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Tariff Elimination for Industrial Goods: Why the Gains Will Far Outweigh Any Losses

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Why the Gains Will Far Outweigh Any Losses

Executive Summary

I. Importance of Tariff Liberalization

In March 2001, the National Foreign Trade Council (NFTC) recommended that a centerpiece objective of the Doha Development Agenda (Doha Agenda) of World Trade Organization (WTO) negotiations be the gradual elimination of all industrial tariffs among WTO Members. The recommendation was based on four key reasons.

1. Developing countries pay most—70%—of their tariffs to each other, face high escalating tariff "peaks" in developed markets, need to reduce the costs of production to attract foreign direct investment (FDI), and could greatly increase the 40% of South-South trade by eliminating high tariff barriers among developing countries.

2. Developed countries need to reduce the billions of dollars they pay annually on North-North trade due to "residual" tariffs, and need increased access to developing markets.

3. More than one-half—55%—of world trade is already duty free, but increasing regionalism through the proliferation of regional free trade agreements threatens more complexity and cost, and may leave poor countries behind.

4. Comprehensive tariff elimination would be a huge stimulus to economic growth worldwide, and it offers the greatest hope of overcoming protectionist resistance in both developed and developing countries.

The Doha Agenda offers an unprecedented opportunity to complete the unfinished business of tariff-cutting begun by the GATT when it was established in 1947. Several WTO Members have expressed support for moving in this direction, including through the formal submission of tariff-elimination proposals by the governments of the United States and New Zealand. Agreement by WTO Members to adopt bold multilateral tariff liberalization would demonstrate the WTO's continuing relevance and credibility as the leading force for trade liberalization globally. Absent such boldness, the trend toward regional free trade agreements as the main vehicle for trade liberalization will likely gain in favor and significance.

The gradual elimination of industrial tariffs would provide substantial economic benefits to all WTO Members. According to a University of Michigan study, global welfare gains from eliminating tariffs for non-agricultural products would amount to $632 billion.

The gradual elimination of tariffs, accompanied by sound macroeconomic and fiscal policies to ensure a continued revenue stream, would eliminate what is, in fact, a significant tax on economic development.

II. Concerns Raised about Tariff Elimination

While recommendations for tariff elimination have been well received by a number of WTO Members, some developing countries have raised three major concerns about tariff elimination: 1) eliminating an important source of needed revenue; 2) eroding existing trade preferences; and 3) generating an inability to compete without tariff protection.

These concerns are understandable, particularly for least developed countries. But they overlook the substantial evidence that developing countries will gain, not lose, from the gradual elimination of industrial tariffs. This paper aims to provide such evidence.

A. Revenue Implications of Tariff Elimination

Developing countries do rely on trade taxes (primarily tariffs) more heavily than developed countries, but this reliance has diminished in recent years. Importantly, 2000-2001 IMF data indicate that across all developing countries, import duties have on average accounted for approximately 15% of total government revenue, down from 18% in 1991-1992.

Another study finds that during the 1990's, 49 of the 108 developing countries reduced their dependence on import duties by more than 30%. Pakistan, for example, relies on import duties for only 8% of its total government revenues in 2002, compared to 29% in 1992. For Malaysia, the 2001 figure is just 6%.

The trend away from tariff dependence recognizes that high tariffs actually reduce national income by raising costs to domestic manufacturers of importing raw material and other inputs, creating a high-risk customs environment that encourages duty avoidance, and removing the motivation for domestic industries to specialize according to comparative advantage and become fully competitive in a world price environment.

Ample evidence exists that the reduction and gradual elimination of tariffs will stimulate, rather than reduce, tariff and other revenue sources. Reasons include:

- Lowering tariffs stimulates imports via price reductions. Because lower tariff rates almost always translate into lower prices, the quantity and value of imports is likely to rise. Sufficient increases in import demand can completely offset tariff cuts such that total tariff revenue actually rises: a "Laffer-Curve"- type impact. Researchers have documented many examples in which a country's trade liberalization was followed by steady or even rising tariff revenue; e.g., Ghana, Malawi, Senegal, the Philippines, Mexico, and many Caribbean nations.

- Reducing high tariffs increases trade law compliance by removing incentives to avoid taxes through smuggling, bribery, underreporting import values, and misclassifying products for duty purposes. One study, for example, found that a 1% increase in Chinese tariffs resulted in a 3% increase in tariff evasion—with even larger magnitudes at higher tariff rates. Evasion occurs both via value underreporting and product misclassification.

- Eliminating tariffs creates dynamic economic gains through greater trade and thus a more efficient and productive economy, which in turn can enhance a country's overall tax revenue basis. For example, a recent WTO study highlighted the critical role of duty-free export processing zones (EPZs).

B. Erosion and Loss of Trade Preferences

Trade preferences under programs such as the U.S. Generalized System of Preferences (GSP) might benefit certain firms and industries in certain countries. But the benefit in terms of greater exports is far smaller than typically assumed. **Three recent, comprehensive studies have all calculated that comprehensive tariff reduction in preference-granting countries would reduce developing-country exports only very slightly—calculated declines in the value of developing-country exports are 0.2%, 0.3%, and 1.7%.**

Several reasons mitigate the concerns raised over the erosion of preferences:

- Trade-preference programs impose several important costs, particularly administrative costs. GSP programs entail high costs of information, compliance, and conditionality that must be set against any benefits. Moreover, most GSP programs do not cover many key products in which developing countries likely have the greatest comparative advantages, such as textiles and apparel. Finally, many of these programs are temporary.

- Preferential programs deter countries from their own trade liberalization. Perhaps more importantly, preferential market access often supplants more efficient trade links with other developing countries that would exist with freer trade. Thus, what is good for one developing country in terms of GSP-facilitated market access may be bad for another in terms of GSP-prevented market access. There is ample empirical evidence that many preferential trade regimes divert trade from more efficient links that would prevail under comprehensive free trade.

- Trade preferences are already disappearing through the rapid pace of proliferating regional free-trade agreements. The WTO estimates that 55% of world trade is already duty-free.

C. Competing without Tariff Protection

The "infant industry" argument that tariff protection facilitates industrial development enjoys virtually no empirical support. Instead, today there is a large amount of firm-, industry-, and country-level evidence that precisely the opposite is true. Liberalization of trade and FDI spur the performance of firms in developing countries through three important channels.

- Access to new technology. The world's production of new technologies is quite concentrated among developed countries and multinational firms. Approximately 80% of all worldwide R&D is conducted in just five OECD countries, and in the United States the parents of U.S. headquartered multinationals account for two-thirds of all private sector R&D. Many empirical studies have confirmed that both trade and FDI are important channels of technology acquisition for developing countries.

- Access to foreign capital. In recent years, FDI has accounted for the majority of total international funding for developing countries (and has also been a more-stable source as well). By the late 1990's, nearly two-thirds of total developing-country capital inflows were FDI.

- The discipline of product-market competition. For countries with insufficient product-market competition from domestic firms alone, it is the force of international market competition that is needed via trade and FDI. There is a strong positive correlation between the exposure of a country's firms to global best practice and the productivity of these firms.

Greater global engagement through trade and FDI stimulates firm performance and overall growth—in developed and developing countries alike. In recent years, information and communication technology (ICT) industries provide a clear example of this link. **An important force behind the recent strength of ICT industries in developing countries such as Malaysia has been the WTO's 1997 Information Technology Agreement, which eliminated all ICT tariffs among all signatory countries and thereby helped spur competition and innovation.**

III. Developing Country Case Studies of the Benefits of Tariff Liberalization

The paper summarizes several case studies of developing countries that have benefited from tariff liberalization. These cases offer striking examples of the broad themes of this paper.

- Malaysia has been liberalizing its trade for decades, including in 1997 by signing the ITA. Today, Malaysia is widely regarded as one of the few developing countries that has been highly successful in raising their shares in world manufacturing exports and value added through participation in global production networks, such as those in electronics and computers.

- Costa Rica liberalized its trade and investment policies much later, in the 1990s. But since then, the country has become integrated into global production networks in multiple industries such as IT and medical devices, with economy-wide benefits that have been widely noted.

- Chile was arguably the first developing country to unilaterally liberalize its trade and investment policies, starting in 1976. In the subsequent decades the country enjoyed strong export-led growth in a number of industries, from traditional agriculture and mining to services.

Table of Contents

Section I
Importance of Tariff Liberalization

Section Overview

The Doha Agenda offers an unprecedented opportunity to complete the unfinished business of tariff-cutting begun by the GATT when it was established in 1947. Agreement by WTO Members to adopt bold multilateral tariff liberalization would demonstrate the WTO's continuing relevance and credibility as the leading force of trade liberalization globally. The stakes for developing countries from tariff liberalization are substantial: hundreds of billions of dollars in greater economic growth and thus higher living standards. As this report will demonstrate, these gains can be realized through several important channels. Trade taxes are a very inefficient way to raise the needed levels of government revenue. And the investments in capital and technology that are needed for the competitiveness of companies and thus countries are more likely the more engaged firms are in global product markets.

A. Why Liberalize Tariffs?

In March 2001, the National Foreign Trade Council (NFTC) recommended that a centerpiece objective of the Doha Development Agenda (Doha Agenda) of World Trade Organization (WTO) negotiations be the gradual elimination of all industrial tariffs among WTO Members. The recommendation was based on four key reasons.

1. Developing countries pay most—70%—of their tariffs to each other, face high escalating tariff "peaks" in developed markets, need to reduce the costs of production to attract foreign direct investment (FDI), and could greatly increase the 40% of South-South trade by eliminating high tariff barriers to each other.

2. Developed countries need to reduce the billions of dollars they pay annually on North-North trade due to "residual" tariffs, and need increased access to developing markets.

3. More than one-half—55%—of world trade is already duty free, but increasing regionalism threatens more complexity and cost, and may leave poor countries behind.

4. Comprehensive tariff elimination would be a huge stimulus to economic growth worldwide, and it offers the greatest hope of overcoming protectionist resistance in both developed and developing countries.

The Doha Agenda offers an unprecedented opportunity to complete the unfinished business of tariff-cutting begun by the GATT when it was established in 1947. Several WTO Members have expressed support for moving in this direction, including through the formal submission of tariff-elimination proposals by the governments of the United States and New Zealand. Agreement by WTO Members to adopt bold multilateral tariff liberalization would demonstrate the WTO's continuing relevance and credibility as the leading force for trade liberalization globally. Absent such boldness, the trend toward regional free trade agreements as the main vehicle for trade liberalization will likely gain in favor and significance.

B. How Economically Important Are the Stakes?

The gradual elimination of industrial tariffs would provide substantial economic benefits to all WTO Members. According to a study by the University of Michigan, for example, global welfare gains from eliminating tariffs for non-agricultural products would be $632 billion. Other studies indicate larger gains. A draft report by the Manufacturers Alliance/MAPI estimates, for example, that the annual welfare gains from a tariff-free world for non-agricultural products could rise to $2.0 trillion - 6 percent of global GDP - with approximately one-half of the gains accruing to newly-industrialized countries.

The gains from tariff liberalization can be realized through several important channels. One channel is the well known but still very important issue of comparative advantage. Tariffs and other trade taxes almost always reduce total national income and thus welfare. When firms do not face world prices, a country ends up not specializing according to comparative advantage and thus not maximizing the value of its total output at world prices. And when individuals face higher prices due to trade barriers, the level (and perhaps range, if some barriers are prohibitive) of consumption falls. These income and welfare losses are concrete, ongoing costs in terms of foregone higher living standards for countries.

A second very important issue is that trade taxes are a very inefficient way to raise government revenue. They are more costly than broader-based non-trade taxes, and they are inferior not just on efficiency grounds, but often times on equity grounds. Tariff peaks often fall on agricultural and consumer goods that constitute a much larger share of total spending for poorer households.

A third important issue is the competitiveness and productivity of firms and thus of countries. As Section III will detail, firms in developing countries depend on international trade and FDI—particularly in the global production networks of multinationals—for the global technology, capital, and competition needed to innovate. Tariffs act as an added cost which can deter needed FDI in developing countries and hamper competitiveness.

This evidence contradicts traditional "infant industry" arguments, which argue that success comes from the *lack* of global competition and concurrent access to *domestic* technology and capital. The simple reality is that the typical developing country does not have adequate depth and breadth of domestic technology and capital. Instead, the investments in capital and technology that are needed for global competitiveness are more likely the more engaged firms are in global product markets. Relative to other taxes, then, tariffs are particularly damaging to the economic-growth prospects of developing countries.

The gradual phasing out of tariffs, accompanied by sound macroeconomic and fiscal policies to ensure a continued revenue stream, would eliminate what is, in fact, a significant tax on economic development.

Section IIA
Revenue Implications of Tariff Elimination

Section Overview

Certain developing countries have expressed concern that eliminating industrial tariffs would trigger unacceptable fiscal hardship. It is true that developing countries tend to rely on trade taxes, primarily tariffs, more heavily than developed countries. But tariffs reduce national income and welfare much more than do broader-based non-trade taxes—taxes that can replace tariffs in a straightforward manner. And there is ample evidence that gradual tariff liberalization initially *raises* total trade revenue. Phased elimination of tariffs, combined with implementation of sound tax reforms, can facilitate the beneficial evolution of national tax codes away from tariffs.

A. What Are the Revenue Concerns and Facts?

Certain developing countries have expressed concern that eliminating tariffs for non-agricultural products (i.e., industrial goods) would trigger unacceptable fiscal hardship because of their reliance on tariffs as an important source of government revenue.

While developing countries tend to rely on trade taxes, primarily tariffs, more heavily than developed countries, it is an inappropriate benchmark for considering the revenue implications of liberalization. This is because ***tariffs reduce national income and welfare much more than do broader-based non-trade taxes***—taxes that can replace tariffs in a straightforward manner. Another reason is the ***ample evidence that gradual tariff liberalization initially raises total trade revenue, which can facilitate the beneficial evolution of national tax codes away from tariffs without serious disruption to a government's tax revenue base.***

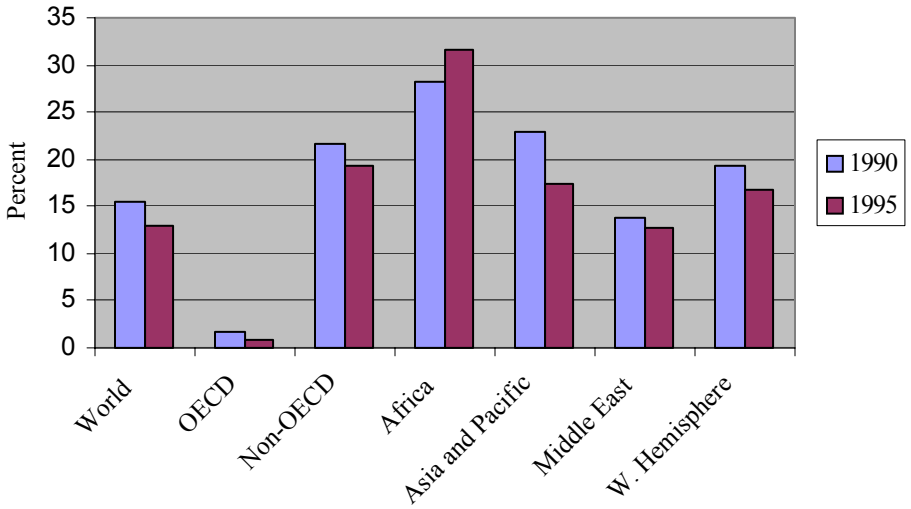
For both OECD and sets of non-OECD countries over the 1990s, Figure 1 documents the importance of trade taxes in total government revenue. The other country groups in Figure 1 are sets of developing, i.e., non-OECD, countries collected by geographic region. Note that trade taxes include items other than import tariffs. It is instructive to start with this broader definition of trade-related taxes before turning to tariffs specifically.[1]

There are two important messages to Figure 1. The first is that developing countries tend to rely on trade taxes more than do developed countries, in terms of the share of total government revenue accounted for by these trade taxes. In 1995 this share in developing countries taken together was nearly 20 percent, versus less than one percent for developed countries. Among developing countries, Africa stands out (in both years) as most dependent on trade taxes.

The second important message to Figure 1 is that over the 1990s, in most regions there has been a general fall in reliance on trade taxes—but that this decline has been uneven across regions. The declines were sharpest (in percentage-point terms) in the non-OECD Asia and Pacific. In Africa, the share of trade taxes in total government revenue was actually higher in 1995 than it was in 1990.

[1] These data come from various years of the International Monetary Fund's (IMF's) *Government Finance Statistics*. In these publications, the IMF defines trade taxes to include "import duties, export duties, profits of export or import monopolies, exchange profits, and exchange taxes." The country groups in Figure 1 (and Figures 2 and 3) are commonly used by the IMF: e.g., in the study by Ebrill, Stotsky, and Gropp (1999), where the constituent countries are listed in Appendix II. Data are not reported for some end-of-decade point, such as the year 2000, because of widespread lags in reporting data to the IMF.

Figure 1
Reliance on Trade Taxes
in Developed and Developing Countries,
as a Share of Total Tax Revenue



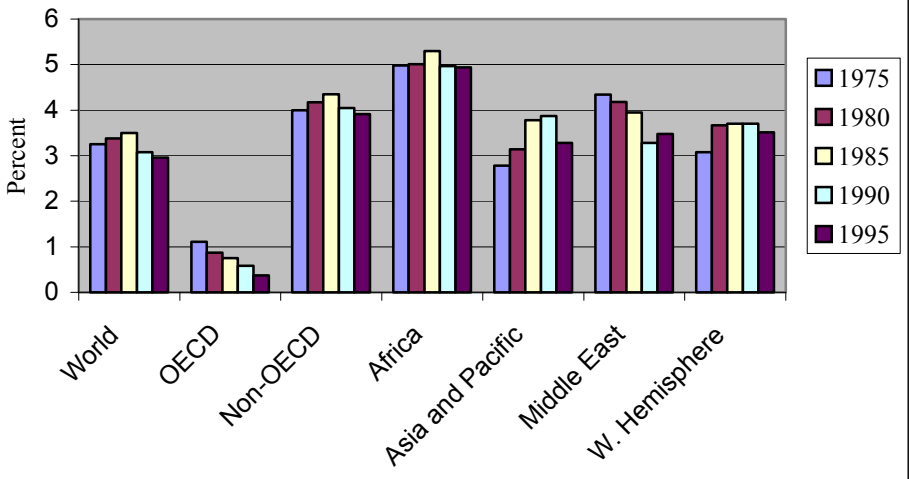
Sources: IMF *Government Finance Statistics*, various issues.
Notes: Bars report the share of total government revenue (in percentage terms) accounted for by trade taxes, where for each bar this share is calculated as the simple average of this share for all the group's constituent countries that year. The four country groups to the right of "Non-OECD" are components of the Non-OECD group. See text for details.

Dozens of individual developing countries have been reducing their share of trade taxes in total government revenue. One study of the 1990s calculated that among 108 developing countries surveyed, 49 reduced the share accounted for by import duties by more than 30%. And well over half of this sample managed to reduce this share by more than 20%. Prominent examples include India, where the trade-tax share fell from 28.8% in 1990 to 19.7% in 2000. Looking at all developing countries together more recently, it has been calculated that by 2001 their average tariff rate had fallen to 15% (USTR, 2003).

For the same country groups but a longer time period—to offer a longer perspective—Figure 2 reports import tariffs as a share of gross domestic product (GDP). Note that the numerator in these shares is now import tariffs, in contrast to all trade taxes as in Figure 1. In recent decades within most countries, tariffs constitute the large majority of total trade taxes. This is especially true for OECD countries, where by 1995 there were virtually no trade taxes other than import tariffs. Also note that the denominator in these shares is now GDP, in contrast to total tax revenue as in Figure 1. This offers a complementary measure of a country's reliance on trade taxes.

There are two important messages to Figure 2. One is that, as in Figure 1, developing countries appear to rely on trade taxes more than do developed countries. Again, Africa stands out as the most dependent on trade taxes. The other important message is that in recent decades, in most regions there has been a general fall in reliance on import tariffs in terms of GDP shares, but again, that this decline has been uneven across regions. The declines have generally been less among developing countries.

Figure 2
Reliance on Tariffs
in Developed and Developing Countries,
as a Share of GDP



Sources: IMF *Government Finance Statistics*, OECD *Revenue Statistics*, various issues.
Notes: Bars report the share of GDP (in percentage terms) accounted for by the indicated type of trade taxes, where for each bar this share is calculated as the simple average of this share for all the group's constituent countries that year. The four country groups to the right of "Non-OECD" are components of the Non-OECD group. See text for details.

Figures 1 and 2 measure the *value* of trade taxes and tariffs, values that depend on both tax rates and the value of trade. In principle, it is unclear from these figures alone whether the higher trade dependence of developing countries reflects higher tax rates or more trade. Not surprisingly, perhaps, Figure 3 confirms that at least part of what distinguishes developing countries is their much higher average tariff rates.

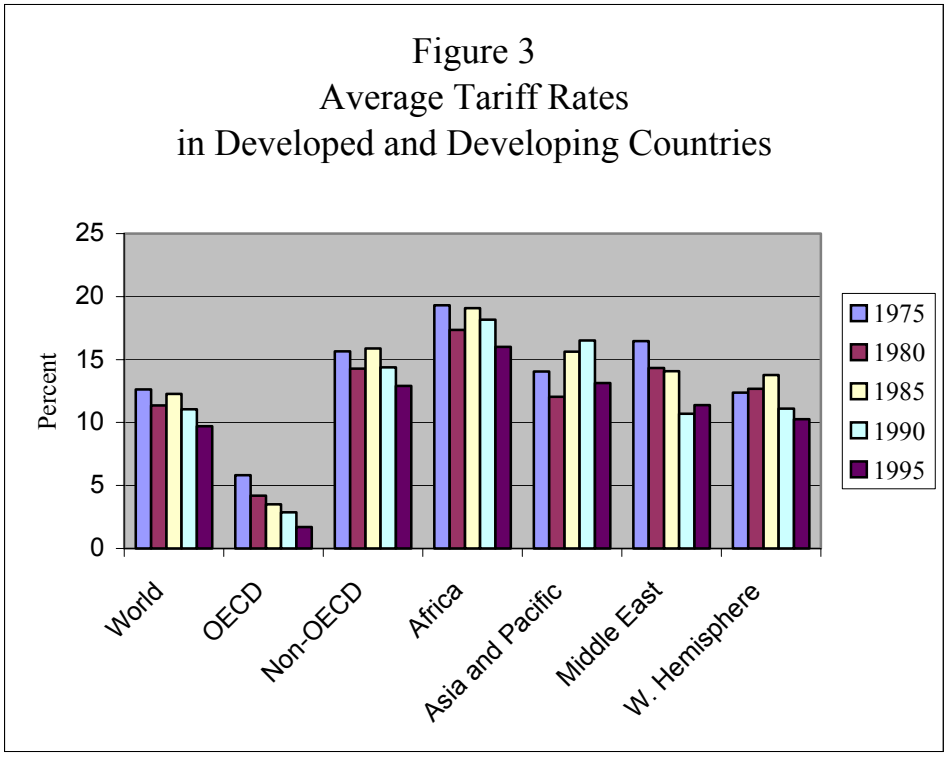
For the same country groups as in earlier figures, Figure 3 reports the value of total tariff duties collected as a share of total trade value. Within each country, this tariff rate is an average in the sense that it pools across all sectors of the economy: it is also commonly called an effective or collected tariff rate.[2]

There are two important messages to Figure 3. One is that in recent decades, developing countries have had average tariff rates several times higher than those in developed countries. Since 1990, developing countries in Africa and the Asia-Pacific region have had the highest rates of all.

The second important message to Figure 3 is that ***over time, average tariff rates have declined worldwide—but more so in both absolute and percentage terms in developed countries***. In

[2] Statutory tariff rates, in contrast, are the legally mandated tax rates product by product. By construction, average tariff rates as in Figure 3 obscure variation—in particular, high "tariff peaks"—across products. There are alternative methods of aggregating across all products to generate a single average tariff rate for a country. For example, the average rate in Figure 3 implicitly weights each product by the value of imports; a well-known issue of this method is that prohibitive tariffs that eliminate all imports paradoxically receive zero weight. But in reality, product-by-product statutory tariff rates are unavailable for any comprehensive sample of countries and/or years. Also, note that the tariff rates in Figure 3 cover not just manufacturing but all other sectors (e.g., agriculture) as well.

the Asia-Pacific region, from 1975 to 1995 the average tariff rate declined by less than one percentage point.



Sources: IMF *Government Finance Statistics*, OECD *Revenue Statistics*, various issues.
Notes: Bars report average tariff rates measured as duties collected as a share of the total value of imports, where for each bar this rate is calculated as the simple average of this rate for all the group's constituent countries that year. The four country groups to the right of "Non-OECD" are components of the Non-OECD group. See text for details.

It should be noted that there are well-known reasons why trade taxes figure more prominently in developing countries than in developed ones. Developing countries tend to have less-well-developed government administrations, and also a larger share of economic output in "shadow" activities that are harder to track. Trade flows tend to be more easily tracked than broader, non-border activities such as employment and sales: e.g., because many countries have very few ports and other transit points through which trade can flow.

B. Interpreting the Facts: Inefficiency of Tariffs and Practicality of Replacing Them

Though well known, it is important to reiterate here that tariffs and other trade taxes almost always reduce total national income and thus welfare.

When firms do not face world prices, a country ends up not specializing according to comparative advantage and thus not maximizing the value of its total output at world prices. And when individuals face higher prices due to trade barriers, the level (and perhaps range, if some barriers are prohibitive) of consumption falls. These income and welfare losses of trade taxes are concrete, ongoing costs in terms of foregone higher average living standards for countries.[3]

[3] Dixit and Norman (1980) offers a standard economics statement and proof of the national welfare losses induced by trade barriers. It is well known that in theory, in certain situations trade protection can raise national welfare above its free-trade level. In practice, however, almost all economists—including the leading theorists who proved such situations, such as *New York Times* op-ed columnist Paul Krugman (see, e.g., Krugman and Obstfeld, 2000)—argue that such situations do not hold in reality due to issues such as complicated product-market structures and insufficient government disinterest and information. One such situation, that of infant-industry protection, will be addressed in detail in Section IIC.

It is also important to emphasize that trade taxes are more costly than broader-based non-trade taxes. In the public-finance literature in economics, this principle has been well researched and documented (see, e.g., the survey in Dixit, 1985).

Trade taxes are inferior not just on efficiency grounds, but often times on equity grounds as well. Above and beyond considerations of aggregate income are those of distribution, because trade taxes aggravate income inequalities. Tariff peaks often fall on agricultural and consumer goods such as apparel (USTR, 2003). These goods constitute a much larger share of total spending for poorer households.

Research has shown that replacing tariffs with alternative taxes can be quite straightforward for governments. For example, a recent International Monetary Fund (IMF) report (Baunsgaard, Geourjon, Keen, and Seade, 2003) presents various situations in which tariff reductions combined with simple increases in commodity taxes unambiguously raise national welfare. The authors summarize that, "[a]ll this suggests that there is in principle no great difficulty in devising a policy mix that replaces tariffs by indirect taxes in such a way as to preserve revenue without jeopardizing other economic and social objectives."[4]

How well any given country actually shifts from tariffs to better-performing taxes depends on considerations such as administrative, political, and technical support. But several successful real-world cases demonstrate the benefits of reforming domestic taxation systems as a country liberalizes its economy. Ebrill, Stotsky, and Gropp (1999, p. 10) summarize the experiences of four countries, each of which combined major trade liberalization with a broadening of other taxes.

> In the late 1980s Malawi embarked on a program to reform the tax system by, among other things, lowering marginal tax rates and converting the sales tax into a credit-based VAT. Trade liberalization in Morocco has been accompanied by improvements in the tax structure and, more recently, by a complete overhaul of the tax and customs administrations. In the Philippines, both direct and indirect taxation were reformed … Finally, Senegal has been successfully refining its VAT (reducing the number of rates and expanding the base) to bolster revenue mobilization.

A successful combination of trade liberalization and VAT implementation was also implemented in the Caribbean in Barbados and Trinidad and Tobago (Stotsky, Suss, and Tokarick, 2000), and in Cambodia (Martin, 2000).

Many intergovernmental organizations have the capacity and experience to assist developing countries with these fiscal changes. For example, the IMF already provides such help through its regular programs, Article IV consultations, staff missions, and technical assistance. Indeed, 30% of all IMF technical assistance is provided by its fiscal affairs department (IMF, 2002). The IMF has also recently opened several regional centers whose main charge is precisely the facilitation of fiscal reform.[5]

C. Interpreting the Facts: The Ways in which Liberalization Can Raise Tariff Revenue

Sub-section A documented that developing countries do tend to rely more heavily on trade taxes

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[4] One example is where tariff reductions are combined with increases in domestic commodity taxes that just offset any impact of the tariff reductions on consumer (but not producer) prices. Firms now face world prices and thus produce more efficiently according to comparative advantage; consumers are no worse off than before; and government revenue rises thanks to broadening the tax base from just imports to domestically produced goods as well. Alternatively, if the government increases commodity taxes only to the point of maintaining its total revenue, then consumers are better off thanks to lower prices on some goods. Analytic proofs of cases like these appear in Keen and Ligthart (2002).

[5] IMF regional centers opened in East Africa in October 2002, the Caribbean in October 2001, Pacifica in 1993, and the IMF currently plans an additional center in West Africa (USTR, 2003).

than do developed countries. Sub-section B discussed the inefficiencies of trade taxes relative to other forms of taxation, and documented several cases of countries successfully moving away from trade taxes. This section explains how gradual trade liberalization can actually raise total trade revenue, which, in turn, can facilitate the evolution of national tax codes away from tariffs.

1. The "Laffer Curve" Impact of Tariff Reduction

Increased import demand can mitigate the revenue loss from the tariff cuts. And in some cases, sufficient increases in import demand can completely offset the tariff cut such that total tariff revenue actually rises: a "Laffer Curve"-type impact.

Revenue implications of actual tariff reductions depend on issues such as market structure and the initial level and subsequent cut in tariffs. Cuts in tariffs that are initially prohibitive necessarily raise revenue; more generally, cuts in tariffs that are initially quite high are likely to trigger substantial increases in import demand and thus revenue.[6]

2. The Compliance Impact of Tariff Reduction

Excessively high tariffs may induce importers to evade paying import duties. This might entail legal methods, such as lobbying the government for tariff exemptions. It might also entail illegal methods: underreporting import values, misclassifying products imported into lower-tariff categories, or outright smuggling.

How extensive tariff evasion is depends on the integrity and sophistication of a country's tax-collection regime. To the extent that developing countries have less-mature customs agencies, these evasion issues are likely to be more acute.

Lowering high tariffs can stimulate government tariff revenue by eliminating incentives from duty evasion and exemption. Importers may decide that the costs of lobbying for tariff exemptions are not worth the gains in foregone tariff payments. And when governments actively reduce the range of products and/or importers available for tariff exemption, this broadening of the tax base automatically raises total tariff revenue (even at unchanged tariff rates).

The revenue impact of reduced tariffs can thus be mitigated, if not completely offset, by broadening the tariff base via reduction or elimination of special exemptions. As for illegal methods of evading tariffs, lower tariffs reduce the gains from such methods and thus, for some given costs, reduce the incentive to undertake them. The net result is again higher tariff revenue.

An important aspect of liberalization that can help induce compliance is reduction in tariff dispersion, i.e., tariff "peaks," across different product categories. The greater is the tariff dispersion across products, especially closely related products, the more opportunity there is for tariff evasion via product misclassification. More-uniform tariff rates both reduce the ability of importers to misclassify and increase the ability of customs officials to spot violations.

3. The Growth Impact of Tariff Reduction

There is a large body of evidence that trade liberalization stimulates economic growth. Liberalization stimulates both a better reallocation of current resources, in terms of comparative advantage, and can also stimulate long-run growth through the accumulation of capital and technology.

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[6] Technically, the revenue impact of tariff changes depend on the price elasticities of both domestic demand and supply, as the quantity of imports depends on both supply and demand. A formalization of these issues can be found in Blinder (1981).

For developing countries, the link between economic openness and growth is quite strong. For example, the World Bank (2002) reports that over the 1990s, a "more globalized" group of developing countries enjoyed per capita GDP growth of 5% per year—while a "less globalized" group of developing countries suffered an analogous growth rate of –1%.[7] And in a recent WTO study, Bacchetta and Bora (2003) document the constellation of policies such as EPZs that have been pursued by successful countries in this more-globalized group.

Section IIC of this paper addresses these growth issues more completely; for now, the focus is limited to the tax-revenue implications of such growth.

D. Interpreting the Facts: Empirical Evidence on Liberalization and Tariff Revenue

The previous sub-section listed three channels through which trade liberalization might stimulate, rather than reduce, tariff revenue: by stimulating imports via price reductions, by increasing trade-law compliance, and by stimulating imports via greater economic growth. If these channels do matter, then there should be evidence that trade liberalization sometimes leads to small declines or even increases in total tariff revenue, rather than large declines proportionate to tariff cuts.

This correlation will clearly not hold in all cases. It is more likely to appear in situations with high initial tariff (and non-tariff) barriers, high tariff dispersion, high incidence of tariff non-compliance, and high opportunities for import and economic growth. It is important to note that these situations are more likely to prevail in *developing* countries, not their developed counterparts.

This sub-section presents three sets of confirming evidence: country-level case studies of tariff rates and tariff revenue; cross-country econometric evidence linking tariff rates and tariff revenue; and econometric evidence linking tariff rates and demand for imported intermediate inputs within the global production networks of multinational firms. As expected, much of the evidence is for developing countries.

1. Country-Level Case Studies of Tariff Rates and Tariff Revenue

Researchers have documented many examples in which a country's trade liberalization was followed by steady or even rising tariff revenue.

Ebrill, et al (1999) discuss three such cases in Africa. Ghana cut its average tariff rate from about 20% in 1985 to 10% in 1993, and over that time the ratio of tariff revenue to GDP rose from just under 3% to just over 3%. Malawi cut its average tariff rate from about 16% in 1980 to under 8% in 1995, and over that time the ratio of tariff revenue to GDP held virtually steady at about 3%. Senegal cut its average tariff rate from over 35% in 1990 to nearly 20% in 1995, and over that time the ratio of tariff revenue to GDP held virtually between 6 and 7%. Another African case is South Africa. In 1994 its government started to reduce its average tariff from 30% to 15% by the end of the decade. Over this period, tariff revenue as a share of GDP rose from 0.59% to 1.07% (Matlanyane and Harmse, 2002).

Examples outside Africa include the Philippines, Mexico, and many Caribbean nations. The Philippines cut its average tariff rate from nearly 21% in 1975 to about 14% in 1995, yet saw a

[7] These calculations come from Bank economists David Dollar and Art Kraay. Many economists in both academia and policy settings have used many different methods to examine the links between trade liberalization and economic growth. A common (though not universal) finding is that liberalization stimulates economic growth—especially when combined with other pro-growth policies. A recent survey of this research can be found in Baldwin (2003), who finds that "the conclusion of most researchers involved in either country studies or multi-country statistical tests that lower trade barriers in combination with a stable and non-discriminatory exchange-rate system, prudent monetary and fiscal policies, and corruption-free administration of economic policies promote economic growth still seems to remain valid."

commensurate increase in its ratio of tariff revenue to GDP from about 4.6% to just under 5%. From 1985 through 1990 Mexico undertook substantial unilateral trade liberalization, yet during this time its total tariff revenue remained constant (Feltenstein, 1992). Stotsky, et al (2000) report that for a large set of Caribbean nations, the average tariff fell from just over 8% in 1994 to just over 6% in 1998, yet tariff revenue as a share of GDP fell just barely, from 4.5% to 4.25%.

As discussed in sub-section C, ***an important channel by which trade liberalization can have little or no tariff-revenue impact is reduced tariff evasion via exemptions, misclassification, or outright smuggling. Studies of individual countries have documented evidence of this liberalization-compliance link.***

In many countries a gap has been documented between statutory tariff rates and tariff rates actually collected, the size of which increases at higher levels of statutory rates (Pritchett and Sethi, 1994). This is consistent with increasing non-compliance at higher statutory tariff rates, which in turn implies that trade liberalization that reduces statutory rates has ameliorated revenue implications thanks to greater compliance.

Direct evidence that higher tariffs induce illegal tariff evasion through value underreporting and product misclassification has also been documented for the case of China-Hong Kong trade.

For very disaggregated individual products, Fisman and Wei (2001) compare the values that China reports as imports from Hong Kong with the values that Hong Kong reports as exports to China. They conclude that a one-percent increase in Chinese tariffs results in a three-percent increase in tariff evasion—with even larger evasion magnitudes at higher tariff rates (especially above 35%). Evasion appears to happen both via value underreporting and product misclassification; evidence on the latter appears in that the evasion gap is smaller the larger is the tariff rate on closely related products (and thus the smaller is the misclassification opportunity).

2. Cross-Country Econometric Studies of Tariff Rates and Tariff Revenue

The case studies of the previous sub-section offer a number of real-world examples where trade liberalizations were correlated with little or even positive impact on total tariff revenue.

Of course, any case study faces the potential limitations of generality (how typical was the experience of country X?) and causal inference (was the trade-revenue correlation caused by something other than trade liberalization?). To address these possible limitations of case studies, one can examine many countries together using econometric techniques that can control for the independent contributions of several different forces.

Ebrill, et al (1999) perform such an analysis for a group of 27 developing countries (from all major regions of the world) over the 1980s and 1990s, and then again for a broader set of 105 developing and developed countries. Even before the econometric analysis, the summary statistics for the developing-country sample parallels the evidence from the case studies. From 1980 to 1985 the average tariff rate in this group rose from 13.7% to 15.4%, but tariff revenue as a share of GDP fell from 3.1% to 2.6%--due in part to falling imports from 23.3% of GDP to 18.7%. From 1985 to 1992, all these trends reversed. The collected tariff rate fell to 13.9%, tariff revenue and imports as a share of GDP rose to 2.7% and 21.9%, respectively.

The econometric evidence reinforces the case-study evidence. Trade liberalization need not entail a loss of tariff revenue proportionate to the tariff cuts. In fact, in many cases liberalization increases, rather than decreases, total tariff revenue.

3. Firm-Level Econometric Evidence of Tariff Rates and Import Demand

The revenue impact of tariff cuts can be softened, if not reversed, thanks largely to rising imports. Sub-section C discussed how lower tariffs can stimulate import demand both in the short-term thanks to lower import prices. Hanson, Mataloni, and Slaughter (2003) document evidence of this first channel in their study of global production networks in multinational firms.

Using firm-level data for U.S.-headquartered multinational firms, this study tracks imports by foreign affiliates from U.S. parents of intermediate inputs for further processing. Their econometric analysis correlates purchases of imported intermediate inputs with a variety of forces, including host-country/industry tariff rates. These tariff rates are found to be extremely important: a one-percent decline in the tariff-related price of imported intermediate inputs is correlated with a three-to-five percent increase in the quantity of imported inputs demanded. This high sensitivity of demand for imported inputs is consistent both with the Laffer-Curve issues and with the country-level evidence documented earlier.

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Section IIB
Concerns about the Loss of Existing Trade Preferences

Section Overview

Some countries have expressed concern that market-access advantages conferred by trade preferences, such as the Generalized System of Preferences (GSP), to developing countries would be eroded if tariffs are phased out. But the benefits in terms of greater exports are far smaller than typically assumed. Recent studies calculate that comprehensive developed-country liberalization would reduce developing-country exports by less than 2% or even 1%. Moreover, there are several important costs of GSP programs, including administrative costs and high costs of information, compliance, and conditionality. They also deter a country's own beneficial trade liberalization and often supplant more-efficient trade links with other developing nations that would exist with freer trade. Finally, the proliferation of FTAs are already eroding GSP preferences.

A. Concerns about and Costs of Trade Preferences

In many developing countries, exporting industries currently enjoy trade advantages from preferential arrangements under the GSP. These trade preferences, granted to developing countries by various developed countries, were first admitted into the General Agreement on Tariffs and Trade (GATT) in 1971 as a way to induce developing countries to participate in multilateral trade liberalization.

In practice, GSP allows developing-country exporters to face import tariffs into granting developed countries that are better (i.e., lower) than those countries' most-favored-nation (MFN) rates. For example, the current U.S. GSP program "sets a zero tariff on 6,409 articles from beneficiary states (out of total 15,467 tariff lines)"(Ozden and Reinhardt, 2003). More generally, across major GSP-granting countries—e.g., Canada, the European Union (EU), Japan, and the United States—effective GSP tariff rates are about one-half the otherwise-applicable MFN rates (UNCTAD, 1999).

Additional trade preferences include the EU Everything But Arms (EBA) initiative and the U.S. Africa Growth and Opportunity Act (AGOA) extended to many sub-Saharan African countries.

Some have expressed concern that GSP benefits to developing-country exporters are large, and would erode if tariffs were phased out among WTO Members.

Although GSP preferences can confer advantages to certain firms and industries in certain countries, the benefits in terms of greater exports are far smaller than typically assumed, as several recent studies have shown. And because many developing-country exports are concentrated in non-industrial natural-resource commodities, the overall export impact eliminating tariffs for non-agricultural products would likely be even smaller.

The narrow focus on market access for existing exporters overlooks several important costs of GSP. These costs arise by virtue of GSP being exempt from standard WTO principles of reciprocity and non-discrimination, and they call into question its net benefits both for individual countries and developing countries overall.

One cost is the administrative costs faced exporting countries. GSP programs entail high costs of information, compliance, and conditionality that must be set against any benefits of export access. Moreover, many of these programs are temporary in nature and often do not cover key products.

A second cost for exporting countries is the deterrence impact on their own trade liberalization. There is both theoretical and empirical evidence that GSP arrangements inhibit broader trade liberalizations in recipient countries. Like administrative costs, these economy-wide costs of foregone liberalization must be set against any export-access gains.

A third GSP cost arises from the perspective of developing countries taken together. Preferential market access often supplants more-efficient trade links with other developing nations that would exist with freer trade. Thus, what is good for one developing country in terms of GSP-facilitated market access may be bad for another in terms of GSP-prevented market access.

Finally, with more than 150 regional free trade agreements in place, and with many additional ones under negotiation, GSP preferences are disappearing with or without multilateral trade liberalization.

B. How Large Are the Export Gains of Trade Preferences?

To the extent that increased exports from developing to developed countries are a benefit of trade preferences, it is important to clarify exactly how large the export increases truly are.

Several researchers have recently tried to answer this question by estimating the decline in these exports that would arise from hypothetical developed-country tariff cuts—cuts that would largely if not entirely eliminate developing-country preferential market access.

Three recent, comprehensive studies have all calculated that comprehensive tariff reduction in preference-granting countries would reduce developing-country exports only very slightly. Calculated declines in the value of developing-country exports for these three studies are 0.2%, 0.3%, and 1.7%.

Hoekman, Ng, and Olarreaga (2001) model the impact of reductions to 5% of all peak tariffs in all OECD countries. They calculate that such liberalization would reduce developing-country exports by just 0.3%.

Ianchovichina, Mattoo, and Olarreaga (2001) model the impact of 25% tariff cuts by all Quad countries on the exports of 37 sub-Saharan African countries. Even with the perhaps overly-optimistic assumption of no binding rules of origin, such a liberalization is calculated to reduce exports by just 0.2%.

Subramanian (2003) models the impact of two assumed liberalizations: the full implementation of all Uruguay Round agreements (including full obligations by 2005 of the Agreement on Textiles and Clothing (ATC)), followed by an additional 40% cut in all rich-country MFN tariffs. In explicit contrast to the two studies above, this study builds in several assumptions to raise the market-access impact of trade preferences.[8] Even with these assumptions, these liberalizations are calculated to reduce total exports from a group of nearly 50 developing countries by just 1.7%.

The finding of these recent studies accords with that of earlier work. One earlier survey of the empirical evidence on trade preferences had concluded that the net gains of developing-country trade preferences are closer to zero: "available quantitative studies … seem to point to the conclusion that special and differential treatment has had only a marginal effect on country economic performance, especially through GSP" (Whalley, 1990).

[8] For example, this study assumes no increases in developing-country prices thanks to the liberalizations—increases which would tend to offset the value impact of any decline in export quantities.

It is important to emphasize that existing trade preferences cover a wide range of non-manufacturing products. Indeed, Subramanian (2003) reports that in many developing countries, exports are quite concentrated in non-industrial sectors: "For 24 of the 47 countries, exports of a single product accounted for more than 50 percent of total exports. In virtually all these cases, the product in question was an unprocessed natural resource."

Because many developing-country exports are concentrated in non-industrial natural-resource commodities, the overall export impact of the gradual elimination of tariffs for industrial goods would likely be even smaller than the calculations reported above.

C. Costs of Trade Preferences: Administrative Compliance

On many margins, GSP programs entail high costs of information, compliance, and conditionality that must be set against any benefits of export access.

Because GSP preferences are conferred outside the typical WTO guidelines, GSP programs are structured according to criteria that are numerous, subjective, and changing over time.

For example, the U.S. GSP program determines eligibility (USTR, 1999) based on political criteria (the exporting country may not be Communist, harbor international terrorists, nationalize U.S. property, or be members of a "disruptive" commodity-exporting cartel) as well as economic criteria (level of economic development; actual degree of market access, i.e., "competitive need"; and degree of value added, i.e., "rules of origin," in the exporting country). Many of these criteria can be applied with great discretion by the President.[9]

These complicated criteria for any one country are even more complicated when set against the differences across countries. Taken together, all these administrative considerations of information and compliance are a well-documented cost of GSP programs—both in terms of costs incurred for taken-up incentives by exporters and in terms of export opportunities foregone due to developing-country technical incapacity (e.g., UNCTAD 1999).[10]

An additional administrative cost worth mentioning is that of conditionality. Because GSP arrangements are set without the WTO constraints of reciprocity and non-discrimination, the existence and extent of coverage is subject to developed-country protectionist forces. Most GSP programs do not cover many key products in which developing countries likely have the greatest comparative advantage, such as textiles and apparel. For products that are GSP-eligible, granting countries typically limit the amount of permitted exports and/or substitute non-tariff barriers.

An example of the costs of GSP conditionality can be found in a recent study of the U.S. AGOA (Mattoo, Roy, and Subramanian, 2002). In principle, this GSP program expands the scope of preferential U.S. access of African exporters in key industries such as clothing. In practice, however, expanded access will come only when exporters satisfy various restrictive conditions. Particularly binding will be rules of origin for clothing firms: to realize AGOA preferences, these firms will need to source certain intermediate inputs from within Africa or the United States. The study concludes that realized increases in African exports under AGOA will be only one-fifth what they would have been had AGOA been implemented without these conditions.

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[9] Indeed, the official U.S. GSP guide (USTR, 1999) distinguishes "Mandatory Criteria" for eligibility (p. 23) from "Discretionary Criteria" (p. 24).

[10] Rules-of-origin requirements are widely thought to be especially costly, as they can involve very high information requirements. Indeed, Mattoo, Roy, and Subramanian (2002) calculate that these requirements can reduce the net gains of preferential arrangements by as much as 75% (based on their analysis of African trade preferences).

Another example of the costs of GSP can be found in a recent study of the EU EBA initiative (Brenton, 2003). In practice, over 99% of EU imports from the EBA-affected countries were already entering the EU nearly duty-free pre-EBA. There are a few key industries for which EBA could lower effective trade barriers, but in many—e.g., bananas, rice, and sugar—liberalization has been explicitly delayed. EBA also entails high compliance costs thanks to rules of origin—both in terms of actual input requirements and administratively via documentation requirements.

Taking all these administrative costs together, they imply that the net gains from GSP arrangements are far smaller than suggested by focusing on export-market access alone.

D. Costs of Trade Preferences: Recipient-Country Liberalization

Another important cost of GSP for exporting countries is the deterrence impact on their own trade liberalization.

Using a very general theoretical framework, Ozden and Reinhardt (2003) show that GSP arrangements can deter trade liberalization in recipient countries. This is because when governments set trade policy balancing the support of exporting versus import-competing producers, GSP arrangements that benefit exporters shift the balance to import-competing firms. This analysis formalizes the key intuition previously laid out by scholars such as Hudec (1987), who argued that "the non-reciprocity doctrine [of GSP] tends to remove the major incentive that export industries have … for opposing protectionist trade policies at home … instead of trying to enlist the support of the export sector for liberal trade policy."

The practical implication of this intuition is that countries withdrawn from GSP advantages should tend to liberalize their trade policy more than similar countries that do not lose GSP status. Ozden and Reinhardt (2003) demonstrate this empirically using both country-level case studies and econometric analysis of 154 developing countries from 1976 through 2000. This cross-country analysis finds that countries dropped from U.S. GSP eligibility subsequently liberalize trade more than non-dropped countries, a correlation which is robust to a wide set of other liberalization determinants such as income and geography.

Cases discussed include Korea, which reduced its average tariff by just over one percentage point in the five years before its U.S. GSP graduation in 1989 but by six percentage points in the four years after. Other clear examples are Samoa, Mexico, and, as will be discussed in Section III, Chile.

GSP market-access may benefit certain exporters in any particular developing country. But it is clear that this benefit must be set against the economy-wide cost of foregone gains of broader liberalization.

E. Costs of Trade Preferences: Foregone Broader Gains for All Developing Countries

Sub-sections C and D addressed costs of GSP advantages for any particular developing country. An additional cost is evident from the perspective of all developing countries taken together. Preferential market access often supplants more-efficient trade links with other developing nations that would exist with freer trade.

Thus, what is good for one developing country in terms of GSP-facilitated market access may be bad for another in terms of GSP-prevented market access. This cost is one example of what economists typically term the issue of trade creation versus trade diversion that arises from trade liberalizations that do not include all countries.

There are many empirical studies that particular preferential trade regimes divert trade from more-efficient links that would prevail under comprehensive free trade. There are numerous examples of preferential trade-diverting market access pitting against each other groups of developing countries: e.g., the inability of Central American banana producers to access EU markets. More generally, an important point is simply that the impact of trade preferences is already disappearing through the rapid pace of proliferating regional free-trade agreements. The WTO estimates that 55% of world trade is already duty-free, thanks largely to such regional agreements. The greater this percentage, the less preferences can matter.

Section IIC
Concerns about the Infant Industries

Section Overview

An argument against freer trade is that without protection, host-country firms cannot compete against their foreign counterparts. But there is now a large and growing body of empirical evidence that supports the precisely opposite argument. Protection against trade and FDI tends to *inhibit*, rather than develop, the ability of firms—including those in developing countries—to compete in international markets. Exposure to global best practice induces better firm performance via access to technology, access to capital, and competitive pressures. The investments in capital and technology that are needed for firm competitiveness are more likely the more engaged firms are in global product markets. A prime example of this is the recent global performance of the information and communication technology industries.

A. Infant Industry Concerns and Role of Trade Liberalization in Spurring Competitiveness

An argument against freer trade is that without protection, host-country firms cannot compete against their foreign counterparts. This "infant industry" argument has a very long tradition and held considerable policy influence in earlier decades.

This argument has various versions, but its essence is that trade protection enables domestic firms to improve productivity and lower costs, via capital investment and technology innovation, sufficiently to compete against foreign firms on both domestic and international markets. Without this temporary protection, domestic firms cannot invest and innovate sufficiently to reduce costs.

There is a large and growing body of empirical evidence that supports the precisely opposite argument. Protection against trade and FDI tends to *inhibit*, rather than develop, the ability of firms—including those in developing countries—to compete in international markets. The investments in capital and technology that are needed for firm competitiveness are more likely the more engaged firms are in global product markets.

Liberalization of trade and FDI spurs the performance of firms in developing countries through three important channels. Two are access to the capital and technology that underlie improved firm performance, and the third is the discipline of product-market competition. These channels are largely ignored by models of infant-industry arguments, but are extremely important in reality. Consider each of these channels in turn.

1. How Does Liberalization Spur Firm Performance? Access to Technology

Firms in developing countries, like those anywhere else, improve their productivity and competitiveness through investments in capital goods and technologies. But the reality in many middle- and low-income countries is that new capital goods and new technologies are simply not available domestically.

Instead, firms in these countries must access capital goods and technologies from the rest of the world, via imports and/or FDI. As discussed below, this appears to be particularly true when these imports are mediated by multinational firms as input flows within the global production networks of these firms.

Consider technology first. The world's production of new technologies is quite concentrated among developed countries and multinational firms. It is commonly calculated that approximately 80% of the world's R&D is performed in just five countries: the United States, United Kingdom, France, Germany, and Japan (e.g., Keller, 2001).

This technology production also appears to be quite concentrated within multinational firms. For the U.S. case, Slaughter (1998) reports that since the 1970s the U.S. parents of U.S.-headquartered multinationals (under 4000 firms total in 1999) have consistently performed over half of all U.S. R&D (and approximately two-thirds of all private-sector R&D). The aggregate evidence is clear: new technologies are generated predominantly within the multinational firms of developed countries.

The implication for developing countries looks equally clear: to access these new technologies, firms in developing countries need access to trade and/or FDI. Empirical studies have confirmed that both trade and FDI are important channels of technology acquisition for developing countries.

For a sample of 77 developing countries spanning 1971 to 1990, Coe, Helpman, and Hoffmaister (1997) find that the total-factor productivity (TFP) of developing countries is higher the more their imports come from R&D-intensive developed countries. Similar evidence has been produced in studies of other developing countries at the level of industries, not aggregate countries (Schiff, Wang, and Olarreaga, 2002). There are many firm-level channels through which trade can facilitate technology transfer, such as reverse engineering and minimum product standards required by one (or both) of the trading parties.

In terms of FDI, multinationals bring new technology to host countries whenever they transfer their technology from home-country parents to host-country affiliates.

The technology of multinationals might also reach domestically-owned firms in host countries. This could happen through market-mediated arrangements, such as patent licensing in which domestic firms pay multinationals for the right to use their technologies. It could also happen through non-market channels, i.e., through "productivity spillovers," such as labor-market turnover in which former employees of multinationals bring ideas to domestic firms.

One piece of micro evidence consistent with multinationals transferring knowledge to host countries is the rising share of multinational-wide R&D performed by their foreign affiliates. In 1982, affiliates of U.S. multinationals performed 6.4% of worldwide R&D for these firms. By 1999 that share had more than doubled, to 13.0%.[11] If one role of R&D is to facilitate knowledge transfer within firms, then this indicates greater knowledge flows into host countries.

One notable feature to come out of many surveys and case studies is that multinational parents are much more likely to transfer cutting-edge knowledge to affiliates the greater the degree of ownership control over these affiliates.

Moran (2001) provides an excellent overview of this point specific to global production networks. His work focuses on industries that have been most heavily involved in global production networks: electronics, machinery, and transportation. For each of these industries he distinguishes two types of host-country policies. One is to allow parents to maintain tight control over affiliate operations and thereby allow affiliates to be integrated into firm-wide production networks as the firms see best. The other is to impose relatively stringent and/or widespread

[11] These shares are calculated from data appearing in U.S. BEA, 2002.

performance standards on affiliates—e.g., ownership caps, domestic-content requirements, and various technology-sharing mandates.

Moran's overwhelming finding is that on many dimensions of technological sophistication, affiliates left unfettered by host-country performance rules are much more dynamic. His contrast between the two groups is striking.

> [A]ffiliates that are integrated into the parent's strategy to maintain or advance the firm's position in world markets incorporate full economies of scale, export a large fraction of their output, utilize contemporary best practices in management, quality control, and production technology, and are almost always wholly owned … From a dynamic point of view, there are indications that management practices, quality control procedures, and production technology are upgraded more rapidly than in other kinds of foreign investor operations. Some subsidiaries are given responsibility for design as well as manufacture of subcomponents, and for experimentation with novel forms of administration or human resource management. (pp. 7-8)

> The implications for the development prospects of the host are not favorable [when government restrictions are imposed on affiliate performance such as ownership limits]. Resources are wasted. Not only are host country consumers penalized, but so too are host country producers that rely on the use of the resulting goods and services to establish their own competitive positions in the marketplace … the plants utilize older technology, and suffer lags in the introduction of newer processes and products in comparison to wholly owned subsidiaries without such requirements. At considerable variance with the dynamic infant industry perspective, the plants are locked systematically into a position well behind the cutting edge of the industry. (p. 32)

Moran (2001) discusses cases where multinationals in electronics and transportation seem to allow their knowledge to flow to domestic firms—e.g., to suppliers to help improve their product quality. Many of these knowledge-mediating supplier links he cites are in developing countries such as Malaysia. Additional developing-country evidence of knowledge transfer via supplier linkages exists for the case of Lithuania, where domestic firms more engaged in supplying to foreign affiliates display higher TFP performance (Smarzynska, 2002).

2. How Does Liberalization Spur Firm Performance? Access to Capital

What about capital investment? At the macroeconomic level, host-country investment by affiliates of multinationals directly contributes to host-country capital stocks.

It is notable that in recent years, FDI has become a much more important source of international funding for developing countries. Figure 4 (from World Bank, 2000) reports the composition of net capital flows into developing countries over the 1990s.

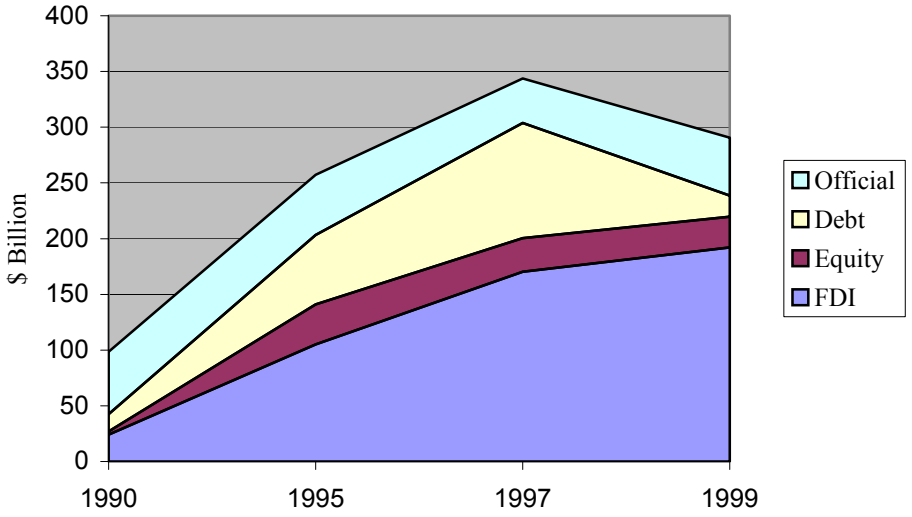
One prominent fact is the declining relevance of official aid flows, whose share of the total fell from nearly 60% in 1990 to under 20% in 1999. A second prominent fact is that within private flows, FDI has grown in both absolute and relative importance. By 1999 FDI accounted for about two thirds of total capital inflows and nearly 80% of private inflows.

Another notable feature of FDI relative to other forms of capital flows is its low volatility. For most of the world's developing countries over the 1990s, year-on-year variation in FDI flows has been much lower than in equity and debt flows.

Figure 4 shows this to be the case during the second-half of the 1990s with the run up and subsequent crash down of debt financing and, to a lesser extent, equity flows. In contrast, FDI

flows grew steadily over the decade. This pattern in Figure 4 has been documented in many studies. For example, World Bank (1999) reports that for a sample of 21 developing countries from 1978 through 1997, FDI inflows were less volatile (in terms of sample coefficient of variation, as a share of GDP) than were non-FDI capital inflows.

Figure 4
The Relative Importance of FDI
in Developing-Country Net Capital Inflows



Sources: World Bank (2000).
Notes: For each year indicated, this figure decomposes total developing-country net capital inflows (in billions of U.S. dollars, indicated by the total height of the figure that year) into four constituent types.

All this means that over time, for many developing countries a rising share of their total international capital inflows—and thus total capital investment—have been of relatively-stable FDI. This multinational capital brings to host countries new capital goods and new technologies far more than do other forms of international capital flows. By construction, portfolio flows and government aid are much less likely to bundle in these productivity-enhancing features.

3. How Does Liberalization Spur Firm Performance? Competitive Pressures

Even many supporters of infant-industry arguments have acknowledged that when granted trade protection, domestic firms don't innovate but rather stagnate thanks to the slackness in product markets. This suggests that a spur to innovation may be the discipline of product-market competition.

And for countries with insufficient product-market competition from domestic firms alone, it is the force of international product-market competition that is needed via trade and FDI. This need for international pressure is more likely in developing countries, which traditionally have many small and protected domestic firms.

There is now a wealth of firm- and industry-level evidence for many countries that international competition stimulates the productivity of domestic firms.

Probably the most comprehensive research on this issue has been conducted by the McKinsey Global Institute (MGI), which has examined hundreds of firms and industries in countries ranging from the United States to India. A repeated finding is that exposure to "global best-practice firms" via trade and FDI stimulates firm productivity, and conversely that protection from global best practice retards it.

A clear overview of MGI's globalization-to-productivity link appears in the paper by Nobel laureate Robert Solow and former MGI associate director (and U.S. Council of Economic Advisors member) Martin Baily (2001). They summarize the evidence for manufacturing as follows:

> A main conclusion of the [MGI] studies of manufacturing sector productivity has been that when an industry is exposed to the world's best practice, it is forced to increase its own productivity. This finding emerged from a study that compared nine manufacturing industries in the United States, Germany and Japan. For each industry, the country that had the highest labor productivity in that industry was designated as "best practice," leaving 18 industries-country pairs that were below best practice. For each of these "follower" industries, a "globalization index" was calculated, reflecting the exposure of this industry to the best practice industry [via trade and FDI]. The relative productivity levels of the follower industries was then correlated with the globalization index, and there was a clear positive correlation (an *R*-squared of 0.47).
>
> This positive correlation is consistent with the view that the more a given manufacturing industry is exposed to the world's best practice high productivity industry, the higher is its relative productivity (the closer it is to the leader). Competition with the productivity leader encourages higher productivity. An implication of this finding is that some part of observed productivity disadvantages reflects organizational slack or an unwillingness to change and innovate. This corresponds to the belief, often expressed by managers, that when pressed by competition they can "take some of the cost out of the product."

This link from globalization to productivity applies not just to developed-country firms but developing-country firms as well. Many of these developing-country examples are detailed in the new book by William Lewis (2003), MGI's founding director. The Indian automobile sector is one such example.

> Before 1983, the Indian government controlled and protected two auto companies. The pre-1983 plants are a mess … It's about what you'd expect to be the result in a sector with only two companies where production volumes were determined by the government and imports were prohibited … Then in 1983, something strange happened. The government granted one license for a joint venture with a global automotive company close to best practice … Finally, in 1993, the sector was opened entirely for foreign direct investment. Many of the major auto companies of the world came … [Industry-wide] productivity is improving rapidly and will continue to do so as long as competition remains intense.

Beyond the work of MGI, in recent years many academics have analyzed the link from international competition to productivity using detailed plant- and firm-level data covering the manufacturing sectors of the United States and other countries over many years. One advantage of these comprehensive micro-level data is they permit a decomposition of firm-level productivity gains into entry, exit, and expansion of individual plants.

4. How Does Liberalization Spur Firm Performance? Global Production Networks

The trade and FDI discussed thus far could be largely independent of each other: e.g., trade could be of final goods among parties other than multinationals. But in recent decades this has

not been the case. *In the ongoing wave of globalization of recent decades, two distinguishing features have been increased trade in intermediate inputs and increased flows of FDI.*

Intermediate inputs have played an important role in the recent growth of world trade. Yeats (2001) finds that trade in inputs has grown much faster than trade in final goods, and he estimates that intermediates now account for 30% of world trade in manufactures. Hummels, Ishii, and Yi (2001) identify vertical specialization, which they define as production arrangements in which firms make final goods via multiple stages located in multiple countries, as an important aspect of overall input trade.[12] They calculate that from 1970 to 1990, the increase in exports associated with vertical specialization accounted for one-third of world export growth. During the early 20th century, in contrast, inputs played only a small role in the trade of many countries such as the United States.

As for FDI, the rising share of multinational enterprises in overall production helps distinguish the current phase of globalization from previous episodes. Multinationals now mediate a large fraction of world trade. In the United States, they account for over half of total exports (Slaughter, 2000). Worldwide, multinationals are estimated to mediate at least one third of total trade flows, according to UNCTAD. Within manufacturing, the majority of these exports are of intermediates. In 1999, 93% of exports by U.S. parent firms to their foreign manufacturing affiliates were inputs for further processing (U.S. BEA, 2002).

Taken together, these trends mean that a rising share of world manufacturing production is occurring within the global production networks of multinational firms. Much of this activity involves developing countries, including links from one developing country to another. For example, Ng and Yeats (2000) document that within East Asia, from 1984 to 1996 the share of East Asian components exports that stayed within the region rose from 25% to 46%.

This rising role of global production networks within multinationals means that developing-country access to productivity-enhancing technology, capital, and competition is likely to come via participation in these networks.

Tariffs and other trade policies play a very important role in shaping host-country participation. As stated earlier in Section IIA, high host-country/industry tariff rates are a sizable barrier. A one-percent decline in the tariff-related price of intermediate inputs imported from U.S. parents is correlated with a three-to-five percent increase in the quantity of these inputs demanded by the affiliates of these U.S. parents.

Another crucial policy margin is whether the host-country offers multinationals performance advantages in export-processing zones (EPZs). Affiliates operating in countries with active EPZ policies have a far larger share of total costs (five to 10 percentage points larger) accounted for by inputs imported from U.S. parents.

The empirical evidence is quite clear. Firms in developing countries depend on international trade and FDI—particularly in the global production networks of multinationals—for the global technology, capital, and competition needed to innovate.

This evidence contradicts traditional infant-industry arguments, which argue that success comes from the *lack* of global competition and concurrent access to *domestic* technology and capital. Relative to other taxes, then, tariffs are particularly damaging to the economic-growth prospects of developing countries.

[12] This phenomenon has been given various names, including de-localization, disintegration of production, fragmentation, global production sharing, foreign outsourcing, and slicing up the value chain.

B. How Does Liberalization Spur Firm Performance? The ICT Experience

1. The Global Engagement of ICT Firms: Global Evidence

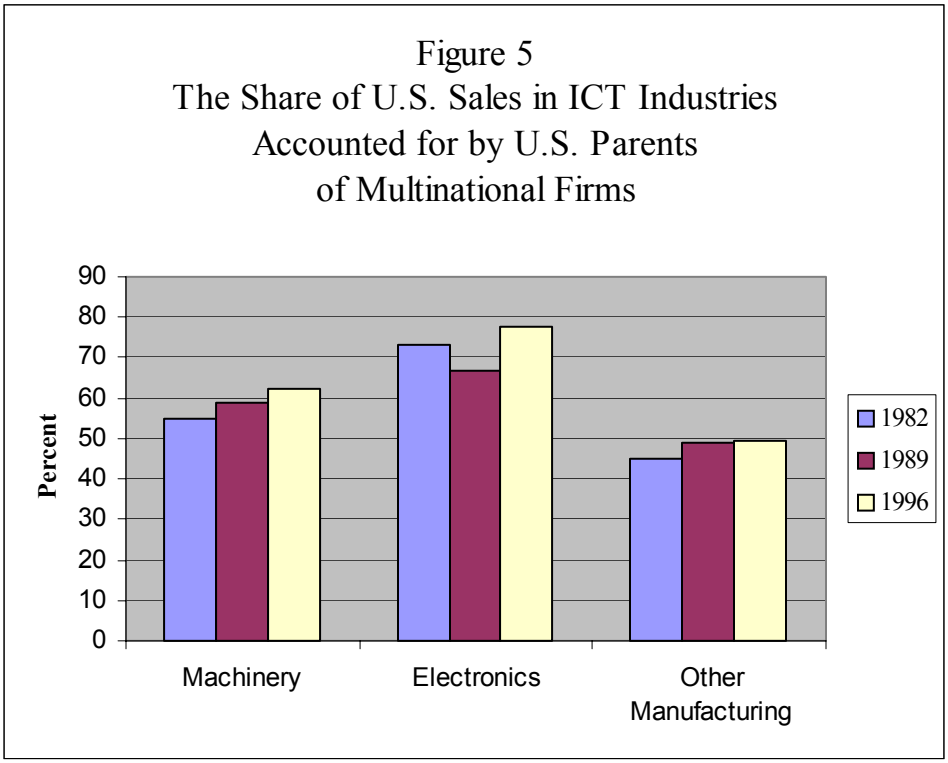
It is now well documented that ICT industries have been among the most dynamic industries in the world in recent years, responsible for a remarkable amount of aggregate economic growth.

Slaughter (2002) examines the U.S. experience. From 1973 to 1995, output per worker hour in the U.S. non-farm business sector grew at 1.35 percent per year. From 1995 through 2000, growth in this labor productivity accelerated to 2.54 percent per year. Approximately two-thirds of this productivity acceleration is accounted for by ICT products—both their production and their use. Accelerated declines in the quality-adjusted price of many ICT products have been the key link between ICT producers and users.

What accounts for this dynamic performance of U.S. ICT firms? Has it been a blanket of protection from global engagement via high barriers to trade and FDI? On the contrary, the truth is the exact opposite. In the central ICT industries of machinery and electronic goods, on many measures the structure of production is very global—relative to the broader economy and/or over time as well. Much of the output in these industries entails multiple production stages across multiple countries, all linked via trade and investment.

In terms of trade, for the two key ICT industries of industrial machinery and electronic goods, U.S. imports and exports as a share of output have been high and rising in these ICT industries for decades. Imports and exports today equal over 50 percent of value-added of these products, far higher than in the broader economy.

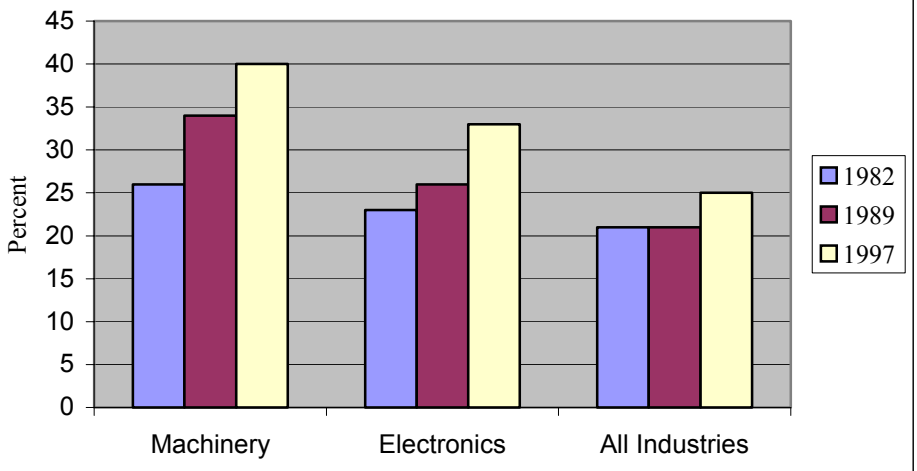
Figure 5
The Share of U.S. Sales in ICT Industries
Accounted for by U.S. Parents
of Multinational Firms



Source: U.S. Bureau of Economic Analysis, as reported in Slaughter (2002).
Notes: Bars report the share (in percentage terms) of each industry's U.S. sales accounted for by the sale of goods of U.S. parents of U.S.-headquartered multinationals whose main line of business is that relevant industry. Other manufacturing is all manufacturing less machinery and electronics.

In terms of FDI, Figure 5 reports the share of total U.S. sales accounted for by the sales of goods of U.S. parents of American multinationals whose main line of business is in those two key ICT industries. Shares are reported for 1982, 1989, and 1996; similar shares for the rest of manufacturing other than these two ICT industries are also reported. Over the 1980s and into the 1990s, U.S. parents account for over 60 percent of total U.S. sales in these two prominent ICT industries.

Figure 6
The Share of Worldwide ICT Employment
of U.S. Multinationals
Accounted for by Foreign Affiliates



Sources: U.S. Bureau of Economic Analysis, as reported in Slaughter (2002).
Notes: Bars report the share (in percentage terms) of worldwide employment of U.S.-headquartered multinationals accounted for by their majority-owned foreign affiliates.

Not only do the U.S. parents of American multinationals account for a high and rising share of U.S. activity in central ICT industries (Figure 5), but within these firms in these industries a high and rising share of total activity is accounted for by their foreign affiliates (Figure 6). Together, these facts point to global production networks within these ICT industries that are more extensive than elsewhere in the economy and that rely heavily on not just trade but FDI as well.[13]

Has policy played any role in facilitating these global production networks in ICT? Slaughter (2002) discusses how the acceleration since 1995 in quality improvements and price declines in many ICT products coincides with three major WTO trade agreements of direct relevance to ICT producers: the 1995 TRIPS Agreement, the 1997 Information Technology Agreement (ITA), and the 1997 Basic Telecommunications Agreement (BTA).

[13] There are also compelling studies of global production networks for very specific activities within ICT sectors—e.g., McKendrick's, et al (2000) coverage of producing hard-disk drives. A generation ago these disk drives were physically produced in the United States, but since then have migrated to lower-cost regions in lower-income countries, primarily in Southeast Asia.

The ITA was especially notable. Enacted in 1997 by dozens of countries accounting for nearly 95 percent of world ICT trade, from 1997 to 2000 the ITA virtually eliminated all world tariffs for a wide set of hundreds of ICT products.

This major trade liberalization helped reduce ICT prices worldwide through greater competition and lower trade barriers. It also likely stimulated ICT research and development thanks to greater product-market competition and opportunities. In practice, the implementation of the ITA from 1997 to 2000 coincided with the U.S. acceleration in ICT sectors both in the rate of technological innovation and in the rate of quality-adjusted price declines.

The correlation between these liberalizations and ICT performance is striking, and strongly suggests a prominent role for policy liberalization in explaining the recent performance of ICT industries.[14]

2. The Prominent Role of Developing Countries in ICT

What role have developing countries played in the spread of ICT global production networks?

Because these networks break a given good into a set of constituent activities of varying factor intensities, the creation of these networks should widen the range of factor intensities countries can choose among for optimal resource allocation. Participation in these networks can allow a developing country greater room for specialization in manufacturing stages. Instead of making entire products, developing countries can make just those stages of products—e.g., labor-intensive stages—that best suit their mix of endowments. This, in turn, should allow participating firms better opportunity to become more competitive for all the reasons discussed in sub-section A.

The empirical question is whether developing countries have been realizing these resource-reallocation gains. Figure 7 indicates that the answer is yes.

Figure 7
Export Activity for Product Groups with
the Fastest Growth in World Exports, 1980-1998

Product Group	Growth 1980-1998	World Share 1980	World Share 1998	D.C. Share 1980	D.C. Share 1998
Transistors and Semiconductors	16.3	1.0	4.0	1.9	7.7
Computers	15.0	0.9	3.4	0.2	5.0
Parts, Computers and Office Equ.	14.6	0.7	2.3	0.3	3.6

Sources: UNCTAD (2002).
Notes: Export growth and values are measured in value terms. Growth rates are average annual growth rates; shares are reported in percentage terms. "D.C." indicates developing countries.

[14] It is important to emphasize that these three liberalizations built multilateral frameworks in part on the success of earlier bilateral and unilateral liberalizations. For example, before the ITA many countries had lowered ICT trade barriers alone or in agreement with a small number of other countries. And the same is true of the BTA: the United States, for example, had passed sweeping domestic telecommunications liberalization just a year earlier. The major new liberalizations of these agreements, therefore, are best seen as multilateral expansions of earlier more-piecemeal liberalizations rather than as completely new liberalizations in previously static areas.

Figure 7 reports calculations from UNCTAD (2002, Table 3.1) of what products have experienced the fastest worldwide export growth (measured in value terms) over the period 1980 to 1998. The three product groups with the fastest growth in export value were transistors and semiconductors; computers; and parts of computers and office machines.[15] That these three product groups are all part of electronics underscores the leading role of this sector in global production networks.

The next four columns of Figure 7 report the share of these industries in world and developing-country exports. Within each country group, for each product group the shares rose markedly from 1980 to 1998, consistent with the rise of production networks in electronics. In 1998, these three product groups together accounted for 9.7% of world trade and 16.3% of developing-country trade. This larger overall share for developing countries is a reverse from the 1980 pattern, when the developing-country share of 2.4% was less than the world share of 2.6%. This reversal is consistent with activity in global production networks gaining a larger share of total trade for developing countries in recent decades, which in turn suggests greater gains for developing countries thanks to these networks.

A complementary view of the rising importance of developing countries in ICT global production networks can be seen in the developing-country share of total ICT exports. In 1988, developing countries accounted for 46% of world exports of transistors and semiconductors, 38% of world exports of parts of computers and office machines, and 36% of world exports of computers. Indeed, in 1998 the world's single biggest exporter of computers was a developing country: Singapore, with a 13% share. Other prominent developing countries in these three industries were Malaysia, South Korea, and Taiwan.

Figure 8 offers additional evidence on this point of many developing countries playing a prominent ICT role. It reports 1998 bilateral U.S. exports and imports in three key ICT industries for certain developing-country groups (with the constraint that data, from McGraw-Hill, 2000, for China and Japan are reported together).

The important message of Figure 8 is that these country groups run trade *surpluses*, not deficits, with the United States in these key ICT industries. Indeed, with the world overall the United States runs deficits in all of these industries. In the year 2000, in the two key ICT industries of computers and office products (SIC 357) and electronics and electronic components (SIC 367, which includes semiconductors) the U.S. trade balance was a deficit of $60 billion.

These bilateral balances are consistent with the idea that within global production networks such as those in ICT industries, developing countries develop comparative advantages—and thus trade surpluses—in certain activities best suited to their mix of endowments and technologies. These countries import intermediates, add value to them in comparative-advantage activities, and then export their output on to additional countries.

For many developing countries, participation in ICT industries offers the opportunity to expand into activities intensive in the use of skilled labor and technology. UNCTAD (2002) reports that "manufactures with high skill and technology intensity," of which ICT products are a large component, accounted for just 11.6% of all developing-country exports in 1980 but fully 31.0% by 1998.

[15] These three industries are measured by UNCTAD (2002) as SITC industries 776, 752, and 759, respectively.

Figure 8
World Trade Patterns in ICT Industries, 1998

Product Group	Region or Country	U.S. Exports	U.S. Imports
Semiconductors and Related Items	Japan and China	6,199	10,444
	Other Asia	12,736	16,617
	Malaysia	3,610	4,290
	Philippines	3,277	3,884
	South Korea	3,197	5,223
	World	29,055	33,157
Passive Components	Japan and China	736	10,211
	Other Asia	449	8,531
	Mexico	2,160	3,704
	World	6,166	29,109
Computer Equipment	Japan and China	3,616	16,875
	Other Asia	1,623	18,064
	World	21,202	44,015

Source: The McGraw-Hill Companies and U.S. Department of Commerce (2000).
Notes: Exports and imports are reported in millions of U.S dollars. U.S. exports indicates exports from the United States to the indicated country(ies). U.S. imports indicates imports into the United States from the indicated country(ies).

And ***in the case of ICT expansion in recent years, developing-country participation has not been facilitated by GSP preferences, but rather by comprehensive worldwide liberalization under the auspices of the ITA.*** For developing countries, the ability of their domestic firms to engage in global production networks via trade and FDI in dynamic industries like ICT means greater potential for overall economic growth.

Section III
Country Case Studies

Section Overview

For the current Doha WTO negotiations, NFTC has proposed the gradual but eventually complete elimination of all industrial tariffs in all WTO members. The overall message of this background paper is that there is ample theoretical and, more importantly, empirical evidence that developing countries will gain, not lose, from the gradual elimination of industrial tariffs. Concerns regarding fiscal revenue, existing trade preferences, and potential for industrial development are largely not borne out by the evidence. Additional case studies of particular countries can provide complementary evidence on all these issues. This section briefly presents three such case studies for the experiences of Malaysia, Costa Rica, and Chile.

A. Overall Conclusions

For the current Doha WTO negotiations, NFTC has proposed the gradual elimination of all industrial tariffs by all WTO Members.

The overall message of this background paper is that there is ample theoretical and, more importantly, empirical evidence that developing countries will gain, not lose, from the gradual elimination of industrial tariffs.

Concerns regarding fiscal revenue, existing trade preferences, and potential for industrial development are largely not borne out by the evidence.

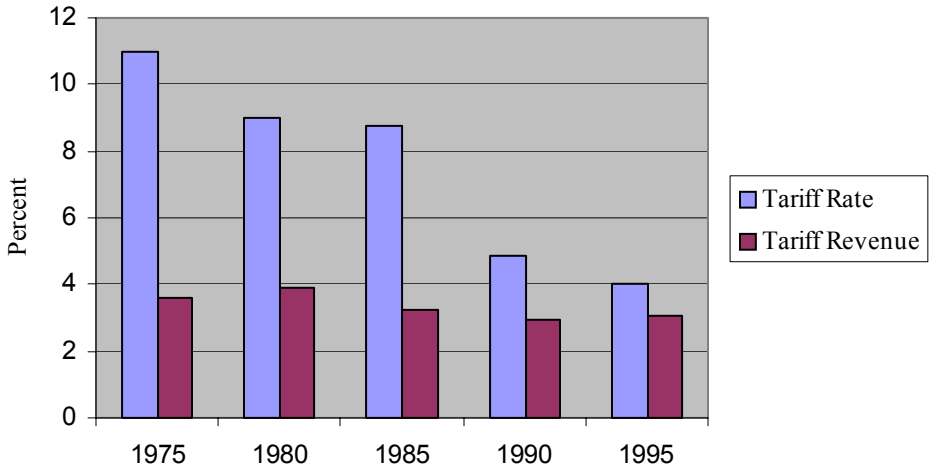
This report has addressed these concerns thematically in Sections I and II. A complementary view can be offered by country case studies that touch upon many of the issues related to these concerns. Below are three such case studies for the experiences of Malaysia, Costa Rica, and Chile.

B. Country Case Study: Malaysia

In recent decades Malaysian trade policy has gradually liberalized, with its average tariff rate falling continually from 11.01% in 1975 to just 4.02% in 1995. By that year 95% of Malaysian imports were subject to a tariff below 1%, and no tariff quotas remained (Madani, 2001). Figure 9 documents this decline (with tariff data constructed analogous to that in Figure 3), which has arisen in part from Malaysia's role in multilateral organizations such as the Association of Southeast Asian Nations (ASEAN) and the WTO.

Exemplifying the arguments of Section IIA in this report, Malaysia's liberalization appears to have had only a mild impact on tariff revenue as a share of GDP, as Figure 9 also shows. For Malaysia this share actually increased slightly from 1975 to 1980 (and from 1990 to 1995). By 1995 it was only about one half a percentage point below its 1975 level, having fallen from 3.58% to 3.04%. Through channels such as expanded imports and compliance, the revenue impact of Malaysia's liberalization has been largely attenuated.

Figure 9
Tariff Liberalization and Tariff Revenue:
The Case of Malaysia



Sources: IMF *Government Finance Statistics*, OECD *Revenue Statistics*, various issues.
Notes: Blue bars report average tariff rates measured as duties collected as a share of the value of imports. Purple bars report the share of GDP (in percentage terms) accounted for by tariff revenue.

To replace this lost revenue, Malaysia has shifted its revenue base towards value-added, income, and profits. From 1990 to 1995 trade taxes as a share of total government revenue fell from 17.9% to 12.3%. At the same time, the share of total government revenue accounted for by taxes on goods and services and on income and profits rose from 20.3% to 25.9% and from 30.7% to 37.1%, respectively.

By the end of this liberalization period, Malaysia was largely removed from the GSP programs of both the United States (which announced its GSP "graduation" in October of 1996) and the European Union (which in 1997 sharply cut the country's preferences for most of its chief exports such as clothing, consumer electronics, and rubber).

This withdrawal of GSP treatment has not hurt Malaysia's ability to integrate into global production networks—indeed, one could argue that diminished GSP reliance enhances this ability, for reasons outlined in previous sections. Ng and Yeats (2000) conclude that among ten East Asian countries, by 1996 Malaysia has one of the "broadest and most mature assembly capacity for components." In 1996 Malaysia was the third largest exporter of components among nine developing East Asian countries (at $12.5 billion, behind just Singapore and Taiwan).

Looking more broadly at the entire world, UNCTAD (2002) cites Malaysia as one of the few developing countries that has been "highly successful in raising their shares in world manufacturing exports and value added through participation in international production chains" (p. VII). A large part of the rise in manufacturing value added has been accounted for by expansion of local suppliers' networks that supply foreign-owned firms (UNCTAD 2002, p. 78).

Much of Malaysia's recent production-network activity is in ICT industries. For example, in 1996 Malaysia was East Asia's single largest importer of electronic components, at $7.1 billion (Ng and Yeats, 2000). As documented earlier (see Figure 8), in recent years Malaysia has been a

net exporter to the United States of key ICT products such as semiconductors. In 1998, Malaysia was the world's fifth largest exporter in two key ICT categories: transistors and semiconductors (7% of the world total), and parts of computers and office machines (6% of the world total).

It is important to emphasize the role of policy in Malaysia's ICT trade performance in recent years. This strong performance has not been during a period of ongoing GSP treatment, but rather a period of GSP graduation and participation in multilateral ICT tariff elimination through the WTO's ITA. ***Malaysia's increasingly important role in recent years in ICT global production networks has been thanks to trade liberalization, not trade protection.***

C. Country Case Study: Costa Rica

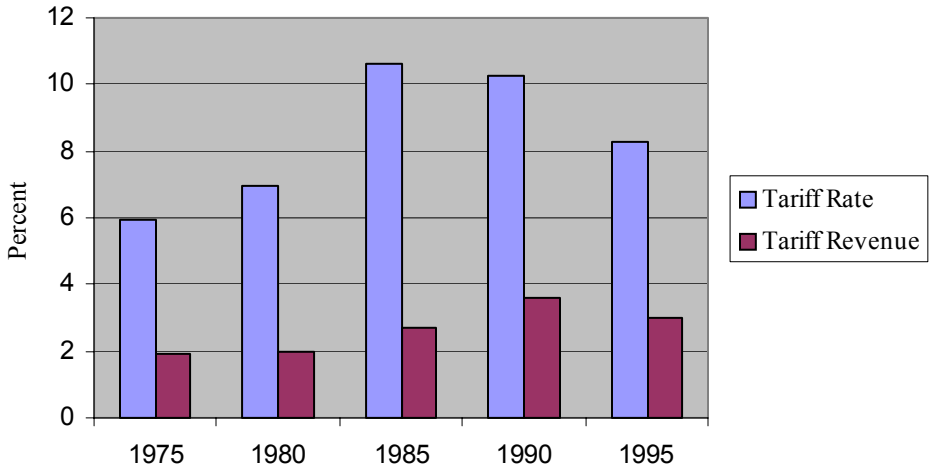
In contrast to Malaysia, Costa Rica has liberalized its trade policy only very recently. From the 1960s through the mid-1980s, Costa Rica's trade and investment policies grew increasingly inward-oriented as successive governments attempted to boost development via import-substituting industrialization (Rajapatirana, 1995). This rising trade protection is visible in Figure 10, with Costa Rica's average tariff rate nearly doubling from 1975 to 1985. This heavy trade protection did not translate into substantial export and overall growth, however. In combination with macroeconomic shocks (e.g., the oil-price shocks of the 1970s), it contributed to a macroeconomic crisis in the early 1980s, with unemployment hitting 12% and annualized price inflation approaching 100%.

In the wake of these unsuccessful inward-oriented policies, in the late 1980s Costa Rica embarked on both macro- and micro-economic liberalizations—of which trade and investment liberalization were a major part. In 1991 Costa Rica acceded to the GATT; in 1994 it signed a free-trade agreement with Mexico; and it has negotiated subsequent liberalizations with the Dominican Republic, Chile, Canada, and China. FDI liberalization included the 1992 elimination of restrictions on earnings repatriations: today, remittances of capital, interest, dividends, and royalties are duty-free. And to stimulate both trade and FDI Costa Rica has established EPZs with features including duty-free imports.

At the national level, the net impact of these trade liberalizations appears in Figure 10: the average tariff rate fell to 8.26% by 1995—and to just 4.3% by 2000. Exemplifying the arguments of Section IIA in this report, Costa Rica's liberalization appears to have had only a mild impact on tariff revenue as a share of GDP. This share actually *increased* during the liberalization period of 1985 to 1995, from 2.71% to 2.97%. Through channels such as expanded imports and compliance, the revenue impact of Costa Rica's liberalization has been largely attenuated.

To replace any lost revenue from trade taxes, Costa Rica has shifted its revenue base towards value-added, income, and profits. From 1990 to 2000 trade taxes as a share of total government revenue fell dramatically, from 23% to 4.9%. At the same time, the share of total government revenue accounted for by taxes on goods and services and on income and profits rose from 27.4% to 39.8% and from 9.8% to 14.7%, respectively. Consistent with the arguments of Section IIA in this report, Costa Rica successfully combined liberalization of trade with a diversification of its tax-revenue base away from relatively harmful trade taxes.

Figure 10
Tariff Liberalization and Tariff Revenue:
The Case of Costa Rica



Sources: IMF *Government Finance Statistics*, OECD *Revenue Statistics*, various issues.
Notes: Blue bars report average tariff rates measured as duties collected as a share of the value of imports. Purple bars report the share of GDP (in percentage terms) accounted for by tariff revenue.

Costa Rica has benefited substantially from trade and investment liberalization of its economy. Costa Rica enjoys one of the best-educated labor forces in Latin America: primary and secondary education is free and compulsory, and national illiteracy rates for the population over age 12 fell from 16% in the early 1960s to just 5% by the late 1990s. The combination of this educated base with liberalization has allowed Costa Rica to greatly expand its output and production via integration into the global production networks of world-leading multinational firms, as discussed in Section IIC of this report.

The initial major integration success for Costa Rica was with Intel, a U.S.-headquartered manufacturer of microprocessors. After a global search in the mid-1990s, Intel selected Costa Rica to be the site of major expansion of its assembly operations. Construction of Intel's first Costa Rica plant began in 1997, and this plant began shipping exports in April 1998. A second plant began full-scale production during 1999. Within one year, microprocessor production became the single largest manufacturing industry in Costa Rica. Intel's Costa Rican exports grew from nothing to $2.88 billion in 1999. That year, total national export earnings would have declined but for Intel. Instead, export earnings by $1.1 billion, or 23%, and the country recorded its first trade surplus since 1986.

Intel is not the only story. Spurred at least in part by Intel's success in Costa Rica, at least 15 other high-technology multinationals have established operations in Costa Rica in recent years. Pharmaceuticals and medical devices are one example, with companies such as Abbott Laboratories and Baxter Health Care. By 2001, national exports of medical instruments exceeded $250 million.

Costa Rica's integration into global production networks has spanned multiple industries, with economy-wide benefits that have been widely noted. "The high-tech assembly operations will mean that more export value added stays in the country, in the form of higher wages and higher

productivity, and will encourage the government to continue to upgrade scientific and technical educational standards" (Economist Intelligence Unit, 2003b). Costa Rica's GDP growth exceeded 8% in both of 1999 and 2000 (with more moderate growth in subsequent years, due partly to the global slowdown in information technology).

And the essential role of trade and investment liberalization in attracting dynamic FDI have also been widely noted. The high-tech manufacturing sector "is heavily dependent on imported materials" and mostly "takes place within export free zones where companies producing for the export market are able to import raw materials and equipment tariff-free" (Economist Intelligence Unit, 2003b). ***Costa Rica's increasingly important role in global production networks in ICT and other industries has been thanks to trade and investment liberalization, not protection.***

D. Country Case Study: Chile

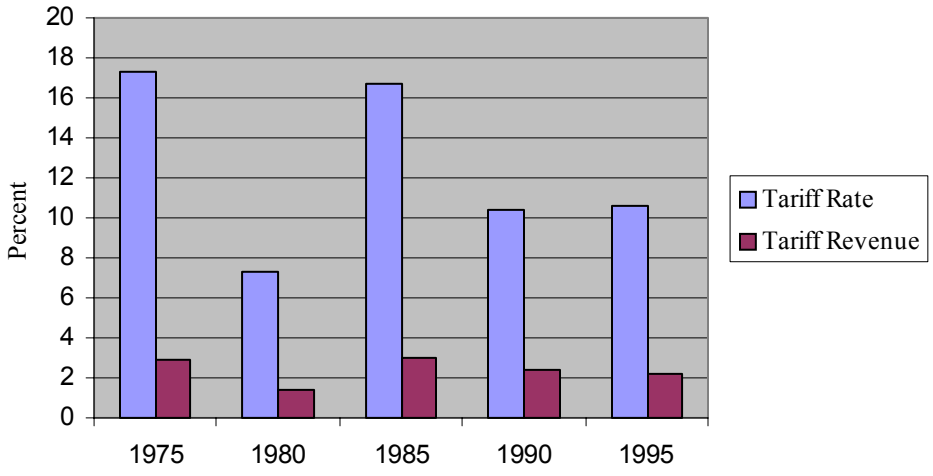
Chile was one of the world's first developing countries to undertake unilateral liberalization of trade and investment. In an extended period up until the mid-1970s, Chilean economic policy was very inward-oriented, with heavy trade protection through tariffs and non-tariff barriers. In 1976 Chile withdrew from the Andean Pact, a regional organization with substantial barriers to trade and inward FDI. In place of this membership Chile implemented one of the world's most liberal FDI regimes, granting foreign firms clear property rights, equal treatment with domestic firms, and minimal operational or financial restrictions.

On the trade side, virtually all non-tariff barriers were eliminated and import tariffs were set at a uniform rate across almost all goods, and then lowered to 10% by 1979. In 1984, liberalization was substantially reversed, with many tariffs increased back up to 35%. Policy again became more liberal in subsequent years, with most tariffs cut back to 20% by 1988. At the start of 2003 this uniform tariff rate was lowered to just 6%. Along with its unilateral liberalizations, Chile signed a large number of regional trade agreements. These include agreements signed with Mexico in 1991; Venezuela, Columbia, and Ecuador in 1993; Mercosur in1996; Canada in 1997; and the European Union and the United States in 2002.

At the national level, the net impact of these trade liberalizations appears in Figure 11. The average tariff rate fell dramatically from 17.33% in 1975 to just 7.29% in 1980. It rose back just as dramatically to 16.69% in 1985, and after fell to just over 10% by 1995. Exemplifying the arguments of Section IIA in this report, Chile's liberalization appears to have had only a mild impact on tariff revenue as a share of GDP. Except for the 1975-1980 period of initial tariff cuts before all offsetting tax reforms were in place, trade taxes as a share of Chilean GDP have sat between 2 and 3% of GDP. Through channels such as expanded imports and compliance (particularly relevant for Chile thanks to its single uniform tariff rate), the revenue impact of liberalization has been largely attenuated.

To replace any lost revenue from trade taxes, Chile has shifted its revenue base towards value-added, income, and profits. From 1990 to 2000 trade taxes as a share of total government revenue fell dramatically, from 11.7% to 6.1%. At the same time, the share of total government revenue accounted for by taxes on goods and services and on income and profits rose from 43.5% to 45.9% and from 12.5% to 18.4%, respectively. Consistent with the arguments of Section IIA in this report, Chile successfully combined liberalization of trade with a diversification of its tax-revenue base away from relatively harmful trade taxes.

Figure 11
Tariff Liberalization and Tariff Revenue:
The Case of Chile



Sources: IMF *Government Finance Statistics*, OECD *Revenue Statistics*, various issues.
Notes: Blue bars report average tariff rates measured as duties collected as a share of the value of imports. Purple bars report the share of GDP (in percentage terms) accounted for by tariff revenue.

Chile's economic performance is widely regarded to have benefited substantially from its trade and investment liberalizations. Here is one example of assessing the impacts.

> It abandoned import substitution in favour of free-market policies in the mid-1970s, more than a decade before the rest of Latin America. This unleashed competition and productivity growth, and facilitated an expansion of the traditional export industries … It also made possible the development of new sectors such as cellulose and other wood products, fruit, salmon, wines, and methanol production, and a variety of services, including tourism. This strong and increasingly diversified export sector has been the main engine of growth during the past two decades. (Economist Intelligence Unit, 2003a).

This strong economic performance meant that by 2002, Chile enjoyed the second-highest per capita GDP in Latin America, at about $4500. It also accords with many of the discussions earlier in this report. Particularly notable is the breadth of Chile's success. It has integrated into world markets through trade and FDI in a wide range of industries. This breadth is likely related to the breadth of liberalizations—e.g., the reduction of tariff rates in all sectors, not just a selected few. It is likely also related to other policy reforms that have complemented those of trade and FDI. For example, Chile has been one of the first countries to establish a fully funded, privately directed pension scheme. The U.S.-based financial-services group Citigroup has recently moved its emerging-market pension-fund business from London to Chile.

One other notable feature of Chile's success has been its lack of reliance on GSP benefits. If anything, GSP benefits were a drag on liberalization, not a spur. Section IIB of this report documented how GSP arrangements can deter trade liberalization in recipient countries. Again, this is because when governments set trade policy balancing the support of exporting versus import-competing producers, GSP arrangements that benefit exporters shift the balance to import-

competing firms. Grant GSP preferences, and you decrease a recipient country's incentives to liberalize trade.

As documented by Ozden and Reinhardt (2003), Chile offers a very compelling example of this important point. From 1988 to 1991, Chile temporarily lost U.S. GSP eligibility due to violation of internationally recognized worker rights. Days after losing GSP status in 1988, the Chilean government announced that its previously "sacred" average nominal tariff of 20% would be lowered to 15%--with explicit reference to the need to address the lost GSP status. Average tariffs were cut even further by 1991, down to 11%, but in the initial years after 1991 no further tariff cuts were implemented. Chile's experience makes quite clear that although GSP market-access may benefit certain exporters in any particular country, this must be set against the economy-wide cost of foregone gains of broader liberalization.

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