's export downturn is likely to become broader based, as falling consumer confidence in the United States and around the world dampens demand for the region's consumer and services exports. Overall, the global economic impacts of the terrorist attacks are likely to have pushed back the prospects for a recovery in world trade and in East Asian exports by six to nine months.

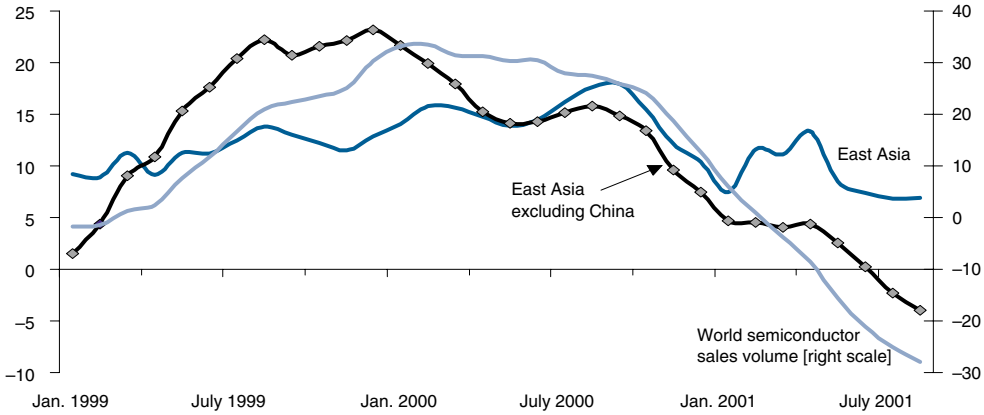
Near-term outlook

Growth in the developing East Asia region is expected to fall to 4.6 percent in 2001 from 7.5 percent in 2000, and to recover only mildly to around 5 percent in 2002. These would be the region's second weakest years for growth since 1990, bar only the near-zero-growth year of financial crisis, 1998. Most of the slowdown in growth is concentrated in the "Crisis 5" countries (that is, the five countries that were most affected by the financial crisis of 1997–98—Indonesia, Korea, Malaysia, the Philippines, and Thailand). Aggregate growth in this group is expected to slow to only 2–3 percent in 2001 from around 7 percent in 2000. Growth in 2001 will still reach around 7 percent in China, which contains two-thirds of the region's poor (at the $2 a day poverty line). With a more diversified export basket than some other countries in the region, China's export growth, while slowing sharply to an average 2 percent pace in June–August 2001, has at least avoided the huge 20–35 percent declines seen elsewhere. Growth has also been bolstered by a robust fiscal stimulus package to offset the export slowdown.

Other transition countries, such as Cambodia and Vietnam, which rely on low- or

Figure A1.1 Industrial production in East Asia and world semiconductor sales volumes

3-month moving average, percent y/y



Source: Semiconductor Industry Association through Bloomberg and World Bank.

medium-tech exports, have also been less affected by the high-tech recession, and showed continued buoyancy in domestic investment in the first part of the year. Growth prospects for the region in 2002 will depend significantly on the timing and scope of world recovery. It is probable that the steep cuts in interest rates, income tax cuts, and post-attack emergency spending in the United States, as well as policy measures in other industrial countries, will lead to a rebound in the second half of 2002, strengthening to a more full-blown global recovery in 2003.

Prospects for the region will also be affected by specific sectoral trends in the wake of the terrorist attacks. Oil prices have been volatile after the attacks and may have an upward bias for the rest of the year because of the risk of military action in the Middle East, with a mixed impact on the region. If major disruptions are avoided, weak world growth will tend to push oil prices lower in 2002. However, countries that rely on worker remittances could be hurt by political turmoil in the Middle East, as well as from weaker growth in Asia. Remittances to the Philippines are already down. Non-oil commodity prices have weakened in 2001, and are likely to weaken further with lower world growth after the attacks. Some of the smaller economies of the region that rely on commodity exports, such as Mongolia, Papua New Guinea, Fiji, and the island economies will be hurt by lower non-oil primary commodity prices. As regards other sectoral effects of the attacks, airline travel, tourism, and insurance are likely to be the worst affected, while inputs for military materials, information technology (IT) infrastructure, and telecommunications may benefit. As a result, East Asia, with its reliance on high-tech exports, may be less badly affected than other regions. However, selected Pacific islands and countries such as Thailand will feel a more significant effect of the pullback in world tourism.

Among other factors affecting near-term prospects, it is notable that, despite serious emerging capital market crises in Turkey and Argentina, there were few signs of a generalized contagion effect or pullback of private flows to the region in the first part of the year. Gross capital market flows to the region of about $31.5 billion in January–July 2001 were only slightly lower than during the same period in 2000. This overall stability reflected improvements in crisis countries' external balance sheets in the last several years, including a

buildup of foreign reserves and reductions in short-term debt. Exchange rates, while volatile, were not much different in early September from the start of the year, while the majority of equity markets had actually risen modestly over this period. Capital market stresses were concentrated on the Philippines and Indonesia, reflecting political uncertainties earlier in the year, as well as concerns about high public debt. After the Sept. 11 attacks, secondary market spreads for Indonesia and the Philippines widened. Equity prices fell sharply in most countries in the region. To some extent, the region will share in a more widespread investor pullback from emerging markets. Corporate restructuring and privatization efforts may be hampered by reduced foreign investor interest.

Among near-term policy responses to the slowdown, a number of countries have increased fiscal expenditures somewhat to help smooth the impact of the export shock, including China, Korea, Malaysia, and Thailand. Such expenditures can be especially helpful when carefully targeted to address social protection, infrastructure, or other particular sectoral needs that may be warranted in a sharply slowing economy. However, concerns about relatively high or growing public debt—especially when measured inclusive of contingent liabilities—mean that in most countries higher spending can only be sustainable for a limited time. Indeed, very high public debt levels will essentially preclude greater fiscal stimulus in Indonesia and the Philippines. Given these constraints, a temporary increase in spending—where possible—is best seen as a means of addressing specific social or sectoral objectives, and as a complementary policy that allows countries to continue to make progress on difficult structural policies such as corporate restructuring, even in the current weak economic climate.

The impact of this year's slowdown on poverty will be mitigated by the fact that the steepest declines in growth are in the high-income, newly industrialized economies (NIEs—including Hong Kong (China), Singapore, and Taiwan (China) and in the richer Crisis-5 countries, which have relatively low poverty rates. Still, with less growth, this year's downturn in East Asia will stall the pace at which income poverty in the region falls, while the risk of a rise in poverty has also increased. According to calculations by the Bank's East Asia and Pacific Region, the proportion of people living below the $2-a-day line may edge down from an estimated 47 percent in 2000 to a forecast 46 percent in 2001. Given continued robust growth in China

Table A1.1 East Asia and Pacific forecast summary

(percent per year)

				Baseline forecast			
Growth rates/ratios	1991–2000	1999	2000	2001	2002	2003	2004–2010
Real GDP growth	7.2	7.0	7.5	4.6	4.9	6.8	6.2
Consumption per capita	5.4	6.0	6.8	5.5	5.7	5.9	6.0
GDP per capita	6.0	5.9	6.4	3.6	4.0	5.9	5.4
Population	1.2	1.1	1.0	0.9	0.9	0.9	0.8
Inflation[a]	5.4	0.0	3.4	7.1	6.7	5.3	3.7
Gross Domestic Investment/GDP[b]	34.1	29.0	30.0	30.4	30.7	30.7	33.7
Central Gvt Budget Balance/GDP	–1.0	–2.5	–2.2	–2.0	–2.4	–2.3	–3.1
Export Volume[c]	13.0	7.7	23.7	0.4	6.2	11.3	7.3
Current Account/GDP	0.5	4.3	3.3	1.4	0.0	0.5	–0.8
Memorandum Items							
GDP growth: EAP excl. China	5.3	6.9	7.1	2.3	3.4	5.4	5.0

a. Local currency GDP deflator; median.
b. Investment ratio measure in real terms.
c. Goods and non-factor services.

Source: World Bank baseline forecast, October, 2001.

and other transition countries, which contain the large majority of the region's poor, the main source of slower region-wide poverty reduction in 2001 is likely to be the sharp slowdown in growth in Indonesia, the Philippines, and Thailand, which contain most of the rest of the region's poor.

In a longer-term perspective, it is notable that the pace of poverty reduction in the region has slowed dramatically, something that, persisting over time, cannot help but have deep social, political, and policy implications. Between 1990 and 1996 the regional poverty rate at $2-a-day fell from 67 to 49 percent, but from 1996 to 2000 it fell only 2 percentage points more. The less numerically significant reason is the financial crisis and slow recovery in Indonesia, the Philippines, and Thailand. The other is slower income growth in China's rural areas—where most of China's poor live—even as urban income growth has gone from strength to strength. Thus the drama of East Asian poverty reduction will largely depend on how countries address disparities in rural-urban and intra-regional growth, as well as the structural and institutional improvements needed to bolster growth overall.

Long-term prospects

Despite these near-term weaknesses, the long-term prospects for East Asia remain broadly positive. Average annual growth rates could exceed 6 percent in the 2004–10 period. Most of the countries in the region are committed to strengthening the underlying determinants of strong and sustained growth—improvements in education, enhancing the rule of law, promoting high domestic savings (including prudential fiscal policies), and openness to trade and investment. As demonstrated over the last three decades, the region's economies have been able to scale the technology ladder and significantly close the production and income gap compared to the most industrialized nations. China's entry into the World Trade Organization (WTO) is a particularly notable event that has positive trade and productivity implications for the whole region.

The region is not without its vulnerabilities, as evidenced by the financial crisis of the late 1990s and the economic slowdown that started at the end of 2000. The financial crisis revealed in stark terms the deficiencies of the region's banking and financial institutions, and the lack of sufficient regulatory oversight to compensate for those deficiencies. In the aftermath of the crisis, many of the countries in the region have undertaken a significant overhaul of both the financial and the regulatory institutions, but the legacy of the crisis persists in many of the countries. Economic recovery and current account surpluses have provided some breathing room, but as the current slowdown indicates, the region's authorities need to pursue financial reform, in particular to boost financial intermediation to ensure that the most productive investments get funded.

Risks

A key issue for policymakers in the region is to position their countries in order to be able to take full advantage of the global recovery when it arrives. Medium-term structural reforms that strengthen the fundamental underpinnings of development are likely to have a more significant impact on growth and poverty reduction than possible short-term gains from fiscal stimulus. At the same time, this year's largely unexpected global downturn has shown the weakness in the strategy of simply trying to "grow out" of the problems left over from the financial crisis of 1997–98. Indeed, in the wake of the September 11 attacks, higher uncertainty and risk may become a more prevalent feature of international affairs for some time. Structural reforms should then also help make the region's economies more robust in riding through a more uncertain and volatile external environment. Among structural issues facing the region, the importance of renewed attention to corporate and financial restructuring; trade reform; and institutional and governance reforms are worth particular note. If the region is able to implement contemplated reforms in these areas, it will improve the climate favoring new investment

(foreign and domestic) and technological progress, opening the way to realizing its long-term potential.

South Asia

Recent developments

South Asia, one of the world's poorest regions, remains a relatively closed economy, despite progress toward trade liberalization in the 1990s. Imports and exports are a much smaller share of GDP than in Latin America or East Asia, and tariffs are among the highest in the world. The region is also relatively closed to private capital flows. However, dependence on official flows is large for some countries.

Notwithstanding chronically high fiscal deficits, the region was able to grow at respectable rates over the 1990s. However, in 2001 the global slowdown adversely affected growth across the region and GDP growth fell from 4.9 percent in 2000 to 4.5 percent in 2001. Because of the region's narrow tax base and reliance on custom imports, slower growth had an immediate adverse fiscal impact resulting in additional pressure on already overstretched fiscal positions.

The tragic events of September 11 focused attention on South Asia because the military response created special risks to the countries of the region, especially in Pakistan. For example, freight rates to and from Pakistan have been increased 10 to 15 percent by major shipping lines.[1] Importers in other countries, fearing supply disruptions, have canceled orders for goods from Pakistan.[2] These developments have put additional pressure on Pakistan's already vulnerable external position—with a heavy external debt of $38 billion that absorbs more than 40 percent of Pakistan's exports earnings and external financing needs that have risen to $3.4 billion.

Large fiscal deficits have been a persistent challenge in most of the region. India's fiscal deficit is 10.5 percent on a consolidated basis, including central and state governments. Even so, its external financial position remains strong, with a small current account deficit, very low external debt, and $45 billion in foreign exchange reserves. Public finances have weakened in Bangladesh over recent years, with the public sector deficit reaching about 8–9 percent of GDP in 2001. In this context this country's external position has become increasingly vulnerable. In contrast, Pakistan and Sri Lanka have been successful in reducing their fiscal imbalances. In the context of an IMF program, Pakistan's fiscal deficit has declined to 5.2 percent of GDP but financial stress remains, with a large public debt, low reserves, and a large financing gap. Sri Lanka also reached an agreement with the IMF in 2001 and is undertaking macroeconomic and structural reforms.

Near term outlook

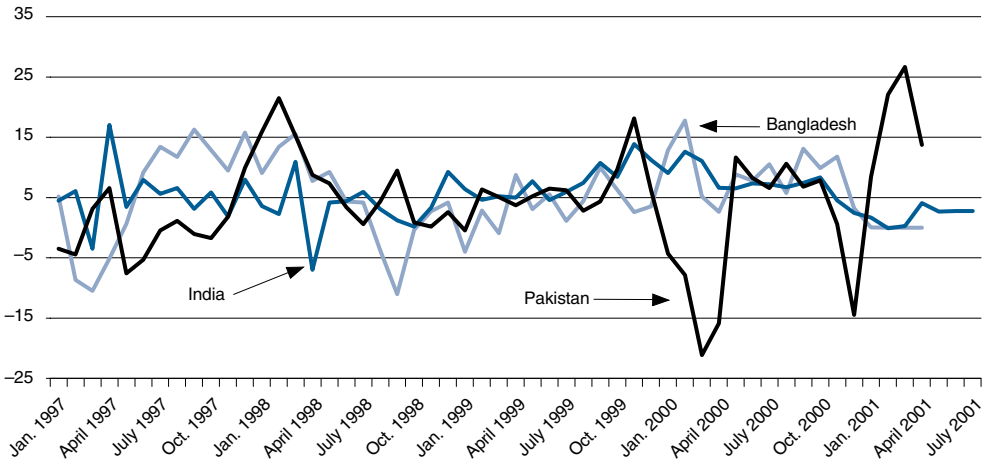
With the deterioration in the external environment, GDP growth in 2001 and 2002 in South Asia is projected to be 4.5 percent and 5.3 percent, respectively. Agricultural production is expected to increase in the second half of 2001 as a result of favorable weather conditions. Normal—and in some cases excessive—monsoon rain has filled water reservoirs and water tables throughout the region.

However, private investment will be influenced negatively by the heightened degree of uncertainty in the wake of the events of September 11. The external environment will provide little or negative stimulus, and the need for fiscal consolidation will further dampen aggregate demand.

The global downturn in growth in 2001–02 will have some deleterious effects on the region, perhaps more limited than in other regions. The downturn in export market growth, from 13 percent in 2000 to an average of 3.3 percent in 2001–02, will be mirrored by falling import demand stemming from slower growth domestically. Some countries in the region are depreciating their currencies to promote exports and increase competitiveness, which should have a positive effect on the trade balance. Given improved weather conditions,

Figure A1.2 Industrial production in South Asia

(percentage)



Source: IMF, International Financial Statistics.

and as oil prices fall, trade balances will benefit as well.

The region may struggle in its clothing sector in the near term. The Trade Development Act–2000 (TDA-2000) passed in January 2000 by the U.S. Congress poses a challenge to garment exports of the region. TDA-2000 provides duty-and-quota free access, under certain conditions, to the U.S. market for textile and apparel products to 72 countries in Sub-Saharan Africa and the Caribbean. Bangladesh and India both have reported sharply lower

Table A1.2 South Asia forecast summary

(percent per year)

				Baseline forecast			
Growth rates/ratios	1991–2000	1999	2000	2001	2002	2003	2004–2010
Real GDP growth	5.2	5.8	4.9	4.5	5.3	5.5	5.4
Consumption per capita	2.6	6.1	1.6	3.6	3.0	3.0	3.0
GDP per capita	3.3	3.9	3.0	2.8	3.6	3.8	4.0
Population	1.9	1.9	1.9	1.7	1.7	1.6	1.4
Inflation[a]	8.1	4.6	5.8	6.1	7.3	7.3	6.5
Gross Domestic Investment/GDP[b]	22.8	22.6	24.3	24.8	25.4	25.6	28.9
Central Gvt Budget Balance/GDP	–8.6	–4.0	–5.7	–4.8	–4.7	–4.5	–4.1
Export Volume[c]	9.3	1.8	7.5	6.0	8.8	9.2	7.9
Current Account/GDP	–1.4	–0.8	–0.3	–0.1	–0.5	–0.6	–0.8
Memorandum Items							
GDP growth: SAS excl. India	4.2	3.6	3.9	4.7	4.9	5.2	5.2

a. Local currency GDP deflator; median.
b. Investment ratio measure in real terms.
c. Goods and non-factor services.

Source: World Bank baseline forecast, October, 2001.

monthly garment exports this year compared to last year. For example, Bangladesh reported 15[3] percent lower garment exports in February 2001 compared to a year ago. An expansion of TDA-2000 to include the South Asia region, which is just as poor as those currently included in TDA-2000, would redress the imbalance and improve growth prospects of the region.

Long term prospects

Long term growth in South Asia should average about 5.4 percent, similar to the projections of GEP 2001, and near the average growth rates of the 1990s. This reflects expectation of reforms continuing to be implemented at a gradual pace. Lower population growth and structural reform in the next decade will possibly lead to per capita growth close to 4 percent per year.

Potential output growth in the region has increased, given the improvement in human capital indicators in recent years, with higher literacy rates and school enrollments and lower infant mortality rates. Additionally, the high skill levels of Indian workers with training in technology sectors, a boom area of growth, will ensure that the highly productive investment in these sectors will continue in the long term. As scheduled privatization and reform of state-owned enterprises occur, private investment will account for a greater share of domestic investment, with the concomitant benefits flowing from higher productivity of private investment compared to that of public investment. Additionally, privatization will encourage foreign investment and the associated spillovers to the domestic economies. Trade liberalization is also expected to continue with the easing of tariff and non-tariff barriers and import substitution policies, providing greater opportunities for trade integration with the global economy, particularly for the smaller countries within the region.

Risks

Besides political risks in the short run, other risks to the forecast stem from the major challenges that countries in the region face in the consolidation of their fiscal positions and debt levels. In India, sharp reductions in the fiscal deficit may prove difficult in the short run. As a result, the recent fall in the rate of inflation is not expected to last beyond 2001.

Design and implementation of tax reform measures will be difficult. A gradual increase in tax revenue collection in all countries in the region is required. Changes in the incidence of taxation will be necessary to decrease the reliance on trade taxes and broaden the tax base to stabilize revenue collections over time. More discipline will be required in fiscal expenditures to ensure fiscal sustainability, while being careful to maintain expenditures that are essential for development programs. For example, reducing subsidies has been singled out as a target in expenditure reform programs. Broadening the tax base away from trade is also a part of the trade liberalization strategy that will ensure that exporters have access to cheaper inputs and consequently become more competitive in global markets. Sustainable fiscal revenues and a responsible expenditure program will be required in several countries to counter financial vulnerability. Countries with healthy debt levels should also act to ensure sustainable fiscal positions to prevent a decline into unsustainable debt levels.

Latin America and the Caribbean

Recent developments

Growth out-turns for most countries in the region in 2001 were much worse than anticipated in the spring of the year. Adverse developments in the external environment and in domestic conditions in some countries were the primary reasons behind the sharp reduction in the region's GDP growth, from 3.8 percent in 2000 to an estimated 0.9 percent in 2001, about 2.8 percentage points lower than anticipated in the spring. The growth slowdown was most acute in the "Big Three" (Argentina, Brazil, and Mexico), reflecting the increasing impact of the global, and particularly the U.S. slowdown; economic difficulties in Argentina; and the energy crisis in Brazil. Uncertainties linked to the electoral process in Argentina this year and in Bolivia, Brazil, Colombia, Costa Rica, and Ecuador next year contributed to falling investment rates in a number of countries. Weaker growth in Argentina and Brazil, along with a worsening of the external environment, contributed to a deceleration of growth in other South American countries, while a collapse of commodity prices (especially for coffee and semiconductor prices) and a severe drought lowered growth rates in Central America. In contrast, Ecuador and República Bolivariana de Venezuela did better than in 2000 due to relatively high oil prices.

Rapid deterioration in global activity contributed to a sharp decline in export revenues. Excluding Mexico, dollar exports from the region grew by an average of about 8 percent (year over year or y/y) in the first half of the year—down from over 15 percent in 2000. With the exception of Brazil (where dollar exports grew by 11.5 percent y/y), most countries had exports growing below 4 percent. In Mexico, the decline was even more dramatic, from an average of 22.6 percent growth in 2000 to zero (0 percent) by June 2001. Moreover, capital market commitments to the region weakened markedly (that is, they fell by 21 percent (y/y) in the first half of the year)—reflecting the deteriorating conditions in Argentina and slower economic activity in the region as a whole—exerting downward pressure on most regional currencies.

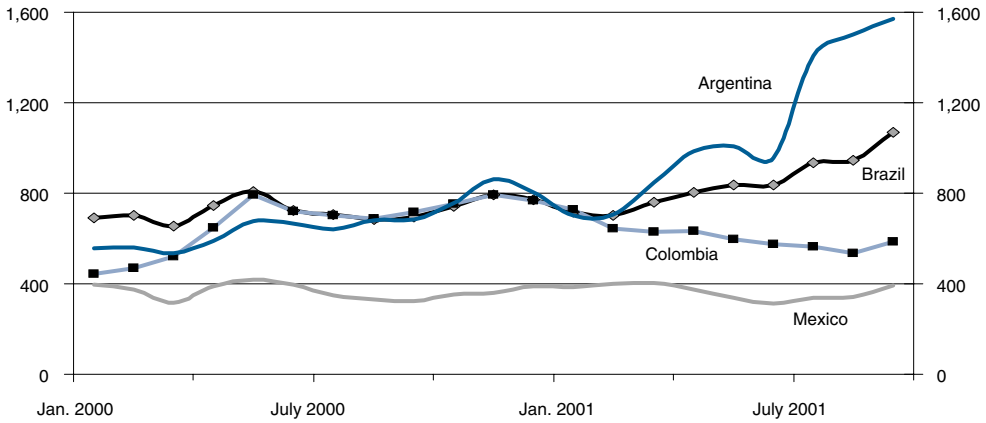
Large external financing requirements as a share of GDP coupled with fiscal deficits and high public debt reduced the ability for countercyclical fiscal and monetary policies in some countries. Despite falling U.S. interest rates, which reduce dollar debt-service payments—the depreciating exchange rates, slowing economic activity, and rising domestic interest rates (needed to maintain investor confidence) placed additional pressure on fiscal balances, limiting the scope for automatic stabilizers to function properly. Indeed, some countries, such as Brazil, had to tighten both fiscal and monetary policies in an effort to offset the combined negative effects of an energy crisis, a large reduction in FDI inflows, and contagion from the Argentine crisis, which resulted in a sharp reduction in capital market flows as secondary market spreads rose and remained high in the wake of the September 11 terrorist attacks (figure A1.3). Although these policies tended to keep inflation under control, they resulted in a sharp growth deceleration and exacerbated the already high level of unemployment throughout the region (16 percent in Argentina, for example).

In Argentina, recovery from the deep recession in 1999 has proven elusive, with each upturn in economic activity usurped by political stalemate on reforms, a weakening of fiscal accounts during the first half of the year, and volatile capital flows—reflecting investor uncertainty about solvency of public debt. GDP growth has remained in negative territory since the third quarter of last year. The authorities undertook a number of initiatives to bolster investor confidence—including a $29.5 billion debt swap, a severe fiscal adjustment aimed at zero deficit, and a package of tax reforms aimed at improving competitiveness of Argentine firms.

Negative fallout from Argentina was most acute in Brazil, and other Mercosur partners—slowing capital flows, especially FDI inflows; increasing yield spreads; and contributing to a

Figure A1.3 Secondary market spreads for selected LAC countries, 2000–2001

(basis points above U.S. Treasuries)



Source: JP Morgan's EMBI Global indices through Bloomberg.

weakening of the *real*. Brazil's drought-induced energy crisis and falloff in FDI, in conjunction with a depreciating currency, put upward pressure on inflation and set in motion tighter fiscal and monetary policies. Targets for the primary (before interest payments) fiscal surplus were raised, and policy interest rates rose by 325 basis points in the four months to August, contributing to a slowdown in growth. In contrast, Mexico suffered little contagion from the crisis in Argentina, with both the currency and equity markets rising strongly—reflecting the continuing positive impact of North America Free Trade Agreement (NAFTA) membership on FDI. Nonetheless, output growth contracted rapidly—in line with the sharp slowdown in U.S. activity, reaching zero (y/y) by the second quarter of 2001 after averaging nearly 7 percent in 2000.

Slowing economic activity in Argentina and Brazil along with falling copper prices affected growth negatively in Chile, but with lesser external financing concerns than in other countries, the authorities were able to reduce interest rates. GDP growth slowed in 2001 but by much less than in many other countries. In Peru, political uncertainties in the run-up to mid-year elections kept investment rates low and restrained consumer spending, resulting in growth slowing to below 1 percent from over 3 percent last year. Growth in Colombia also weakened compared with 2000, due to lower coffee prices and lower-than-expected investment caused by rising uncertainty (including the electoral cycle, legal infrastructure, and the guerrilla war). In contrast, growth in the oil exporters in the Andean region held up well due to high, although declining, oil revenues. Growth in Venezuela was sustained by large-scale public expenditure, while growth in Ecuador accelerated from the low or negative growth in 1998–2000 with the construction of a new oil pipeline.

In Central America, growth in 2001 was lower by about 1.7 percentage points compared with 2000, due primarily to a weakening of economic activity in Mexico and in the United States, a collapse of coffee prices, and a major drought, which severely affected Honduras and Nicaragua. The sharp fall in semiconductor prices hurt Costa Rica particularly hard as semiconductors account for nearly two-fifths of their exports, resulting in merchandise exports declining by 21 percent (y/y) in the first half of

Table A1.3 Latin America and the Caribbean forecast summary
(percent per year)

Growth rates/ratios	1991–2000	1999	2000	Baseline forecast 2001	2002	2003	2004–2010
Real GDP growth	3.3	0.1	3.8	0.9	2.5	4.5	3.9
Consumption per capita	1.5	–1.7	2.2	1.0	1.6	2.0	2.5
GDP per capita	1.6	–1.5	2.2	–0.7	1.0	3.0	2.6
Population	1.7	1.6	1.6	1.6	1.5	1.4	1.3
Inflation[a]	12.6	5.8	6.9	7.9	6.3	6.0	5.0
Gross Domestic Investment/GDP[b]	21.8	19.4	19.7	19.4	20.1	20.7	23.5
Central Gvt Budget Balance/GDP	–3.5	–4.4	–2.9	–3.2	–3.0	–2.5	–1.7
Export Volume[c]	8.4	5.7	9.7	2.6	4.2	9.5	6.7
Current Account/GDP	–2.8	–3.1	–2.4	–2.8	–3.3	–3.2	–2.2
Memorandum Items							
GDP growth: LAC excl. Brazil	3.8	–0.4	3.4	0.5	2.3	4.7	3.7
Central America	4.4	4.3	2.7	1.0	2.2	4.0	3.8
Caribbean	3.4	5.7	5.5	1.4	3.0	4.2	4.0

a. Local currency GDP deflator; median.
b. Investment ratio measure in real terms.
c. Goods and non-factor services.

Source: World Bank baseline forecast, October, 2001.

the year. Caribbean countries also saw a reduction in growth rates due to declining tourism revenues, especially in the latter part of the year.

Near-term outlook

The region's growth prospects for 2002 have dimmed in light of a significant worsening of the external environment over the past six months, and especially since the September 11 terrorist attacks in the United States. The region's GDP is now expected to grow by 2.5 percent in 2002—1.9 percentage points lower than the spring forecast—provided that those countries currently under financial stress are able to avoid debt-service defaults. The delay in the U.S. recovery, weak global output and trade growth, a continuation of soft non-oil commodity prices and falling oil prices, and the likelihood of reduced capital flows to developing countries underpin the moderate growth recovery for next year. (As a consequence, there is great uncertainty surrounding the forecast with more negative or positive responses of consumers and investors possible.) In 2003, GDP is expected to grow by 4.5 percent, reflecting the expected rapid growth momentum in the United States, and world output in the latter part of 2002 and into 2003.

Revisions to external conditions, as well as domestic considerations, will impact the growth prospects for countries differently. The expected delay in the U.S. recovery will have the most significant trade impacts in Mexico and the Central American and Caribbean countries. For many of these countries, export-processing zone (maquilas) exports destined mainly for the North American market are a significant proportion of total exports (30 percent of net exports in Costa Rica and El Salvador, for example). Moreover, remittances are also likely to decline at a time when many Central American countries are facing weak coffee prices (after a four-year decline) and the effects of a severe drought in 2001. Weakness in labor and equity markets in the United States and increased risk aversion to air travel will adversely impact tourism receipts—which are extremely important for Caribbean countries. Preliminary estimates indicate that loss of tourism revenues could reduce these countries' GDP by 1.5 to 5 percent with potentially damaging social impact in light of high unemployment in

the region. Argentina and Brazil are likely to be more hurt from disturbances in capital markets (if they were to be prolonged) than from direct trade impacts, due to weaker global activity. This reflects their high public and private debt and large current account deficits (nearly 3 percent of GDP for Argentina, about 5 percent for Brazil). Although lower U.S. interest rates will help to alleviate debt-service payments, risk perceptions have remained elevated—partly due to the market view that debt restructuring for Argentina may be necessary, as occurred in Ecuador in 1999—and have kept capital market flows subdued, reducing the ability of these countries to roll over debt. In Argentina, these factors are likely to keep the recovery modest. In Brazil, contagion from events in Argentina (despite a $15.58 billion IMF–led package) is reducing the room for countercyclical policies. In addition, presidential elections due next year could be another factor restraining a return of investor confidence and the acceleration of growth.

As oil prices soften in 2002–03, the adjustment that oil exporters will have to undergo will be difficult and growth-restraining. Venezuela, for example, used buoyant oil revenues to finance growth in 2001, resulting in the nonfinancial–public sector's fiscal balance shifting from a surplus of 2.9 percent in 2000 to a deficit of about 3.1 percent of GDP. In contrast, Ecuador may avoid a contraction in growth in 2002, because oil revenues may remain high with expanded output partially offsetting the expected decline in oil prices. Colombia's prospects hinge increasingly on fiscal deficit reduction and on progress in the peace process, but growth prospects will remain subdued with the expected weak oil and coffee prices. In Peru, the new administration will face tension between containing the fiscal deficit and reactivating growth quickly to reduce the danger of popular discontent, which could lead to political and social instability. However, the combination of weak metals prices, delayed FDI flows, and limited access to capital markets could delay the economic rebound. Bolivia, Paraguay, and Uruguay all have strong trade ties to Argentina and Brazil, limiting their growth prospects to the fortunes of those countries.

Long-term prospects

Per capita GDP growth over the long term (2004–10) is projected to average 2.6 percent a year, a full percentage point higher than what the region achieved in the 1990s. Key factors supporting the cautious optimism for growth in the 2000s compared with the 1990s include improvements in: (a) human capital (health, education, and literacy indicators have all improved over the course of the 1990s, although much remains to be done in this area); (b) macroeconomic management leading to greater domestic macroeconomic stability (inflation rates have fallen over the 1990s, for example, although they are still more volatile than in other regions); (c) investment climate attracting FDI; and (d) progress on deepening trade integration with the regional and global economies.

FDI as a share of region-wide GDP rose from less than 1 percent at the beginning of the 1990s to nearly 4 percent in 2000, with a significant share going into telecommunications; this represents benefits to the economy that are likely to accrue in the next decade. Regulation and supervision of financial sectors have been strengthened, and trade regimes have been liberalized, with trade doubling as a proportion of GDP over the last 10 years. These developments have contributed to a large rise in total factor productivity, from negative growth in the 1980s to nearly 1 percent a year in the 1990s. In the 2004–10 period, TFP growth is expected to remain in the 1 to 2 percent range, while improvements in the investment climate—including strengthening the financial sectors through better supervision and regulation—could contribute another 1 percentage point to regional growth.

Risks

The region remains vulnerable in a number of areas however. First, national saving rates remain low in many countries, resulting in a persistent dependence on foreign savings (of about

3 percent of GDP)—typically from volatile private capital markets. These markets have demonstrated their power in delivering severe external shocks to developing countries, and the region has had to endure at least two such episodes in the 1990s (Mexico in 1995, and Brazil in 1999). The case of Argentina is still developing, and will obviously impact risk perceptions in the region for some time.

Second, the prevalence of large debt overhangs (both in the public and the private sectors) in countries throughout the region requires rollover on a continuing basis. Although the region's debt-to-GNP ratio is in line with the average of developing countries, the debt-to-exports ratio is very high. This exposes some countries to exogenous shocks emanating from global capital markets, which are at times independent of domestic considerations.

Third, trade integration is incomplete with ratios of trade-to-GDP remaining low by international standards (Chile, Mexico, and small economies are exceptions), and diversification of exports is still limited—many countries are still commodity dependent.

Finally, the region still lags behind its potential in financial deepening (which could help raise national saving rates), infrastructure, and quality of institutions—areas which, if improved, can propel high and sustainable growth rates. Many countries in the region have made strides in addressing some of these areas and, should investor sentiment toward emerging markets improve significantly, the region could grow at a faster pace than in the current forecast.

Europe and Central Asia

Recent developments

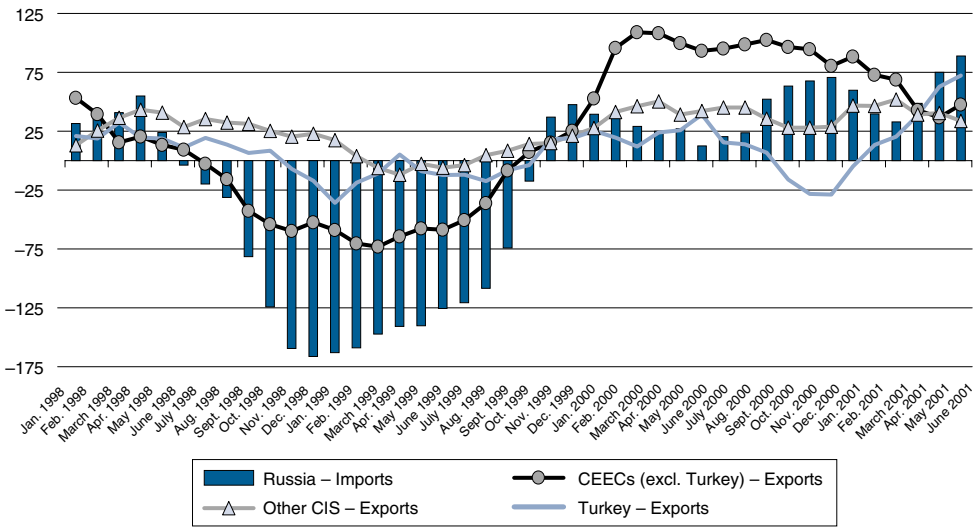
Real gross domestic product (GDP) growth for the Europe and Central Asia (ECA) region is projected to decelerate markedly in 2001 to about 2.1 percent, down from 6.3 percent in 2000. This rapid slowdown is dominated by three main factors. First, in Turkey domestic demand collapsed due to high interest rates and severe economic disruption in the wake of the financial crisis, which erupted in late 2000 and early 2001. Second, there has been a pronounced moderation of growth in the Russian Federation, Poland, and the former Yugoslav Republic of Macedonia (FYR Macedonia). In the Russian Federation, the impetus behind exceptionally strong growth of over 8 percent in 2000 (generated from a combination of high oil prices and import substitution, driven by devaluation) is receding. In Poland high interest rates, aimed at containing inflation, have stymied demand. In FYR Macedonia, the military conflict with the Albanian rebels, which began in March 2001, has clearly begun to take its toll on the budget and on economic activity. Third, the slowdown in global demand in 2001, particularly in the European Union (EU), has had a negative impact on growth in the ECA region, in contrast to 2000 when external demand acted as a strong engine for growth.

Countervailing some of these negative pressures on regionwide growth, domestic demand has strengthened in a number of countries (such as the Czech Republic, Hungary, Romania, and the Slovak Republic). Similarly, strong growth in domestic demand, particularly in private consumption, stimulated by an increased money supply through large hard currency inflows, among other factors, is providing a buffer to the slowdown in the Russian Federation. Within the Commonwealth of Independent States (CIS) subregion, strengthened domestic demand in the Russian Federation in 2001 has translated into a significant firming of import demand and has provided a boost to growth in a number of countries that export to the Russian Federation (for instance, Ukraine). In contrast, export sectors in a few countries with significant revenues from Turkey, (for instance, Bulgaria and Georgia) are expected to be impacted by the plunge in Turkish import demand.

For most countries in ECA, current account deficits are forecast to stay at 2000 levels or to deteriorate in 2001, although they should remain manageable. In the few cases where there are current account surpluses, they are expected to narrow. In some countries the cur-

Figure A1.4 Russian imports and partner exports in 1998–2001

(3-month moving average, y/y percent change (of US$ merchandise trade)



Source: IMF.

rent account deficits are already quite large or are growing rapidly relative to GDP (such as in Poland and Romania). For countries such as Poland, with an already high current account deficit, the EU slowdown will be felt more directly, although the sharp deceleration in domestic demand there will reduce imports. While the Russian Federation is expected to post a large surplus again for 2001, it will be significantly below the record $46 billion surplus in 2000. In Turkey the current account is expected to post a sizeable surplus due to a sharp contraction in imports and strengthening exports stimulated by the massive devaluation of the Turkish lire subsequent to the abandonment of the crawling-peg regime in February 2001.

Real foreign exchange rates throughout the region remained on a broadly stable path over the first half of 2001. The most notable exception is the sharp devaluation of the Turkish lire of about 60 percent in nominal terms, or about 30 percent in real terms, as of August 2001, year over year (y/y). The currencies of some other countries (for instance, Hungary and Poland) subsequently came under considerable downward pressure during July 2001, when international investors became more bearish on emerging market instruments. In contrast, the Russian ruble has remained relatively firm and generally appreciated in real terms over the year, bolstered, in particular, by a large current account surplus. Elsewhere in ECA, due in part to fixed currency regimes and inflation differentials, the Bulgarian (currency board) and Baltic (pegged) currencies have continued to appreciate.

Inflationary pressures in the ECA region on the whole were relatively contained in 2001, with the general rate of increase either declining somewhat or remaining flat. Turkey, with the consumer price index running at about 55 percent in 2001, is an important exception. Until domestic markets stabilize there, heightened uncertainty will contribute to higher inflationary pressures, as will the hefty increase in the cost of imports that will likely generate significant pass-through effects. Driven in most

Table A1.4 Europe and Central Asia forecast summary
(percent per year)

Growth rates/ratios	1991–2000	1999	2000	Baseline forecast 2001	2002	2003	2004–2010
Real GDP growth	–2.3	1.8	6.3	2.1	3.0	4.2	3.6
Consumption per capita	–3.5	–2.9	4.2	3.8	3.0	2.9	3.9
GDP per capita	–2.5	1.7	6.1	1.9	2.9	4.1	3.5
Population	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Inflation[a]	347.1	7.3	7.5	7.5	5.9	5.4	4.3
Gross Domestic Investment/GDP[b]	23.6	18.0	19.0	19.4	19.5	19.7	24.3
Central Gvt Budget Balance/GDP	–19.0	–10.5	–7.4	–7.5	–7.2	–6.4	–4.8
Export Volume[c]	0.5	–1.4	11.1	8.5	2.8	8.3	5.9
Current Account/GDP	–0.6	0.0	1.9	1.2	–0.4	0.0	–1.4
Memorandum Items							
GDP growth: Transition countries	–3.1	3.3	6.1	4.0	3.1	3.8	3.4
Central and Eastern Europe	0.8	2.3	3.9	2.8	2.9	4.3	4.3
CIS countries	–5.2	4.1	7.8	4.9	3.2	3.5	2.6

a. Local currency GDP deflator; median.
b. Investment ratio measure in real terms.
c. Goods and non-factor services.

Source: World Bank baseline forecast, October, 2001.

cases by an accommodating fiscal stance, inflation remains at double-digit levels in a handful of other ECA countries, for example in Belarus, Romania, Tajikistan, and Uzbekistan. For the region's oil-importing countries, the recent pass-through impact of higher energy prices has begun to diminish. In contrast, strengthening domestic demand in a number of ECA countries could lead to higher inflationary pressures.

Near-term outlook

The severity and duration of the current slowdown in the EU, along with policy responses in the transition countries, will be important factors for near-term prospects. In the EU, a recovery is not expected until the second half of 2002, and much stronger external demand from the EU is not anticipated until 2003. This is especially significant for the Central and Eastern European countries (CEECs), because their economies have become well integrated with the EU. Another important near-term assumption is that the combination of slowing world energy demand and an accommodating stance by the Organization for Petroleum Exporting Countries (OPEC) will likely translate into lower nominal and real oil prices. For the hydrocarbon exporters of the CIS, this scenario implies a further slowdown in growth in 2002. For the ECA region oil-importers, the decline in the energy bill is expected to partially offset the negative impacts of a less favorable external environment. If indeed Turkey stabilizes and begins to recover in 2002, which is an assumption underlying our forecast, it will lift aggregate growth for the region.

Throughout the region, access to foreign private capital (including foreign direct investment, FDI) is expected to remain more difficult over the near-term, due to increased aversion to emerging markets by international investors. Correspondingly, domestic and foreign investment in the ECA economies is expected to decelerate through 2002, in part reflecting anticipated delays in privatization programs. Tourism, an important source of foreign currency in a number of ECA countries (such as Croatia and Turkey), is also projected to slow markedly.

In sum, over the near term (2002–03), growth is expected to stabilize at close to 3.5 percent for the region as a whole. At the subregion level, we are forecasting a pattern of diverging growth becoming manifest in 2003.

For the CEECs, aside from anticipated stronger external demand in 2003, the EU accession process is expected to stimulate a continuation of reforms and to further boost growth. In contrast, CIS growth is expected to slow in 2002 and to remain generally flat in 2003 as energy prices stabilize at lower levels, and the boost from high oil rents winds down in a policy environment of gradual reforms. As a consequence, import demand from the Russia Federation is expected to decline, which is in turn expected to result in lower export volumes for the smaller CIS countries.

Long-term prospects

Over the coming decade through 2010, GDP growth for the ECA region is forecast to average close to 4 percent, in contrast with the 2.3 percent region-wide average rate of contraction witnessed during 1991–2000, the first decade of transition. From a region-wide perspective, the main drivers of higher growth are an improved policy environment and a greater degree of macroeconomic stability leading to higher investment and savings rates as a share of GDP. Growth for the CEEC subregion is expected to average above 4 percent during the period 2001–10, up significantly from close to 1 percent posted during 1991–2000. Growth in the CIS subregion is expected to average somewhat below 3 percent, also a marked increase compared to the sharp contraction of about 5 percent annually registered during 1991–2000.

In the CEECs, during the second decade of transition, a number of factors are contributing to the anticipation of stronger growth performance, including rising investment as a share of GDP and continued restructuring of the capital base. Broad-based reforms and a well-educated labor force have been—and are expected to remain—important factors contributing to fruitful returns on rising investment.

Almost all of the CEECs are EU accession candidates, and have significantly benefited from the EU accession process, which has provided an incentive to address underlying structural and institutional impediments to growth. The EU accession process is expected to continue to boost FDI into the subregion, although as privatization programs wind down, this is expected to diminish somewhat. These flows have largely financed the subregion's shortfall in domestic savings. Domestic savings rates are forecast to increase over the forecast horizon as FDI inflows moderate, but they are not expected to increase sufficiently to close the gap over the forecast horizon. This potential imbalance between savings and investment exposes the CEECs to the risk that investment demand will be bridled by inadequate domestic savings or by a sudden drop in foreign inflows. Nevertheless, prospects are broadly positive as most of the countries of the subregion have achieved a significant degree of stability and realignment of institutions and markets over the last decade and are on a path to continue the process. The CEEC subregion growth forecast of just over 4 percent over the long term, albeit not insignificant, suggests only slow convergence with EU per capita income levels.

As with the CEECs, high educational attainment provides a strong positive contribution to growth potential in the CIS. However, investment in human capital in the region has declined substantially following the breakup of the Soviet Union and in the wake of the 1997–98 crisis. Should a turnaround in the investment in human capital not materialize, an important positive dynamic of the subregion's growth picture will deteriorate further. The recent surge in growth in the CIS subregion of hydrocarbon exporters has created an important opportunity to introduce reforms more actively. The Russian Federation is an example of where this process has begun, especially during 2001. However, there the implementation process is just being initiated, and much remains uncertain. Significant institutional and structural impediments remain constraints to growth. Consequently for the CIS countries as a group—and in contrast to the CEECs—investment as a share of GDP is expected to remain at relatively low ratios, after having declined during the 1990s. Also, considerable excess capacity remains, though much of it could be obsolete, so investment demand could kick in sooner if the

economy picks up. If good policy reforms are introduced more aggressively, then the CIS economies could shift to a higher growth path.

Risks

Over the near- to medium-term, risks to the forecast are predominantly on the downside. Within the region the main risks include the possibilities of a deepening of the crisis in Turkey or a sharper economic slowdown in the Russian Federation, or both. In either case, growth prospects in smaller economies of the region would also decline. Another internal risk factor is an escalation of political tensions and instability in the Balkans. The September 11 terrorist attacks have increased both external and internal risks. With regard to the former, there is the possibility of greater risk aversion to emerging markets and capital flight. Regarding the latter, a risk of increased political uncertainty is an important factor, especially in the countries of Central Asia, due to the heightened conflict and instability in Afghanistan. There could also be an influx of refugees to the ECA countries bordering Afghanistan, namely Tajikistan, Turkmenistan, and Uzbekistan.

Other external risks are mainly associated with the EU, both in terms of its growth prospects and with public support for the accession process. A stronger and more protracted decline in external demand from the EU would add pressure to external balances and likely reduce growth outcomes, particularly in the CEECs. An important aspect of an extended slowdown in the EU is the timing—that is, coinciding with important EU accession negotiations—because it will likely reduce maneuverability for both candidate countries and existing members. Correspondingly, support for the EU accession process (both within the existing EU countries[3] and within prospective member countries) has been diminishing. This could become a higher risk over the near term because more difficult issues—such as the free movement of labor and capital, agriculture, and the distribution of structural funds—are now shifting to the front burner in enlargement negotiations. Extensive delays in the EU accession process could slow the reform process and undermine long-term growth prospects within the CEECs.

Potential output could be increased if reform programs in the CIS were to move forward more aggressively than anticipated. In the case of the Russian Federation, this would generate positive demand dynamics throughout the CIS and in Turkey. Depending on dynamics both internal and external to the region, there is the upside risk that the EU accession process will regain stronger positive momentum and proceed more smoothly and more rapidly than currently envisioned. Notably, the recent terrorist crisis could act as a catalyst to strengthen political resolve in both the EU and applicant countries to move forward with the accession process. Turkey, the Russian Federation, and Central Asian countries might also benefit from strengthened political backing from the west and a possible increase in official assistance as a reward for supporting U.S.–led strikes into Afghanistan.

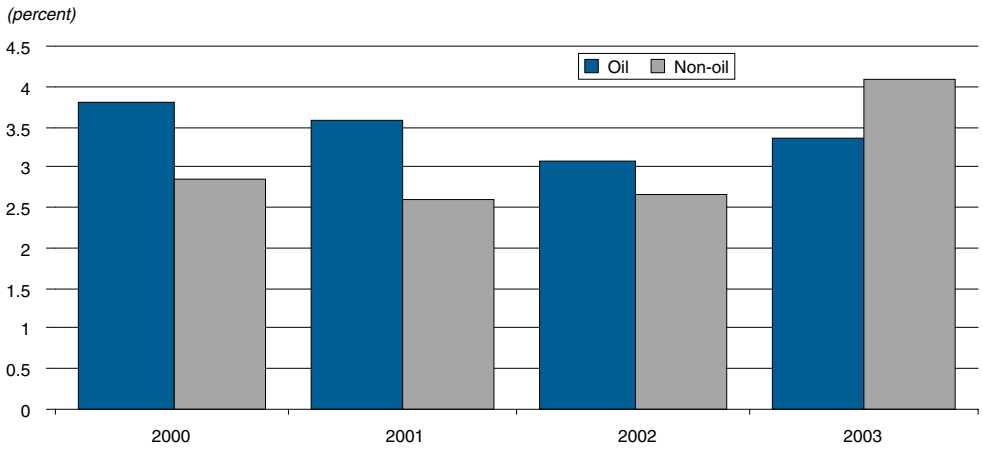
Sub-Saharan Africa

Recent developments

Growth in Sub-Saharan Africa (SSA) slowed to 2.7 percent in 2001 from 3 percent in 2000, interrupting a progressive recovery from the slowdown of the late 1990s. With population growing at 2.4 percent, the rise in per capita GDP was minimal. The slowdown was widespread throughout the region, in East, West, and Southern Africa, and in both oil and non-oil commodity exporters.

The primary cause was the slowdown in developed countries. In the face of weaker demand from the United States and the Euro Area, merchandise exports managed just 3.4 percent growth in volume terms compared to 8.8 percent in 2000. Services exports, including tourism, were also affected, growing by 3.6 percent. Commodity prices remained well below levels of the late 1990s, including those that rebounded from recent lows. Beverage

Figure A1.5 Real GDP growth of SSA oil and non-oil exporters



Source: Economic Policy and Prospects Group.

producers were particularly hard hit, with coffee prices down over 25 percent from 2000 and cocoa prices—although they were up around 10 percent in 2001—only 75 percent of the average for 1995–2000. While oil prices eased back from their peak of nearly $30 a barrel in mid-2000 they remained strong, and oil exporters outperformed the region as a whole, growing at an average of 3.6 percent for the year, compared to 2.6 percent for non-oil exporters. Oil constitutes less than a third of SSA exports, however, and net energy exports are only 5 percent of GDP. Thus on balance, recent world commodity market trends represented a major drag on growth and incomes.

Apart from the external environment, developments within the region painted a mixed picture. Better weather boosted agricultural production and household incomes in a number of countries in East and Southern Africa, including Ethiopia, Kenya, Mozambique, and Tanzania. However, localized drought conditions persisted in these and many other countries. In Southern Africa, food production fell by as much as 25 percent, due to both adverse weather conditions and civil disturbance. Overall, the Food and Agriculture Organization of the United Nations (FAO) estimates that the need for food aid will be unchanged from last year at around 2.7 million tonnes (FAO 2001). Weather also contributed to a 12 percent reduction in the cocoa crop in West Africa after the bumper harvest of 1999–2000, according to the International Cocoa Organization (*African Business*, July/August 2001).

In the political sphere, some progress toward stability was achieved in the Democratic Republic of Congo, Guinea, and Sierra Leone, but peace seemed as elusive as ever in Angola, Liberia, and the Sudan, and Zimbabwe's crisis intensified with the approach of elections in spring 2002. Countries in conflict or experiencing severe governance problems[4] recorded the worst performances, growing at –0.4 percent in 2001. On the plus side, robust growth continued in a number of countries, including Ethiopia, Madagascar, Mozambique, and Uganda, reflecting better policy and economic management. Finally, 19 countries reached decision points under the enhanced Heavily Indebted Poor Countries Initiative, cutting debt servicing costs by a third, and relaxing balance of payments and budgetary pressures.

In South Africa, the region's largest economy, a robust recovery in the second half of 2000 dissipated in the first half of 2001 as in-

adequate rains led to a disappointing maize harvest. The impact spilled over from agriculture into manufacturing and, on the demand side, into consumer spending, and growth slowed to 2.4 percent. Both public and private investment remained strong, as did productivity growth, although the investment rate at only 16 percent of GDP remains well below the level needed to support adequate employment growth. The rand came under strong selling pressure in the second half of the year as a result of ongoing uncertainty about emerging markets generally and the situation in Zimbabwe specifically.

In Nigeria, the energy sector registered strong gains, thanks to both oil and natural gas revenues and to keen investor interest, particularly in the offshore sector. However, it is increasingly evident that progress on reforms to date has had little impact on the non-oil economy. A one-year, $1 billion standby credit from the IMF was extended from August to October despite the government's failure to meet important conditionalities, but especially with the approach of elections in late 2002, the future of the reform process is uncertain.

Near-term outlook

While many idiosyncratic factors will bear on near-term performance, the slowdown in industrial countries during 2001 and sluggish recovery in the first half of 2002 virtually guarantee a poor out-turn for the coming year. Weak demand will continue to depress export prices and volumes. However, as recovery consolidates in OECD trade partners, demand for the region's exports will strengthen setting the stage for stronger gains in 2003. For the region as a whole, merchandise exports are expected to grow by only 2.9 percent in 2002, while terms of trade fall by 6.2 percent, equivalent to 1.8 percent of GDP. The subdued external performance will hold GDP growth to 2.7 percent for a second year, again leaving per capita incomes flat. Oil prices are expected to fall to $21 a barrel in 2002, implying steep terms-of-trade losses for oil exporters of 4.1 percent of GDP; their real growth will average 3.1 percent, down from 3.6 percent in 2001. However, other commodity prices should firm on average, even though non-oil exporters' terms of trade deteriorate slightly because of higher import prices. The modest improvement in the external environment will raise non-oil exporters' growth to 2.7 percent from 2.6 percent 2001. For the SSA region as a whole in 2003, the forecast anticipates a strong acceleration in export volume growth to 6.4 percent, pushing GDP growth to 3.9 percent. With decent rains, the actual outcome might be even better. Nevertheless, terms-of-trade weakness is expected to persist through the forecast period, especially for oil exporters, as oil prices fall further to below $20 a barrel.

Despite weak energy prices, substantial investment in oil exporters promises to sustain real growth in oil sectors in the medium term. Nigeria has struggled recently to meet OPEC quotas, but plans to increase capacity significantly over the next few years and a second liquid natural gas train at Bonny Island will boost production by 50 percent beginning in 2002. Meanwhile, recent offshore discoveries could substantially raise medium-term production and exports for non-OPEC Angola and Equatorial Guinea. Even in the near term, exploration and development activity—including the Chad-Cameroon pipeline project—is helping to offset terms-of-trade losses, keeping real growth higher than otherwise would have been the case. For non-oil exporters, faster world growth will tighten the supply demand balance in primary commodity markets allowing export prices and terms of trade to strengthen. In addition to the rebound in the world economy generally, export prospects will also benefit from a number of specific trade initiatives, including the United States' Africa Growth and Opportunities Act (AGOA), the EU's "Anything but Arms" initiative, and the EU–South Africa Free Trade Agreement. Early evidence from the first half of 2001 shows that 13 SSA countries benefited from $3 billion of exports under AGOA preferences (USTR 2001). Nonetheless, SSA's medium term performance will remain subdued as a result of inelastic export demands and a lack of diversification.

Table A1.5 Sub-Saharan Africa forecast summary

(percent per year)

Growth rates/ratios	1991–2000	1999	2000	Baseline forecast 2001	2002	2003	2004–2010
Real GDP growth	2.2	2.5	3.0	2.7	2.7	3.9	3.7
Consumption per capita	–0.6	0.0	0.4	0.2	0.5	0.9	1.1
GDP per capita	–0.4	0.0	0.5	0.3	0.3	1.6	1.5
Population	2.6	2.4	2.5	2.4	2.4	2.3	2.2
Inflation[a]	9.7	5.3	6.3	6.0	5.0	4.5	4.1
Gross Domestic Investment/GDP[b]	17.4	17.1	17.2	17.5	17.6	17.8	18.4
Central Gvt Budget Balance/GDP	–7.4	–8.1	–2.2	–3.4	–3.3	–3.2	–2.8
Export Volume[c]	4.3	3.0	7.0	3.4	2.4	7.6	6.3
Current Account/GDP	–2.1	–2.2	–1.5	–1.0	–2.4	–2.0	–1.8
Memorandum Items							
GDP growth: SSA excl. South Africa	2.6	3.0	2.9	3.0	2.8	4.0	4.2
Oil exporters	2.7	2.6	3.8	3.6	3.1	3.4	3.6
CFA countries	2.6	2.4	2.7	2.4	2.9	3.6	3.8

a. Local currency GDP deflator; median.
b. Investment ratio measure in real terms.
c. Goods and non-factor services.

Source: World Bank baseline forecast, October, 2001.

Long-term prospects

Over the long term, the expectation is for a continuation of the trend toward better economic policies and management and a broadly favorable external environment. Internal market reforms, deregulation, and privatization have raised productivity and improved incentives, and encouraged nontraditional exports such as fish and horticulture at a time when prospects for many traditional crops are poor. Notably a number of well-managed reformers have sustained high growth even through difficult external conditions. In the baseline scenario, which assumes a continuation of current productivity trends, output growth averages 3.7 percent from 2004–10. With population growth falling to 2.2 percent, real per capita income growth will average 1.5 percent, reaching $640 in real (1995 dollars) terms by 2010. For many countries, export diversification and favorable price trends will sustain performance well above the regional average.

This performance will fall short of what is needed to achieve the international development goals, and SSA will continue to lag behind other regions in the developing world. Low domestic savings combined with only modest private foreign capital inflows will limit investment rates to an average of below 19 percent of GDP. Although up from barely 17 percent currently, this is far from what is needed. As a result, capital accumulation will contribute less than 1 percent annually to growth—not even a quarter of the rate anticipated for East Asia. Low rates of human capital investment and slow progress on rebuilding infrastructure will hold productivity growth to around the same rate.

Despite the somewhat pessimistic outlook, if the forecast is accurate the coming decade will see the region's best sustained performance since the 1960s. There are manifold reasons for SSA's historically poor performance—disease, civil strife, poor governance, inauspicious climate, low savings and investment, and falling terms of trade. Some of these conditions are unlikely to change any time soon, but for others there are signs of real improvement. Political and economic reforms have gained pace since the mid-1980s, and are contributing to higher standards of governance and economic management. Private sector growth and increasing regional integration are helping to boost efficiency and rationalize production. Greater openness and debt relief are relaxing

balance of payments constraints, easing import restrictions, and over time encouraging more foreign investment interest. But even as some countries notch up high growth rates, overall performance will continue to be constrained by the devastating effects of HIV/AIDS, slow progress on governance in some countries, and the limited availability of resources to rehabilitate productive capacity and infrastructure.

Middle East and North Africa

Recent Developments

Developments in the Middle East and North Africa were strongly positive in 2000, with a rare convergence of simultaneous increases in oil prices and export volumes contributing to stronger-than-anticipated growth of 3.9 percent. Growth in 2001 will be lower at 3.4 percent, as declines in OPEC export quotas affect oil production and increasingly weak growth in industrial countries affects demand for goods and services from the region. Short-term prospects have weakened considerably since September 11 in the face of a slowdown in external demand, with economic recovery in Europe and the United States delayed into 2002.

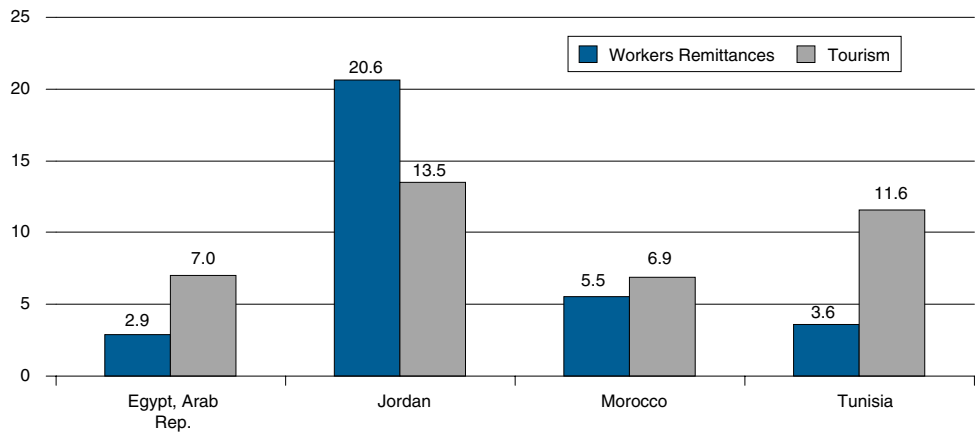
The oil exporters have reaped the benefits of higher demand and disciplined adherence to OPEC quotas, boosting both export volume and revenue growth in 2000, with GDP growth of over 4 percent in several countries. Export volume growth is weaker in 2001 because OPEC quotas were reduced throughout the year in an effort to target supply around a price of $25 a barrel, with growth falling to 3.1 percent. The boost in revenue has fostered income gains and led to strong growth in domestic demand through stronger consumption and import growth. Current account surpluses rose to 14.9 percent of GDP in 2000 and 8.4 percent in 2001. Domestic interest rates fell, and there was an increase in investment in the oil and non-oil sectors, with several countries also benefiting from higher foreign investment. Oil exporters have had few problems refinancing liabilities. Government revenues have also benefited from high oil prices. Many oil exporters achieved balanced budgets or surpluses in 2000, and some of that momentum has continued in 2001. Governments did spend more than previously budgeted from their revenue windfall but most were relatively restrained, given the expenditure profiles of earlier windfall gains. For example, the Saudi government received 58 percent more revenue than budgeted in 2000 but only spent approximately 10 percent more than planned, with much of the extra spending being used to pay domestic arrears.

The diversified economies grew 3.4 percent in 2000, lower than their historical average. Drought conditions in Morocco, Tunisia, and the Levant contributed to lower production and agricultural exports, despite high export market growth in 2000. Additionally, domestic condition in the Arab Republic of Egypt deteriorated significantly as the budget and current account deficit increased, placing pressures on interest rates, exchange rates, and domestic investment. GDP growth in the diversified exporters will rise to 4.4 percent in 2001. Morocco, which had a partial recovery from drought this year, accounts for the increase in GDP growth. Additionally, stronger oil prices and a relief from drought are behind increased growth in Syria. A weaker external environment, particularly in Europe, has affected trade prospects with falling growth expected in most countries as export market growth fell from 13 percent in 2000 to 1.9 percent in 2001. Workers' remittances, tourism, and services receipts will be similarly affected.

Near-term outlook

Looking forward, GDP growth in the region is expected to fall to 2.9 percent in 2002 and to recover to 3.6 in 2003. The sharper downturn in industrial countries and the delayed recovery into mid-2002 will reduce the external impetus to growth. Slower world demand growth will keep oil prices at the lower end of the OPEC price band (around $21 a barrel) and production and income growth will be adversely affected. The diversified exporters face lower

Figure A1.6 Tourism and workers remittances as a share of GDP in 2000



Source: IMF Balance of Payments.

trading partner–import growth, and adverse impacts on tourism from lower external income growth. Growth will probably fall in 2002 to 4.2 percent, but will recover along with the oil exporters in 2003, if, as anticipated, Europe and other trading partners gather momentum.

The momentum of growth in the oil exporters will slow in 2001–02, as weaker global growth affects energy demand and OPEC keeps a tight rein on oil production quotas. Production and export volumes in 2002 are expected to be lower than 2001 levels, thus ensuring that export volumes and GDP growth will decline from 2000 and 2001 rates. As the oil price falls to $21 a barrel in 2002, the terms-of-trade gains made over the last several years will decline, and current account surpluses, which reached 14.9 percent of GDP in 2000, will fall to 1.7 percent of GDP in 2002. Similarly, government balances will show some deterioration, both as oil revenues fall and governments implement new expenditures. The Islamic Republic of Iran is locked into a balanced budget rule, and, with the conservative oil price assumptions used for budget purposes, should retain fiscal balances. Algeria is expected to increase fiscal expenditures greatly in 2001–02, but the oil stabilization fund will be used to finance deficits and retire debt. However, if fiscal policy becomes too expansionary, it will be difficult to maintain the lower interest rates and inflation that have been apparent recently.

The windfall gains have provided opportunities for several oil exporters, particularly the Islamic Republic of Iran and Algeria, to amortize external debt and retire domestic debt. Oil exporters in the Gulf have built up foreign reserves and had few problems maintaining their fixed exchange rates. The Islamic Republic of Iran appears on-track to unify its exchange rate regime in the 2002/03 fiscal year; as a result, it may face a dose of imported inflationary pressures in the forecast period. For most countries, however, inflationary pressures should remain low. Interest rates in oil exporters have been falling, along with rapid growth in liquidity; therefore, there will be continued support to growth from domestic demand as demand for oil softens.

Short-term prospects in diversified exporters are mixed. Growth is expected to average around 4.3 percent in 2002–03. Morocco and the Syrian Arab Republic are expected to recover from the debilitating droughts of recent

Table A1.6 Middle East and North Africa forecast summary
(percent per year)

Growth rates/ratios	1991–2000	1999	2000	Baseline forecast 2001	2002	2003	2004–2010
Real GDP growth	3.2	2.2	3.9	3.4	2.9	3.6	3.3
Consumption per capita	0.4	0.3	3.1	1.7	0.7	0.8	0.9
GDP per capita	1.0	0.3	1.9	1.5	1.0	1.6	1.4
Population	2.2	1.9	2.0	1.9	1.9	1.9	1.9
Inflation[a]	5.2	3.5	3.4	4.5	4.5	4.0	4.0
Gross Domestic Investment/GDP[b]	22.7	22.4	23.4	23.9	24.2	24.3	25.4
Central Gvt Budget Balance/GDP	–1.6	–2.7	–2.5	–3.0	–2.9	–2.6	–2.2
Export Volume[c]	5.8	13.1	6.2	3.0	4.0	5.7	4.6
Current Account/GDP	–1.9	–1.0	8.1	4.7	0.8	–0.9	–2.3
Memorandum Items							
GDP growth: Oil exporters	2.6	1.8	3.3	2.6	2.3	3.3	2.7
Diversified exporters	4.0	3.3	3.4	4.4	4.2	4.3	4.3

a. Local currency GDP deflator; median.
b. Investment ratio measure in real terms.
c. Goods and non-factor services.

Source: World Bank baseline forecast, October, 2001.

years, and agricultural production and exports will provide support for growth in the near term. This will offset, to some extent, the expected external slowdown in demand in 2001–02. The slower activity in the European economy in 2001–02 will adversely affect all the diversified exporters, with merchandise export growth falling from 7 percent in 2000 to 1.9 percent in 2001, before recovering to 4.9 percent in 2002. Jordan is enjoying a broad-based increase in activity, but deterioration in the external environment (tourism, remittances, and capital flows) could dampen growth next year. Current account deficits, which widened in recent years in drought-stricken countries, will remain higher than previously anticipated due to lower export volume growth. Fiscal policy in the drought-stricken countries has by necessity been somewhat expansionary to counter declines in agricultural incomes. Several countries that have signed EU Association Agreements (such as Morocco and Tunisia) have lowered or eliminated customs duties that were a source of revenue, placing upward pressures on fiscal deficits. Consequently, the public sector will continue to play a large role in growth.

Tourism and workers' remittances, two of the mainstays for diversified exporters, will not fare well in the near term. The majority of tourists come from Europe and, with low-income growth in Europe into 2002, and confidence eroded because of the events of September 11, tourism will suffer. Political uncertainty may also contribute to a decline in tourism, particularly in the Levant and in Egypt. This can already be seen in Egypt, where after an almost 15 percent rise in tourist arrivals in 2000, arrivals fell by 8.1 percent in April 2001 and 8.5 percent in May over the same period in the previous year. Jordan's tourism receipts fell by 3.6 percent in the first half of 2001 compared to a year ago. Tunisia and Morocco will suffer less from the effects of the political instability in the Levant. Indeed, Tunisia should continue to experience some growth, and Morocco is investing heavily in tourist infrastructure. Remittances will remain stagnant or grow very slowly as growth slows in the near term in oil exporters, and as income growth is dampened in Western Europe, the main source of remittances for the region.

Long-term prospects

Long-term prospects in the Middle East and North Africa are less positive than in most other developing regions. Growth for the oil ex-

porters in the long term is expected to average 2.7 percent; in the diversified exporters growth is expected to average 4.3 percent. In each case, growth is only slightly higher than the average for the 1990s. Growth in 2004–10 for the region is expected to average 3.3 percent, similar to the average of the 1990s and lower than the average of 3.5 percent for 2000–03. The reasons for the lack of acceleration of growth in the forecast period include the real long-term decline in oil and other commodity prices expected in the next 10 years; the high level of vulnerability of countries in the region to commodity price and other external shocks; and the low level of attractiveness of the region to foreign investment outside commodity sectors.

The main external sources of growth and income in the region come from commodity exports, tourism, and workers' remittances. Each of these sectors is highly vulnerable. In the long-term, energy prices are not expected to increase—in fact, the real crude oil price in 2010 is projected to be approximately half its 2000 level. On the supply side, it is expected that non-OPEC supply will grow in the next several years, indicating that OPEC production and exports must decline in order to maintain prices above $20 a barrel, given expected demand conditions. Without further diversification in oil-exporting countries, many of which receive up to 95 percent of export revenues from hydrocarbons, the external impetus for growth seen since 2000 will diminish. The agricultural and mineral exports of the diversified exporters should fare better as prices increase in the next decade, but the recovery will be slight, and will come from the extremely low levels seen in recent years. In terms of agricultural exports, the scope for increasing penetration of markets is limited by the restrictions remaining on agriculture in the initial Association Agreements signed with the EU by the Mediterranean countries.

Tourism receipts are an important source of revenue for many of the Mediterranean countries but, as can be seen in the current context, they are highly vulnerable to issues concerning political stability. Current events in Israel and the West Bank and Gaza have affected tourism, not just in these areas but in the entire Levant and in Egypt. While countries such as Tunisia and Morocco are making concerted efforts to improve accommodations and service, they still face fierce competition from other destinations that have lower levels of political conflict and better facilities and services. Remittances by nationals working in the Gulf countries and in Europe are also an important source of income, but remittances from the Gulf are not expected to continue growing rapidly. The Gulf countries have begun programs to increase the numbers of their own nationals in their domestic workforce, and this will certainly be at the expense of non-nationals. With slower growth expected in the oil exporters in the long term, remittances are also expected to decline or to grow very slowly.

Notes

1. Dawn Internet Edition, Pakistan, September 20, 2001, http://www.dawn.com.

2. The News International, Pakistan, September 20, 2001, http://www.jang.com.pk

3. Support for eastward expansion of the EU has waned markedly in existing member countries, which was highlighted most recently by Ireland's June 2001 "No" vote on the Treaty of Nice (which makes changes to the voting structure of the EU to accommodate expansion).

4. Angola, Burundi, Côte d'Ivoire, Democratic Republic of Congo, Guinea-Bissau, Kenya, Sierra Leone, and Zimbabwe. No reliable data are available for Liberia or Somalia.

References

FAO (Food and Agriculture Organization of the United Nations). 2001. "Food Supply Situation and Crop Prospects in Sub-Saharan Africa." No. 2 (August).

USITC (United States International Trade Commission). 2001. "Sub-Saharan Africa: Major U.S. Import Suppliers Under the Generalized System of Preferences, and the African Growth and Opportunity Act, Year-to-Date." (http://reportweb.usitc.gov/africa/trade_data.html)

Appendix 2
Global Commodity Price Prospects

Commodity prices declined in 2001, however oil prices remain high relative to non-oil prices (figure A2.1). Agricultural prices have yet to begin a sustained recovery from the declines that began just before the Asia crisis in mid-1997, due to continued large supply increases, weak demand, and currency devaluations of major commodity exporters relative to the dollar. Metals and minerals prices made a modest recovery from the lows reached in 1999, but have since returned to near those lows, due mostly to weak demand. Oil prices rose sharply from their 1998 lows due to cuts by OPEC producers, but have weakened in the past year due to weakness in the global economy and, most recently, the terrorist attacks in the United States.

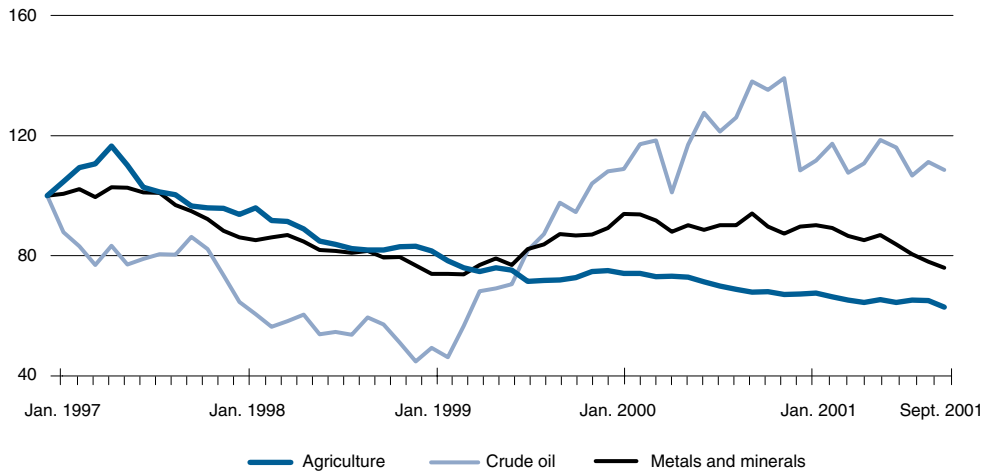
One of the main reasons for the divergence of oil and non-oil commodities is that commodity producers have responded very differently to the price declines following the Asia crisis. Cuts in crude oil production and exports by OPEC producers starting in 1999 sent oil prices higher, while metals and minerals prices got a boost from cuts in mine and smelter output. However producers of agricultural commodities were slow to adjust to low prices; this has contributed to continuing price weakness. Some agricultural commodities are still facing large year-to-year production increases despite the nearly 32 percent decline in agricultural commodity prices from 1997 to 2001. Global coffee production, for example, increased 21 percent from 1997 to 2000 despite a decline of 53 percent in nominal prices over the same period.

Currency devaluations, relative to the U.S. dollar, have also depressed prices of some commodities—especially in countries with weak currencies that are also major commodity exporters, such as Brazil, Indonesia, and Thailand. For example, Brazil's currency has devalued about 50 percent relative to the dollar since 1997, and this has led to lower dollar prices for its major agricultural exports—coffee, soybeans, and sugar. Indonesia, a major exporter of natural rubber and vegetable oils, has seen its currency devalue 70 percent relative to the dollar since 1997. Thailand, the largest rice exporter, has seen its currency devalue 30 percent relative to the dollar since 1997, which has sent rice prices lower.

The current decline in non-oil commodity prices has been more severe than the two declines of the 1980s. There are strong similarities in all three periods, however (figure A2.2). The current decline began in May 1996, and prices fell by 30 percent in 38 months, compared to a decline of 27 percent in 32 months from the February 1980 peak, and a 23 percent decline in 37 months from the June 1988 peak. In all three cases, commodity prices reached their initial lows after about three years and then rallied before returning to their previous lows. Then the patterns diverge, with prices declining for another year in one case and rising in the other.

Figure A2.1 Commodity price trends

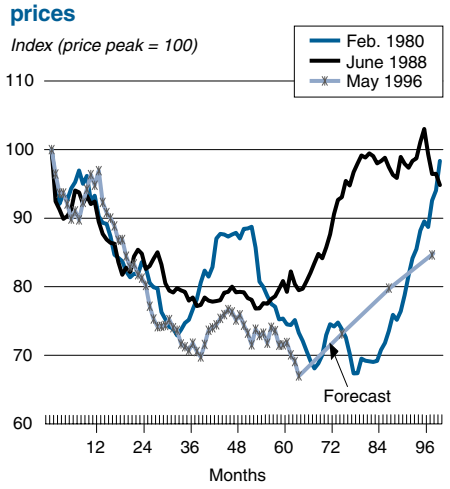
January 1997=100



Source: World Bank.

Figure A2.2 Non-energy commodity prices

Index (price peak = 100)



Source: World Bank.

The recent terrorist attacks and resulting economic slowdown is expected to delay the recovery in non-oil commodity prices until the latter half of 2002 and result in a modest 1.6 percent increase in 2002. Thereafter prices are expected to rebound rapidly as extreme low prices curtail supplies and prices rise 8.1 percent in 2003. The increases are expected to be below the recoveries of the 1980s (figure A2.2) because of large surplus production capacity relative to demand that exists in many commodities; improvements in technology that have lowered production costs; and policies in many OECD countries that have insulated producers from declines in global prices. Agricultural prices are projected to rise 1 percent in 2002 and 8.8 percent in 2003, while metals and minerals prices are projected to rise 3.2 and 7.2 percent, respectively, during 2002 and 2003. Beyond 2003, we expect nominal non-oil prices to continue to increase about 5 percent per year through 2005. Specific commodity price projections are contained in tables A2.12 and A2.13 for selected years to 2005, 2010, and 2015. Projected nominal and real commodity indices are given in table A2.14.

Oil prices are expected to fall to $21 a barrel in 2002 compared to $25 a barrel in 2001. However, the recent terrorist attacks in the

United States have added substantial risk to the outlook, and prices will likely be more volatile than previously expected. Prices are expected to settle in the $18–20 range over the balance of the decade as recent high prices stimulate new production capacity.

Over the forecast period to 2015, real non-oil commodity prices are projected to remain about constant relative to 2001 levels as nominal prices recover from current severely depressed levels. In contrast, real oil prices are expected to fall 40 percent over the same period as prices retreat from current high levels. This divergent forecast for non-oil and oil prices reflects the extreme divergence in current prices rather than a fundamental difference in the long-term outlook. The trend of real commodity prices of the last century are expected to continue, with both oil and non-oil prices declining relative to manufactures prices. During the twentieth century, non-oil commodity prices fell about 1 percent per year relative to the prices of manufactures; oil prices fell even more rapidly until the early 1970s when OPEC's market power emerged and supplies were curtailed. Since the peak of real non-oil prices in the early 1970s and the peak of oil prices in 1980, real prices of both have declined by about two-thirds.

The structural decline in agricultural commodity prices relative to manufactures appears to be the direct consequence of more rapid productivity gains (see box A2.1) Such gains have been fueled by rising yields, improved policies in developing countries, and investments in infrastructure and irrigation. Metals and minerals costs have also declined due to improvements in technology, better management, and better policies. Demand growth for commodities has slowed in response to slower population growth and declining income elasticities. These trends are expected to continue and lead to continued declines in real commodity prices over the longer term.

Agriculture

Agricultural commodity prices have been the weakest component of commodity prices, down 33 percent in 2000 compared to their 1995 highs.

Box A2.1 Total factor productivity growth

Martin and Mitra (2001),[1] in a cross-country study of nearly 50 countries for the period 1967–92, estimated total factor productivity (TFP) growth for agriculture at between 2.3 percent and 2.9 percent per year (depending on the econometric specification used) compared to 1.1 percent to 1.9 percent for manufactures. The TFP growth was found to be faster in developed countries than in developing countries, for both agriculture and manufacturing, and growth was faster in middle-income than low-income developing countries. The difference in TFP growth between agriculture and manufactures was most striking for low-income developing countries, where the range of TFP estimates was 1.4 to 2.0 for agriculture compared to 0.2 to 0.9 for manufactures (table A2.1). Thus the greater gain in total factor productivity of agriculture relative to manufactures has played a large role in accounting for the decline of agricultural prices relative to manufactures.

Total factor productivity growth in agriculture and manufacturing

(percent)

	Agriculture	Manufacturing
Overall TFP	2.3 to 2.9	1.1 to 1.9
Developed countries	3.4 to 3.5	1.9 to 3.3
Developing countries	1.8 to 2.6	0.6 to 0.9
Low income countries	1.4 to 2.0	0.2 to 0.9
Middle income countries	1.8 to 2.9	0.8 to 1.0

[1] Martin, W. and D. Mitra (2001). "Productivity Growth in Agriculture versus Manufacturing." Economic Development and Cultural Change, vol. 49, no. 2, January, pp. 403–422.

Beverages

The World Bank's monthly index of nominal beverage prices (comprised of the export value weighted average of coffee, cocoa, and tea prices) has declined 71 percent since the 1997 highs, due mostly to steep declines in coffee prices.

Prior to 1998–99, coffee production and consumption were relatively equal, with little overall increase in either since the late 1980s. Since 1998–99, production has increased about 20 percent, and arabica and robusta coffee prices have declined 66 and 63 percent, respectively, from 1997 to the first nine months of 2001. Despite these dramatic price declines, production is expected to increase for the fourth consecutive year (see table A2.1). Prices are not expected to recover until this imbalance is resolved. It is possible that coffee prices have permanently shifted lower to accommodate increased production by efficient producers.

Cocoa and tea prices have not seen the sharp declines observed in coffee because supplies have not increased as significantly. Cocoa consumption has grown at a fairly steady 3 percent per year over the past two decades, while global tea consumption has grown at a more modest 1 percent per year (see table A2.2).

Coffee

Brazil, the largest coffee producer with about 30 percent of the world's total, is expected to have a near-record crop, while Vietnam, the second largest producer, is expected to have a record crop. Other major producers such as Colombia, Côte d'Ivoire, Indonesia, and Mexico are all expected to have large crops.

Low prices have been met with several recent attempts to curtail exports by the Association of Coffee Producing Countries (ACPC). So far these attempts have been ineffective and all efforts have ended in failure. Current efforts appear to lack an effective mechanism to control coffee exports and have not yet inspired much market response. In addition, withholding stocks without reducing supplies encourages sales outside of the agreement and undermines the agreement.

The recent decline in coffee prices has been due primarily to a surge in supplies, but the equally important longer-term problem for coffee producers is weak demand. Per capita consumption in Europe and the United States, which accounts for nearly 90 percent of international demand, has been declining. In the United States, for example, per capita coffee consumption has been declining since 1970, while per capita consumption of soft drinks has more than doubled. Unless tastes change, coffee producers will probably need to adjust to slow—perhaps stagnant—demand growth.

A significant recovery of coffee prices is not expected soon unless there are major supply disruptions due to droughts or frosts, which occurred in 1994 and 1997. We project a modest recovery in robusta prices beginning in 2002 and arabica prices in 2003 (table A2.12–13 for specific price forecasts), but we also recognize the risk that prices could drift lower until supplies are sharply reduced. Over the longer-term,

Table A2.1 Coffee production

(million bags)

	1997–98	1998–99	1999–2000	2000–01	2001–02
Brazil	22.8	35.6	30.8	34.1	33.7
Vietnam	6.9	7.5	11.0	11.3	12.5
Colombia	12.2	10.9	9.5	11.5	11.4
Indonesia	7.8	7.0	6.5	7.3	6.3
Mexico	5.1	5.0	6.2	5.5	5.5
Côte d'Ivoire	3.7	2.2	5.7	4.3	4.7
World	96.4	108.4	113.7	117.0	117.7

Source: USDA; and International Coffee Organization (ICO).

Table A2.2 Beverages' global balance

							Annual growth rates (percent)		
	1970	1980	1990	1999	2000	2001	1970–80	1980–90	1990–2000
Coffee *(Thousand bags)*									
Production	64,161	86,174	88,849	113,723	117,001	117,739	2.11	1.36	1.20
Consumption	71,536	79,100	96,300	98,000	103,290	105,340	1.01	1.97	0.22
Exports	54,186	60,996	76,163	92,338	87,502	96,095	0.78	2.41	1.06
	1970	1980	1990	1998	1999	2000	1970–80	1980–90	1990–2000
Cocoa *(Thousand tons)*									
Production	1,554	1,695	2,506	2,884	3,032	2,809	0.46	4.62	1.82
Grindings	1,418	1,556	2,335	2,785	2,911	2,977	0.16	4.48	2.38
Stocks	497	675	1,791	1,231	1,321	1,125	2.38	13.89	3.95
Tea *(Thousand tons)*									
Production	1,286	1,848	2,526	2,963	2,847	2,895	4.09	2.87	1.24
Exports	752	859	1,099	1,296	1,272	1,309	2.35	2.39	1.62

Notes: The 2001 figures for coffee are preliminary forecasts. Time reference for coffee and cocoa are based on crop year shown under the year that production begins: October to September for cocoa, and April to March for coffee. For tea, time is calendar year.
Source: International Cocoa Organization; International Tea Committee; FAO; USDA; and World Bank.

real coffee prices are expected to recover, but remain well below historical highs of the 1970s or recent highs of the 1990s. By 2015, real arabica and robusta prices are projected to increase 54 and 74 percent, respectively, from 2001 levels, but they would still be only half of their 1990s peaks.

Cocoa

Following the three-decade low in February 2000, cocoa prices recovered somewhat during the first nine months of 2001 to average $1.01/kg compared to $0.91/kg in 2000. The partial price recovery was largely due to production cutbacks and export disruptions in Côte d'Ivoire (due to political instability), and Ghana. The 2000–01 cocoa crop is expected to be down 7.3 percent from the 1999–2000 record crop, and more in line with the average production levels of the early 1990s.

Demand for cocoa is expected to grow by 2.3 percent this season, just a little slower than the 1990–2000 average of 2.4 percent, but far below the 1980–90 average of 4.6 percent (table A2.2). Demand from Eastern Europe and the former Soviet Union (FSU) has grown by more than 10 percent per year, while East Asian countries have seen slower demand growth, partly due to the recent economic slowdown. Prices are projected to average a little over $1.00/kg in 2001 and about $1.10/kg in 2002. By 2015, real prices are projected to increase 21 percent from 2001 but still be 20 percent below their 1998 highs.

Tea

The three-auction average tea price fell 17 percent in the first nine months of 2001, compared to 2000, due mostly to increased production by the major exporters (India, Kenya, and Sri Lanka). In addition, currency devaluations in Sri Lanka relative to the U.S. dollar contributed to the dollar price declines. Since the high in 1997, nominal tea prices are down about 21 percent.

Tea prices have been held up by several years of poor harvests in some exporting countries, combined with strong demand in the Middle East and the Russian Federation, following high export earnings from crude oil. However, prices are expected to decline as supplies increase and demand weakens along with the expected decline in crude oil prices. We project tea prices to decline about 1 per-

cent in 2002, but there is potential for larger declines because of a possible disruption in trade to the Middle East and Central Asia following recent events.

The growth of global tea exports has slowed significantly during the 1990s compared to previous decades (table A2.2), and this has not been offset by more rapid growth in domestic demand in major producing countries, such as India. Thus, we project real prices to decline 14 percent by 2015 relative to 2001 as exporters intensify their push to increase output and demand growth remains weak.

Food

Despite considerable volatility in the components of the food price index, the overall index of nominal food prices has remained relatively constant since 1999, but is down nearly 32 percent since peaking in 1996. Prices are expected to increase about 1 percent in 2002 and then begin to recover more rapidly as the global economy rebounds from the current slowdown, and agricultural commodity prices recover from current lows. By 2015, real food prices are expected to return to long-run trends, down 13 percent relative to 2001 levels.

Fats and oils

Fats and oils prices have taken a beating, down 8.1 percent in the first nine months of 2001 compared to 2000, and down 40 percent since 1997. The declines are due generally to increased supplies and currency devaluations of major producers versus the dollar. Global fats and oils production in 2001–02 (October to September) is expected to increase about 2 percent from the 2000–01 level, which is well below the trend growth of about 3.5 percent per year, but follows large increases in recent years that have left the market oversupplied. The increase has been greatest in the two largest vegetable oils—soybean and palm—which account for 23 and 19 percent of total fats and oils, respectively.

World soybean production has grown by 5.1 percent per year over the past decade, with growth centered in the three major producers and exporters (Argentina, Brazil, and the United States), which together account for 80 percent of global production (table A2.3). Since 1990, palm oil production has more than doubled (table A2.4), with the large increases coming from Indonesia and Malaysia.

Table A2.3 Soybean production

(millions of tons)

Year	Argentina	Brazil	United States	World
1990	11.5	15.8	52.4	104.1
1995	12.4	24.2	59.2	124.9
2000	26.0	37.5	75.4	172.1
2001	25.5	38.0	79.9	177.2

Source: USDA.

Table A2.4 Palm oil production

(millions of tons)

Year	Indonesia	Malaysia	World
1990	2.41	6.10	11.03
1995	4.22	7.81	15.22
2000	6.95	10.84	21.77
2001	7.35	11.55	23.01

Source: Oil World.

Prices of most fats and oils are expected to increase in 2002 and 2003, but remain well below 1999 highs. Once the current imbalance is resolved, price prospects improve due to the strong demand growth expected in China and India. Real fats and oil prices are projected to increase 12 percent from 2001 to 2015 as prices recover from current lows.

Grains

The USDA's projection for the new season (2001–02) is for significant declines in ending-stocks of grain (table A2.5), and this should cause most grain prices to increase in 2001 and 2002 after reaching lows in 1999 or 2000. Maize prices appear to have bottomed out in 2000 and are expected to increase about 2 percent in 2001 and 7 percent in 2002. Wheat prices, which hit bottom in 1999, are projected to increase 10 percent in 2001 and 4 percent in

Table A2.5 Global grain stocks to use
(percentages)

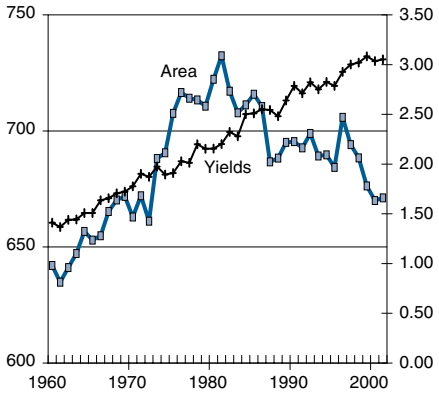
	Maize	Rice	Wheat	Total Grains
1997–98	25.5	33.3	29.3	26.9
1998–99	29.3	34.3	29.8	28.5
1999–2000	28.4	35.8	28.3	27.8
2000–01	25.9	34.2	26.8	26.1
2001–02 (estimated)	23.0	31.4	22.4	23.1
1990s low	22.6	31.4	25.2	23.2

Source: USDA. Data for 2001–02 are the USDA's August 2001 estimate.

2002. Rice prices, which are still falling, are expected to decline 16 percent in 2001, and then increase 9 percent in 2002. In real terms, maize, rice, and wheat prices are projected to increase 14, 17, and 13 percent by 2015 relative to their lows during 1999–2001.

Substantial surplus production capacity exists because yields have continued to grow along historical trends, while the area devoted to grain production has fallen (figure A2.3). Despite these reductions in land use, real prices have declined by half since 1980. The growth of global grain consumption has slowed from 2.6 percent per year during the 1970s to 1.8 percent during the 1980s, and to 1 percent during the 1990s (table A2.6).

Figure A2.3 World grain area and yields
Million hectares and tons per hectare



Note: Area is in million hectares (left side) and yields are in tons per hectare (right side).

Source: World Bank based on USDA data.

Sugar

World sugar production has exceeded consumption in 8 of the past 10 seasons, causing the ending stocks-to-use ratio to reach 0.27 in the 2000–01 marketing season—the highest since 1985. World sugar consumption has grown by 3 percent per year during the last decade (table A2.6). Sugar prices had recovered from the sharp drop following the Asia crisis, but have since declined due to large supplies (figure A2.4).

Brazil, which is the largest sugar exporter with about one-quarter of world exports in 2000–01, more than doubled production from 1990–91 to 2000–01 and increased exports from 1.5 to 11.3 million tons. Australia and Thailand increased production by 50 and 70 percent, respectively, from 1990–91 to 1997–98 when prices were attractive, but have cut production as prices have declined.

Sugar prices are expected to fall about 11 percent in 2002 in response to large supplies and weak demand, and then increase 12 percent in 2003. However, prices are expected to remain relatively weak for the next several years, with fluctuations depending on the year-to-year balance of production and consumption. Over the longer term, real prices are expected to trend lower as production continues to outpace consumption and stocks periodically build. Relative to the 1999 lows, real prices are projected to increase 49 percent by 2015.

Raw materials

The index of agricultural raw materials prices (comprised of tropical hardwoods, cotton, and natural rubber) declined sharply during the Asia crisis and then stabilized. Recently prices have again declined, and are now about 40 percent below their 1997 nominal levels (figure A2.5). Prices are expected to reach a low in 2001 and then increase modestly during the next several years. By 2005, nominal prices are projected to rise 28 percent relative

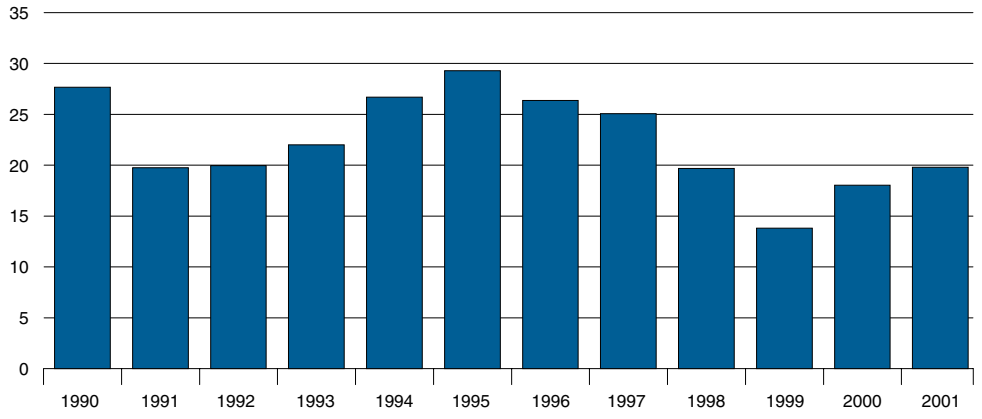
Table A2.6 Foods' global balance

							Annual growth rates (percent)		
	1970	1980	1990	1998	1999	2000	1970–80	1980–90	1990–2000
Grains *(Million tons)*									
Production	1,079	1,430	1,769	1,888	1,887	1,840	2.88	1.55	1.04
Consumption	1,114	1,450	1,717	1,857	1,890	1,876	2.58	1.78	1.02
Exports	109	215	203	225	241	227	6.35	0.13	0.94
Stocks	193	309	490	528	525	489	7.24	3.83	0.56
Soybeans *(Thousand tons)*									
Production	44,269	80,873	104,093	159,819	159,659	172,107	6.84	1.87	5.08
Consumption	47,988	84,017	103,643	159,567	159,839	171,486	6.53	2.04	4.99
Exports	12,572	24,514	24,488	38,945	47,231	52,686	5.24	0.80	2.88
Stocks	3,599	11,538	12,992	14,297	14,338	14,209	13.83	0.66	0.20
Sugar *[Thousand tons (raw equivalent)]*									
Production	70,919	84,742	109,393	143,388	133,634	136,882	2.80	1.59	3.26
Consumption	65,395	91,062	106,802	138,168	127,499	129,449	3.30	1.40	3.00
Exports	21,931	27,571	34,078	41,933	36,742	39,911	3.26	0.83	3.12
Stocks	19,614	19,494	19,309	28,178	31,639	35,225	3.96	0.77	4.52
	1970	1980	1990	1999	2000	2001	1970–80	1980–90	1990–2000
Fats and oils *(Million tons)*									
Production	39.78	58.09	80.84	113.50	117.48	119.84	3.68	3.54	3.70
Consumption	39.82	56.80	80.87	112.20	117.54	121.29	3.55	3.69	3.64
Exports	8.83	17.763	26.89	35.13	37.82	39.37	7.05	4.19	3.39
Stocks	5.18	9.25	12 .15	14.04	14.00	12.80	7.09	2.44	0.69

Note: Time reference for grains, soybeans, and sugar are based on marketing years, shown under the year in which production begins, and varies by country and commodity; for fats and oils time is crop year beginning September.
Source: USDA; and *Oil World*.

Figure A2.4 Nominal sugar price

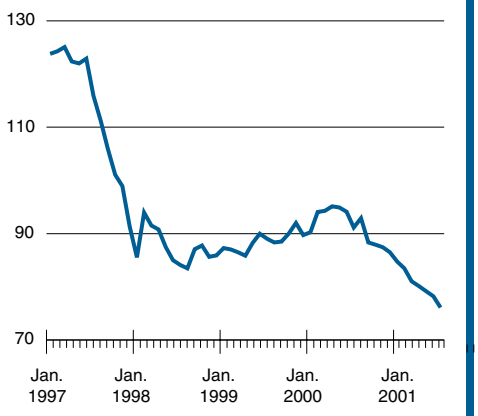
U.S. cents per kilogram



Source: World Bank.

Figure A2.5 Agricultural raw materials price index

Index, 1990 = 100



Source: World Bank.

to 2001, and real prices are projected to rise 17 percent by 2015.

Cotton

Cotton prices declined almost 14 percent in the first three quarters of 2001 compared to 2000—in response to a 6 percent increase in global production in the 2001–02 season. The surge in production (compared to recent historical growth of about 0.8 percent a year) was largely due to a 7 percent increase in global area planted in cotton, which was in response to the relative attractiveness of cotton prices compared to other annual crops. China, India, and the United States accounted for three-quarters of the total production increase.

Cotton demand has been stagnant for most of the past decade and is unlikely to quickly absorb recent production increases. Cotton's share of total fiber consumption exceeded 80 percent in 1950, but fell to 50 percent by 1980, and reached a low of 40 percent in recent years. Consumption is only expected to increase 1 percent in 2001–02; consequently stocks are expected to rise significantly. Therefore, the widely used Cotlook A Index is projected to average $1.06/kg in 2001 and then decrease to $1.02/kg in 2002. Over the longer term, real prices are expected to rise only modestly from current low levels. By 2015, real prices are projected to increase 14 percent relative to 2001.

Natural rubber

Natural rubber prices have contributed to the recent weakness in raw materials prices by declining 11 percent during the first three quarters of 2001 compared to 2000. This price weakness occurred despite a nearly 9 percent increase in global demand (partly in response to the second Firestone tire recall).

The three top producers and exporters of natural rubber—Indonesia, Malaysia, and Thailand—have, in principle, agreed to establish a buffer stock with the objective of cutting production by 4 percent annually starting in 2002 until a full price recovery is realized. While the details of the buffer stock scheme have not yet been outlined, the trilateral organization, Tripartite Rubber Corporation (TRC), is expected to act soon. The historical record of managed supply cut mechanisms is poor, but because TRC consists of the three members who together account for about two-thirds of global output, the outcome may be different.

Natural rubber prices are expected to decline 11 percent in 2001 and then begin to recover in 2002—rising 25 percent by 2005. Real prices are expected to increase 16 percent by 2015 relative to 2001.

Tropical timber

Asian meranti log prices fell 14 percent during the first three quarters of 2001 compared to 2000, due to weak demand in Japan and the strong dollar relative to the Japanese yen. African sapelli log prices fell 5 percent over the same period due to reduced supplies because of restrictions and bans on log exports from Cameroon and other African countries. The weakness of the euro against the dollar and the instability of meranti prices encouraged European buying in the African market.

As growth in the global economy slows, demand in the tropical timber industry continues to weaken, and prices are expected to follow

Table A2.7 Raw materials' global balance

							Annual growth rates (percent)		
	1970	1980	1990	1999	2000	2001	1970–80	1980–90	1990–2000
Cotton *(thousand tons)*									
Production	11,740	13,832	18,970	18,841	19,360	20,800	1.22	3.09	0.84
Consumption	12,173	14,215	18,576	19,784	19,700	19,930	1.11	3.10	0.21
Exports	3,875	4,414	5,081	6,102	5,770	5,900	0.93	2.79	0.49
Stocks	4,605	4,895	6,645	8,802	8,580	9,460	1.71	2.83	1.38
	1970	1980	1990	1998	1999	2000	1970–80	1980–90	1990–2000
Natural rubber *(thousand tons)*									
Production	3,140	3,820	5,080	6,820	6,800	6,880	1.78	3.17	3.08
Consumption	3,090	3,770	5,190	6,540	6,660	7,260	1.58	3.16	3.25
Net Exports	2,820	3,280	3,950	4,690	4,660	5,000	1.26	2.07	1.84
Stocks	1,440	1,480	1,500	2,300	2,530	2,150	0.60	0.23	3.71
	1970	1980	1990	1997	1998	1999	1970–80	1980–90	1990–1999
Tropical lumber *(thousand cubic meters)*									
Logs, production	210	262	300	311	289	299	1.47	1.71	0.45
Logs, imports	36.1	42.2	25.1	17.9	14.6	18.9	0.18	5.10	5.36
Sawnwood, production	98.5	115.8	131.8	115.0	108.3	108.2	1.17	1.74	1.99
Sawnwood, imports	7.1	13.2	16.1	21.2	19.5	21.6	4.95	2.57	3.33
Plywood, production	33.4	39.4	48.2	56.1	47.6	52.0	1.17	2.02	0.46
Plywood, imports	4.9	6.0	14.9	19.5	18.3	18.3	0.69	9.10	3.60

Note: The 2001 figures for cotton are preliminary forecasts. Time reference for cotton is based on crop year shown under the production year beginning August; for rubber and tropical timber, time refers to calendar year.
Source: International Cotton Advisory Committee; International Rubber Study Group; FAO; and World Bank.

demand. Log imports to Japan are expected to fall about 6 percent in 2001 compared to the previous year, according to industry estimates. China, which is the largest global log importer, has continued rapid import growth and this has partially offset weak Japanese imports. However, the combination of the strong dollar, slower economic growth, and the abundance of softwoods that can substitute for hardwood in some uses, should lead to lower prices in 2001. The recovery of timber prices beyond 2001 will be closely linked to the global economic recovery expected in 2003 and to a weakening of the dollar. We project timber prices to remain unchanged in 2002 and to recover in 2003. By 2005, nominal prices of meranti logs are projected to increase 43 percent relative to 2001; sapelli logs are projected to increase 13 percent; and meranti sawnwood is projected to increase 34 percent.

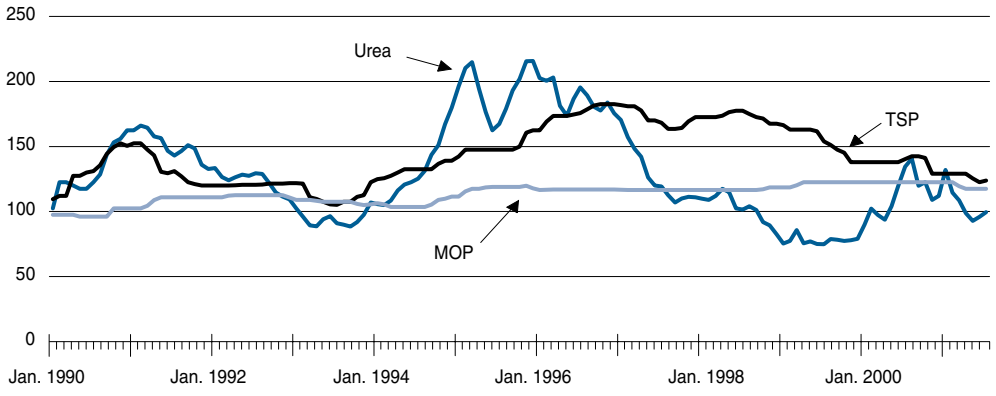
Over the longer-term, real timber prices are projected to recover from current levels, as timber prices remain one of the few commodities with trend real price increase due to supply constraints. Real meranti logs and sawnwood prices are projected to increase 37 and 27 percent, respectively, from 2001 to 2015 while sapelli log prices are projected to increase 9 percent by 2015 compared to 2001. The slower projected growth of sapelli log prices reflects the smaller price decline compared to meranti log prices during the Asia crisis.

Fertilizers

The fertilizer industry is burdened by surplus capacity and weak demand, but prices appear to be near their lows. The situation varies by fertilizer type, with nitrogen (urea) fertilizer prices recovering in 2000 after falling for four years; phosphate (TSP) fertilizer prices still declining but near expected lows; and potash (MOP) prices holding steady due to aggressive production cutbacks (figure A2.6).

Figure A2.6 Fertilizer prices

Dollars per ton



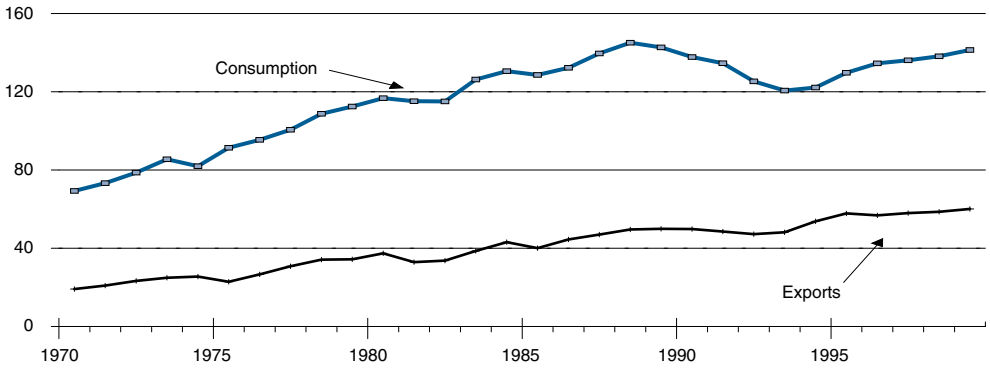
Source: World Bank.

The industry is still adjusting to the sharp declines in consumption in former Soviet and Eastern European countries following the collapse of the Soviet Union. Prices had been heavily subsidized under state control and fertilizer use was high, but subsidies were cut and consumption fell sharply after the collapse of the Soviet Union. This left many countries (such as the Russian Federation and Ukraine) with large production capacity and reduced domestic demand—which led to export growth from Eastern Europe of 4 percent per year since 1993. These exports displaced traditional exporters, and depressed prices of nitrogen and phosphate fertilizers. Global consumption fell about 17 percent from the high in 1988 to the low in 1993 and has only recently recovered to near the 1988 peak (figure A2.7).

The fertilizer industry has had to contend with several other changes in recent years, in-

Figure A2.7 World fertilizer consumption and exports

Millions of tons



Source: FAO.

Table A2.8 Fertilizer global balance
(million tons)

	1970	1980	1990	1997	1998	1999	Annual growth rates (percent) 1970–80	1980–90	1990–99
Nitrogen									
Production	33.30	62.78	82.26	87.60	88.48	90.85	6.53	3.12	1.11
Consumption	31.76	60.78	77.14	80.12	82.62	85.53	6.86	2.60	1.15
Exports	6.77	13.15	19.48	23.24	23.95	24.58	7.23	5.10	2.62
Phosphate									
Production	22.04	34.51	39.35	32.81	32.99	32.65	3.72	1.70	2.05
Consumption	21.12	31.70	35.90	33.34	33.17	33.15	3.85	1.39	.88
Exports	2.92	7.51	10.50	12.24	12.54	12.90	8.37	5.01	2.31
Potash									
Production	17.59	27.46	26.82	26.16	24.98	25.42	3.97	0.03	0.59
Consumption	16.43	24.24	24.68	22.63	22.36	22.68	3.93	0.05	0.94
Exports	9.45	16.72	19.82	22.52	22.13	22.63	4.89	0.73	1.48

Note: All data are in marketing years.
Source: FAO.

cluding weak grain prices since 1996; high natural gas prices in the United States and Europe in the past two years; reduced fertilizer use in the EU because of environmental concerns and lower commodity intervention prices; and increased domestic fertilizer production in major importing countries such as China.

The slow recovery of agricultural commodity prices and weakness in the global economy suggest that prices may remain near current levels for several years or begin a modest recovery. Over the longer term, nitrogen prices are projected to rise as production capacity is rationalized and demand increases; phosphate prices are expected to remain about constant following recent declines; and potash prices are expected to decline as surplus capacity continues.

Metals and Minerals

The index of metals and minerals prices fell 15 percent during the first nine months of 2001, with copper prices down 23 percent (see figure A2.8). Production cutbacks have helped slow the price decline, most notably in aluminum where significant capacity has been shut in the United States' Pacific Northwest—and to a lesser extent in Brazil—because of electric power problems. Mergers and acquisitions have also helped to rationalize surplus capacity within the industry. However global output continues to exceed demand and inventories have risen. Stocks of most metals have risen by more than 60 percent this year, with aluminum and copper stocks more than doubling (see figure A2.9).

The negative impact on the global economy from the terrorist attacks of September 11 will result in lower demand for most metals and minerals, higher inventories, and lower prices. Further closure of high-cost production is likely, and this may help underpin prices somewhat. However the recovery in prices will likely be delayed well into 2002, and will largely be determined by the timing and the strength of the rebound in global economic activity.

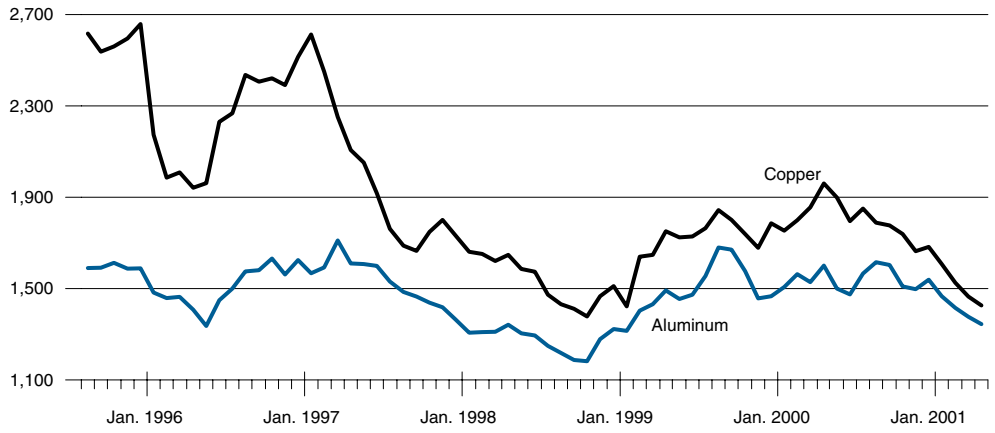
Higher prices will also bring forth new capacity and the restart of idle facilities, and prices will eventually recede. Real prices are expected to decline in the longer term, as production costs continue to fall due to new technologies and improved managerial practices (see figure A2.10).

Aluminum

Aluminum prices have fallen 14 percent this year, while London Metal Exchange (LME) inventories have risen 124 percent. Prices have been partly supported by large reductions in

Figure A2.8 Aluminum and copper prices

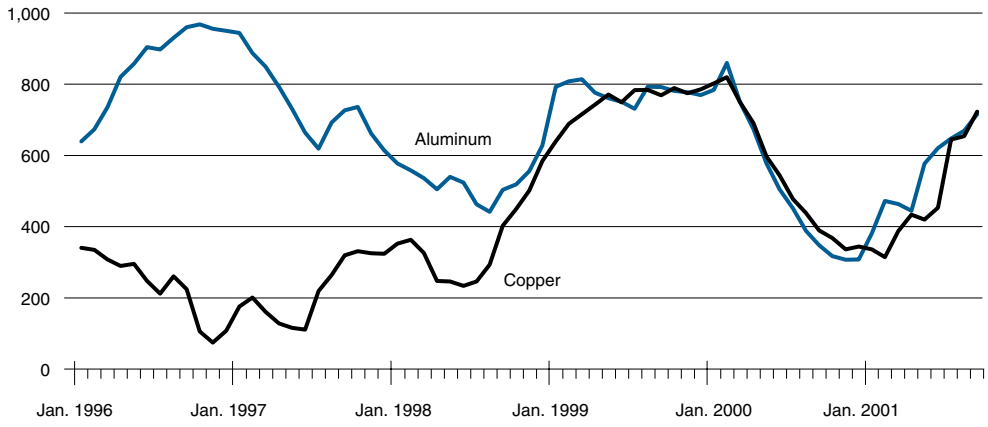
Dollars per ton



Source: London Metal Exchange.

Figure A2.9 Aluminum and copper stocks

Thousands of metric tons



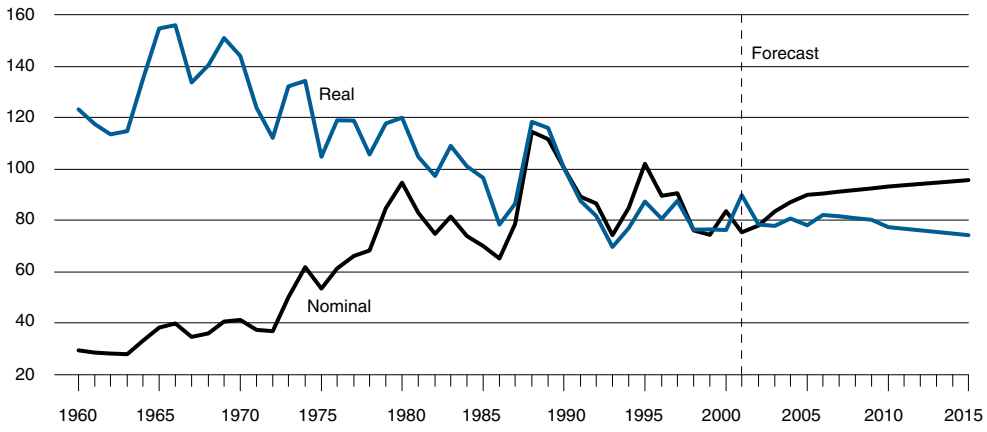
Source: London Metal Exchange.

production in the United States because of the electricity crisis on the West Coast and production curtailments in Brazil and Canada due to hydropower shortages.

About 1.6 million tons of capacity in the U.S. Pacific Northwest has been idled because of electric power shortages in the region. The Bonneville Power Authority (BPA) asked aluminum producers to stay off-line for up to two years or face high power prices when new contracts went into effect on October 1, 2001. The BPA announced that load reductions by utilities and industries helped reduce the rate increase to 46 percent (approximately $34/MWh) compared to possible rate increases of 250 percent, and spot power rates that were several times that

Figure A2.10 Metals and minerals prices

Price index (1990 = 100)



Source: Platts and World Bank.

amount. As compensation for not taking power and curtailing production, aluminum smelters will receive an average rate of $20/MWh.

Despite production cutbacks, the global market is expected to retain a small surplus this year, before moving into a deficit in 2002, but this will partly depend on any structural impact to demand following the September terrorist attacks. Prices are expected to recover during the next economic cycle, but real long-term prices are expected to decline. New low-cost capacity is coming on-stream, but profitable new investments will continue to require low-cost power supplies.

Copper

Copper prices declined 23 percent in the first nine months of 2001, due to weak demand and rising stocks.

LME inventories have more than doubled this year, and are only 13 percent below the highs in early 2000. World consumption fell 2 percent during the first six months, due to the slump in economic activity. In the United States, the construction sector has been buoyant, but weakness in the auto and technology sectors has resulted in total demand falling 9 percent. Demand has been weak elsewhere, with the notable exception of China, partly due to its infrastructure programs. Meanwhile, world production rose 4 percent in the first half of the year.

With recovery of demand in 2002, the market balance is expected to slip into deficit, since only moderate growth in production is expected. Prices could rebound sharply as the next cycle commences, which could also provide upward momentum to other metals prices. In the longer term, increases in new low-cost capacity are expected, and real prices are expected to decline.

Nickel

Nickel prices have fallen 31 percent this year because supply has significantly exceeded demand. LME inventories have risen by 73 percent, but are still quite low compared with levels in recent years (see table A2.9). Production in the first seven months increased by 2.7 percent, with Canada, Colombia, and New Caledonia recording large gains. However first-half world consumption dropped 10 percent, with demand in Japan and the United States down sharply, while China provided the one bright

Table A2.9 Metals and minerals global balance

(thousand tons)

	1970	1980	1990	1998	1999	2000	Annual growth rates (percent) 1970–80	1980–90	1990–2000
Aluminum									
Production	10,257	16,027	19,362	22,648	23,705	24,495	3.2	1.9	2.2
Consumption	9,996	14,771	19,244	21,842	23,505	24,905	3.2	1.8	2.2
LME ending stocks	n.a.	68	311	636	775	322	n.a.	0.3	0.4
Copper									
Production	7,583	9,242	10,809	14,145	14,455	14,788	1.9	1.1	3.5
Consumption	7,294	9,400	10,780	13,364	14,094	15,099	2.5	1.0	3.3
LME ending stocks	72	123	179	592	790	357	7.4	5.6	15.7
Nickel									
Production	0	717	842	999	1,073	1,140	n.a.	1.6	3.1
Consumption	0	742	858	1,042	1,028	1,107	n.a.	1.5	2.6
LME ending stocks (tons)	2,130	4,554	4,344	65,964	46,962	9,678	n.a.	0.5	8.3

n.a. = not available.
Source: World Bureau of Metal Statistics; London Metal Exchange and World Bank.

spot of growth. Stainless steel production has declined owing to the slowdown in economic activity, which lowered demand and prices for nickel (and zinc). The market is tilting into surplus, and a small surplus is expected to endure in 2002 and 2003 as production increases.

Gold

Gold was the one major metal to rise sharply immediately following the September terrorist attacks. After averaging $267/toz this year, prices surged toward $300/toz as some investors turned to gold as a safe haven. Once calm returns to world markets, gold prices should revert toward previous levels, as gold demand will be adversely affected by higher prices and the slowing global economy. Gold demand has been sluggish this year, falling 3 percent in the second quarter, in part because of the higher U.S. dollar gold price. Central Bank sales continue (see table A2.10), with the U.K. government about to complete its

Table A2.10 Gold global balance

(tons)

	Tons 1991	1994	1995	1996	1997	1998	1999	2000	(percent p.a.) 1991–2000
Jewelry	2,358	2,618	2,791	2,851	3,349	3,156	3,149	3,185	3.4
Other fabrication	518	457	503	484	560	569	595	564	0.9
Bar hoarding	252	231	306	182	325	173	240	211	2.0
Other	n.a.	n.a.	6	n.a.	n.a.	208	170		n.a.
Total demand	**3,128**	**3,305**	**3,606**	**3,518**	**4,234**	**4,106**	**4,154**	**3,971**	**4.0**
Mine production	2,159	2,279	2,274	2,361	2,479	2,538	2,568	2,576	2.0
Net official sales	111	81	173	279	626	374	464	471	17.4
Old gold scrap	482	617	625	640	628	1,097	616	607	2.6
Net hedging	66	163	535	142	504	97	506		n.a.
Other	310	173		95	297			316	0.7
Total supply	**3,128**	**3,305**	**3,606**	**3,518**	**4,234**	**4,106**	**4,154**	**3,971**	**2.4**

n.a. = not available
Source: Gold Field Minerals Service; and World Bank.

planned series of auctions of 395 tons in early 2002. Gold prices are expected to remain under $300/toz over the forecast period, generally trading in a relatively narrow range. As has been the case for some time, higher prices will stimulate new supplies, encourage producer sales, and lessen demand, while low prices will reduce investment and encourage consumption. Mine production is expected to continue to increase moderately, as new low-cost operations come on-stream. An important determinant of prices will be the decision by Central Banks whether to further stem official gold sales when the Washington Agreement expires in 2004.

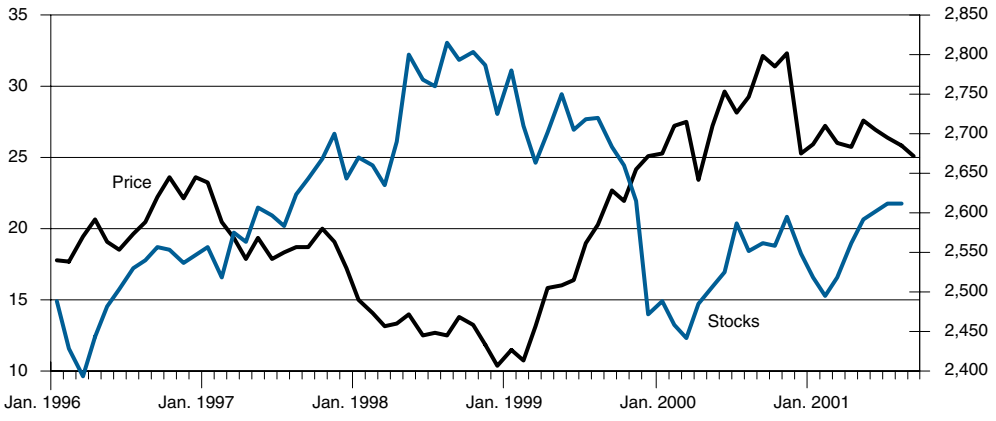
Petroleum

Since the rebound in oil prices that began in early 1999—propelled by a large cutback in OPEC production and sharp decline in inventories (see figure A2.11)—prices have held firm primarily because of OPEC production restraint. Ten OPEC countries (excluding Iraq, which remains outside the quota system while under U.N. sanctions) are taking pre-emptive production decisions to keep prices within their recently chosen band of $22–28 a barrel for its basket of crudes. Due to the seasonality of oil demand, OPEC must both raise and lower production during the year to stabilize prices (see figure A2.12). With non-OPEC supply increasing, it will be more and more difficult to counterbalance the downward pressure on prices.

The terrorist attacks on the United States on September 11, 2001, have accentuated this picture, while at the same time uncertainty is exceptionally large. Following the attacks, oil prices slumped below $23 a barrel due to expectations of weak oil demand, little immediate threat to oil supplies, and no action by OPEC to reduce production and prop up sagging prices. However should there be a significant supply disruption—either from military attacks, sanctions, or reactions from oil producers (for instance, from Iraq)—oil prices could rise sharply.

OPEC announced immediately after the attacks that it would raise production if necessary to help prevent oil prices from spiking higher. Given surplus capacity of around four million barrels a day, the organization could easily make up for a loss of, say, Iraq's exports of around two million barrels a day. At its meeting at end-September 2001, the organization de-

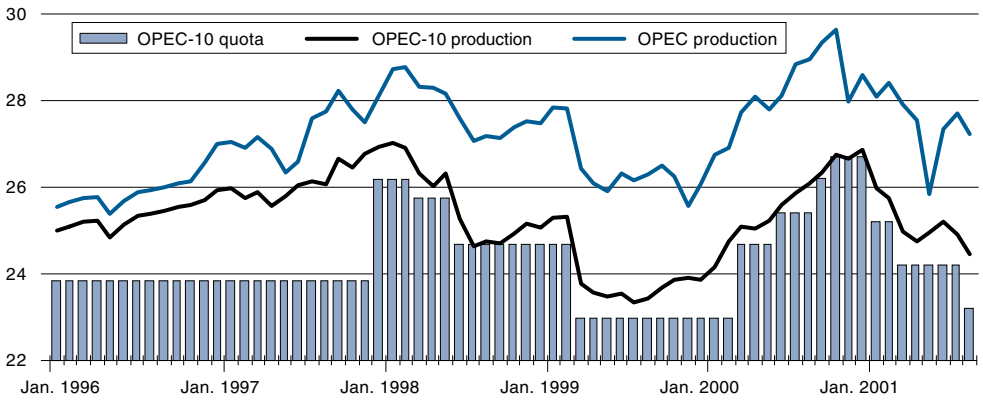
Figure A2.11 Oil price and OECD stocks



Source: World Bank and International Energy Agency.

Figure A2.12 OPEC production and quotas

Millions of barrels a day



Note: OPEC-10 excludes Iraq.
Source: International Energy Agency.

cided not to cut production, despite the fact that oil prices were starting to fall below the lower end of its range. The organization felt compelled not to raise prices at this time because of the impact on the weakening global economy, and to show support for the allied coalition.

In 2002, the requirements for OPEC oil are projected to be lower than in 2001, due to minimal growth in global oil demand and continued rise in non-OPEC supplies. Consequently, OPEC will need to lower production to keep prices within its band. OPEC is expected to strive to maintain prices within the lower end of its range. However, in the present political and economic environment, it is expected to fall short because of weak oil demand, higher inventories, and overproduction by some member countries.

Once some form of normalcy returns to the political and economic climate, and a global recovery commences, OPEC is expected to continue its policy of adjusting output to keep inventories lean and to maintain prices within its band. However, this requires OPEC to micromanage the market and to anticipate seasonal changes in demand for its crude. Given the many uncertainties affecting underlying levels of oil demand and supply, its production decisions may result in both the over- and undershooting of prices.

In the longer term, if OPEC is successful in keeping prices above $25 a barrel, the impact on demand, and particularly on competing supplies, will increasingly exert downward pressure on prices. While higher prices in 1999–2000 were achieved relatively easily with little apparent impact on demand, supply, and economic activity, long-term responses are likely to be much higher and could thwart part—and possibly much—of the growth in demand for OPEC crude.

To the degree that higher oil prices are deemed to be temporary, there will be little structural change to oil demand. But if high prices are perceived to be "permanent," it will accelerate advances in conservation and substitution away from oil. High prices have already generated policy responses, such as the new U.S. energy policy, and increasing environmental pressures will also tend to restrain oil consumption over time. High prices will also stimulate development of conventional and unconventional oil supplies, and make alternative energy supplies more competitive. There are no apparent resource constraints far into the future, and oil consumption has only risen moderately over the past 20 years (see

Table A2.11 Petroleum global balance

(million barrels per day)

	Million barrels per day						Annual growth rates (percent)		
	1970	1980	1990	2000	2001	2002	1970–80	1980–90	1990–2000
OECD	34.0	41.5	41.5	47.8	47.8	47.8	2.0	0.0	1.4
FSU	5.0	8.9	8.4	3.6	3.7	3.7	5.9	0.6	8.1
Other nonOECD	6.8	12.3	16.1	24.4	24.6	24.9	6.1	2.7	4.3
Total consumption	**45.7**	**62.6**	**66.0**	**75.9**	**76.1**	**76.4**	**3.2**	**0.5**	**1.4**
OPEC	23.5	27.2	24.5	30.8	30.3	29.3	1.5	1.0	2.3
FSU	7.1	12.1	11.5	7.9	8.5	8.8	5.4	0.5	3.6
Other nonOPEC	17.4	24.6	30.9	38.0	38.0	38.7	3.5	2.3	2.1
Total production	**48.0**	**63.9**	**66.9**	**76.7**	**76.8**	**76.8**	**2.9**	**0.5**	**1.4**
Stock change, misc.	2.3	1.3	0.9	0.8	0.7	0.4			

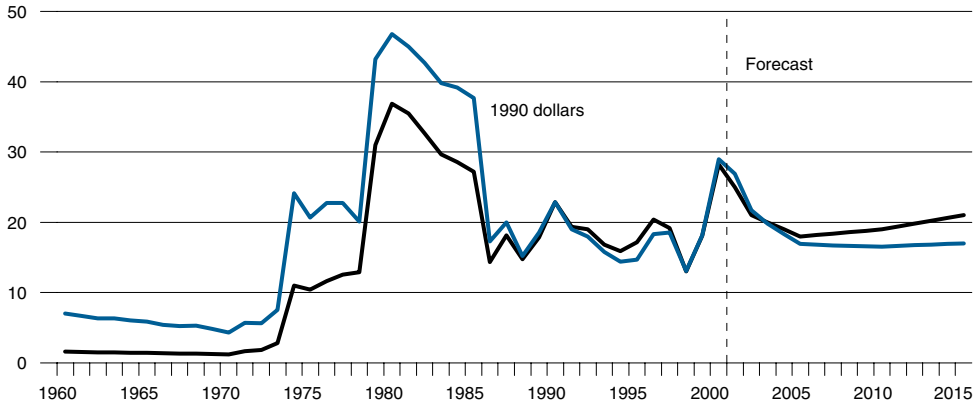
Source: British Petroleum; International Energy Agency; and World Bank.

table A2.11). In addition, new areas continue to be developed (e.g., deep water offshore and the Caspian Sea), development costs continue to fall (shifting supply curves outward), and the large profits being generated will lead to higher investment. In addition, OPEC countries are increasing capacity, and will add to the supply competition in the coming years.

Due to rising supply competition and below-trend oil demand growth, oil prices are expected to decline from $25 a barrel in 2001 to $21 a barrel in 2002, and fall below $20 a barrel by mid-decade (see figure A2.13). A risk to the forecast is if OPEC takes strong, concerted action on production levels over the next few years to keep prices at or above $25 a barrel. If successful, it will add to the growing pressures on world demand and competing supplies, and prices would still be expected to fall below $20 a barrel by mid-decade.

Figure A2.13 Crude oil prices

Dollars a barrel



Source: World Bank.

Table A2.12 Commodity prices and price projections in current dollars

Commodity	Unit	Actual				Projections					
		1970	1980	1990	2000	2001	2002	2003	2005	2010	2015
Energy											
Coal, U.S.	$/mt	n.a.	43.10	41.67	33.06	44.00	38.00	36.00	34.00	35.00	36.00
Crude oil, average	$/bbl	1.21	36.87	22.88	28.23	25.00	21.00	20.00	18.00	19.00	21.00
Natural gas, Europe	$/mmbtu	n.a.	3.40	2.55	3.86	4.00	3.30	3.10	2.75	2.75	3.00
Natural gas, U.S.	$/mmbtu	0.17	1.55	1.70	4.31	3.95	2.50	2.60	2.75	3.00	3.25
Nonenergy Commodities											
Agriculture											
Beverages											
Cocoa	cents/kg	67.5	260.4	126.7	90.6	105.0	110.0	120.0	140.0	157.0	168.0
Coffee, other milds	cents/kg	114.7	346.6	197.2	192.0	136.7	138.9	154.3	209.4	265.0	280.0
Coffee, robusta	cents/kg	91.4	324.3	118.2	91.3	61.7	63.9	70.6	88.2	132.0	142.6
Tea, auctions (3) average	cents/kg	83.5	165.9	205.8	187.6	162.0	160.0	168.0	180.0	182.0	184.0
Food											
Fats and oils											
Coconut oil	$/mt	397.2	673.8	336.5	450.3	315.0	365.0	430.0	600.0	645.0	670.0
Copra	$/mt	224.8	452.7	230.7	304.8	200.0	350.0	400.0	450.0	480.0	500.0
Groundnut oil	$/mt	378.6	858.8	963.7	713.7	675.0	725.0	775.0	820.0	850.0	875.0
Palm oil	$/mt	260.1	583.7	289.8	310.3	290.0	330.0	360.0	400.0	450.0	475.0
Soybean meal	$/mt	102.6	262.4	200.2	189.2	180.0	183.0	190.0	215.0	235.0	245.0
Soybean oil	$/mt	286.3	597.6	447.3	338.1	357.0	385.0	395.0	425.0	460.0	505.0
Soybeans	$/mt	116.9	296.2	246.8	211.8	200.0	205.0	210.0	235.0	260.0	270.0
Grains											
Maize	$/mt	58.4	125.3	109.3	88.5	90.0	96.0	108.0	122.0	125.0	130.0
Rice, Thai, 5 percent	$/mt	126.3	410.7	270.9	202.4	170.0	185.0	205.0	235.0	260.0	270.0
Sorghum	$/mt	51.8	128.9	103.9	88.0	95.0	91.8	103.3	116.6	119.5	123.5
Wheat, U.S., HRW	$/mt	54.9	172.7	135.5	114.1	125.0	130.0	138.0	150.0	155.0	160.0
Other food											
Bananas, U.S.	$/mt	166.1	377.3	540.9	424.0	610.0	523.6	523.6	529.1	568.0	590.0
Beef, U.S.	cents/kg	130.4	276.0	256.3	193.2	207.0	202.8	202.8	213.9	220.0	230.0
Oranges	$/mt	168.0	400.2	531.1	363.2	630.0	625.0	550.0	450.0	475.0	500.0
Shrimp, Mexican	cents/kg	n.a.	1,152	1,069	1,513	1,575	1,550	1,600	1,660	1,690	1,720
Sugar, world	cents/kg	8.2	63.16	27.67	18.04	18.80	16.75	18.70	22.00	24.00	26.00
Agricultural raw materials											
Timber											
Logs, Cameroon	$/cum	43.0	251.7	343.5	275.4	265.0	265.0	275.0	300.0	338.0	385.0
Logs, Malaysia	$/cum	43.1	195.5	177.2	190.0	162.0	162.0	190.0	232.0	260.0	295.0
Sawnwood, Malaysia	$/cum	175.0	396.0	533.0	594.7	485.0	485.0	570.0	650.0	720.0	820.0
Other raw materials											
Cotton	cents/kg	67.6	206.2	181.9	130.2	105.8	102.1	114.6	132.3	149.9	159.6
Rubber, RSS1, Malaysia	cents/kg	40.7	142.5	86.5	69.1	61.7	63.9	72.8	77.2	88.0	95.1
Tobacco	$/mt	1,076	2,276	3,392	2,976	3,011	3,080	3,150	3,250	3,300	3,450
Fertilizers											
DAP	$/mt	54.0	222.2	171.4	154.2	147.0	155.0	165.0	180.0	190.0	200.0
Phosphate rock	$/mt	11.00	46.71	40.50	43.75	41.75	41.00	42.00	43.00	46.00	48.00
Potassium chloride	$/mt	32.0	115.7	98.1	122.5	119.0	120.0	121.5	125.0	127.0	130.0
TSP	$/mt	43.0	180.3	131.8	137.7	125.0	126.0	127.0	138.0	145.0	165.0
Urea, E. Europe, bagged	$/mt	48.0	222.1	130.7	112.1	105.3	110.0	120.0	140.0	145.0	150.0
Metals and minerals											
Aluminum	$/mt	556	1,456	1,639	1,549	1,440	1,500	1,650	1,800	1,850	1,900
Copper	$/mt	1,416	2,182	2,661	1,813	1,575	1,625	1,800	2,000	2,100	2,200
Gold	$/toz	36.0	607.9	383.5	279.0	275.0	280.0	275.0	275.0	300.0	300.0
Iron ore, Carajas	cents/dmtu	9.84	28.09	32.50	28.79	30.03	30.50	31.00	32.00	33.00	33.00
Lead	cents/kg	30.3	90.6	81.1	45.4	47.0	50.0	55.0	60.0	64.0	64.5
Nickel	$/mt	2,846	6,519	8,864	8,638	5,900	6,100	6,200	6,400	6,500	6,600
Silver	cents/toz	177.0	2,064	482.0	499.9	450.0	475.0	500.0	520.0	550.0	550.0
Tin	cents/kg	367.3	1,677	608.5	543.6	440.0	465.0	485.0	525.0	540.0	550.0
Zinc	cents/kg	29.6	76.1	151.4	112.8	89.0	90.0	95.0	100.0	110.0	120.0

n.a. = Not available.
Note: Projections as of October 12, 2001.
Source: World Bank, Economic Policy and Prospects Group.

Table A2.13 Commodity prices and price projections in constant 1990 dollars

Commodity	Unit	Actual				Projections					
		1970	1980	1990	2000	2001	2002	2003	2005	2010	2015
Energy											
Coal, U.S.	$/mt	n.a.	54.71	41.67	33.94	47.33	39.31	35.68	31.97	30.48	29.17
Crude oil, average	$/bbl	4.31	46.80	22.88	28.98	26.89	21.73	19.82	16.92	16.54	17.02
Natural gas, Europe	$/mmbtu	n.a.	4.32	2.55	3.96	4.30	3.41	3.07	2.59	2.39	2.43
Natural gas, U.S.	$/mmbtu	0.61	1.97	1.70	4.42	4.25	2.59	2.58	2.59	2.61	2.63
Nonenergy Commodities											
Agriculture											
Beverages											
Cocoa	cents/kg	240.6	330.5	126.7	93.0	113.0	113.8	118.9	131.6	136.7	136.1
Coffee, other milds	cents/kg	408.8	440.0	197.2	197.1	147.0	143.7	153.0	196.9	230.8	226.9
Coffee, robusta	cents/kg	325.7	411.7	118.2	93.7	66.4	66.1	69.9	82.9	114.9	115.6
Tea, auctions (3) average	cents/kg	297.7	210.6	205.8	192.6	174.3	165.5	166.5	169.2	158.5	149.1
Food											
Fats and oils											
Coconut oil	$/mt	1416.0	855.3	336.5	462.3	338.9	377.6	426.2	564.1	561.7	542.9
Copra	$/mt	801.6	574.7	230.7	312.9	215.2	362.1	396.4	423.1	418.0	405.1
Groundnut oil	$/mt	1349.5	1090.1	963.7	732.6	726.1	750.1	768.1	771.0	740.2	709.0
Palm oil	$/mt	927.1	740.9	289.8	318.5	312.0	341.4	356.8	376.1	391.9	384.9
Soybean meal	$/mt	365.7	333.1	200.2	194.2	193.6	189.3	188.3	202.1	204.6	198.5
Soybean oil	$/mt	1020.8	758.6	447.3	347.1	384.0	398.3	391.5	399.6	400.6	409.2
Soybeans	$/mt	416.8	376.0	246.8	217.5	215.2	212.1	208.1	221.0	226.4	218.8
Grains											
Maize	$/mt	208.2	159.0	109.3	90.9	96.8	99.3	107.0	114.7	108.9	105.3
Rice, Thai, 5 percent	$/mt	450.3	521.4	270.9	207.8	182.9	191.4	203.2	221.0	226.4	218.8
Sorghum	$/mt	184.7	163.6	103.9	90.3	102.2	95.0	102.3	109.7	104.1	100.1
Wheat, U.S., HRW	$/mt	195.7	219.3	135.5	117.1	134.5	134.5	136.8	141.0	135.0	129.6
Other food											
Bananas, U.S.	$/mt	592.1	478.9	540.9	435.3	656.2	541.7	518.9	497.5	494.6	478.0
Beef, U.S.	cents/kg	465.0	350.3	256.3	198.4	222.7	209.8	201.0	201.1	191.6	186.4
Oranges	$/mt	599.1	508.0	531.1	372.9	677.7	646.6	545.1	423.1	413.6	405.1
Shrimp, Mexican	cents/kg	n.a.	1,462	1,069	1,553	1,694	1,604	1,586	1,561	1,472	1,394
Sugar, world	cents/kg	29.32	80.17	27.67	18.5	20.2	17.3	18.5	20.7	20.9	21.1
Agricultural raw materials											
Timber											
Logs, Cameroon	$/cum	153.3	319.5	343.5	282.8	285.1	274.2	272.6	282.1	294.3	311.9
Logs, Malaysia	$/cum	153.8	248.2	177.2	195.0	174.3	167.6	188.3	218.1	226.4	239.0
Sawnwood, Malaysia	$/cum	623.9	502.7	533.0	610.5	521.7	501.8	564.9	611.1	627.0	664.4
Other raw materials											
Cotton	cents/kg	241.1	261.7	181.9	133.7	113.8	105.6	113.6	124.4	130.5	129.3
Rubber, RSS1, Malaysia	cents/kg	145.2	180.8	86.5	71.0	66.4	66.1	72.1	72.6	76.6	77.0
Tobacco	$/mt	3,836	2,889	3,392	3,055	3,239	3,186	3,122	3,056	2,874	2,795
Fertilizers											
DAP	$/mt	192.5	282.1	171.4	158.3	158.1	160.4	163.5	169.2	165.5	162.1
Phosphate rock	$/mt	39.2	59.3	40.5	44.9	44.9	42.4	41.6	40.4	40.1	38.9
Potassium chloride	$/mt	114.1	146.9	98.1	125.8	128.0	124.2	120.4	117.5	110.6	105.3
TSP	$/mt	153.3	228.8	131.8	141.4	134.5	130.4	125.9	129.8	126.3	133.7
Urea, E. Europe, bagged	$/mt	171.1	282.0	130.7	115.1	113.3	113.8	118.9	131.6	126.3	121.5
Metals and minerals											
Aluminum	$/mt	1,982	1,848	1,639	1,590	1,549	1,552	1,635	1,692	1,611	1,539
Copper	$/mt	5,047	2,770	2,661	1,862	1,694	1,681	1,784	1,880	1,829	1,783
Gold	$/toz	128.1	771.6	383.5	286.5	295.8	284.5	272.6	258.6	261.2	243.1
Iron ore	cents/dmtu	35.1	35.7	32.5	29.6	32.3	31.6	30.7	30.1	28.7	26.7
Lead	cents/kg	108.0	115.0	81.1	46.6	50.6	51.7	54.5	56.4	55.7	52.3
Nickel	$/mt	10,147	8,275	8,864	8,867	6,347	6,311	6,145	6,017	5,660	5,348
Silver	cents/toz	631.0	2619.4	482.0	513.2	484.1	491.4	495.5	488.9	478.9	445.6
Tin	cents/kg	1309.6	2129.3	608.5	558.0	473.3	481.1	480.7	493.6	470.2	445.6
Zinc	cents/kg	105.5	96.6	151.4	115.8	95.7	93.1	94.2	94.0	95.8	97.2

n.a. = Not available.
Note: Projections as of October 12, 2001.
Source: World Bank, Economic Policy and Prospects Group.

Table A2.14 Weighted indices of commodity prices and inflation

Index	Actual				Projections[a]					
	1970	1980	1990	2000	2001	2002	2003	2005	2010	2015
Current dollars										
Petroleum	5.3	161.2	100.0	123.4	109.3	91.8	87.4	78.7	83.0	91.8
Nonenergy commodities[b]	43.8	125.5	100.0	86.9	79.1	80.4	86.9	97.4	106.8	109.5
Agriculture	45.8	138.1	100.0	87.7	80.1	80.9	88.0	100.3	112.3	114.8
Beverages	56.9	181.4	100.0	88.4	71.8	73.4	80.5	101.4	123.6	130.8
Food	46.7	139.3	100.0	84.5	86.5	87.2	91.6	100.4	107.4	100.4
Fats and oils	64.4	148.7	100.0	96.2	89.5	95.2	100.9	115.1	126.6	132.8
Grains	46.7	134.3	100.0	79.5	77.4	82.0	90.0	101.0	106.7	110.6
Other food	32.2	134.3	100.0	77.7	89.1	83.7	84.8	88.0	92.0	68.1
Raw materials	36.4	104.6	100.0	91.4	78.1	78.4	89.1	99.6	110.4	121.7
Timber	31.8	79.0	100.0	111.0	91.0	91.0	107.0	123.1	136.6	155.5
Other raw materials	39.6	122.0	100.0	78.0	69.3	69.8	76.8	83.5	92.5	98.6
Fertilizers	30.4	128.9	100.0	105.8	97.9	97.7	99.0	105.2	111.3	122.7
Metals and minerals	40.4	94.2	100.0	83.0	74.9	77.3	82.9	89.3	92.6	95.2
Constant 1990 dollars[c]										
Petroleum	18.9	204.6	100.0	126.7	117.5	95.0	86.6	74.0	72.3	74.4
Nonenergy commodities	156.3	159.3	100.0	89.2	85.1	83.1	86.1	91.5	93.0	88.7
Agriculture	163.3	175.3	100.0	90.0	86.2	83.7	87.3	94.3	97.8	93.1
Beverages	202.8	230.3	100.0	90.7	77.2	75.9	79.8	95.3	107.7	106.0
Food	166.5	176.8	100.0	86.7	93.0	90.2	90.8	94.4	93.5	81.3
Fats and oils	229.5	188.7	100.0	98.8	96.2	98.5	100.0	108.2	110.3	107.6
Grains	166.6	170.5	100.0	81.6	83.3	84.8	89.2	94.9	92.9	89.6
Other food	114.9	170.5	100.0	79.8	95.9	86.5	84.0	82.7	80.1	55.2
Raw materials	129.8	132.7	100.0	93.8	84.1	81.1	88.3	93.6	96.1	98.6
Timber	113.3	100.3	100.0	113.9	97.9	94.2	106.0	115.7	118.9	126.0
Other raw materials	141.1	154.9	100.0	80.0	74.6	72.2	76.2	78.5	80.5	79.9
Fertilizers	108.3	163.6	100.0	108.6	105.3	101.0	98.2	98.9	96.9	99.4
Metals and minerals	143.9	119.6	100.0	85.2	80.5	80.0	82.1	84.0	80.7	77.1
Inflation indices, 1990=100[d]										
MUV index[e]	28.05	78.78	100.00	97.41	92.96	96.66	100.90	106.36	114.84	123.42
Percent change per annum		10.88	2.41	–0.26	–4.56	3.98	4.38	2.67	1.55	1.45
U.S. GDP deflator	33.59	65.93	100.00	123.73	126.58	128.86	131.43	137.28	153.06	170.65
Percent change per annum		6.98	4.25	2.15	2.30	1.80	2.00	2.20	2.20	2.20

a. Commodity price projections as of October 12, 2001.
b. The World Bank primary commodity price indices are computed based on 1987–89 export values in U.S. dollars for low and middle-income economies, rebased to 1990. Weights for the subgroup indices expressed as ratios to the nonenergy index are as follows in percent: agriculture 69.1, fertilizers 2.7, metals and minerals 28.2; beverages 16.9, food 29.4, raw materials 22.8; fats and oils 10.1, grains 6.9, other food 12.4; timber 9.3, and other raw materials 13.6.
c. Computed from unrounded data and deflated by the MUV index.
d. Inflation indices for 2001–10 are projections as of October 3, 2001. MUV for 2000 is an estimate. Growth rates for years 1980, 1990, 2000, 2005, 2010, and 2015 refer to compound annual rate of change between adjacent end-point years; all others are annual growth rates from the previous year.
e. Unit value index in U.S. dollar terms of manufactures exported from the G-5 countries (France, Germany, Japan, the United Kingdom, and the United States) weighted proportionally to the countries' exports to the developing countries.
Source: World Bank, Economic Policy and Prospects Group; Historical U.S. GDP deflator; U.S. Department of Commerce.

Appendix 3
Global Economic Indicators

Table A3.1 Growth of real GDP, 1971–2010

(GDP in 1995 prices and exchange rates—average annual percentage growth)

	2000 GDP *(current billions of U.S. dollars)*	1971–80	1981–90	1991–00	2000	Estimate 2001	Forecast 2001–2010
World	**31,981**	**3.8**	**3.2**	**2.6**	**3.8**	**1.3**	**2.9**
High-income economies	25,599	3.4	3.1	2.4	3.4	0.9	2.5
Industrial	24,811	3.4	3.0	2.4	3.3	0.9	2.4
G-7	21,028	3.4	3.1	2.3	3.2	0.7	2.4
United States	9,873	3.1	3.2	3.2	4.1	1.1	2.7
Japan	4,752	4.5	4.0	1.4	1.5	–0.8	2.0
G-4 Europe	5,693	2.9	2.4	1.8	3.1	1.4	2.3
Germany[a]	1,872	2.7	2.2	1.8	3.1	0.6	1.9
Euro Area	6,077	3.3	2.5	2.1	3.5	1.5	2.4
Non-G7 Industrial	3,783	3.2	2.7	2.8	3.9	1.9	2.8
Other high-income	788	7.7	5.2	5.2	6.3	0.6	3.9
Asian NIEs	571	9.5	7.4	6.1	7.8	0.4	4.2
Low- and middle-income economies	6,401	5.4	3.5	3.2	5.5	2.9	4.5
Excluding ECA	5,365	5.5	3.5	4.8	5.3	3.1	4.7
Asia	2,595	5.4	7.2	6.8	6.9	4.6	5.8
East Asia and Pacific	1,982	6.6	7.8	7.2	7.5	4.6	6.0
China	1,080	5.3	9.2	10.1	8.0	7.2	...
Korea, Rep. of	457	7.6	9.1	6.1	8.8	2.5	...
Indonesia	153	7.9	6.4	4.2	5.2	3.6	...
South Asia	612	3.1	5.8	5.2	4.9	4.5	5.3
India	479	3.0	5.9	5.6	5.2	4.5	...
Latin America and the Caribbean	1,949	5.9	1.1	3.3	3.8	0.9	3.5
Brazil	588	8.5	1.5	2.7	4.4	1.4	...
Mexico	584	6.7	1.8	3.5	6.9	0.6	...
Argentina	285	3.0	–1.5	4.6	–0.5	–1.9	...
Europe and Central Asia	993	5.2	3.5	–2.3	6.3	2.1	3.4
Russian Federation[b]	247	5.2	4.7	–5.2	8.3	4.7	...
Turkey	200	4.2	5.2	3.6	7.1	–7.4	...
Poland	158	5.0	–0.1	3.7	4.2	1.4	...
Middle East and North Africa	549	6.6	2.4	3.2	3.9	3.4	3.3
Saudi Arabia	149	10.3	0.4	2.3	4.0	1.5	...
Iran, Islamic Rep.	134	1.8	2.7	4.1	5.2	4.1	...
Egypt, Arab Rep.	96	6.6	5.5	4.4	5.1	4.3	...
Sub-Saharan Africa	315	3.3	1.7	2.2	3.0	2.7	3.6
Republic of South Africa	126	3.5	1.3	1.7	3.1	2.4	...
Nigeria	41	4.7	1.1	2.5	2.8	3.1	...

a. Data prior to 1991 covers West Germany.
b. Data prior to 1992 covers the former Soviet Union.
Note: This table comprises a sample of 145 countries representing 99 percent of world GDP.
Source: World Bank data and staff estimates.

Figure A3.1 Real GDP growth, 1991–2010

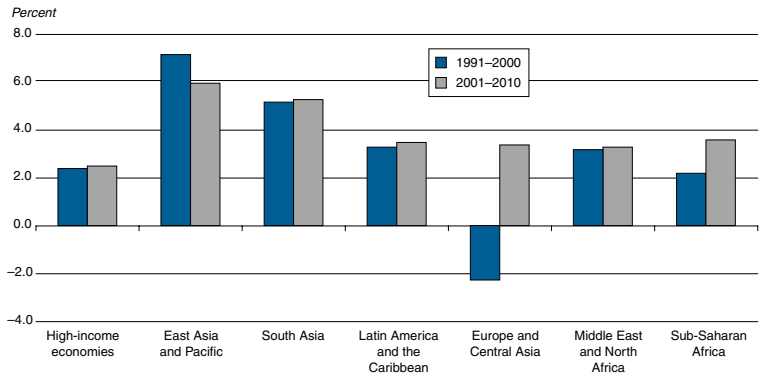


Table A3.2 Growth of real per capita GDP, 1971–2010

(GDP in 1995 prices and exchange rates—average annual percentage growth)

	2000 GDP per capita *(current U.S. dollars)*	1971–80	1981–90	1991–00	2000	Estimate 2001	Forecast 2001–2010
World	**5,530**	**1.9**	**1.4**	**1.2**	**2.4**	**0.0**	**1.8**
High-income economies	28,751	2.6	2.4	1.8	2.8	0.5	2.2
Industrial	29,395	2.6	2.5	1.8	2.8	0.5	2.2
G-7	30,421	2.6	2.5	1.7	2.7	0.3	2.1
United States	35,840	2.1	2.2	2.2	3.2	0.3	2.0
Japan	37,520	3.3	3.4	1.1	1.5	–0.9	2.0
G-4 Europe	22,048	2.6	2.1	1.5	3.0	1.3	2.3
Germany[a]	22,821	2.6	2.1	1.5	3.1	0.7	2.1
Euro Area	20,084	2.8	2.2	1.8	3.3	1.4	2.5
Non-G7 Industrial	24,754	2.4	2.1	2.3	3.5	1.6	2.7
Other high-income	17,010	5.2	3.4	3.7	4.7	–0.7	2.8
Asian NIEs	17,595	7.2	5.9	4.7	6.4	–0.7	3.4
Low- and middle-income economies	1,301	3.2	1.5	1.6	4.0	1.5	3.2
Excluding ECA	1,211	3.2	1.4	3.1	3.6	1.5	3.3
Asia	861	3.2	5.3	5.2	5.4	3.2	4.7
East Asia and Pacific	1,175	4.5	6.1	6.0	6.4	3.6	5.1
China	857	3.4	7.6	9.0	7.0	6.4	...
Korea, Rep. of	9,684	5.7	7.8	5.1	7.9	1.7	...
Indonesia	729	5.4	4.4	2.5	3.5	2.1	...
South Asia	461	0.6	3.5	3.3	3.0	2.8	3.8
India	472	0.7	3.6	3.7	3.3	2.8	...
Latin America and the Caribbean	3,889	3.4	–0.9	1.6	2.2	–0.7	2.1
Brazil	3,450	5.9	–0.4	1.3	3.0	0.2	...
Mexico	5,900	3.6	–0.3	1.7	5.2	–1.3	...
Argentina	7,703	1.3	–2.9	3.2	–1.7	–3.2	...
Europe and Central Asia	2,174	4.1	2.6	–2.5	6.1	1.9	3.3
Russian Federation[b]	1,693	4.2	3.8	–5.2	8.6	5.0	...
Turkey	3,062	1.8	2.8	2.0	5.5	–8.7	...
Poland	4,071	4.1	–0.8	3.5	4.1	1.4	...
Middle East and North Africa	1,948	3.6	–0.6	1.0	1.9	1.5	1.4
Saudi Arabia	6,714	5.1	–4.8	–1.1	0.7	–1.5	...
Iran, Islamic Rep.	1,415	–1.4	–0.7	2.4	3.5	2.5	...
Egypt, Arab Rep.	1,508	4.4	2.9	2.4	3.5	2.7	...
Sub-Saharan Africa	484	0.5	–1.2	–0.4	0.5	0.3	1.3
Republic of South Africa	2,942	1.2	–1.2	–0.3	1.4	1.0	...
Nigeria	325	1.7	–1.9	–0.3	0.4	0.3	...

a. Data prior to 1991 covers West Germany.
b. Data prior to 1992 covers the former Soviet Union.
Note: This table comprises a sample of 145 countries representing 99 percent of world GDP.
Source: World Bank data and staff estimates.

Figure A3.2 Real per-capita GDP growth, 1991–2010

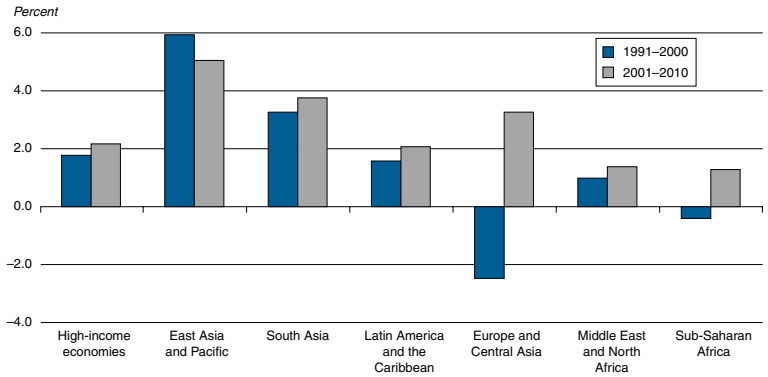


Table A3.3 Inflation: GDP deflators, 1971–2010

(percentage change[a])

	1971–80	1981–90	1991–00	2000	Estimate 2001	Forecast 2001–2010
World	**9.0**	**5.8**	**4.1**	**2.2**	**2.8**	**1.9**
High-income economies	8.8	5.2	2.3	1.2	1.7	1.2
Industrial	8.6	4.6	1.9	1.2	1.8	1.1
G-7	8.3	4.2	1.8	0.8	1.5	1.1
United States	7.1	4.2	2.2	2.3	2.7	1.8
Japan	7.8	1.9	0.1	–1.7	–0.6	–0.4
G-4 Europe	9.7	5.7	2.7	0.7	1.5	1.4
Germany[b]	5.3	2.8	2.9	–0.4	1.0	2.4
Euro Area	9.4	6.0	2.9	1.2	1.8	1.2
Non-G7 Industrial	10.4	6.9	2.8	3.1	2.9	0.8
Other high-income	19.3	32.1	15.7	–0.2	1.3	3.1
Asian NIEs	9.5	4.7	2.4	–2.0	1.2	3.0
Low- and middle-income economies	9.8	8.3	11.8	6.4	6.7	4.6
Excluding ECA	11.5	9.8	8.9	5.8	6.4	4.5
Asia	11.0	7.0	7.0	4.8	7.0	5.0
East Asia and Pacific	11.0	5.6	5.4	3.4	7.1	4.5
China	1.8	5.5	6.3	1.0	5.1	...
Korea, Rep. of	20.8	7.1	4.8	–1.5	11.7	...
Indonesia	20.6	8.8	15.0	9.4	10.5	...
South Asia	11.9	8.9	8.1	5.8	6.1	6.6
India	8.9	8.3	8.4	6.9	3.3	...
Latin America and the Caribbean	14.6	19.3	12.6	6.9	7.9	6.4
Brazil	39.7	330.8	205.6	7.2	11.1	...
Mexico	18.1	63.7	18.1	11.8	10.9	...
Argentina	117.7	439.5	10.2	1.1	–0.5	...
Europe and Central Asia	0.3	2.4	347.1	7.5	7.5	4.9
Russian Federation[c]	0.3	2.3	179.1	41.1	18.1	...
Turkey	32.6	46.3	72.1	53.3	53.2	...
Poland	4.5	72.5	23.5	7.6	7.7	...
Middle East and North Africa	11.8	7.7	5.2	3.4	4.5	4.1
Saudi Arabia	23.8	–3.1	1.2	2.5	4.5	...
Iran, Islamic Rep.	20.2	15.6	25.6	22.5	20.7	...
Egypt, Arab Rep.	11.0	13.1	8.4	4.0	5.0	...
Sub-Saharan Africa	10.3	9.4	9.7	6.3	6.0	4.4
Republic of South Africa	13.3	15.1	9.9	6.9	6.9	...
Nigeria	13.4	16.6	28.8	26.1	18.5	...

Note: Deflators are in local currency units: 1995=100.
a. High-income group inlation rates are GDP-weighted averages of local currency inflation. Low- and middle-income groups are medians. World is GDP-weighted average of the two groups.
b. Data prior to 1991 covers West Germany.
c. Data prior to 1992 covers the former Soviet Union.
Note: This table comprises a sample of 145 countries representing 99 percent of world GDP.
Source: World Bank data and staff estimates.

Figure A3.3 GDP inflation, 1991–2010

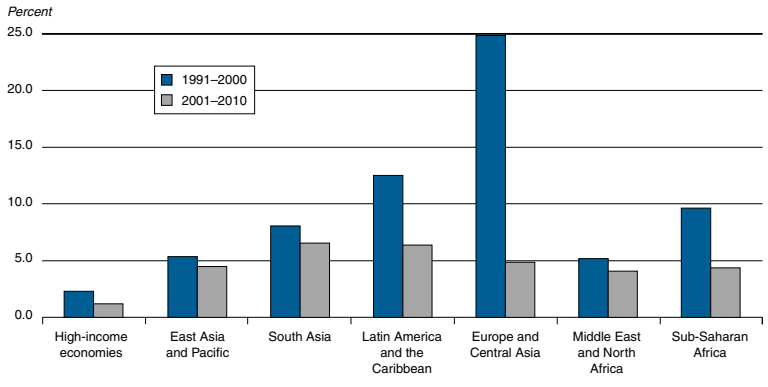


Table A3.4 Current account balances, 1971–2010

(percentage of GDP)

	2000 current account *(billions of U.S. dollars)*	1971–80	1981–90	1991–00	2000	Estimate 2001	Forecast 2001–2010
World	**–197**	**–0.2**	**–0.6**	**–0.3**	**–0.6**	**–0.7**	**–0.8**
High-income economies	–276	0.0	–0.3	–0.1	–1.1	–0.9	–0.6
Industrial	–328	–0.2	–0.5	–0.2	–1.3	–1.0	–0.6
G-7	–335	–0.1	–0.4	–0.3	–1.6	–1.3	–0.9
United States	–445	0.0	–1.9	–1.9	–4.5	–3.9	–2.3
Japan	117	0.2	2.3	2.4	2.5	2.2	2.1
G-4 Europe	–25	0.1	0.3	0.0	–0.4	0.1	–0.7
Germany[a]	–21	0.5	2.6	–0.7	–1.1	0.1	–1.0
Euro Area	–10	–0.1	0.3	0.3	–0.2	0.3	–0.1
Non-G7 Industrial	7	–1.1	–0.8	0.3	0.2	0.7	0.7
Other high-income	52	5.9	3.9	3.2	6.6	4.1	1.2
Asian NIEs	35	1.2	0.4	4.2	6.1	4.8	3.9
Low- and middle-income economies	79	–0.5	–1.2	–1.2	1.2	0.1	–1.3
Excluding ECA	60	–0.5	–1.7	–1.4	1.1	–0.1	–1.4
Asia	64	–1.1	–1.3	0.0	2.5	0.9	–0.5
East Asia and Pacific	73	–1.4	–1.0	0.5	3.3	1.4	–0.4
China	21	0.1	0.2	1.5	1.3	0.2	...
Korea, Rep. of	11	–6.9	0.7	0.9	2.4	1.2	...
Indonesia	8	–2.3	–3.1	–0.4	5.5	1.0	...
South Asia	–2	–0.5	–2.0	–1.4	–0.3	–0.5	–0.7
India	–1	0.2	–1.7	–1.1	–0.2	–0.6	...
Latin America and the Caribbean	–47	–2.8	–1.7	–2.8	–2.4	–2.8	–2.9
Brazil	–25	–4.3	–1.6	–2.2	–4.2	–4.8	...
Mexico	–17	–4.0	–0.6	–3.7	–3.0	–2.8	...
Argentina	–10	–0.4	–2.1	–3.2	–3.5	–2.9	...
Europe and Central Asia	19	–0.6	–0.2	–0.5	1.9	1.2	–1.2
Russian Federation[b]	46	2.1	3.5	4.7	18.7	10.5	...
Turkey	–10	–2.1	–1.4	–1.1	–4.9	3.0	...
Poland	–10	–3.0	–6.5	–2.8	–6.3	–5.1	...
Middle East and North Africa	41	7.4	–1.6	–1.9	8.1	4.7	–1.1
Saudi Arabia	25	21.7	–7.2	–5.8	16.6	9.2	...
Iran, Islamic Rep.	9	6.7	–0.4	0.8	10.1	7.6	...
Egypt, Arab Rep.	–1	–5.2	–3.4	1.5	–1.2	–0.2	...
Sub-Saharan Africa	–5	–1.7	–2.6	–2.1	–1.5	–1.0	–1.8
Republic of South Africa	–1	–1.1	0.6	–0.2	–0.4	0.4	...
Nigeria	2	1.6	–0.7	1.0	4.6	5.2	...

a. Data prior to 1991 covers West Germany.
b. Data prior to 1992 covers the former Soviet Union.
Note: This table comprises a sample of 145 countries representing 99 percent of world GDP.
Source: World Bank data and staff estimates.

Figure A3.4 Ratio of current account balance to GDP, 1991–2010

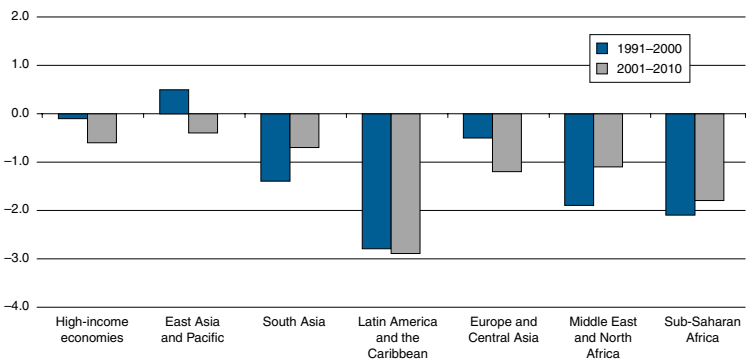


Table A3.5 Exports of goods, 1999

(percent)

	Merchandise exports *(US$ millions)*	Average annual growth 1990–99	Effective market growth 1990–99[a]		Merchandise exports *(US$ millions)*	Average annual growth 1990–99	Effective market growth 1990–99[a]		Merchandise exports *(US$ millions)*	Average annual growth 1990–99	Effective market growth 1990–99[a]
World	**5,587,318**	**5.9**	**7.0**	**Latin America and the Caribbean (continued)**				**Middle East and North Africa (continued)**			
All developing ctrys.	**1,374,752**	**7.1**	**7.0**	Uruguay	2,304	–0.9	10.5	Tunisia	5,873	2.4	5.5
				Venezuela	20,819	4.6	8.5	Yemen, Rep.	2,478	–3.5	8.1
Asia	**621,080**	**12.0**	**7.5**	**Europe and Central Asia**	**253,930**	**2.6**	**4.9**	**Sub-Saharan Africa**	**81,154**	**2.7**	**6.6**
East Asia and Pacific	**564,636**	**12.3**	**7.6**	Armenia	247	–1.5	1.8	Angola	5,009	5.2	7.7
China	194,931	16.0	7.4	Azerbaijan	1,025	5.6	2.1	Botswana	2,671	2.2	0.0
Fiji	538	4.0	6.2	Belarus	5,646	3.1	0.2	Cameroon	1,675	–1.0	6.8
Indonesia	48,666	8.4	7.1	Bulgaria	4,006	–10.0	5.3	Cote d'Ivoire	4,104	5.5	6.5
Korea, Rep.	143,537	12.3	8.5	Czech Rep.	26,242	8.6	6.8	Ethiopia	467	3.6	6.7
Malaysia	84,052	10.8	7.3	Estonia	2,453	11.3	2.5	Gabon	3,459	6.3	7.4
Myanmar	1,125	15.5	8.0	Georgia	330	9.0	2.6	Ghana	2,117	11.2	6.5
Papua New Guinea	1,927	4.2	6.4	Hungary	21,846	4.0	5.4	Kenya	1,740	6.9	5.3
Philippines	34,210	12.4	7.3	Kazakhstan	5,989	1.9	1.3	Madagascar	507	4.6	5.7
Thailand	56,775	9.1	7.3	Kyrgyz Rep.	463	9.0	–0.1	Nigeria	12,876	5.0	7.2
Vietnam	8,779	23.4	7.0	Lativia	1,889	6.8	2.2	Senegal	1,027	2.2	5.9
				Lithuania	3,147	3.1	2.7	South Africa	28,624	1.0	6.4
South Asia	**56,444**	**9.2**	**6.7**	Moldova	469	–4.9	–0.5	Sudan	780	5.9	6.1
Bangladesh	5,458	14.6	6.6	Poland	26,347	7.5	5.5	Zambia	864	–2.2	5.4
India	37,528	9.8	6.7	Romania	8,503	–1.9	6.2	Zimbabwe	1,879	4.4	5.6
Nepal	709	13.7	7.1	Russian Federation	75,900	–1.5	5.2	**High-income economies**	**4,221,189**	**5.6**	**7.0**
Pakistan	8,164	4.8	6.9	Slovak Rep.	10,201	5.4	6.5				
Sri Lanka	4,586	9.0	6.6	Tajikistan	689	–1.4	3.8	**Industrial**	**3,735,447**	**5.5**	**6.9**
				TFYR Macedonia	1,192	–2.0	5.5				
Latin America and the Caribbean	**302,952**	**5.5**	**8.1**	Turkmenistan	1,223	–5.1	4.1	**G-7**	**2,726,116**	**5.5**	**7.2**
Argentina	23,333	5.8	8.1	Turkey	29,326	9.1	5.3	Canada	245,832	7.6	7.7
Bolivia	1,051	4.4	9.3	Ukraine	13,189	4.2	2.0	France	334,103	6.0	6.4
Brazil	48,011	0.1	8.5	Uzbekistan	1,976	0.9	2.1	Germany	544,281	5.7	6.2
Chile	15,555	3.8	7.8					Italy	232,082	3.5	6.7
Colombia	12,030	4.4	7.8	**Middle East and North Africa**	**115,635**	**3.9**	**6.7**	Japan	402,647	2.7	8.4
Costa Rica	6,668	12.9	7.6	Algeria	11,514	1.3	6.5	United Kingdom	268,921	5.3	6.6
Dominican Rep.	5,137	14.6	7.9	Bahrain	4,140	2.7	6.5	United States	698,250	7.4	7.6
Ecuador	4,451	5.6	8.0	Egypt, Arab Rep.	5,236	4.9	6.3				
El Salvador	2,500	11.3	8.9					**Other industrial**	**1,009,331**	**5.7**	**6.2**
Guatemala	2,781	6.2	8.8	Iran, Islamic Rep.	15,271	2.0	6.3	Australia	56,048	6.3	6.8
Jamaica	1,490	1.5	6.8	Iraq	10,838		5.5	Austria	64,424	6.7	6.3
Mexico	136,392	12.0	7.9	Jordan	1,832	8.4	6.2	Belgium[b]	154,069	5.1	6.3
Panama	5,300	6.1	8.1	Morocco	7,509	5.2	5.9	Denmark	49,823	2.7	6.5
Paraguay	2,707	4.4	10.3	Oman	7,218	5.8	7.6	Finland	41,983	5.0	5.7
Peru	6,112	0.7	7.4	Saudi Arabia	50,757	5.6	7.0	Greece	5,249	–2.8	5.7
Trinidad and Tobago	2,402	4.8	8.1	Syrian Arab Rep.	3,806	2.9	5.1	Iceland	2,009	0.9	5.9

Table A3.5 Exports of goods, 1999 (continued)

(percent)

	Merchandise exports *(US$ millions)*	Average annual growth 1990–99	Effective market growth 1990–99[a]		Merchandise exports *(US$ millions)*	Average annual growth 1990–99	Effective market growth 1990–99[a]		Merchandise exports *(US$ millions)*	Average annual growth 1990–99	Effective market growth 1990–99[a]
Other industrial (continued)				**Other high-income**	**485,742**	**6.2**	**8.1**	**Other high-income (continued)**			
Ireland	71,375	11.4	5.9	Brunei	2,552	1.6	6.3	Kuwait	12,276	0.5	7.1
Netherlands	199,026	6.5	6.0	Hong Kong, China	173,865	8.3	8.6	Singapore	115,639	5.7	8.4
New Zealand	12,594	2.7	6.6	Israel	25,564	6.8	6.8	Taiwan, China	121,129	5.3	7.8
Norway	45,651	4.2	6.0					United Arab Emirates	27,645	4.7	5.7
Spain	113,490	8.7	6.3								
Sweden	84,849	6.0	5.9								
Switzerland	83,320	2.3	6.6								

.. Not available
a. Effective market growth is a weighted average of import volume growth in the country's export markets.
b. Includes Luxembourg
Source: See technical notes.

Figure A3.5a Merchandise exports as a share of GDP, 1999

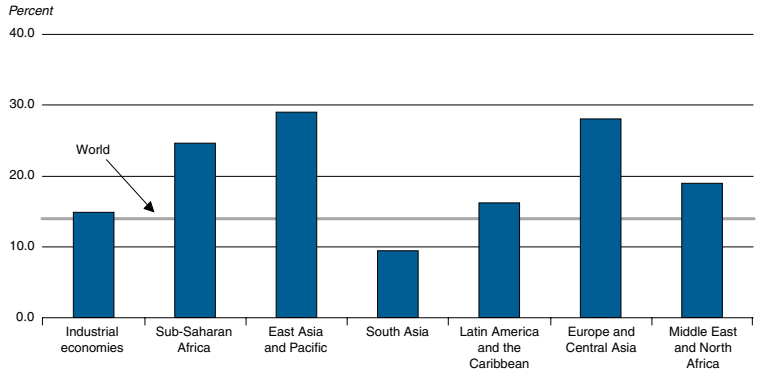


Figure A3.5b Average annual growth rate of export volumes, 1990–99

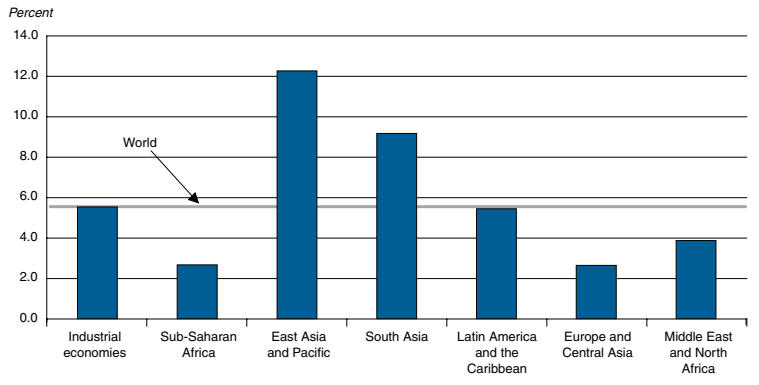


Table A3.6 Imports of goods, 1999

(percent)

	Merchandise imports *(US$ millions)*	Average annual growth 1990–99	Merchandise Imports/ GDP
World	**5,604,722**	**6.2**	**18.1**
All developing ctrys.	**1,270,637**	**6.2**	**19.7**
Asia	**521,113**	**8.2**	**19.0**
East Asia and Pacific	**451,721**	**8.6**	**20.8**
China	165,699	10.5	16.7
Fiji	653	2.1	37.9
Indonesia	24,003	5.0	16.8
Korea, Rep.	119,631	8.1	29.5
Malaysia	61,404	9.7	77.7
Myanmar	2,160	19.6	6.2
Papua New Guinea	1,071	–3.1	29.9
Philippines	29,252	9.4	38.4
Thailand	47,847	4.8	39.2
Vietnam	12,383	16.0	42.0
South Asia	**69,392**	**5.5**	**12.1**
Bangladesh	7,420	7.2	16.1
India	45,556	6.0	10.2
Nepal	1,590	8.9	34.6
Pakistan	9,533	1.2	16.4
Sri Lanka	5,293	8.6	33.7
Latin America and the Caribbean	**310,945**	**10.8**	**14.8**
Argentina	24,103	18.1	8.5
Bolivia	1,539	5.6	18.5
Brazil	49,272	9.3	9.3
Chile	13,951	6.4	20.6
Colombia	10,254	7.4	11.8
Costa Rica	6,008	13.3	38.6
Dominican Rep.	8,041	14.6	46.2
Ecuador	2,786	3.6	14.7
El Salvador	3,859	11.2	31.0
Guatemala	4,226	9.9	23.2
Jamaica	2,628	4.4	39.3
Mexico	141,973	14.5	18.9
Panama	6,715	7.8	70.3
Paraguay	3,041	9.8	39.3
Peru	6,729	9.9	13.0
Trinidad and Tobago	2,558	9.5	32.7
Latin America and the Caribbean (continued)			
Uruguay	3,173	8.8	15.3
Venezuela	13,213	4.7	12.8
Europe and Central Asia	**265,272**	**2.5**	**30.6**
Armenia	721	0.1	39.1
Azerbaijan	1,433	3.9	31.8
Belarus	6,216	–0.6	22.6
Bulgaria	5,087	–7.3	42.0
Czech Rep.	28,073	7.3	52.9
Estonia	3,331	2.4	64.9
Georgia	863	10.2	31.7
Hungary	24,037	7.8	49.8
Kazakhstan	5,645	–3.1	33.5
Kyrgyz Rep.	547	–1.6	43.8
Lativia	2,916	3.0	43.8
Lithuania	4,551	1.6	42.7
Moldova	597	–3.7	50.9
Poland	40,727	11.9	26.2
Romania	9,595	0.3	27.3
Russian Federation	39,600	–5.0	21.0
Slovak Rep.	11,310	8.9	57.6
Tajikistan	663	–2.5	61.2
TFYR Macedonia	1,602	3.0	46.4
Turkmenistan	1,210	0.3	36.6
Turkey	39,773	9.9	22.6
Ukraine	12,945	–4.3	42.1
Uzbekistan	2,621	–3.8	14.2
Middle East and North Africa	**96,853**	**1.8**	**19.4**
Algeria	8,746	–1.0	18.3
Bahrain	3,468	1.4	51.0
Egypt, Arab Rep.	15,165	4.0	17.0
Iran, Islamic Rep.	12,483	–2.4	11.3
Iraq	5,516	21.7	19.9
Jordan	3,292	4.6	40.8
Morocco	9,957	5.6	28.4
Oman	4,300	5.2	22.0
Saudi Arabia	25,717	1.8	18.5
Syrian Arab Rep.	3,590	5.6	22.5
Middle East and North Africa (continued)			
Tunisia	8,014	5.2	38.3
Yemen, Rep.	2,120	–4.9	31.3
Sub-Saharan Africa	**76,453**	**3.5**	**24.3**
Angola	2,167	3.3	35.0
Botswana	1,996	2.9	39.5
Cameroon	1,218	–0.1	13.3
Côte d'Ivoire	2,513	2.1	22.4
Ethiopia	1,387	4.5	21.5
Gabon	1,514	5.9	34.8
Ghana	3,228	10.9	41.5
Kenya	2,570	1.5	24.1
Madagascar	518	4.0	13.9
Nigeria	8,588	7.2	24.5
Senegal	1,373	1.9	28.9
South Africa	24,474	2.5	18.8
Sudan	1,256	1.8	12.9
Zambia	756	–1.4	24.4
Zimbabwe	1,712	1.3	30.5
High-income economies	**4,334,085**	**6.2**	**17.7**
Industrial	**3,856,210**	**6.0**	**16.3**
G-7	**2,866,532**	**6.2**	**13.9**
Canada	219,994	6.4	33.5
France	304,819	4.7	21.2
Germany	485,257	6.9	23.0
Italy	218,111	4.0	18.2
Japan	280,190	4.9	6.2
United Kingdom	311,261	4.8	21.6
United States	1,046,900	7.8	11.3
Other industrial	**989,677**	**5.4**	**29.2**
Australia	65,828	5.5	16.6
Austria	67,749	6.8	32.3
Belgium[a]	146,814	4.5	66.2
Denmark	43,135	3.7	24.5
Finland	29,815	1.0	23.1
Greece	21,700	3.4	17.3
Iceland	2,317	4.7	26.3
Ireland	47,252	9.0	50.6

Table A3.6 Imports of goods, 1999 (continued)

(percent)

	Merchandise imports *(US$ millions)*	Average annual growth 1990–99	Merchandise Imports/ GDP		Merchandise imports *(US$ millions)*	Average annual growth 1990–99	Merchandise Imports/ GDP		Merchandise imports *(US$ millions)*	Average annual growth 1990–99	Merchandise Imports/ GDP
Other industrial (continued)	**989,677**	**5.4**	**29.2**	**Other high-income**	**477,875**	**8.2**	**64.7**	**Other high-income (continued)**			
Netherlands	181,152	7.0	45.5	Brunei	1,328	2.2	48.4	Singapore	104,337	7.3	122.8
New Zealand	13,029	4.4	23.8	Hong Kong, China	179,861	9.2	113.7	Taiwan, China	110,585	8.6	38.5
Norway	35,532	2.6	23.3	Israel	29,972	7.1	29.7	United Arab Emirates	33,239	12.0	68.7
Spain	144,882	7.7	23.7	Kuwait	6,705	–0.7	22.6				
Sweden	67,658	4.0	28.1								
Switzerland	83,602	3.8	32.3								

.. Not available
a. Includes Luxembourg
Source: See technical notes.

Figure A3.6a Merchandise imports as a share of GDP, 1999

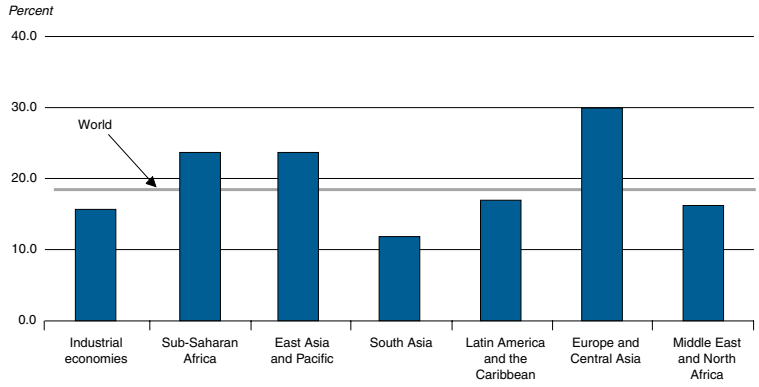


Figure A3.6b Average annual growth rate of import volumes, 1990–99

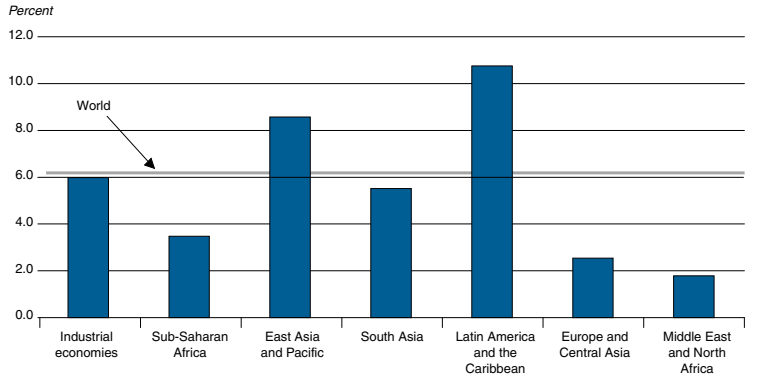


Table A3.7 Direction of merchandise trade, 1999[a]

(percentage of world trade)

	High-income importers							Low- and middle-income importers							
Source of exports	United States	EU-15	Japan	Other industrial	All industrial	Other high-income	All high-income	Sub-Saharan Africa	East Asia and Pacific	South Asia	Europe and Central Asia	Middle East and North Africa	Latin America and the Caribbean	All low- and middle-income	World
High-income econ.	**12.6**	**29.7**	**3.0**	**7.0**	**52.4**	**5.5**	**57.9**	**0.9**	**6.5**	**0.7**	**3.2**	**1.5**	**4.3**	**16.9**	**74.8**
Industrial	10.6	28.2	2.2	6.7	47.7	4.3	52.0	0.8	4.1	0.4	3.0	1.4	4.1	13.8	65.8
United States	...	2.7	1.1	3.6	7.4	1.2	8.6	0.1	1.1	0.1	0.2	0.3	2.7	4.5	13.1
EU-15	3.6	22.3	0.7	2.4	29.0	1.4	30.4	0.5	0.9	0.2	2.7	0.9	0.9	6.2	36.5
Japan	2.5	1.3	...	0.4	4.3	1.4	5.7	0.1	1.6	0.1	0.1	0.1	0.3	2.3	8.0
Other industrial	4.4	1.9	0.4	0.3	7.0	0.3	7.4	0.0	0.4	0.1	0.1	0.1	0.1	0.8	8.2
Other high-income[b]	2.1	1.5	0.8	0.3	4.7	1.2	5.9	0.1	2.4	0.2	0.1	0.1	0.2	3.1	9.0
Low- and middle-income economies	**6.7**	**6.0**	**2.1**	**0.9**	**15.7**	**3.0**	**18.7**	**0.5**	**2.1**	**0.5**	**1.6**	**0.5**	**1.3**	**6.5**	**25.2**
Sub-Saharan Africa	0.2	0.4	0.0	0.0	0.7	0.1	0.8	0.2	0.1	0.0	0.0	0.0	0.0	0.4	1.2
East Asia and Pacific	2.4	1.6	1.6	0.4	6.0	2.3	8.4	0.1	1.4	0.2	0.2	0.2	0.3	2.4	10.8
South Asia	0.3	0.3	0.1	0.0	0.6	0.1	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.3	1.0
Europe and Central Asia	0.3	2.3	0.1	0.1	2.7	0.1	2.9	0.0	0.2	0.0	1.2	0.1	0.0	1.6	4.5
Middle East and North Africa	0.2	0.7	0.3	0.0	1.2	0.2	1.5	0.0	0.3	0.1	0.1	0.1	0.0	0.7	2.1
Latin America and Caribbean	3.4	0.7	0.1	0.2	4.4	0.1	4.4	0.0	0.1	0.0	0.1	0.1	0.8	1.1	5.6
World	**19.4**	**35.7**	**5.2**	**7.9**	**68.1**	**8.5**	**76.6**	**1.3**	**8.6**	**1.2**	**4.8**	**2.0**	**5.6**	**23.4**	**100.0**

a. Expressed as a share (percent) of total world exports. World merchandise exports in 1999 amounted to some $5,135 billion.
b. *Other high-income* group includes the Asian newly industrializing economies, several oil exporters of the Gulf region, and Israel.
Source: IMF, *Direction of Trade Statistics*.

Table A3.8 Growth of current dollar merchandise trade, by direction 1990–99[a]

(average annual percentage growth)

	High-income importers							Low- and middle-income importers							
Source of exports	United States	EU-15	Japan	Other industrial	All industrial	Other high-income	All high-income	Sub-Saharan Africa	East Asia and Pacific	South Asia	Europe and Central Asia	Middle East and North Africa	Latin America and the Caribbean	All low- and middle-income	World
High-income econ.	**6.6**	**3.8**	**3.0**	**5.0**	**4.5**	**7.7**	**4.8**	**2.0**	**8.5**	**2.8**	**9.3**	**3.5**	**10.6**	**9.0**	**5.4**
Industrial	6.7	3.6	2.4	5.1	4.3	7.0	4.5	1.6	7.2	0.8	9.1	3.5	10.6	8.6	5.0
United States	...	4.2	2.6	7.1	5.2	7.1	5.4	4.1	7.6	1.3	2.1	4.7	11.6	9.4	6.5
EU-15	7.1	3.6	3.5	3.5	4.0	7.9	4.1	1.4	7.6	–0.1	11.0	3.3	9.8	9.5	4.6
Japan	3.3	2.8	...	0.7	2.9	6.5	3.6	–0.7	7.1	0.2	–3.2	2.6	7.9	6.3	4.2
Other industrial	9.0	3.1	0.3	4.3	6.2	5.0	6.1	3.1	5.8	5.6	0.7	3.6	5.4	5.9	5.9
Other high-income[b]	6.2	7.6	4.9	4.4	6.2	10.7	7.0	6.3	11.3	8.1	16.6	4.2	10.5	10.7	8.1
Low- and middle-income economies	**12.3**	**10.3**	**6.5**	**10.3**	**10.4**	**10.3**	**10.4**	**13.5**	**18.2**	**13.3**	**11.9**	**7.5**	**13.2**	**16.2**	**11.1**
Sub-Saharan Africa	3.7	3.9	6.7	14.0	4.3	23.6	5.0	14.2	24.2	23.7	3.1	10.3	18.5	17.3	7.5
East Asia and Pacific	11.7	12.6	7.4	11.8	10.6	10.6	10.6	13.7	19.9	13.5	8.7	10.9	20.9	18.0	11.7
South Asia	9.2	7.0	–0.7	8.4	7.0	11.7	7.6	21.4	10.5	11.4	9.7	7.3	27.9	12.8	8.5
Europe and Central Asia	13.5	9.4	–3.1	10.5	9.3	15.2	9.5	6.1	7.9	2.3	4.9	2.3	7.9	12.3	7.6
Middle East and North Africa	1.2	4.5	6.0	–3.4	3.8	5.4	4.0	11.8	20.5	10.4	–0.3	3.5	6.3	11.6	5.5
Latin America and Caribbean	15.3	2.9	1.0	7.8	11.1	4.1	10.9	4.7	5.9	12.7	–1.0	6.5	11.4	10.1	10.5
World	**8.2**	**4.3**	**4.1**	**5.4**	**5.4**	**8.5**	**5.7**	**4.6**	**10.0**	**5.6**	**7.5**	**4.2**	**11.1**	**10.1**	**6.3**

Note: Growth rates are compound averages.
Source: IMF, *Direction of Trade Statistics*.

Table A3.9 Structure of long-term debt, 1999

Share of long-term debt (%): concessional debt; nonconcessional debt at variable interest rates; nonconcessional debt at fixed interest rates

	Concessional	Non-concessional	
		Variable	Fixed
All developing countries	**19.0**	**43.4**	**37.6**
Asia	**28.1**	**39.0**	**33.0**
East Asia and Pacific	**19.3**	**43.9**	**36.7**
China	21.7	26.7	51.6
Indonesia	26.1	62.8	11.1
Korea, Rep.	0.8	55.4	43.8
Malaysia	6.5	61.9	31.6
Myanmar	88.2	0.0	11.8
Papua New Guinea	38.2	11.3	50.5
Philippines	30.0	31.6	38.4
Thailand	14.0	45.0	41.0
Vietnam	27.4	12.3	60.3
South Asia	**58.5**	**21.7**	**19.9**
Bangladesh	99.0	0.1	1.0
India	49.5	23.9	26.6
Nepal	99.3	0.0	0.7
Pakistan	60.5	28.0	11.5
Sri Lanka	90.0	5.3	4.6
Latin America and the Caribbean	**4.6**	**59.2**	**36.2**
Argentina	1.8	48.8	49.3
Bolivia	62.9	22.3	14.8
Brazil	0.8	77.7	21.5
Chile	1.2	52.3	46.5
Colombia	3.2	61.6	35.2
Costa Rica	19.4	27.2	53.4
Dominican Republic	41.6	30.9	27.5
Ecuador	15.4	56.0	28.6
El Salvador	39.5	36.9	23.6
Guatemala	40.9	29.4	29.7
Jamaica	32.5	27.4	40.1
Mexico	1.0	49.1	50.0
Panama	6.4	47.5	46.1
Paraguay	53.5	20.8	25.7
Peru	15.4	51.3	33.4
Trinidad and Tobago	0.7	44.1	55.3
Uruguay	4.5	50.3	45.2
Venezuela	0.2	72.3	27.5
Europe and Central Asia	**6.5**	**42.2**	**51.4**
Armenia	69.0	18.2	12.8
Azerbaijan	50.4	29.7	19.9
Belarus	9.8	47.4	42.8
Europe and Central Asia (continued)			
Bulgaria	2.6	78.6	18.8
Czech Republic	1.2	38.6	60.2
Estonia	1.7	16.6	81.7
Georgia	61.8	9.0	29.2
Hungary	1.9	14.4	83.7
Kazakhstan	8.1	40.7	51.2
Kyrgyz Republic	55.1	16.3	28.6
Latvia	4.7	36.4	58.9
Lithuania	4.3	29.6	66.1
Moldova	31.7	49.7	18.6
Poland	15.1	45.7	39.2
Romania	4.6	38.5	56.9
Russian Federation	0.3	42.3	57.4
Slovak Republic	5.1	24.3	70.6
Tajikistan	74.0	8.7	17.3
Turkmenistan	13.3	70.0	16.7
Turkey	7.2	47.2	45.7
Ukraine	30.5	31.4	38.1
Uzbekistan	19.4	44.2	36.4
Middle East and North Africa	**37.9**	**30.5**	**31.6**
Algeria	12.7	51.0	36.3
Egypt, Arab Rep.	86.3	4.2	9.5
Jordan	53.7	24.3	22.0
Morocco	32.0	34.3	33.6
Oman	33.5	31.8	34.8
Syrian Arab Republic	92.8	0.0	7.2
Tunisia	25.1	22.0	52.9
Yemen, Rep.	91.6	2.1	6.2
Sub-Saharan Africa	**51.5**	**14.1**	**34.5**
Angola	29.8	10.4	59.9
Botswana	60.6	9.5	29.9
Côte d'Ivoire	39.1	46.6	14.2
Cameroon	53.6	11.8	34.6
Ethiopia (excludes Eritrea)	89.5	0.3	10.3
Gabon	24.9	11.5	63.5
Ghana	81.6	4.6	13.7
Kenya	73.9	7.7	18.4
Madagascar	72.6	5.2	22.2
Nigeria	7.6	20.2	72.2
Senegal	80.7	10.2	9.1
Sudan	49.8	17.8	32.5
Zambia	77.3	8.7	14.0
Zimbabwe	45.1	21.7	33.2

Note: Nonconcessional debt data are available only for countries which report to the World Bank's Debtor Reporting System. Non-concessional debt contains estimates of private non-guaranteed in addition to public and publicly guaranteed debt. For aggregate figures, missing values are assumed to have the same average value as the available data.

Figure A3.9a Structure of long-term debt, by group, 1999

Percent

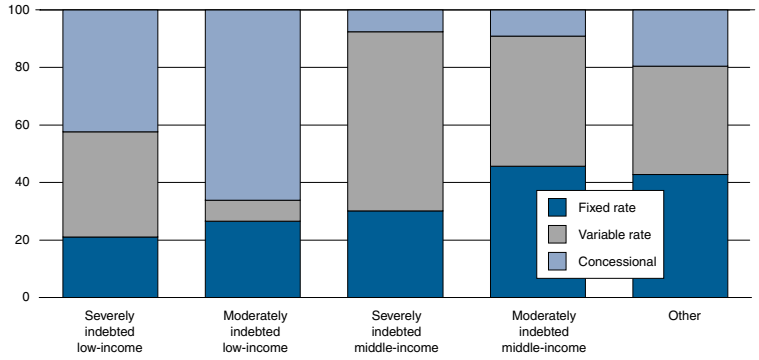


Figure A3.9b Structure of long-term debt, by region, 1999

Percent

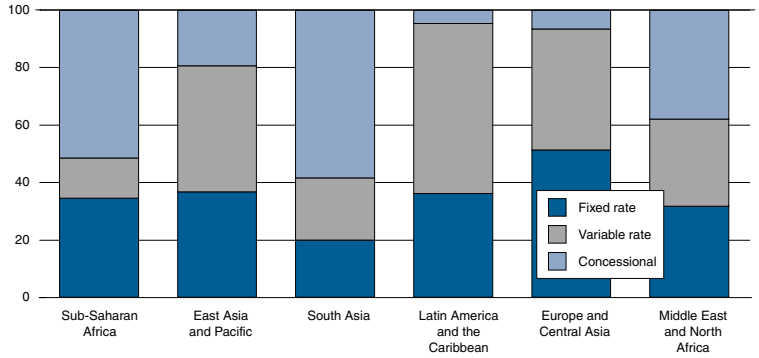


Table A3.10 Long-term net resource flows to developing countries, 1999

(millions of U. S. dollars)

			Private				Official		
	Total	Percentage of GDP	Total	Debt flows net	FDI	Portfolio	Total	Official development assistance	Other
All developing ctrys	**264,900**	**4.37**	**219,214**	**–649**	**185,408**	**34,456**	**45,686**	**40,725**	**4,960**
Asia	**72,475**	**2.93**	**53,235**	**–28,322**	**59,111**	**22,445**	**19,241**	**13,796**	**5,444**
East Asia and Pacific	**65,318**	**3.45**	**51,062**	**–26,112**	**56,041**	**21,133**	**14,257**	**9,533**	**4,724**
China	42,670	4.31	40,632	–1,854	38,753	3,732	2,038	1,798	240
Indonesia	–4,928	–3.49	–8,416	–6,944	–2,745	1,273	3,487	1,757	1,731
Korea, Rep.	9,758	2.40	6,409	–15,350	9,333	12,426	3,349	1,514	1,835
Malaysia	3,616	4.58	3,247	1,173	1,553	522	369	–111	480
Myanmar	245	..	203	–14	216	0	42	43	–1
Papua New Guinea	568	15.85	499	–30	297	232	69	101	–32
Philippines	4,955	6.46	4,915	3,920	573	422	40	887	–847
Thailand	4,700	3.85	2,471	–6,269	6,213	2,527	2,229	893	1,336
Vietnam	1,924	6.71	828	–781	1,609	0	1,096	1,086	11
South Asia	**7,157**	**1.23**	**2,173**	**–2,209**	**3,070**	**1,312**	**4,984**	**4,264**	**720**
Bangladesh	1,247	2.71	198	15	179	4	1,049	1,041	8
India	3,351	0.75	1,813	–1,658	2,169	1,302	1,538	1,367	171
Nepal	227	4.54	–8	–13	4	0	235	237	–2
Pakistan	1,145	1.97	53	–478	530	0	1,092	541	551
Sri Lanka	366	2.33	109	–74	177	6	258	259	–1
Latin America and the Caribbean	**116,526**	**6.41**	**111,302**	**17,058**	**90,352**	**3,893**	**5,224**	**3,335**	**1,889**
Argentina	33,041	11.65	32,296	7,963	23,929	404	744	–230	974
Bolivia	1,354	16.27	1,017	0	1,016	0	338	353	–15
Brazil	23,515	4.44	22,793	–11,828	32,659	1,961	722	–18	741
Chile	11,782	17.41	11,851	2,612	9,221	18	–69	7	–75
Colombia	4,708	5.43	3,635	2,502	1,109	25	1,073	152	920
Costa Rica	822	5.28	924	255	669	0	–102	–26	–76
Dominican Rep.	1,542	8.86	1,404	66	1,338	0	138	61	77
Ecuador	1,167	6.15	944	254	690	0	223	135	89
El Salvador	508	4.07	360	129	231	0	148	77	71
Guatemala	455	2.50	98	–57	155	0	357	199	157
Jamaica	345	5.17	425	–99	524	0	–80	–49	–31
Mexico	25,106	5.23	26,781	13,865	11,786	1,129	–1,674	–53	–1,621
Nicaragua	931	42.08	382	82	300	0	549	579	–30
Panama	635	6.64	620	597	22	0	15	–6	22
Paraguay	206	2.67	109	38	72	0	97	25	72
Peru	3,858	7.43	3,140	883	1,969	289	718	184	534
Trinidad and Tobago	652	9.49	713	80	633	0	–61	5	–66
Uruguay	326	1.56	66	–163	229	0	260	–1	261
Venezuela	3,063	2.96	3,130	–124	3,187	67	–67	3	–70
Europe and Central Asia	**52,483**	**5.97**	**43,164**	**13,080**	**26,534**	**3,550**	**9,319**	**8,311**	**1,008**
Armenia	237	12.87	122	0	122	0	115	119	–4
Azerbaijan	783	17.36	596	86	510	0	187	184	3
Belarus	367	1.37	394	169	225	0	–27	4	–31
Bulgaria	1,457	11.75	1,112	204	806	102	346	187	159
Czech Republic	4,936	9.31	4,837	–756	5,093	500	99	119	–20
Estonia	631	12.31	569	72	305	191	62	46	16
Georgia	198	7.28	86	4	82	0	112	148	–36
Hungary	5,169	10.67	4,961	2,418	1,950	592	208	86	122
Kazakhstan	1,729	10.25	1,477	–110	1,587	0	252	112	140
Kyrgyz Republic	211	16.90	–16	–52	36	0	227	194	33
Latvia	650	9.75	303	–45	348	0	347	65	282

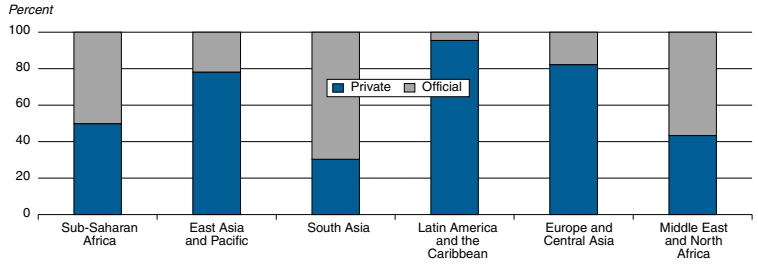
Table A3.10 Long-term net resource flows to developing countries, 1999 (continued)

(millions of U. S. dollars)

	Total	Percentage of GDP	Private				Official		
			Total	Debt flows net	FDI	Portfolio	Total	Official development assistance	Other
Europe and Central Asia (continued)									
Lithuania	1,320	12.38	1,148	661	487	0	172	70	102
Moldova	114	9.73	11	–22	34	0	103	55	48
Poland	10,499	6.77	10,452	2,461	7,270	721	47	294	–246
Romania	920	2.61	714	–327	1,041	0	206	64	142
Russian Federation	5,058	2.62	3,780	–173	3,309	644	1,278	1,040	238
Slovak Rep.	575	2.92	281	–73	354	0	294	71	223
Tajikistan	84	7.77	10	–14	24	0	74	74	0
Turkmenistan	50	1.51	–54	–134	80	0	104	94	10
Turkey	8,127	4.40	8,667	7,084	783	800	–540	–131	–409
Ukraine	701	2.28	371	–125	496	0	330	47	283
Uzbekistan	1,052	6.16	658	545	113	0	395	294	101
Middle East and North Africa	**2,456**	**0.42**	**1,064**	**–1,066**	**1,461**	**669**	**1,392**	**3,418**	**–2,026**
Algeria	–1,797	–3.77	–1,486	–1,496	7	3	–311	71	–382
Egypt, Arab Rep.	1,814	2.03	1,558	–57	1,065	550	255	460	–205
Iran, Islamic Rep.	–2,605	–2.62	–1,385	–1,470	85	0	–1,220	24	–1,244
Jordan	501	6.21	112	–57	158	11	389	366	23
Morocco	–26	–0.08	–118	–212	3	91	91	302	–211
Oman	–390	–2.61	–413	–484	60	11	23	31	–9
Syrian Arab Rep.	55	2.12	87	–4	91	0	–32	7	–39
Tunisia	968	4.62	739	389	350	0	228	165	63
Yemen, Rep.	155	2.28	–150	0	–150	0	305	323	–17
Sub-Saharan Africa	**20,960**	**6.55**	**10,449**	**–1,399**	**7,949**	**3,899**	**10,511**	**11,865**	**–1,354**
Angola	2,690	43.43	2,373	–98	2,471	0	317	323	–6
Botswana	14	0.28	36	–1	37	0	–22	9	–31
Cameroon	206	2.24	–13	–53	40	0	218	313	–95
Côte d'Ivoire	147	1.31	74	–283	350	8	73	291	–219
Ethiopia	579	8.97	78	–12	90	0	501	505	–4
Gabon	41	0.95	209	9	200	0	–167	14	–181
Ghana	416	5.36	–16	–52	17	19	432	473	–41
Kenya	13	0.12	–51	–70	14	5	64	227	–163
Madagascar	299	8.04	52	–6	58	0	247	267	–19
Nigeria	633	1.81	860	–146	1,005	2	–227	126	–353
Senegal	379	7.97	54	–6	60	0	325	353	–29
South Africa	4,778	3.67	4,533	–698	1,376	3,855	245	244	1
Sudan	581	5.98	371	0	371	0	211	216	–6
Zambia	466	15.01	151	–12	163	0	315	400	–85
Zimbabwe	287	5.12	70	7	59	4	217	274	–57

Source: World Bank data.

Figure A3.10 Distribution of long-term net resource flows, 1999



Technical Notes

The principal sources for the data in this appendix are the World Bank's central databases. The cut-off date for data updates was August 31, 2001; revisions/releases since that time have not been incorporated.

Regional aggregates are based on the classification of economies by income group and region, following the Bank's standard definitions (see country classification tables that follow). Debt and finance data refer to the 137 countries that report to the Bank's Debtor Reporting System (see the World Bank's *Global Development Finance 2001)*. Small economies have generally been omitted from the tables but are included in the regional totals.

Current price data are reported in U.S. dollars. The cut-off date for data updates was August 31, 2001; revisions/releases since that time have not been incorporated.

Notes on tables

Tables A3.1 through A3.4. Projections are consistent with those highlighted in Chapter 1 and Appendix 1.

Tables A3.5 and A3.6. Merchandise exports and imports exclude trade in services. Imports are reported on a c.i.f. basis. Growth rates are based on constant price data, which are derived from current values deflated by relevant price indexes. Effective market growth is the export-weighted import growth rate of the country's trading partners. The IMF's Balance of Payments database is the principal source for data through 1999; in some cases these data have been supplemented by UNCTAD and UN Comtrade databases or by World Bank staff estimates. Trade figures for countries of the former Soviet Union reflect the total of non-CIS and intra-CIS exports and imports.

Tables A3.7 and A3.8. Growth rates are compound averages and are computed for current dollar measures of trade.

Table A3.9. Long-term debt covers public and publicly guaranteed external debt but excludes IMF credits. Concessional debt is debt with an original grant element of 25 percent or more. Nonconcessional variable interest rate debt includes all public and publicly guaranteed long-term debt with an original grant element of less than 25 percent whose terms depend on movements of a key market rate. This item conveys information about the borrower's exposure to changes in international interest rates. For complete definitions, see *Global Development Finance 2001.*

Table A3.10. Long-term net resource flows are the sum of net resource flows on long-term debt (excluding IMF) plus non-debt-creating flows. Foreign direct investment refers to the net inflows of investment from abroad. Portfolio equity flows are the sum of country funds, depository receipts, and direct purchases of shares by foreign investors. For complete definition, see *Global Development Finance 2001.*

Classification of Economies

Table 1 Classification of economies by income and region, July 2001

		Sub-Saharan Africa		Asia		Europe and Central Asia		Middle East and North Africa		
Income group	Subgroup	East and Southern Africa	West Africa	East Asia and Pacific	South Asia	Eastern Europe and Central Asia	Rest of Europe	Middle East	North Africa	Americas
Low-income		Angola Burundi Comoros Congo, Dem. Rep. Eritrea Ethiopia Kenya Lesotho Madagascar Malawi Mozambique Rwanda Somalia Sudan Tanzania Uganda Zambia Zimbabwe	Benin Burkina Faso Cameroon Central African Republic Chad Congo, Rep. Côte d'Ivoire Gambia, The Ghana Guinea Guinea-Bissau Liberia Mali Mauritania Niger Nigeria São Tomé and Principe Senegal Sierra Leone Togo	Cambodia Indonesia Korea, Dem. Rep. Lao PDR Mongolia Myanmar Solomon Islands Vietnam	Afghanistan Bangladesh Bhutan India Nepal Pakistan	Armenia Azerbaijan Georgia Kyrgyz Republic Moldova Tajikistan Ukraine Uzbekistan		Yemen, Rep		Haiti Nicaragua
Middle-income	*Lower*	Namibia Swaziland	Cape Verde Equatorial Guinea	China Fiji Kiribati Marshall Islands Micronesia, Fed. Sts. Papua New Guinea Philippines Samoa Thailand Tonga Vanuatu	Maldives Sri Lanka	Albania Belarus Bosnia and Herzegovina Bulgaria Kazakhstan Latvia Lithuania Macedonia, FYR[a] Romania Russian Federation Turkmenistan Yugoslavia, Fed. Rep.		Iran, Islamic Rep. Iraq Jordan Syrian Arab Republic West Bank and Gaza	Algeria Djibouti Egypt, Arab Rep. Morocco Tunisia	Belize Bolivia Colombia Cuba Dominican Republic Ecuador El Salvador Guatemala Guyana Honduras Jamaica Paraguay Peru St. Vincent and the Grenadines Suriname
	Upper	Botswana Mauritius Mayotte Seychelles South Africa	Gabon	American Samoa Korea, Rep. Malaysia Palau		Croatia Czech Republic Estonia Hungary Poland Slovak Republic	Isle of Man Turkey	Bahrain Lebanon Oman Saudi Arabia	Libya	Antigua and Barbuda Argentina Brazil Chile Costa Rica Dominica Grenada Mexico Panama Puerto Rico St. Kitts and Nevis St. Lucia Trinidad and Tobago Uruguay Venezuela, RB
Subtotal	155	25	23	23	8	26	2	10	6	32

Table 1 Classification of economies by income and region, July 2001 (continued)

		Sub-Saharan Africa		Asia		Europe and Central Asia		Middle East and North Africa		
Income group	Subgroup	East and Southern Africa	West Africa	East Asia and Pacific	South Asia	Eastern Europe and Central Asia	Rest of Europe	Middle East	North Africa	Americas
High-income	*OECD*			Australia Japan New Zealand			Austria Belgium Denmark Finland France[b] Germany Greece Iceland Ireland Italy Luxembourg Netherlands Norway Portugal Spain Sweden Switzerland United Kingdom			Canada United States
	Non-OECD			Brunei French Polynesia Guam Hong Kong, China[c] Macao, China[d] New Caledonia N. Mariana Islands Singapore Taiwan, China		Slovenia	Andorra Channel Islands Cyprus Faeroe Islands Greenland Liechtenstein Monaco San Marino	Israel Kuwait Qatar United Arab Emirates	Malta	Aruba Bahamas, The Barbados Bermuda Cayman Islands Netherlands Antilles Virgin Islands (U.S.)
Total	208	25	23	35	8	27	28	14	7	41

a. Former Yugoslav Republic of Macedonia.
b. The French overseas departments French Guiana, Guadeloupe, Martinique, and Réunion are included in France.
c. On 1 July 1997 China resumed its exercise of sovereignty over Hong Kong.
d. On 20 December 1999 China resumed its exercise of sovereignty over Macao.
Source: World Bank data.

Definitions of groups

For operational and analytical purposes, the World Bank's main criterion for classifying economies is gross national income (GNI) per capita. Every economy is classified as low income, middle income (subdivided into lower middle and upper middle), or high income. Other analytical groups, based on geographic regions and levels of external debt, are also used.

Low-income and middle-income economies are sometimes referred to as developing economies. The use of the term is convenient; it is not intended to imply that all economies in the group are experiencing similar development or that other economies have reached a preferred or final stage of development. Classification by income does not necessarily reflect development status.

This table classifies all World Bank member economies, and all other economies with populations of more than 30,000. Economies are divided among income groups according to 2000 GNI per capita, calculated using the World Bank Atlas method. The groups are: low income, $755 or less; lower middle income, $756–2,995; upper middle income, $2,996–9,265; and high income, $9,266 or more.

Table 2 Classification of economies by income and indebtedness, July 2001

Income group	Sub-group	Severely indebted	Moderately indebted	Less indebted	Not classified by indebtedness
Low-income		Afghanistan Angola Benin Burundi Cameroon Central African Republic Comoros Congo, Dem. Rep. Congo, Rep. Côte d'Ivoire Ethiopia Guinea Guinea-Bissau Indonesia Kyrgyz Republic Lao PDR Liberia Madagascar Malawi Mali Mauritania Myanmar Nicaragua Niger Nigeria Pakistan Rwanda São Tomé and Principe Sierra Leone Somalia Sudan Tanzania Uganda Zambia	Armenia Bangladesh Burkina Faso Cambodia Chad Gambia, The Georgia Ghana Haiti Kenya Moldova Mongolia Mozambique Senegal Togo Turkmenistan Vietnam Yemen, Rep. Zimbabwe	Azerbaijan Bhutan Eritrea India Korea, Dem. Rep. Lesotho Nepal Solomon Islands Tajikistan Ukraine	Uzbekistan
Middle-income	*Lower*	Bolivia Bosnia and Herzegovina Bulgaria Cuba Guyana Iraq Jordan Peru Syrian Arab Republic	Algeria Belize Colombia Ecuador Honduras Jamaica Morocco Papua New Guinea Philippines Russian Federation Samoa St. Vincent and the Grenadines Thailand Tunisia Turkey	Albania Belarus Cape Verde China Costa Rica Djibouti Dominican Republic Egypt, Arab Rep. El Salvador Equatorial Guinea Fiji Guatemala Iran, Islamic Rep. Kazakhstan Kiribati Latvia Lithuania Macedonia, FYR[a] Maldives Namibia Paraguay Romania Sri Lanka Suriname Swaziland Tonga Vanuatu Yugoslavia, Fed. Rep.	Marshall Islands Micronesia, Fed. Sts. of West Bank and Gaza
	Upper	Argentina Brazil Gabon	Chile Estonia Hungary Lebanon Malaysia Mauritius Panama Uruguay Venezuela, RB	Antigua and Barbuda Bahrain Botswana Croatia Czech Republic Dominica Grenada Korea, Rep. Libya Mexico Oman Poland Saudi Arabia Seychelles Slovak Republic South Africa St. Kitts and Nevis St. Lucia Trinidad and Tobago	American Samoa Isle of Man Mayotte Palau Puerto Rico

Table 2 Classification of economies by income and indebtedness, July 2001 (continued)

Income group	Sub-group	Severely indebted	Moderately indebted	Less indebted	Not classified by indebtedness
High-income	*OECD*				Australia, Austria, Belgium, Canada, Denmark, Finland, France[b], Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States
	Non-OECD				Andorra, Aruba, Bahamas, The, Barbados, Bermuda, Brunei, Cayman Islands, Channel Islands, Cyprus, Faeroe Islands, French Polynesia, Greenland, Guam, Hong Kong, China[d], Israel, Kuwait, Liechtenstein, Macao, China[c], Malta, Monaco, Netherlands Antilles, New Caledonia, N. Mariana Islands, Qatar, San Marino, Singapore, Slovenia, Taiwan, China, United Arab Emirates, Virgin Islands (U.S.)
Total	208	46	43	57	62

a. Former Yugoslav Republic of Macedonia.
b. The French overseas departments French Guiana, Guadeloupe, Martinique, and Réunion are included in France.
c. On 20 December 1999 China resumed its exercise of sovereignty over Macao.
d. On 1 July 1997 China resumed its exercise of sovereignty over Hong Kong.
Source: World Bank data.

Definitions of groups
This table classifies all World Bank member economies, and all other economies with populations of more than 30,000. Economies are divided among income groups according to 2000 GNI per capita, calculated using the World Bank Atlas method. The groups are: low income, $755 or less; lower middle income, $756–2,995; upper middle income, $2,996–9,265; and high income, $9,266 or more.

Standard World Bank definitions of severe and moderate indebtedness are used to classify economies in this table. *Severely indebted* means either: present value of debt service to GNI exceeds 80 percent or present value of debt service to exports exceeds 220 percent. *Moderately indebted* means either of the two key ratios exceeds 60 percent of, but does not reach, the critical levels. For economies that do not report detailed debt statistics to the World Bank Debtor Reporting System (DRS), present-value calculation is not possible. Instead, the following methodology is used to classify the non-DRS economies. *Severely indebted* means three of four key ratios (averaged over 1997–99) are above critical levels: debt to GNI (50 percent); debt to exports (275 percent); debt service to exports (30 percent); and interest to exports (20 percent). *Moderately indebted* means three of the four key ratios exceed 60 percent of, but do not reach, the critical levels. All other classified low- and middle-income economies are listed as *less indebted*.