MULTILATERALIZING REGIONALISM

Edited by
RICHARD BALDWIN AND PATRICK LOW
MULTILATERALIZING REGIONALISM

Regional trade agreements (RTAs) have proliferated around the world in the past two decades, and now virtually all the members of the WTO are party to at least one. Besides tariffs and rules of origin regulating trade in goods, many RTAs now include provisions on services, investment, technical barriers to trade and competition rules, as well as a host of issues not directly related to trade. The geographical reach of RTAs is expanding, with transcontinental agreements spreading forcefully alongside intra-regional agreements.

'Multilateralizing Regionalism' was the title of a major conference held on 10–12 September 2007 at the WTO in Geneva, and the bulk of the chapters in this volume were first presented at that conference. Together, the conference papers achieve two things. First, they marshal detailed new empirical work on the nature of the 'spaghetti bowl', and the problems it poses for the multilateral trade system. Second, they contribute fresh and creative thinking on how to 'tame the tangle' of regional trade agreements.

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The Information Technology Agreement: *sui generis* or model stepping stone?

**CATHERINE MANN AND XUEPENG LIU**

1

Introduction

The Information Technology Agreement (ITA), negotiated in 1996, is a remarkably successful sectoral agreement. Broad coverage of products was achieved ex ante, rather than by building up coverage over “rounds” of negotiations tariff line by tariff line. A schedule for staged reductions of tariffs to zero was achieved ex ante, rather than tariff-reduction formulas becoming subjects for negotiation in themselves in subsequent rounds. Multilateral country coverage was achieved nearly ex ante, in that the initial set of countries agreed on the rules, many additional countries joined bandwagon-style in the initial months following inception of the agreement, and nearly half of all WTO member countries have joined as of 2007.

How extensive was the trade liberalization? Has it led to relatively larger economic benefits, such as trade growth and improvements in economic well-being, for the signatories? There is substantial research on the gains to countries of the effective use of information technology for growth and domestic development. There is surprisingly little research on the explicit role of the ITA for promoting trade or other measures of economic well-being. Research presented in this chapter points to relatively faster trade growth for ITA signatories. Broader-based economic gains require more than just trade liberalization.

As a unique agreement, with economic benefits, can the ITA offer lessons for trade negotiations more generally? Are there lessons for how the ITA was negotiated and brought to fruition that can be a model for other sectoral or bilateral agreements? Can such agreements be pieced together to achieve multilateral liberalization on a broad product and services basis? Or is there something unique about information technology products, and was the timing of the negotiations particularly fortuitous? In other words, is the ITA a model stepping stone or *sui generis*?

2 Backdrop to the Information Technology Agreement

**Economics of IT products: implications for trade liberalization**

Information technology (IT) products are special and their special characteristics make trade liberalization more potent for trade and economic gains. IT products have three features that are key for this economic potency: price elasticity, income elasticity, and contribution to productivity growth.

The first key feature of IT products is that they are price-elastic. Thus, a 10 percent decline in the price generates a greater than 10 percent increase in demand for the product (Flamm, 1997; Bayoumi and Haacker, 2002). Thus tariff reductions should serve to expand the global market more than one-for-one as compared to tariff reductions on price-inelastic products, where the market does grow, but not disproportionately.

The second key feature of IT is that investment in IT is income- and development-elastic. A 1 percent increase in income raises demand for IT products by more than 1 percent. Moreover, as development proceeds in a country, the demand for IT products rises disproportionately; higher income countries have a greater IT intensity in the economy. Therefore, to the extent that tariff reductions yield broad-based economic gains, the market for products demanded elastically should expand relatively more than for products that are not income-elastic.

The third key feature of IT is its role in generating productivity growth. If the economy has an appropriate domestic business climate and labor markets, IT investment contributes to overall macroeconomic gains by accelerating productivity growth, directly via capital deepening and indirectly through accelerated total factor productivity growth. For economies that have gained the most from IT products, it is not just investment in IT that matters, but also transformation of business process and products, and labor market practices in the workplace;
value-added tariffs, and to allow for full cumulation. We argue that this
would also go a long way towards reducing the spaghetti bowl phe-
nomenon and introduce both more flexibility and more negotiability
into rules of origin arrangements. Finally, we propose that developed
countries could do a lot to make ROOs more development-friendly by
acknowledging that fiscal fraud can only occur where partner country
tariffs are lower, and that therefore wherever they are higher there should
be no need to enforce the ROOs.

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The Information Technology Agreement: 
sui generis or model stepping stone?

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1 Introduction

The Information Technology Agreement (ITA), negotiated in 1996, is a remarkably successful sectoral agreement. Broad coverage of products was achieved ex ante, rather than by building up coverage over "rounds" of negotiations tariff line by tariff line. A schedule for staged reductions of tariffs to zero was achieved ex ante, rather than tariff-reduction formulas becoming subjects for negotiation in themselves in subsequent rounds. Multilateral country coverage was achieved nearly ex ante, in that the initial set of countries agreed on the rules, many additional countries joined bandwagon-style in the initial months following inception of the agreement, and nearly half of all WTO member countries have joined as of 2007.

How extensive was the trade liberalization? Has it led to relatively larger economic benefits, such as trade growth and improvements in economic well-being, for the signatories? There is substantial research on the gains to countries of the effective use of information technology for growth and domestic development. There is surprisingly little research on the explicit role of the ITA for promoting trade or other measures of economic well-being. Research presented in this chapter points to relatively faster trade growth for ITA signatories. Broader-based economic gains require more than just trade liberalization.

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1 Thanks to Deniz Civril for her assistance in research. This chapter has been financed by the State Secretariat for Economic Affairs (SECO). The views expressed in the chapter are the views of its authors and do not necessarily reflect the views or positions of SECO and Switzerland.

2 This section draws on chapter 1 of Mann (2006).
this transformation can be measured by total factor productivity growth.

How do these special characteristics relate to the tariff reductions obtained under the ITA? The characteristic of price elasticity means that the tariff reductions associated with the ITA should have had a disproportionate impact on the global trade for these products. The characteristic of enhanced contribution to productivity growth means that the tariff reductions could feed through to accelerate productivity growth, directly by increasing investment in IT products and indirectly through the channel of faster total factor productivity growth.

Finally, the elasticity of IT investment with respect to income growth and stage of development gives a third channel through which the ITA could generate economic gains. The faster productivity growth coming from tariff reductions raises a country's income and enhances development, which feeds back to further raise the demand for IT products. Trade liberalization in these products which enhance productivity should shift out the economy's production frontier.

In the context of trade liberalization, these key features of elastic investment demand and elastic price of IT could matter both economically and politically. Price reductions associated with trade liberalization for products with these three characteristics suggests that trade liberalization increases the size of the domestic and global economic pie more than would be the case of trade liberalization in products with unitary elasticity and with little feedthrough to productivity acceleration.

Countries that are net importers of products – whose prices decline on account of tariff reductions or other factors – gain the most, because their terms of trade are improving the most. But net exporters will also gain from trade liberalization by trading partners to the extent that tariff reductions expand their markets abroad. With larger potential economic gains both globally and domestically, there are greater resources to mitigate the costs of any adjustment and resource reallocations that occur when trade is liberalized.

*Globalized production and trade in IT products in the run-up to ITA*

Even before the ITA was negotiated and signed, trade and foreign investment in IT products were already highly globalized. Moreover, the fragmentation of the supply chain was well in train. Both situations

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3 For further discussion, see chapter 3 in Mann (2006).
regional agreements and ROOs would limit the scope for further international supply chain management going forward.

Was the potential for trade diversion associated with IT products any worse than the general issue of trade diversion caused by rules of origin? In fact, the IT supply chain is characterized by a greater dependence on international supply chains. One way to measure the importance of the supply chain is the share of “parts and components” or “intermediate goods” in trade. This share gives us an idea of how a sector is vertically integrated internationally. Using US import data for 1996–2006 and classifying them into the broad economic categories of final consumption goods, capital goods, and intermediate goods, we find that the share of intermediate products is about 60 percent for IT sectors but only 44 percent for other products.

Another example is China, which has been playing an increasingly important role both for international trade in general and for trade of IT products in particular. Processing trade accounts for a large percentage in Chinese trade. This type of trade usually involves large imports of parts and components by China for processing. The final products are usually shipped back to foreign countries. Based on the data from the China Customs Administration, the share of imports for further processing varies considerably across sectors. During the period from 1996 to 2006, the share of processing trade in ITA sectors was as high as 73 percent as compared to only 29 percent in other sectors.4

These two examples from major traders suggest that the international supply chain is especially important for IT products. Trade in IT sectors would be seriously hurt by the rules of origin common to preferential trade arrangements. Therefore multilateral trade liberalization based on the most favored nation (MFN) principle is especially important for IT sectors.

Technology hype and trade skirmishes in the run-up to the ITA

The latter half of the 1990s was a heady time for the information technology sector. It was the darling of Wall Street, media, politics, and international institutions. Over and over again, pundits emphasized IT’s potential to radically transform business, society, and economic development. International policymakers and institutions, in particular, took up the cry for IT in economic development.

For example, the G7 meetings included explicit note of IT’s transformative role in the communiqués from Naples (1994) and Halifax (1995), and shepherded in the “The G7 Information Society” conference held in Brussels in February 1995, which encouraged the implementation of a series of pilot projects to promote innovation and the spread of new technologies. Additional major conferences were held in South Africa (1996), further touting the role for IT in development. At that conference there were some rumblings of strategic trade policy and industrial policy to support the domestic development of this sector that is so key for economic well-being. The potential for trade and investment protection began to rise.

At nearly the same time, the new institutional group—the Asia Pacific Economic Cooperation (APEC) forum, which originated in 1994 with the seminal goals of free trade among the members by 2010/2020—reflected on these Bogor goals, and APEC’s business advisory groups considered the growing importance of IT trade in the Asia-Pacific region (documented in the previous section). Against the background of the IT hype, the APEC ministers in 1996 at their Subic Bay summit returned a very specific communiqué: “In recognizing the importance of the information technology sector in world trade, Ministers endorsed the efforts at WTO to conclude an information technology agreement by the Singapore Ministerial Conference and urged all other members of the WTO to work toward that end.” The outcome at the WTO meeting in Singapore would be the Information Technology Agreement (ITA).

In conjunction with international governmental support, industry’s own institutional support fed into the ITA (Fleiss and Sauvé, 1997). In 1994 and 1995, the US Information Technology Industry Council (ITI), the European Association of Manufacturers of Business Machines and Information Technology Industries (EUROBIT), and the Japanese Electronic Industry Development Association (JEIDA) all worked to get the Brussels meeting (called by the G7 in 1995) to support a liberalization of trade among the industrial countries in computer hardware (including peripherals and parts), computer software, and semiconductors and integrated circuits.

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4 Discussions on the vertical integration of trade and FDI in East Asia can be found in Kimura and Ando (2005) and Kimura (2006).
had been skirmishing over semiconductors for years. Under the threat of a dumping case, in 1986 Japan agreed to voluntarily restrain exports of semiconductors to the United States (mostly DRAMS). More importantly, although questionably explicit, the parties agreed to target a 20 percent market share in Japan for foreign (e.g. US) semiconductors. At that time, the Europeans brought a case in the GATT against both the US and Japan, arguing the agreement was price-fixing (Johnson, 1991). Although the initial agreement was to last only five years, it was renewed (Baldwin, 1990). It was set to expire in 1996, but at the margins of the APEC meeting it was renegotiated and renewed, again without European input. This Semiconductor Agreement went in the opposite direction from free trade on an MFN basis, and thus ensured European interest in an ITA at the Singapore Ministerial Conference.

In sum, during the period leading up to the ITA, business was already operating on an international production basis, and politicians and international groups viewed IT as full of economic promise. But the prospects for fragmenting the globe on a preferential basis seemed greater than ever, and the pressures for domestic protection for infant industries and domestic development were obvious.

3 The outcome: The ITA and the WTO

**ITA negotiations vs. multilateral negotiations**

The ITA was formally concluded at the Singapore Ministerial Conference of the World Trade Organization (WTO) in December 1996. As noted in previous sections, the ITA is notable for both economic and political economy reasons. The run-up to the ITA occurred against the 1990s hype about the role of information technology in economic growth, trade, and development, including in forums such as the G7 and APEC, among others. However, in the negotiating process it represented a departure from the standard GATT approach even as it embraced the key GATT/WTO principle – free trade on a most-favored-nation basis.

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The negotiation of the ITA departed in several ways from common strategy in most multilateral trade negotiating rounds. First, it was a sectoral agreement that was negotiated outside a multilateral trade round, and was not explicitly part of a single undertaking, the Uruguay Round having been completed in 1994. The broad outlines of the agreement were broached by business advisory groups and interested country partners – including the United States, Japan, Canada, and Mexico – in the context of the Brussels meeting in 1995 and the 1996 summit at APEC, not at the WTO. The November 1996 meeting of APEC ministers in Subic Bay provided both explicit tariff-cutting formulas and product coverage for an agreement, as well as the momentum for the actual ITA, which was agreed upon by a subset of WTO members at the Singapore Ministerial Conference the following December. Not all WTO members signed on at Singapore, however, and in this too the ITA differs from a standard multilateral negotiation.

A second way in which the ITA differed from a standard WTO agreement was that it was provisional as signed. A key provision of the Declaration on Trade in Information Technology Products – the official term for the agreement made in Singapore – was that it would not come into effect unless participants representing approximately 90 percent of world trade in the covered products notified their acceptance of the ITA by April 1, 1997. At the signing in Singapore, only twenty-nine countries or economic regions, accounting for about 83 percent of global trade in IT products, acceded to the agreement. These included Australia; Canada; Chinese Taipei; fifteen European Community members; Hong Kong, China; Iceland; Indonesia; Japan; Republic of Korea; Norway; Singapore; Switzerland (including Liechtenstein); Turkey; and the United States. However, before the April 1 deadline, fifteen more countries or economic entities joined, bringing the coverage of trade up to the required 90 percent, and the declaration came into force. The seventy ITA members now account for 97 percent of trade.

Third, under the ITA, countries agreed to bring tariffs on trade in covered products in six categories to zero by 2000, either immediately or by equally staged tariff reductions in four tranches from July 1997 to January 2000. These tariff reductions were on an MFN basis – even those not party to the ITA would receive the tariff reductions. The six categories are computers, software, telecom equipment, semiconductors, semiconductor manufacturing equipment, and scientific instruments. It is notable that these categories do not map explicitly into HS nomenclature. Moreover, not only were specific HS products covered, but there
was a "positive list" of specifically named products covered by the agreement wherever they were classified in the HS (this is the so-called Appendix B list). So the covered products included, to some extent, products by their functionality, not just specifically by HS code. Finally, although the final list of covered products was subject to some negotiations amongst the parties, the negotiating strategy was not principally the "request/offer" approach common to trade liberalizing negotiations.

In contrast to a standard multilateral trade round, there was no generalized "special and differential" treatment, although provision for extending the final tariff-cutting phase to 2005 was agreed at the initial signing. Only a few countries took extensions for some products, including, for example, India, Malaysia, and Indonesia. China joined in 2003, as part of its WTO accession. Brazil, Mexico, and South Africa remain among the non-acceding countries. Notably, Mexico ranks in the top ten global exporters and importers of IT products (Mann, 2006, Table 3.2ab). Mexico may not have acceded to the agreement at the time, so as to keep its preferred NAFTA status. Subsequently, Mexico undertook reforms (so-called "ITA-Plus"), yielding commitments similar to the ITA.

In several respects, though, the ITA negotiations had troubles similar to those of previous multilateral negotiations. For example, negotiators decided to avoid "third rail" issues of culture (CD-ROMs and video are not included), and to "overlook" certain nascent domestic industries that countries may have sought to protect (consumer electronics).

Finally, negotiators tabled the discussion of non-tariff measures (NTMs) (business decided that achieving zero-for-zero tariff reductions on a broad range of products with the majority of trading partners was better than getting into the morass of NTMs). However, upon inception of the ITA, and under WTO auspices, the Committee of Participants on the Expansion of Trade in Information Technology Products was organized. This committee was charged with addressing issues of product classification and non-tariff measures, as well as working to broaden the product coverage under a so-called ITA II.

In sum, the key aspects in which the ITA negotiations differed were in terms of the initial venue for negotiations, with a subset of countries and business groups explicitly driving the process; the broad and functional product set; and up-front agreement on tariff-cutting formulas. The key area where the outcome was superior to bilateral or regional negotiations was that tariff reductions were on an MFN basis, regardless of whether the trading partner was a signatory to the ITA.

How do the commitments that countries made under the ITA fit with other commitments they have made under WTO auspices? First, the ITA was the first agreement negotiated following the completion of the Uruguay Round in 1994. Key aspects of the Uruguay Round potentially relevant for IT products are: GATS (trade in services), TRIPS (intellectual property issues), and the streamlined dispute settlement mechanism. To what extent did the ITA build on or otherwise embrace these aspects of the Uruguay Round and the WTO?

First, with respect to services, an important point of ambiguity for both the WTO and the ITA is software. At the time of the ITA, software tended to be delivered in physical form (for example, on a disk drive or diskette); software as a tradable service was just starting to be conceived. Although software is included in the list of six broad categories of covered products, it is not addressed specifically in the Appendices of coverage of the ITA. Even in Appendix B, which covers products by description rather than by HS code, software is not specifically addressed except as embodied in a tangible product.

Now, software as a tradable service butts up against the WTO (and technically the ITA as well) in all domains of the agreement: as embodied in a tradable good (disk drives, shrink-wrapped boxes), and along all modes of the General Agreement on Trade in Services. Software can be delivered as mode 1 or mode 2 (via download using the internet), as mode 3 (multinational affiliate set up to engage in software design), and as mode 4 (cross-border movement of software engineers). But all discussions regarding the ITA take place in the Council on Trade in Goods.

Second, many of the computer products covered under the ITA have important attributes of intellectual property to which TRIPS would apply — software, for one, but also chip design and patents on telecommunications and semiconductor manufacturing equipment. The ITA made no mention of intellectual property, perhaps in recognition that TRIPS was already in place.

Third, with respect to dispute settlement, the Ministerial Declaration on Trade in Information Technology Products agreed upon in Singapore included language referencing Article XXIII of the GATT:6

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6 See www.wto.org/english/docs_e/legal_e/itadcc_e.htm.
6. The participants understand that Article XXIII of the General Agreement will address nullification or impairment of benefits accruing directly or indirectly to a WTO Member participant through the implementation of this Declaration as a result of the application by another WTO Member participant of any measure, whether or not that measure conflicts with the provisions of the General Agreement.

7. Each participant shall afford sympathetic consideration to any request for consultation from any other participant concerning the undertakings set out above. Such consultations shall be without prejudice to rights and obligations under the WTO Agreement.

8. Participants acting under the auspices of the Council of Trade in Goods shall inform other Members of the WTO and States or separate customs territories in the process of acceding to the WTO of these modalities and initiate consultations with a view to facilitate their participation in the expansion of trade in information technology products on the basis of the Declaration.

The ITA embraced the new (at the time) WTO dispute settlement mechanism and several disputes have been brought under the WTO system covering DRAMs (three cases), integrated circuits (one case) and computer equipment (one case). The most extensive set of disputes is over DRAMs. Recall that the US–Japan Semiconductor Agreement was one of the motivators for the ITA to begin with. Yet disputes over DRAMs continue, not with respect to tariffs, but with respect to subsidies and countervailing duties – measures that are consultative under the Subsidies and Countervailing Measures Agreement of the WTO.

In sum, there have been limited disputes on IT products, and none regarding tariffs. The disputes have focused on recategorization of a product (EU–US, 1996, network computer equipment), preferential tax treatment (China–US, integrated circuits, 2004), and subsidies and countervailing duties (EC, US–Republic of Korea, DRAMs, 1997, 2003).

There are, however, ongoing informal discussions regarding ITA-covered products that now have broader functionality than when the original agreement was signed. This issue of the evolution of functionality was embodied in the ITA language, but has become a stumbling block for the broadening of the ITA to an ITA II, a point that will be discussed later in this chapter.

4. Is the ITA a model stepping stone?

Overview of sectoral agreements

Sectoral agreements date back to the 1950s. The early sectoral arrangements were usually not to promote freer trade, but rather as a protectionist response to domestic pressures (e.g. voluntary export restraints, VERs). However, since the 1980s, sector agreements have shifted from a protectionist bent to sector-by-sector liberalization. One of the earliest sectoral trade liberalization agreements was for trade in civil aircraft. It entered into force in 1980 to promote world trade in civil aircraft, parts and related equipment.8

The most important movement in sectoralism during the GATT Uruguay Round was the so-called “zero-for-zero” tariff reduction agreements. (The reciprocal elimination of tariffs in a sector is often referred to as a “zero-for-zero” agreement.) During the Uruguay Round, the United States, Canada, the European Union, and Japan agreed to eliminate tariffs on a reciprocal basis, immediately or over a period of time of up to fifteen years, on most products in a number of sectors (agricultural equipment, beer, construction equipment, furniture, medical equipment, paper, pharmaceuticals, steel, brown spirits, and toys) as well as to harmonize tariffs on chemicals.

These agreements came into force on January 1, 1995 for most initial signatories. Australia, New Zealand, Switzerland, Norway, and the Republic of Korea also participated in the majority of the zero-for-zero tariff initiatives. By eliminating all tariffs in an entire sector, the zero-for-zero sectoral approach addressed the issue of tariff peaks (defined as tariffs greater than 15 percent in the Uruguay Round) and tariff escalation (higher tariffs on products as the level of processing increases), albeit only in those sectors identified above. In some cases, better market access was achieved through specific requests and offers. As with the ITA, the commitments undertaken under these sectoral agreements in the GATT/WTO are on an MFN basis. Therefore the benefits accrue to all other WTO members.

About two years after the “zero-for-zero” arrangements, the ITA came into force at the end of 1996. Since then, the ITA has been serving as a model for sectoralism. The Global Agreement on Basic Telecommunications was negotiated in 1997, and it covers over 95 percent of trade in telecoms since 1998. The Financial Services Agreement (FSA) followed closely in December 1997 to liberalize trade in banking, insurance, and securities. It came into effect in April 1999 and covers

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7 Such VERs were not GATT agreements, but rather were grey-area measures undertaken by some large trading partners, including the US, the EU, and Japan in autos, and, as noted, DRAMs.

8 By now, about thirty countries have signed this agreement.
over 95 percent of trade in these sectors (Aggarwal and Ravenhill, 2001). In addition, there also exist some other sectoral agreements, such as on tropical and natural resource-based products, agricultural products, textiles, and clothing products. The progress made in liberalizing trade in these sectors is rather limited.

Although negotiated as “zero-for-zero,” progress on actual tariff reduction of these agreements has been uneven across countries. As noted by Hoda (2002), the negotiations on tariff peaks did result in a considerable reduction, but not the elimination of rates above 15 percent in the developed countries. The overall target for reduction by one-third for industrial tariffs was reached by all developed countries and exceeded by some. A major objective of the developed countries in these negotiations was to persuade the developing countries to increase the scope of their tariff bindings (maximum permitted tariffs) and to bring the binding level closer to the applied rate (the actual tariff).

The ITA has come closer to achieving the “zero-tariff objective.” From tariff rates on IT products averaging 7.5 percent (up to 40 percent for developing ITA members) before the ITA, the weighted average tariff was only 3.5 percent in early 2000s (see Table 5.1).

Sectoral agreements as stepping stones

Most of the existing literature on “stepping stones or stumbling blocks” focuses on sectoralism (regional trade agreements, RTAs) vs. multilateralism (the GATT/WTO). Nevertheless, this literature does offer insights that are applicable to the question of sectoralism as a stepping stone.

As summarized by Baldwin (2006), sectoralism can act as a stumbling block for several reasons. First, RTAs may dampen enthusiasm for multilateral negotiations under the GATT/WTO, as well as diverting negotiating resources. Second, the formation of large trading blocs increases the hazard of inter-bloc trade war and may raise costs of trade through detailed rules of origin. Third, some RTAs especially “South–South” agreements may hinder multilateral liberalization by protecting import-substituting industries. To this list it is worthwhile to add a fourth point that is particularly related to sectoralism: hiving-off sectors

Table 5.1. Tariffs before ITA vs. tariffs after ITA for selected countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Weighted tariff (%)</th>
<th>Year</th>
<th>Weighted tariff (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>1997</td>
<td>12.4</td>
<td>2001</td>
<td>7.3</td>
</tr>
<tr>
<td>Australia</td>
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<tr>
<td>Costa Rica</td>
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<td>2002</td>
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<td>2003</td>
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<td>2002</td>
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<td>2002</td>
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<td>2002</td>
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<td>Japan</td>
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<td>0.1</td>
<td>2003</td>
<td>0.0</td>
</tr>
<tr>
<td>Korea, Rep. of</td>
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<td>7.9</td>
<td>2002</td>
<td>1.2</td>
</tr>
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<td>Latvia</td>
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<td>2001</td>
<td>0.0</td>
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<td>0.1</td>
<td>2003</td>
<td>0.0</td>
</tr>
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<td>3.7</td>
<td>2002</td>
<td>2.4</td>
</tr>
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<td>Malta</td>
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<td>8.6</td>
<td>2003</td>
<td>5.7</td>
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<tr>
<td>Mauritius</td>
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<td>43.3</td>
<td>2002</td>
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</tr>
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<td>Morocco</td>
<td>1997</td>
<td>11.6</td>
<td>2003</td>
<td>11.6</td>
</tr>
<tr>
<td>New Zealand</td>
<td>1997</td>
<td>4.6</td>
<td>2004</td>
<td>0.9</td>
</tr>
<tr>
<td>Norway</td>
<td>1996</td>
<td>1.2</td>
<td>2003</td>
<td>0.0</td>
</tr>
<tr>
<td>Panama</td>
<td>1997</td>
<td>10.5</td>
<td>2001</td>
<td>7.8</td>
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<tr>
<td>Philippines</td>
<td>1995</td>
<td>12.7</td>
<td>2003</td>
<td>1.2</td>
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<tr>
<td>Poland</td>
<td>1997</td>
<td>6.7</td>
<td>2003</td>
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<td>Singapore</td>
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<td>0.0</td>
<td>2003</td>
<td>0.0</td>
</tr>
<tr>
<td>Switzerland</td>
<td>1997</td>
<td>0.0</td>
<td>2004</td>
<td>0.0</td>
</tr>
<tr>
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<td>2003</td>
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<td>1995</td>
<td>11.5</td>
<td>2001</td>
<td>7.3</td>
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<td>Turkey</td>
<td>1997</td>
<td>4.2</td>
<td>2003</td>
<td>0.2</td>
</tr>
<tr>
<td>United States</td>
<td>1997</td>
<td>2.4</td>
<td>2004</td>
<td>0.3</td>
</tr>
<tr>
<td>ITA members</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-ITA members</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Data sources: UNCTAD TRAINS.
2. Years are the latest available years in each dataset, accessed in 2004.
3. Weighted tariff is the simple average of HS six-digit weighted average tariffs applied on all ITA products.
4. The tariffs for “ITA members” are the simple average tariffs for all ITA members.
5. The tariffs for “Non-ITA members” are the simple average tariffs for all non-ITA members. The tariffs for each individual non-ITA member are not shown here due to limited space.

9 Although with limits on foreign direct investment, the effective liberalization of financial services remains difficult to measure and controversial.
that may be easier to liberalize may dampen the momentum for broad-based liberalization.

Using the framework from analyzing RTAs as stumbling blocks, do sectoral agreements pose similar problems, and what about the ITA in particular? The first problem of RTAs may also exist for sectoral agreements. The shift of negotiating attention and effort from multilateralism to sectoralism may delay the process of the multilateral negotiation. As noted by Aggarwal and Ravenhill (2001), sectoralism is politically and economically hazardous. From a political perspective, sectoral agreements buy off winners in those sectors and reduce the support for future multilateral negotiations that would benefit a significantly broader group of industries and consumers. From an economic perspective, by liberalizing only specific, highly competitive sectors, sectoral trade agreements may lead to a perverse incentive to invest in or discourage exit from the least efficient areas of the economy and hence create more distortions.

The second and third problems identified by Baldwin (2006) for RTAs are, however, less likely to be an issue for sectoral agreements, so long as the agreement is on an MFN basis. Under these circumstances, sectoral agreements are a good approach to eliminating the tariff spikes and the political rents associated with the protection of import-competing industries.

Therefore, it is a key feature of the ITA that its members are committed to duty-free imports on an MFN basis. So long as a country is a WTO member, it enjoys the benefits of lowered tariffs from the parties to the sectoral agreement even when it has not signed the sectoral agreement itself. Moreover, the "external" tariffs on the imports from non-WTO members did not increase under the ITA, which can mitigate trade diversion. Finally, there are no rules of origin. This treatment afforded to the non-members avoids opposition from countries with inefficient producers. The distortion from this special treatment of non-members is small if these non-members' trade accounts for a small percentage of total world trade in these sectors.

Therefore, for a sectoral agreement to be successful by expanding global trade and avoiding the inefficiencies of free-riding non-signatories there are two key criteria: the sector should be large, and the share of trade by parties to the agreement should be high, preferably close to 100 percent.\(^{10}\)

\(^{10}\) This feature is similar to the "substantially all the trade" requirement of RTAs according to the GATT Article XXIV – a feature often not met by RTAs.

### Table 5.2. Trade shares and coverage of some selected sectoral agreements

<table>
<thead>
<tr>
<th>Sectoral agreements</th>
<th>Share of world trade (%)</th>
<th>Export coverage (%)</th>
<th>Import coverage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITA</td>
<td>13.25</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>Civil aircraft</td>
<td>12.63</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Chemicals</td>
<td>9.99</td>
<td>82.57</td>
<td>68.79</td>
</tr>
<tr>
<td>Steel</td>
<td>2.52</td>
<td>72.54</td>
<td>63.77</td>
</tr>
<tr>
<td>Paper</td>
<td>2.25</td>
<td>71.16</td>
<td>71.63</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>1.52</td>
<td>86.83</td>
<td>73.50</td>
</tr>
<tr>
<td>Medical equipment</td>
<td>1.11</td>
<td>89.73</td>
<td>74.30</td>
</tr>
<tr>
<td>Construction equipment</td>
<td>0.97</td>
<td>84.84</td>
<td>64.00</td>
</tr>
<tr>
<td>Furniture</td>
<td>0.79</td>
<td>72.44</td>
<td>85.53</td>
</tr>
<tr>
<td>Toys</td>
<td>0.73</td>
<td>32.84</td>
<td>69.73</td>
</tr>
<tr>
<td>Agricultural equipment</td>
<td>0.25</td>
<td>88.24</td>
<td>74.94</td>
</tr>
<tr>
<td>Brown spirits</td>
<td>0.16</td>
<td>86.63</td>
<td>78.17</td>
</tr>
<tr>
<td>Beer</td>
<td>0.08</td>
<td>79.76</td>
<td>85.97</td>
</tr>
</tbody>
</table>

Notes: Share is the import share of a sector among total world imports over the period 1988–2003; import (export) coverage is the share of the import (export) covered by these agreements in 1994, except for the ITA which is calculated for 2002, based on the trade data from the UN COMTRADE.


First, with regard to sector size: the liberalization in a certain sector cannot make a significant contribution to trade liberalization unless the size of the sector is large enough. Trade shares of some of these agreements in total world trade for 1988–2003 are shown in Table 5.2. Based on the product definitions provided by the WTO, most sectors account for less than 3 percent of total world trade, except the ITA (13.25 percent), and the agreements on civil aircraft (12.6 percent) and chemicals (10 percent).\(^{11}\)

Second, with regard to the coverage of total trade: because a sectoral agreement is usually signed by a small group of countries, it is important to make sure that the major producers and traders are covered by the

\(^{11}\) The trade data exclude intra-EU trade because most of the European Union members were in the same customs union and free trade area since the beginning of our sample (1988). Therefore it is better to treat the intra-EU trade as trade within a country. For the same reason, we also drop all the intra-EU bilateral trade in our regressions in the empirical section.
agreement. The last two columns of Table 5.2 list the export and import coverage of these selected agreements. Most of the trade in these sectors is covered by these agreements, among which the ITA has the highest coverage (95 percent).

In sum, sectoralism can be a fruitful avenue to overall free trade, but the sectors have to be large and the membership widespread. The high coverage of trade and the relatively large size of the sector in world trade are key elements leading to the success of the ITA and make it a possible stepping stone to broad-based trade liberalization, particularly if countries see the domestic economic gains of importing and using IT investment throughout the domestic economy.

**IT in bilateral agreements: towards making BTAs stepping stones?**

The United States has embraced RTAs and bilateral trade agreements (BTAs) in which information technology plays an important role. Can the implementation of the IT provisions in those regional and bilateral agreements push them more toward being stepping stones rather than stumbling blocks?

US trade policy moved from full support of multilateral efforts to the near total embrace of bilateral and regional agreements in the mid 1990s. From 2001 to 2006, the number of US R/BTA partners or imminent partners went from three to twenty-nine (Ladema, 2007). Besides NAFTA (involving Canada and Mexico, which came into force in 1994) and the BTA with Israel (1985), the US has implemented R/BTAs with Jordan (2001), Chile (2004), Singapore (2004), Australia (2005), Morocco (2006), Bahrain (2006), and CAFTA-DR (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and the Dominican Republic). Other agreements negotiated and signed, albeit not ratified, include those with Colombia, Peru, and Oman. Negotiations continue with Ecuador, Panama, Republic of Korea, Malaysia, Thailand, United Arab Emirates, and the Southern African Customs Union (South Africa, Botswana, Lesotho, Namibia, and Swaziland).

Even before the current wave, the US BTAs were seen as a way to prevent piracy and counterfeiting, to push for the implementation of international laws and to protect US interests, particularly related to IT. Such agreements were a way to negotiate with countries with high tariffs and subsidies and then, under the umbrella of the WTO, to extend the commitments of TRIPS, ITA, and the Basic Telecommunication Agreement. Quoting from Charlene Barshefsky in 2001: “As formal barriers began to diminish, trade negotiations moved into more arcane fields such as harmonizing technical standards, so that a semiconductor chip built in Costa Rica and a hard drive assembled in Southeast Asia, for example, can run programs written in India for a computer designed in North Carolina.”

Recent US BTAs have explicit chapters that follow a common template for information technology, including that the country accede to the ITA as well as commit to extension along the following lines:

- Eliminate tariffs on all information technology products (hardware and software) and components, infrastructure equipment, medical equipment, and scientific instruments. Medical equipment represents an extension of product coverage beyond the ITA.
- Ensure that as products covered by the ITA evolve technologically they retain zero-duty treatment, and that the product coverage continues to expand. Both of these points are areas of controversy for ITA II.
- As part of the Doha Round Non-Agricultural Market Access (NAMA) negotiations, countries should agree on sectoral tariff elimination that would apply to IT products, including those products not currently covered by the ITA.

Some public statements from the United States government imply that the ITA not only commits countries to duty-free trade in IT products, but also the elimination of non-tariff measures. For example, the United States International Trade Commission (USITC) report on the US-Colombia agreement states that: “Colombia has agreed to sign the WTO Information Technology Agreement (ITA), which requires signatories to remove tariff and non-tariff barriers to trade in IT products.” Even if the actual language of the text of the agreement includes only tariff elimination on products under ITA I, the fact that the public statements include topics under consideration in ITA II reveals the potential power of these BTAs to change the weight of negotiations at the WTO on the ITA II and NTM issues. That is, to the extent that a country has already agreed with the United States to remove NTMs and to broaden the coverage of the ITA to ITA II products, then they may be more amenable to coverage of NTMs in the context of the WTO.

Indeed, Rob Portman, when he was USTR, explicitly gave to the BTAs the job of expanding product coverage of the ITA to ITA II and beyond.

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In the last six weeks ... we launched new free trade agreement talks with
two major economies in Asia: the Republic of Korea and Malaysia. In
those accords, we will look at phasing out tariffs on consumer electronics
not covered by ITA. These free trade agreements will also address
investment, distribution, telecom and financial services, and help make
consumer electronics companies’ supply chains more efficient.\footnote{Remarks by Ambassador Rob Portman, United States Trade Representative, before the Consumer Electronics Association at the Ronald Reagan International Trade Center, Washington DC, March 15, 2006.}

The US push toward bilateral agreements, the nature of the negoti-
ating template, and the expanding verbal coverage of products and
NTMs under those agreements has the potential to change the weight of
negotiations at the WTO on these ITA II issues. That is, if countries
have already agreed to these parameters in their BTA with the United
States, they may be more likely to join with the US negotiators at the
WTO when similar issues arise in the WTO context. This could increase
the potential for widening product coverage in the context of ITA II,
thus expanding the scope of multilateral freer trade.

5 Empirical analysis of the impact of ITA

Did the ITA cut tariffs?

Has the ITA made a difference to global trade in technology products
and to countries that are members? Theory and practical experience tell
us that reducing tariffs leads to more trade, and that trade should grow
more for the countries that cut tariffs the most. In fact, empirical
evidence of the ITA has been difficult to ascertain. A key issue is that the
tariff reductions took place in the context of dramatic increases in global
trade in IT products associated with the technology boom up to 2000
(and the subsequent crash). It is difficult to pick out the changes in trade
due to changes in tariffs alone.

From the perspective of average tariffs, the ITA made a difference.
Table 5.1 using the UN TRAINS (UN Trade Analysis and Information
System) database shows the tariffs of ITA products for selected countries
before and after the ITA. The tariffs for individual non-ITA members are
not listed, to save space, but their average tariffs are reported at the
bottom of the table. Overall the average tariffs of non-ITA members were
much higher than those of members both before (16.2 percent vs. 7.5
percent) and after the ITA (11.2 percent vs. 3.2 percent). Although the

tariffs in non-member countries also dropped, the percentage change is
much smaller than that in ITA members (25 percent vs. 57 percent). For
the top four IT product exporters,\footnote{The ranking is based on the 2002 UN COMTRADE data.} the reduction in tariffs in levels is the
biggest in China, from 14.2 percent to 2.6 percent. The tariff the US and
the EU dropped from 2–3 percent to almost zero. The room for further
tariff reduction in Japan is very limited because Japan had almost
achieved zero tariffs on IT products even before the ITA.

A related issue is how far the ITA sectors were characterized by
preferential trade arrangements before the ITA. This will determine the
extent to which the ITA “multilateralized” regional agreements that
were already in force. Based on the UN COMTRADE data, at least 30
percent of the ITA trade (exports and imports) in 1996 was covered by
certain regional trade agreements.\footnote{The list of these RTAs can be found at: www.wto.org/english/tratop_e/region_e/
region_el.htm.} This implies that a significant part of the tariff reduction under the ITA was not just de novo MFN tariff-cutting, but rather tariff-cutting in the context of regional agreements.

Thus the ITA did help to multilateralize regional trade in IT products.

Did the ITA promote trade in IT products?

Looking at just growth in trade, by the end of 2005 the share of IT
products was 19 percent, excluding intra-EU trade (Finger, 2007). It was
a significant amount compared to agricultural products (8.4 percent)
and automotive products (7.2 percent). The world exports of IT
products rose from $600 billion in 1996 to more than $1,500 billion in
2006. The growth of exports in IT products exceeds the growth of export
in manufactures. Computers, semiconductors and telecoms make up
approximately 80 percent of world exports of IT products.\footnote{See also WTO (2007).}

However, is this growth in trade due to the ITA or due to the way in
which the technology itself and reductions in transportation costs
allowed the fragmentation of the supply chain in IT production, which
would increase the amount of trade? Moreover, given the high elasticity
of investment demand for IT products, rising GDP alone would have
increased trade in these products.

In principle, the ITA should promote the use of information and
communication technology products (ICT) in developing countries. The
ITA can help with non-competitive environments, poor infrastructure, institutions, human capital and policies, but alone it may not be enough to promote trade. In fact, Joseph and Parayil (2006) did not find a significant change in the world demand for ITA products after the ITA was signed. Moreover, they determined that some non-ITA members were superior export and import performers in ITA products compared with ITA members.

An alternative econometric approach (Mann, 2006) finds that being a member of the ITA is statistically associated with imports of IT products, controlling for domestic expenditures on IT. In addition, given that many IT products are intermediates in the supply chain of other IT products, being a member of the ITA should reduce tariffs on imported intermediates and thereby increase the competitiveness of IT exports. Indeed, econometric evidence suggests that being a member of the ITA may play this role.

**A systematic assessment: Bora and Liu (2006)**

The most systematic approach to estimating the impact of the ITA on trade is Bora and Liu (2006), from which this section is adapted. They estimate the effect of the ITA on bilateral trade flows of IT products using a gravity model framework, paying particular attention to the differences in ITA and WTO membership so as to capture their roles for both trade creation and trade diversion effects.

In Bora and Liu, the key variables of interest are constructed from the ITA and WTO memberships. As discussed above, the nature of the ITA is that if the importer is an ITA member, then it will offer its ITA tariff rates to all WTO members, whether the exporter is an ITA member or not. This leads to the following four dummy variables of interest:

- The first variable is one if the importer is an ITA member and the exporter is a WTO member; this measures the trade creation effect of the ITA.
- The second variable is one if the importer is a WTO member but not an ITA member and the exporter is a WTO member; this measures the trade diversion of the ITA within the WTO. In other words, if an importer is a WTO member but not an ITA member, it will see its imports fall as exporters choose to allocate their exports to ITA members.
- The third variable is for all of the scenarios when one of the two countries is not a WTO member. As long as one of the countries is not in the WTO, its trade in either direction cannot benefit from the ITA. To be parsimonious, we do not distinguish between these different subcategories. This measure captures the trade diversion of the ITA/WTO.
- The last variable is one if neither country is a WTO member; this measures the baseline category in the analyses.

The dependent variable ($M_{ij}$) is the c.i.f. import of country $i$ from country $j$ in year $t$ taken from COMTRADE. Besides the above dummy variables for ITA and WTO membership, the regression includes other standard control variables: the real GDP and GDP per capita of both countries; the great circle distance between countries; land contingency dummy; the geographic area of both countries; the number of island nations in a pair (0, 1, or 2); the number of landlocked nations in a pair (0, 1, or 2); common language dummy; colonial relationship; the military conflict intensity between countries; remoteness, measuring the

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17 One problem with the analysis is that some non-ITA members had fairly low tariffs on IT products due to preferential policies. For example, even before China joined the ITA, more than half of China’s imports of manufactures were destined for processing in special zones and re-exported, and were exempt from duties.

18 Bora and Liu assume that all ITA members are also WTO members. The issue of ITA membership prior to WTO membership (e.g., Estonia, Lithuania, Chinese Taipei) is also considered. Accounting for this issue does not affect the results. For countries that might have received special tariff treatment before WTO membership (such as the "permanent normal trade relationship" between China and the US), not explicitly considering this as a regional trade agreement would only serve to bias the results toward an insignificant impact of the ITA.
distance of a country pair from the rest of the world weighted by all the other countries' GDPs in a year; formal alliance dummy; generalized system of preferences (GSP) relationship; currency union dummy; regional trade agreement (RTA) dummy; year dummies and country pair dummies. For more explicit discussion of the data and sources, see Bora and Liu (2006). The panel dataset used in this chapter includes 217 countries over the years 1988–2003 and includes trade in IT products yielding about 135,000 observations.

This section presents the gravity regression results in Tables 5.3 and 5.4. We start with pooled OLS (ordinary least squares) with only year dummies. The ITA is very effective with large trade creation and trade diversion effects. This regression uses both within- and between-country pair variations. The between variations, however, often suffered from an endogeneity problem (i.e. reverse causation): the more a country trades in ITA products, the more likely it will be to join the ITA. Therefore the preferred regressions include country pair fixed effects.21

Fixed effects regressions use only the within variations. The country pair fixed effects control for the unobserved characteristics for each country pair; this partially fixes the endogeneity problem. Results from the fixed effects regression show that the coefficients on other covariates generally have expected signs. GSP, RTA, and alliance significantly increase bilateral ITA trade. "Remoteness" positively affects bilateral trade, as expected. Currency union, however, is insignificant.22

Fixed effects regressions respond to the following question: do two countries trade more in ITA products after one or both of them join the ITA, compared with their trade before joining the agreement?

- In this specification, a country will import 7 percent more ITA products if it is an ITA member and the exporter is a WTO member, compared with the baseline case of neither being a WTO member. If importer and exporter are both WTO members but the importer is

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20 This remoteness variable serves as a proxy for the "index of multilateral resistance" (Anderson and Wincoop, 2003). Bora and Liu expect that the "remoteness" variable will positively affect bilateral trade because two countries will trade more with each other, etcetera paribus, if they are remote from the rest of the world, e.g. Australia and New Zealand.

21 The random effects model is based on a more stringent condition: that is, the error term must be uncorrelated with country pair dummies. The Hausman test rejects this condition, so we use the fixed effects regression as our preferred specification.

22 It becomes significant when we restrict the sample to large traders only (i.e. import > $100,000 at 1995 prices).
Table 5.3. (cont.)

<table>
<thead>
<tr>
<th></th>
<th>(1) Pooled OLS full sample</th>
<th>(2) Fixed effects full sample</th>
<th>(3) Random effects full sample</th>
<th>(4) Fixed effects large traders</th>
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</thead>
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<tr>
<td></td>
<td>coef.</td>
<td>z</td>
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<td>z</td>
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<tr>
<td>GSPij</td>
<td>-0.39***</td>
<td>-14.38</td>
<td>0.22***</td>
<td>3.78</td>
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<td>GSPj</td>
<td>0.28***</td>
<td>12.76</td>
<td>0.22***</td>
<td>4.51</td>
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<td>FTA</td>
<td>0.22***</td>
<td>10.05</td>
<td>0.42***</td>
<td>10.88</td>
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<tr>
<td>CU</td>
<td>0.64***</td>
<td>11.67</td>
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<td>0.59</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>R2</td>
<td>0.51</td>
<td>0.82</td>
<td>0.50</td>
<td>0.88</td>
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<tr>
<td>No. of observations</td>
<td>133,352</td>
<td>133,352</td>
<td>133,352</td>
<td>133,352</td>
</tr>
</tbody>
</table>

Notes:
1. Dependent variable is the logarithm of the real import of country A from country B.
2. All continuous variables are in logarithms.
3. ***, **, and * denote the significance levels at 1 percent, 5 percent, and 10 percent, respectively.
4. Regression (1) is OLS with year dummies and robust standard errors.
5. Regression (2) has both year dummies and country pair fixed effects.
6. Regression (3) has both year dummies and country pair random effects.
7. Regression (4) has both year dummies and country pair fixed effects (real import>$10,000).
8. The R2 for random effect regression is the overall R2.
9. The R2 for fixed effect regression is the adjusted R2 recovered from country pair dummy variable least square regression (DVLS), which is not comparable with the R2 in the random effect regression.

Table 5.4. Fixed effects regression results, developing vs. developed countries

<table>
<thead>
<tr>
<th></th>
<th>(1) Full sample</th>
<th>(2) Large traders</th>
<th>(3) Full sample</th>
<th>(4) Large traders</th>
</tr>
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not an ITA member, the importer will, on average, import 6 percent less than the baseline case. This effect is economically significant given the fact that the ITA has been implemented for less than ten years and most developed countries already had low tariffs on ITA imports before joining the ITA.

- The trade creation effects of becoming an ITA member are large. Regression results suggest that a non-ITA WTO member would import 14 percent ($= e^{0.06+0.07}$) more from WTO members if it joins the ITA, ceteris paribus.

- The trade diversion effects of non-GATT/WTO membership are even stronger ($e^{0.16} = 17\%$). Imports would be 17 percent less if only one country is in the GATT/WTO, compared with the baseline case. These results imply that being a WTO member helps to avoid very large trade diversion even if the country does not sign the ITA.

- Robustness checks reveal that the trade creation effect of the ITA is even stronger (12 percent vs. 7 percent) for large traders (i.e. imports > $100,000$, at 1995 prices).

- The ITA should have a larger impact for the developing world since high trade barriers in these countries (0–50 percent) should have fallen the most along with the implementation of the ITA. The results confirm that the trade creation effect of the ITA is insignificant for developed countries, while much stronger for developing countries (13 percent).

- The extent of the liberalization of trade in ITA products may be different for different developed countries. The results show that the trade creation effect of the ITA is the largest for Australia and New Zealand, followed by the United States, Canada, and Japan. The European countries did much worse (negative although insignificant trade creation effects). It is the European countries that drive the trade creation effects of reduced ITA membership into insignificance.

Recent developments in the theoretical foundation of a gravity specification suggest that time-varying country fixed effects can fully absorb

\[^{22}\text{The developed countries include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the UK and the USA; and they are now all ITA members.}\]

\[^{23}\text{The developed European countries include Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the UK.}\]

\[^{24}\text{Iceland is more protected than other developed European countries, but dropping Iceland from the dataset does not change our results much.}\]
the “multilateral resistance” effects in a panel data gravity regression (see Baldwin and Taglioni, 2006). This method, however, is computationally cumbersome due to the very large number of interaction terms in regressions. To reduce the number of dummies for the year and importer/exporter interactions, we take two consecutive years as one period and then use the new period dummy to interact with importers and exporters. We expect that this new period variable will capture most of the variations over time. The coefficients on the key variables of our interests are even larger in absolute values. The result shows that a country will import 68 percent more ITA products if it is an ITA member and the exporter is a WTO member, compared with the baseline case of neither being a WTO member. If both importer and exporter are WTO members but the importer is not an ITA member, it will on average import 20 percent less than the baseline case. The trade diversion effects of the GATT/WTO are also stronger than those in the previous results (~55 percent).

There is a second significant caveat for the estimation is the “zero-trade data problem.” Unfortunately, a significant problem with the COMTRADE data is that it includes data when trade takes place. Liu (2006, 2007), Felbermayr and Kohler (2006) and Helpman, Melitz, and Rubinstein (2006) show the extent to which results on the impact of trade agreements can be overturned when zero-trade data are included in the analysis.

Implications for ITA as a stepping stone

Overall, the results indicate that participation in the ITA increases bilateral trade, and being a WTO member can avoid large trade diversion effects. The analysis yielded a number of observations about the ITA that could be useful for the future round of negotiations and trade policy in general. Sectoral trade-offs are usually an essential ingredient for success in the GATT/WTO negotiations. The success of the ITA as a stand-alone sectoral agreement is a new approach. As noted by Hoda (2002), and discussed above, this is attributed to some unique features of the IT sectors. For example, the IT industry is highly globalized and there is keen competition to attract foreign direct investment in the industry. The duty-free treatment of inputs makes host countries attractive for foreign investors. Therefore, most governments were attracted to a worldwide agreement for the elimination of tariffs on IT products, even outside the framework of global negotiations on tariffs.

The same gravity regression analysis can be applied to other sectoral agreements under the GATT/WTO, such as the Uruguay Round zero-for-zero agreements, chemical harmonization, and the agreements on civil aircraft. We leave this for future research.

The gravity approach captures a variety of influences on trade beyond specific parameters. Since the ITA requires ITA tariffs to be bound at zero, the gravity approach captures the institutional effect of being a member of the WTO and a participant in the ITA. While the results of the regression analysis send a positive signal to WTO members as they debate the overall value of a sectoral approach, it is important to recognize the specific nature of the ITA and the mechanisms by which it can affect trade. The gravity equation approach is an ex post analysis that seeks to explain past trade patterns and values. The actual trade values that may arise from liberalizing ITA tariffs will depend upon a number of parameters, such as the value of trade, the values of elasticities, and other structural variables such as geography. This type of ex ante analysis might provide useful information, but differs from the type of analysis undertaken in this section.

6 Current challenges

 прогресс по ITA II

Negotiations on ITA II began almost as soon as the ink was dry on the ITA in 1997. Progress on extending the ITA has run into difficulties on four interrelated fronts: coverage, convergence, commitments, and non-tariff measures.

On coverage, the ITA does not cover certain IT products that some participants wanted to include at the time of the negotiations, such as consumer electronics. The second issue is convergence: the ITA does not cover some products that have both IT and non-IT uses, such as TVs for multimedia applications, cameras and speakers for video teleconferencing, or other appliances used increasingly in computing and Internet applications. Keeping the spirit of ITA coverage alive is tough because technology convergence is merging the "third-rail" culture issue into the technology domain.

The coverage issue is related to the third key concern of commitments. In ITA I, the methodology for scheduling commitments does not accommodate the rapid evolution of IT products, even though the language of the agreement was supposed to bind the signatories to such
an evolution.\textsuperscript{26} For example, suppose the technological capability of a product currently scheduled changes to allow a wider range of functions: for example, set-top boxes that now have a communications function, but did not when duty-free treatment was scheduled. Does the duty-free commitment apply to the scheduled product or to the scheduled product with its now greater functionality, which may not have been scheduled to receive duty-free treatment? Thus technological convergence and coverage are merging to impact commitments.

Could differing views on this essential point of technological evolution precipitate a call for consultations under the WTO dispute settlement system? The United States and Japan have expressed concern about proposals by at least one ITA participant that would no longer provide or guarantee duty-free treatment for the technologically enhanced versions of ITA-covered products.

A subset of ITA participants, including the United States; Japan; Singapore; Hong Kong, China; Chinese Taipei; Malaysia; Canada; and the Philippines, have proposed that the Committee of Participants on the Expansion of Trade in Information Technology Products engage in informal consultations with the objective of reaching a consensus on how to ensure that duty-free treatment for such products will be maintained.

Finally, participants have been focusing on non-tariff issues that have come to reduce the benefits of the ITA tariff cuts, including, for example, different national safety standards and import licensing requirements.\textsuperscript{27} The Committee of Participants on the Expansion of Trade in Information Technology Products agreed to proceed with a work program on NTMs on ITA products, on the following basis:\textsuperscript{28}

- Phase I: identify NTMs that are impediments to trade in ITA products;
- Phase II: examine the economic and developmental impact of such measures on trade in ITA products and the benefits which would accrue to participants from addressing their undue trade-distorting effects;
- Phase III: the formal consideration by the Committee of the outcomes of Phases I and II.

\textsuperscript{26} See e.g. www.peterseninstitute.org/publications/papers/wunsch1104.pdf.
\textsuperscript{28} WTO, Non-Tariff Measure Work Program. G/L/756, November 13, 2000.

\textsuperscript{29} WTO, EMC/EMI Workshop.
• The hype of the 1990s made countries want to get on board, either as national export champions or to get domestic productivity benefits, which created a rare combination of interests.

Factors that suggest that the ITA can be a model stepping stone include:

• Outlines of initial agreement could be replicated, and are not unique to IT per se. Product coverage was broad (not request/offer) and MFN. The initial timetable and schedule were agreed to and generally have not been abrogated.

• Template bilateral that use these principles can be stepping stones by creating a common set of rules and obligations that could then be made MFN. Once countries have already agreed to principles in the context of a bilateral agreement, they may be more willing to multilateralize the commitments.

Challenges of ITA II point to the difficulties of making the ITA a model stepping stone, including:

• the difficulties of extending coverage to new products;
• potential disputes over extending commitments to products with technologically enhanced functionality;
• no momentum for non-signatories to join.

The balance of evidence suggests that the ITA was sui generis—a product of the technology and the time. And the fact that coverage, commitments, and NTMs are contentious in ITA II does not bode well for its broadening to a wider group of products or countries. However, key elements of the ITA negotiations—enthusiasm for broad-based coverage rather than request/offer and MFN treatment—would be a good legacy of the agreement for future WTO negotiations.

References

In order to fully appraise the feasibility of using the ITA as a model to seek liberalization that multilateralizes regionalism, it would be appropriate to recall what made this agreement possible and a success story.

In this context the negotiations towards the North America Free Trade Agreement (NAFTA) are a relevant point of departure. Article 308 and Annex 308.1 of NAFTA establish a common external tariff for a list of products described as ‘certain automatic data processing goods and their parts’. While this list does not fully coincide with the products covered by the ITA, there is considerable overlap. It was further provided that, should one party agree to a lower duty in the Uruguay Round, this rate was to become the new NAFTA MFN tariff. Many of the products covered had the MFN rate set at duty-free, while for other items it ranged between 3.7 and 3.9 per cent. What made this outcome possible or even necessary?

Central to this was the realization on the part of the NAFTA negotiators that it is very difficult, if not impossible or foolish, to attempt to define a reasonable and workable rule of origin for those products. The centrepiece of a computer – the motherboard – is made up of hundreds of pieces that are manufactured in several countries. These pieces – chips and others – are soldered to the board in country X, and perhaps shipped to a different country where the final assembly takes place. How is it possible to determine the origin of a computer?

One of the most attractive features of the Asia Pacific Economic Cooperation (APEC) forum is the annual meeting of the ‘Leaders’. Throughout the year, ministers and officials make sure that there will be ‘deliverables’ for the Leaders to show off. Based on the liberalization of IT products under NAFTA and the results of the Uruguay Round, it was a very attractive idea and a substantial deliverable to get APEC economies to endorse an initiative to pursue IT product liberalization
in the WTO. After securing consensus in APEC\(^1\) the action moved to Geneva.\(^2\)

In the numerous FTAs negotiated, there is no evidence that other products or sectors have had similar problems in defining the rule of origin. From this perspective it seems that it is difficult to replicate in other sectors the rationale that made the ITA technically plausible and politically feasible.

Second, to liberalize one or more sectors but not others will have an impact on the allocation of resources that should be carefully considered and measured on a case-by-case basis.

Last, there is a political economy consideration. An approach by a critical mass of economies to liberalize on a sectoral basis will probably be possible only in some sectors, presumably those that are less sensitive. Once liberalization is secured, the industries concerned lose their appetite for seeking market openness. When a government attempts to liberalize sectors that enjoy high levels of protection and are more sensitive, there will be no trade-offs or support from sectors already liberalized. This greatly increases the political cost to open markets for sectors such as textiles, clothing, footwear, steel, etc. Again, this calls for multilateral liberalization across the board.

\(^1\) Chile, an APEC member, did not join the consensus because sectoral liberalization was a departure from its single or flat tariff policy (FTAs notwithstanding), which at times was 11 per cent across the board. Later, in 1997, in the Chile–Canada FTA, the same approach as that of NAFTA was used.

\(^2\) Interestingly one NAFTA partner – Mexico – did not subscribe to the ITA, presumably because it considered that ‘critical mass’ was absent without Brazil’s participation.