The Information Technology Agreement, Industrial Development and Innovation: India's and China's Diverse Experiences

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Think Piece
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ABSTRACT

In the critically important information and communications technology (ICT) industry, trade expansion through ITA could play an important role in facilitating the diffusion of innovation. This think piece compares the diverse experiences of India and China with the Information Technology Agreement (ITA). It seeks to better understand why China’s electronics industry has benefited substantially from the ITA, while with respect to India the gains from trade liberalization were overshadowed by major costs that are eroding its domestic electronic manufacturing and innovation. In doing so, it examines closely the role played by domestic economic structures in both countries and global network integration in shaping the benefits and costs of ITA participation and the very different approaches of India and China to the current ITA-2 negotiations.

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<tr>
<td>ASSOCHAM</td>
<td>Associated Chambers of Commerce and Industry of India</td>
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<td>EDA</td>
<td>Electronic Design Automation</td>
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<td>EMS</td>
<td>Electronics Manufacturing Service</td>
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<td>EU</td>
<td>European Union</td>
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<td>FDI</td>
<td>Foreign Direct Investment</td>
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<td>FIE</td>
<td>Foreign-Invested Enterprise</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GERD</td>
<td>Gross Expenditure on Research and Development</td>
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<td>GIN</td>
<td>Global Innovation Network</td>
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<td>GPA</td>
<td>Government Procurement Agreement</td>
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<td>GPN</td>
<td>Global Production Network</td>
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<td>GST</td>
<td>Goods and Services Tax</td>
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<td>IC</td>
<td>Integrated Circuit</td>
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<td>ICT</td>
<td>Information and Communications Technology</td>
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<td>IT</td>
<td>Information Technology</td>
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<td>ITA</td>
<td>Information Technology Agreement</td>
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<td>ITIC</td>
<td>Information Technology Industry Council</td>
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<td>MCO</td>
<td>Multi-component integrated circuit</td>
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<td>MFN</td>
<td>Most Favored Nation</td>
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<td>MIIT</td>
<td>Ministry of Industry and Information Technology</td>
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<td>MNC</td>
<td>Multinational Corporation</td>
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<td>NDRC</td>
<td>National Development and Reform Commission</td>
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<td>NPE</td>
<td>National Policy on Electronics</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>OEM</td>
<td>Original Equipment Manufacturer</td>
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<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
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<tr>
<td>SD</td>
<td>Special and Differential</td>
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<tr>
<td>SEI</td>
<td>Strategic Emerging Industries</td>
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<td>TISA</td>
<td>Trade in Services Agreement</td>
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<td>US</td>
<td>United States</td>
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<td>USITC</td>
<td>United States International Trade Commission</td>
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<td>USTR</td>
<td>United States Trade Representative</td>
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OVERVIEW OF THIS TOPIC AND WHY IT IS IMPORTANT

In principle, plurilateral trade agreements like the Information Technology Agreement (ITA) could strengthen the multilateral trading system by reducing barriers to trade that have not been adequately addressed in the gridlocked Doha round. In the critically important information and communications technology (ICT) industry, trade expansion through ITA could play an important role in facilitating the diffusion of innovation. Developing countries, especially emerging economies, could thus reap significant benefits from ITA.

However, recent research has convincingly demonstrated that the success or failure of trade liberalization is determined by a country’s economic structure (that is, its institutions and policies; its market size and sophistication; and the managerial and technological capabilities of its firms). In addition, geographically dispersed global production networks (GPNs) and innovation networks (GINs) have fragmented industrial manufacturing and services. Thus, a country’s integration into these networks may also significantly affect its approach to and its experience with trade liberalization. Both these parameters encompass what might be called domestic determinants of the gains from trade for industrial development and innovation (Ernst 2014).

Will ITA help accelerate industrial manufacturing and innovation in developing countries and narrow the gap in productivity and income relative to leading industrialized countries? ITA participants differ substantially not only in their stage of development; their growth models and regulations; and their resources and capabilities, but also in how they are integrated into the GPNs and GINs of the ICT industry. These differences in the economic structure of ITA participants pose new and so far little understood challenges for the analysis of liberalization gains, especially of the impact on developing countries’ industrial development and innovation.

Some basic definitions are in order to establish that manufacturing and innovation are closely intertwined, especially in a technology-intensive industry such as electronics. Innovations convert ideas, inventions, and discoveries into new products, services, processes, and business models. Radical breakthrough discoveries and inventions through scientific research are only the tip of the iceberg (Ernst 2009). Of critical importance are “industrial innovations” that allow for new ways of manufacturing existing products (for example, with new materials or by using 3D printing) as well as for manufacturing new products derived from new ideas, discoveries, and inventions (for example, implanted sensors). This implies that a country can only aspire to become successful in industrial innovation if it has developed a strong manufacturing industry. Without large-scale advanced manufacturing facilities, which can draw on an integrated domestic industrial value chain, even the most sophisticated research and development (R&D) capabilities are of little use to generate innovations.

This think piece compares the diverse experiences of India and China with ITA. The analysis focuses on the role played by economic structures in both countries in shaping the benefits and costs of ITA participation. In addition, differences in the integration of both countries into GPNs and GINs are considered. By inserting these domestic determinants into the analysis of trade and innovation, it is expected that new insights may result for debates that seek to find ways out of the current impasse in negotiations about expanding the product lists covered by ITA (ITA-2).

Two specific questions are addressed:

- First, why is it that China’s electronics industry has benefited substantially from ITA, while in India the gains from trade liberalization have been overshadowed by major costs that are eroding domestic electronic manufacturing and innovation?
- Second, to what degree are domestic economic structures and global network integration useful to explain these different experiences, and the very different approaches of India and China to the current ITA-2 negotiations?

Part 2 of the paper reviews conflicting perceptions of the distribution of trade liberalization gains from ITA. Part 3 explores how domestic determinants affect the benefits and costs of ITA participation. The analysis compares the structural differences of China’s and India’s electronics manufacturing industries, and contrasts their different policy approaches. The very different experiences of both countries with the first round of the Information Technology Agreement (ITA-1) are illustrated with data on exports, imports, and domestic production, and indicators of progress in innovation capacity. Finally, Part 4 contrasts the different approaches of India and China to the ITA-2 negotiations, and asks to what degree domestic determinants might explain them. The paper concludes with policy implications.

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1. From a global welfare perspective, trade expansion could reinforce the diffusion of innovation, as argued in Curtis 2013.
3. On the proliferation of GPNs and GINs, see Ernst 1997, 2007. For an important recent contribution by trade economists, see Baldwin and López González 2013.
**INFORMATION TECHNOLOGY AGREEMENT – WHO BENEFITS?**

ITA went into effect in April 1997 with 29 World Trade Organization (WTO) Member countries. Unlike other plurilateral agreements, ITA provides “most favored nation” (MFN) treatment to all WTO Members, even if those countries have not joined the agreement. Today, ITA has 78 WTO Members—36 are non-Organisation for Economic Co-operation and Development (OECD) member countries, and 35 of them are developing countries. They include significant players in the electronics industry (China, Taiwan, Malaysia, Thailand, and Vietnam), and other countries, such as India, Egypt, Indonesia, Philippines, and Turkey, which have the potential to become players. In its current form, ITA provides zero tariffs for 217 electronics products. The main product groups covered are computers, semiconductors, semiconductor manufacturing and test equipment, telecommunications equipment, software, and scientific instruments.

The United States (US) government was a major driving force behind the establishment of ITA. The agreement’s agenda was shaped by a core group of developed countries who accounted for nearly all the original signatories, with Indonesia and Turkey the only developing countries formally adopting the Declaration. Unlike some other plurilateral trade agreements, such as the WTO-Government Procurement Agreement (GPA), which allows exceptions by way of offsets (for example, defence offsets), ITA does not allow any exception to the covered products. The only relaxation is identifying certain specified products as sensitive so that they qualify for a phased-in implementation period for extended implementation. India, which signed ITA in 1997, has requested and received such an extension. When China joined ITA in April 2003, it requested and received a three-year phase-out for import-sensitive items.

ITA has enabled a substantial increase in the trade in electronics products that are covered by the agreement. “Aggressive tariff liberalization facilitated growth in ITA trade from $1.2 trillion to $4.0 trillion [in 2010]” (Anderson and Mohs 2010). Opinions differ, however, on the distribution of trade liberalization gains. A widely held perception in the US is that “developing countries” are benefitting substantially from trade liberalization through plurilaterals. For instance, Ezell (2012) argues that trade liberalization through ITA is likely to benefit developing countries in three principal ways: 1) reducing tariffs on a broader range of ICT products encourages greater adoption of ICT products that play a key role in spurring economic growth; 2) lowering prices realized by reducing tariffs on ICTs increases the productivity of all other industries in a developing economy; and 3) by lowering the price of a key input, the ITA has undergirded development of the burgeoning ICT software and services industries in many developing countries such as India, Indonesia, Malaysia, and the Philippines. (Ezell 2012)

Unfortunately, this argument neglects fundamental differences among ITA participants in their domestic economic structure; their capabilities for manufacturing and innovation; and their position in GPNs and GINs. As argued in this paper, these structural differences go a long way to explain why ITA participants differ in their capacity to reap the potential gains from trade liberalization. In addition, as stated by the US International Trade Commission, “The paucity of conclusive research on the impact of the ITA on global trade attests to the difficulties in empirically measuring the effects of the ITA and signals that … considerable discussion and analysis are still needed to determine the magnitude of the ITA’s impact on IT [information technology] trade and technology diffusion” (Anderson and Mohs 2010: p. 41).

Closer to reality are industry insiders and US government officials who argue that leading US multinational corporations (MNCs) “benefit disproportionally” from ITA-enabled trade liberalization. There is indeed evidence that for leading US vendors of ICT products, ITA has

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4 WTO Members that have not joined ITA include Mexico, Brazil, Tunisia, South Africa, Argentina, and Chile. Of these countries, only Mexico is a leading exporter and importer of electronics products. Its government, however, has decided that non-membership better fits its economic interests.

5 Soon after ITA became effective in April 1997, participants commenced a schedule of phased duty reductions, with all duties slated for elimination by 2000.

6 Not covered were mainly consumer electronics products, including CRT TV sets, video cameras, and photocopiers. For ITA-1 product lists, see http://www.wto.org/english/tratop_e/inftec_e/symp_march07_e/richtering_e_ppt#309,12,ITA Products and HS 2007.

7 For a list of participants and their date of participation, see WTO. 2012: p. 107.

8 India and several other developing countries, including Costa Rica, Indonesia, South Korea, and Taiwan, implemented extended duty staging to 2005 on a product-by-product basis as permitted by the ITA Declaration.

WHAT EXPLAINS THE CONTRASTING EXPERIENCES OF INDIA AND CHINA WITH ITA?

Why is it that China's electronics industry has benefitted substantially from ITA, while in India the gains from trade liberalization have been overshadowed by major costs, which are eroding domestic electronic manufacturing and innovation? Trade theory would assume that all countries would benefit from trade liberalization once they adjust their policies to comply with WTO regulations. What then explains the puzzling India-China contrast?

WHY INDIA STRUGGLES

India joined ITA early in 1997 from a position of weakness in electronics manufacturing, and its main concern was to facilitate the growth of its then still nascent IT services industry through ICT imports and inward FDI. ITA participation and the resulting price reduction for IT imports did, indeed, facilitate the expansion of India's IT services industry. At the same time, however, domestic electronic manufacturing does not seem to have benefitted much from India's participation in ITA.

Electronics manufacturing in India is struggling despite a huge and still growing domestic market and pockets of world-class capabilities in IT services and chip design. Local production faces cost disadvantages that constrain investment in plants and equipment, technology absorption, and innovation. Local production hardly benefits from India's chip design capabilities, which are integrated, instead, into global MNC networks of innovation and production. And there is a huge gap between the rapid growth of domestic demand and nearly stagnant domestic production—and this gap is projected to increase further (Figure 1) (Ernst and Young 2009: p. 9).

Provided significant benefits in terms of growing exports and expanding GPNs. Take semiconductors, an important product covered by ITA-1. While before 1997 the US share of the worldwide market in semiconductors hovered around 40 percent, since the signature of the ITA agreement, it has moved up to around 50 percent. From 2005 to 2009, semiconductors were the number one product export from the US on an aggregate basis, with exports totaling US$48 billion (US$10 billion more than automobile exports, in second place) (SIA 2010). And in 2011, US semiconductor producers had global sales of US$152 billion, representing more than half the global semiconductor market.

ITA also provided a big push to the expansion of GPNs/GINs of US ICT companies. Research by the US International Trade Commission finds that ITA-1 boosted foreign direct investment (FDI) in China, especially by leading US MNCs, which "had a major role in China’s accelerating ITA exports, as ... [these companies] sought to reduce costs by directly adding capacity in China. Once China joined the WTO, products exported from China were guaranteed MFN access to other countries, providing strong incentives for multinational corporations to establish production and assembly operations in China" (Anderson and Mohs 2010: p.17).

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Given the weakness of domestic production, India’s growing demand for electronic products generates rising imports of final products and high import dependence for key manufacturing components. These imports have become the third most important driver, after petroleum and gold, of the country’s record current account deficit.

A defining characteristic of India’s electronics market is that a handful MNCs dominate without engaging in substantial manufacturing in the country (whether directly or through electronics manufacturing services, or EMSs), with the exception of low value-added final assembly. Those MNCs can rely on their extended GPNs to source the relevant products for the Indian market from low-cost production sites, primarily in China.\(^\text{16}\)

Where local Indian firms seek to compete with MNCs for the domestic market, they follow the same pattern of sourcing their products from offshore production sites in China. Indian firms thus have to compete on the “China price,” relying on offshore outsourcing to China-based EMSs.\(^\text{17}\)

India’s liberalization of information and telecom services has boosted the demand for telecom equipment, but this has not led to the development of a domestic telecom manufacturing industry. Instead, global telecom equipment vendors such as Alcatel, Ericsson, and increasingly Huawei and ZTE, have been the primary beneficiaries. And consumer electronics, the largest segment of India’s electronics market, is dominated by MNCs, especially Panasonic, Sony, LG, and Samsung. Over the last few years, these companies have substantially decreased domestic production, and now rely overwhelmingly on imports from China. As for domestic vendors, they are even less reliant on domestic production—they almost completely source from China.

It is important to emphasize that India’s thriving integrated circuit (IC) design sector remains largely disconnected from the domestic market. Most of the design work is done for MNCs and the design is taken back to their home country where decisions are made where to locate manufacturing, many times ending up in places like Shenzhen. As a result, India is not benefitting from its rich pool of sophisticated IC design engineers. The work of these engineers remains disconnected from the development of the domestic electronics manufacturing industry.

In short, deep integration of electronic design capabilities into global R&D networks is paired in India with almost no integration into the domestic electronics manufacturing value chain. For instance, all major electronic design automation (EDA) tool providers for chip design have large facilities in India. But all of them are 100 percent focused on export markets [Ernst 2014]. Hence, little of these capabilities are likely to disseminate within India.

Despite India’s integration into GINs for chip design, its integration into GPNs of the ICT industry remains very limited. FDI in India’s electronics industry has been extremely low, even relative to other sectors—the industry ranks 26 out of 64 sectors in terms of the cumulative FDI received from April 2000 to April 2013. This very low global network integration cuts India off from global knowledge sources, setting it apart from China.

India faces a fundamental challenge—its electronics industry cannot rely so far on a vibrant industrial innovation system. In turn, this constrains the industry’s capacity for productivity-enhancing innovation. There is ample evidence that India’s R&D system remains stuck at a low level, unable to provide

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\(^\text{16}\) In addition to China’s substantial cost advantages, what matters most for MNCs is that they can benefit from accumulated capabilities for rapid and low-cost scaling up of sophisticated production lines that exceed India’s current capabilities by far. See Berger 2013.

\(^\text{17}\) According to an Indian component supplier, “MNCs … are asking us to be 15% lower than Chinese cost, only then they will source from us” [Ernst 2014: p. 30].

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**FIGURE 1:**
Projected Demand-Supply Gap in Electronics Industry (USD billion)

**LEGEND:**
- **Total demand**
- **Domestic production (target)**
- **Domestic production (at current CA GR)**

(Note: CAGR is compound annual growth rate.)
capabilities and innovations that would enable its electronics industry to reap the benefits of ITA liberalization.18

For many domestic firms, inadequate size prevents economies of scale and scope, while high costs of doing business, Byzantine regulations, and low domestic value-added constrain profit margins, and hence investment in production and R&D. In addition, larger foreign original equipment manufacturers (OEMs) and EMSs typically conduct only final assembly in India, and are reluctant to invest in full-scale manufacturing and R&D.

In the final analysis, the misery of India’s electronics manufacturing industry points to a broader challenge: India’s economic institutions, both public and private, were largely designed for a time before the country was opened to the global economy. These institutions are ill-equipped to cope with the requirements of transforming India into an internationally competitive industrial economy that can reap the benefits of ITA-related trade liberalization (see Kelkar 1999).

The following data briefly illustrate India’s negative experience with ITA. Joining ITA led to a reduction in India’s tariffs for final products to zero or close to zero, and this led to an acceleration of ITA imports. In 2000, 96 product lines were reduced to zero tariff, and in 2005, 121 product lines. While India’s ITA imports grew by 18 percent annually between 1997 and 2000, their growth rate increased to nearly 38 percent between 2001 and 2005 (Kallummal 2012: p. 15).

An immediate effect has been an increase in the import content of raw material consumption by India’s electronics industry in the last seven years, from 50.5 to 55.9 percent. Further, India’s electronics imports under HS code 85 have grown faster than its electronics consumption. Between financial year (FY) 2010-11 and FY 2012-13, India’s imports grew especially fast for ICs (82.02 percent), the second largest electronics import category.20

In principle, trade deficits are not always negative for economic growth. Empirical research points to the importance of imports in boosting productivity (OECD 2010). Yet in India’s case, the local value added of electronics manufacturing is around 7 percent, while electronics imports account for almost two-thirds of the country’s consumption of electronics products (Frost and Sullivan 2013). In addition, an analysis of the number of Triadic patent families by applicant’s country of residence shows that between 1999 and 2005, India recorded a measly 26 such patents. During the same period, China recorded 208, Korea 4,862, and the US 37,907.22

In short, the Indian electronics industry has failed to reap the potential benefits from ITA participation. Due to the zero tariffs under the ITA, India is now an easy target for low-cost electronics imports, especially from China—a country that is far ahead in its electronics manufacturing industry. Some observers fear that with the influx of such imports into the domestic market, “the existing domestic producers may become domestic assemblers and traders in the IT products” (Kallummal 2012: p. 15).

China joined the ITA six years after India in 2003 from a position of strength as the third largest exporter of ITA products and the fourth largest importer. By 2003, China’s per capita GDP (US$1,270) was three times higher than India’s 1997 per capita GDP (US$427). China joined the ITA six years after India in 2003 from a position of strength as the third largest exporter of ITA products and the fourth largest importer. By 2003, China’s per capita GDP (US$1,270) was three times higher than India’s 1997 per capita GDP (US$427). China was . . . [already] a leading manufacturer and trader of IT products prior to joining the ITA and deeply engaged in the global IT production chain even before tariff liberalization" (Anderson and Mohs 2010: p. 7).

In 2004, China expanded its market share, becoming the world’s largest exporter of IT products. The next year, China surpassed both the European Union (EU) and the US to become the leader in overall ITA trade. From 2009 to 2011, China’s high-technology exports (in current US$) expanded by almost 48 percent from US$309.6 billion to US$457.2 billion (compared to US ICT exports of US$145.3 billion in 2011).23 Further, China’s share of global exports of IT products rapidly expanded from 2.2 percent in 1996 to 27.5 percent in 2012.24

China’s ITA Experience is Very Different

18 The most recent Global Innovation Index 2013 provides ample evidence of India’s weak industrial innovation capacity. It ranks 66 out of 142 countries, with a total score of 36.2. China ranks 35, with a total score of 44.7. According to the Battelle Institute, a primary source of international R&D data, India’s gross expenditure on research and development (GERD) was 0.85 percent of gross domestic product (GDP) in 2012 (compared to 1.6 percent in China), a figure essentially unchanged since 2000. This finding is accentuated by that China’s GDP is much larger than India’s and growing substantially faster.

19 Figure 19, p. 36, Kallummal 2012. The import content was growing even faster for two strategically important product groups. In computers, peripherals and storage devices, from an already very high import content of 61.76 percent in FY 2005, it became more than 75 percent in FY 2012. Other electronics (which basically can serve as a proxy for electronic components) saw it move from more than 45 percent in FY 2005 to almost 53 percent in FY 2012.

20 HS code 85 covers electrical machinery and equipment and parts thereof, sound recorders and reproducers, television image and sound recorders and reproducers, and parts. India’s consumption of electronics products grew by 14 percent from FY 2010 to FY 2012. During the same period, its imports of electronics (HS 85) products increased by 31 percent.

21 India’s imports grew very fast for some electronic components like capacitors (35.9 percent), rectifiers and inductors (38.4 percent), and consumer-related products like video recorders and monitors (81.11 percent), and microphones and loudspeakers (109.1 percent). For details, see the DGFT website.


24 At http://data.worldbank.org/indicator/IX.VAL.TECH.CD, quoting the United Nations Comtrade database. High-technology exports are products with high R&D intensity, such as in aerospace, computers, pharmaceuticals, scientific instruments, and electrical machinery.

China’s innovation policy has played an important role in the country’s rapid rise in the ICT industry. Massive investments in the country’s R&D infrastructure and higher education, on a scale never seen before, have been fast-tracking the speed of learning and capability development. Since 2000, China has increased R&D spending roughly 10 percent each year—a pace the country maintained during the 2008-2009 recession. This sustained commitment to a rapid expansion of R&D sets China apart from India and other ITA participants.

Two important caveats need to be added to these headline figures. First, foreign-invested enterprises (FIEs) account for about 60 percent of China’s exports, while their share of the country’s high-tech exports rose from 79 percent in 2002 to 82 percent in 2010 (CRS 2014). Further, domestic value-added remains very limited—estimates range from 5 to 15 percent, depending on the complexity of production technology and value chain stage.26 Strikingly, for high-end smartphones, China’s domestic value addition remains stuck below 5 percent.27 Recent research documents that while China’s reliance on imported intermediates has declined significantly in lower-tech ICT sectors, its “dependence on imported intermediates did not abate in the higher-tech sectors” such as electrical and optical equipment, transport equipment or chemicals” (Baldwin and Lopez-Gonzalez 2013: p.48).

**ECONOMIC STRUCTURE AND GLOBAL NETWORK INTEGRATION SHAPE BENEFITS AND COSTS OF ITA PARTICIPATION**

Despite the above qualifications, it is fair to state that China benefitted substantially from the first round of ITA trade liberalization. What explains the very different experiences of China and India? China’s ITA experience demonstrates that a progressive integration into GPNs and GINs, which was accelerated by China’s WTO accession, played an important enabling role in the development of its electronics industry. Global network integration facilitated technology diffusion and absorption, and enhanced China’s capacity to reap the potential gains from ITA trade liberalization. A proxy for China’s high degree of GPN integration is that 44 percent of its exports are produced under so-called “processing trade” arrangements, in which imported inputs are assembled into exports.28 Another indicator is that two-thirds of China’s production of goods and services are intermediates, which is substantially higher than the world average (Baldwin and Lopez-Gonzalez 2013: p.13).

As for integration into GINs, China is the largest “net importer” of R&D, and it is the third most important offshore R&D location (after the US and UK) of the 300 top R&D spending multinationals (Ernst 2011). China is thus deeply integrated, albeit still unevenly, into the international circulation of technological and managerial knowledge needed to enhance its absorptive capacity.

What distinguishes China, however, is that trade liberalization was combined with well-funded and focused support policies for manufacturing and industrial innovation. Even if one factors in massive inefficiencies, this pragmatic policy mix has produced results. As Peter Petri observes, “China is not averse to intervening, but it has done that against the background of a lot of liberalization. It’s paying off.”29 This description nicely captures China’s approach until quite recently. However, China’s new leadership has now shifted the balance in favor of industrial upgrading through innovation, as codified in the Strategic Emerging Industries (SEI) plan.30 As discussed in Section 4, this singe-minded focus on industrial innovation may explain China’s approach to current ITA-2 negotiations.

India’s situation is very different. By negotiating a bad deal for its electronics manufacturing industry and delaying necessary regulatory reforms, India’s government bears the primary responsibility for the lack of growth and innovation in this industry. At the same time, however, India’s experience with ITA indicates that poorly negotiated membership terms may well create additional challenges once a country seeks to reduce investment barriers in its domestic electronics industry.

Raghuram Rajan, the Reserve Bank of India’s governor, emphasizes that the government needs to better align domestic policies to unblock barriers to investment and growth in the electronics industry (2013). There is ample evidence that existing restrictive regulations and the largely dysfunctional implementation of support policies in the past have constrained investment and growth in India’s domestic electronics manufacturing.31 Bold action is required to change this.

The necessary first steps include a speedy transition to a unified goods and services tax (GST) system, the single most commonly cited “reform wish” of electronics manufacturers.

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26 A recent US International Trade Commission (USITC) study shows that in 2007 FIEs operating in China created almost 45 percent Chinese value-added in exports, while Chinese firms (who do the export processing) only contributed less than 5 percent (Ma, et al. 2013).

27 China’s domestic value added for the iPhone 4 was reported to be less than 2 percent (Lin and Tang 2013: p.2).

28 For example, the domestic value added for computers improved from 20 percent in 2002 to 33 percent in 2007 (Lin and Tang 2013).


30 Email to the author from Peter Petri, 28 Jan 2014.

31 国务院关于印发“十二五”国家战略性新兴产业发展规划的通知 [The State Council Notification on the Long-term Development Plan for Strategic Emerging Industries during the 12th Five Year Plan], 2012/7/7.

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In addition, drastic simplifications in the business regulatory environment, in particular in dispute resolution for customs conflicts as well as formal and informal penalties, are required for growth. In addition, reforms are overdue in taxation, customs, compliance, and inspections, and all the other restrictive regulations. Though necessary, effective regulatory reform will not be enough. To address the root causes of India’s lagging performance, a longer-term and structural industrial-development agenda is also required.

The government’s National Policy on Electronics (NPE) is a first step. This policy initiative seeks to improve India’s international competitiveness through incentives for capability development, cluster formation, R&D, and technology transfer through FDI. Equally important are efforts to enhance the technological capabilities of Indian electronics firms, and to strengthen the innovation system, with a focus on technology absorption and an improved capacity to use and develop critical technical standards.

DIVERGENCE CONTINUES – THE CURRENT ITA-2 NEGOTIATIONS

In short, differences in domestic economic structure and global network integration may go a long way in explaining the very different experiences of India and China with the benefits and costs of ITA participation. But are these domestic determinants also useful to explain why India and China differ in their approaches to the current ITA-2 negotiations?

During 2013, ITA members in Geneva were negotiating a possible substantial expansion of the list of products covered by ITA. Before the first round in July, the Indian government decided not to join these negotiations.33 It argues that a small group of developed country signatories, led by the US, the EU, and Japan, have designed an expanded list with a focus on products that these countries, especially the US, continue to lead by a wide margin.

An alternative strategy for India has been proposed by the Associated Chambers of Commerce and Industry of India (ASSOCHAM).34 It argues that merely resisting ITA expansion is unlikely to have positive effects for India’s electronics industry. Instead, the Indian government should engage in a smart strategy of co-shaping the consolidated product list of ITA-2. “India needs to address the ITA expansion, weighing carefully its long-term as well as short-term objectives in a strategic manner rather than becoming overly influenced by ad hoc approaches and concerns” (ASSOCHAM National WTO Council: p.8).

In this view, non-participation in ITA-2 negotiations comes at a heavy cost. India would lose the option of co-shaping the contents of the new expanded ITA product list. Non-participation may also discourage international investors from expanding their presence in India, and it might act as a disincentive for existing FDI manufacturing projects to expand and upgrade their facilities.

A close look at China’s approach to the 2013 ITA-2 negotiations, however, raises doubts about whether India would have had realistic chances to co-shape the expanded ITA-2 product list. China apparently was trying to implement such a co-shaping negotiation strategy, yet the result was not encouraging. Before the July meeting, China presented a list of sensitive products that called for the removal of 106 products rather than asking for an extended implementation period. Under pressure to shorten this list, China on 17 July reduced the list of sensitive products that it did not want to be part of ITA-2 to around 90. However, China’s revised list of sensitive products continued to include two product groups that are among US priorities for ITA-2—multi-component integrated circuits (MCOs) and medical devices.35

The following quote from a detailed report in the newsletter Inside US Trade summarizes the ITA core group’s response to the China’s revised sensitivities list.

32 As demonstrated in Ernst 2014b.
33 According to the Commerce and Industry Ministry, “India’s experience with the ITA-1 has not been encouraging as it has almost wiped out the IT industry from India. After examining the matter in consultation with the nodal Ministry i.e. Department of Electronics and Information Technology and other stakeholders, it has been decided, for the present, not to join the negotiations as it will not be in our national interest.” Quoted in “India to Skip Talks on Expanding ITA Scope,” Hindu, 13 March 2013.
35 MCOs are used in a wide variety of products, including smartphones, tablets, medical devices, household appliances, and car parts such as braking, steering and air bag systems. MCOs thus can be classified under a wide range of HS subheadings. As a result, no one really knows for sure how important MCOs are for US exports. US-ITC estimates that in 2011, sales of MCOs accounted for between 1.5 and 3.0 percent of global semiconductor sales, or an estimated US$12 billion to US$24 billion. A report of the USITC for the USTR identified five priority subsectors of the consolidated draft product list for ITA-2: medical devices; relay and industrial control equipment; optical media, including LED; loudspeakers and handsets; and, most importantly, MCOs. The USITC selected these subsectors to illustrate “the potential for increased market access opportunities for USA firms as a result of ITA expansion” (USITC 2013, Part 2: p. VI).
The Canadian mission—which was organizing the meetings in Geneva—sent out a notice stating that talks previously scheduled for July 18 would not take place, on the basis of the earlier agreement at the ambassador level that talks could not advance without China producing a more “credible” list.

Exactly what constitutes a credible list is something that no member has clearly defined, sources said. But one source said that the chief drivers of the ITA expansion initiative—the US, Japan and the EU—are clearly targeting a total expansion including about 200 items. That would require China to at least halve its current list of sensitivities. China was not supportive of suspending the negotiations, and it is unclear whether it will really be able to back off its initial position to that extent. But while some sources charged that China’s long list indicated a lack of coordinated domestic consultation … others said Beijing… has industrial policy goals in mind. (2013)

This quote captures a fundamental dilemma faced by China and India. If ITA-2 would indeed broaden the product list to include MCOs and medical equipment, this may well reduce any realistic chances for these countries to develop significant domestic manufacturing capabilities in these two subsectors that they consider to be essential for their industrial upgrading efforts.

During a second round of ITA-2 negotiations, started in October, the impasse continued, culminating in the suspension of talks on 21 November 2013. Only 58 of the 78 current ITA members were participating, with India and Indonesia sitting on the sidelines. This time, China was joined by Malaysia, Thailand, the Philippines, Costa Rica, and Turkey who “also want many products removed from the negotiation” (Palmer 2013). In a sign of the growing complexity of ITA negotiations, the EU has pressed to exclude flat panel displays from tariff cuts in a bid to protect production by Korean and Japanese companies in Europe. China presented a slightly shortened revised list of sensitive products, leaving "59 items it still wants to exclude from the scope of an expanded ITA deal altogether, and around 80 …for which it is requesting tariff staging" to be extended, sometimes beyond five years. But the real sticking point remained advanced semiconductors, the so-called MCOs, where China was adamant "that it will not accept tariff cuts.” For the US, this position was unacceptable. Talks broke down when the US publicly stated that China’s request to join the Trade in Services Agreement (TISA) negotiations would only succeed US publicly stated that China’s request to join the Trade in Services Agreement (TISA) negotiations would only succeed if the US-Trade/Inside-U.S.-Trade-11/22/2013/china-categorically-rejects-us-preconditions-to-participation-in-tisa.html.

The stalemate in ITA-2 negotiations signals a possible roadblock to progressive trade liberalization in high-tech industries. India’s refusal to participate reflected the uncertainty before the 2014 election. But it also reflected an attempt to gain time for current attempts to reduce the maze of restrictive regulations that are blocking the growth of its electronics industry. However India’s absence hardly matters, given its insignificant role in the global electronics industry. In contrast, ITA-2 without China would be an oxymoron. Not only is China the world biggest smartphone market (Ernst and Naughton 2012), it is also by far the most important market for US semiconductor firms (PWC 2013). As John Neuffer, senior vice-president of global policy at the Information Technology Industry Council (ITIC) points out, “China has got to be part of this. They are too big a player. You can’t have an outcome without the Chinese” (Donnan 2013).

CONCLUSIONS AND POLICY IMPLICATIONS

The stalene in ITA-2 negotiations signals a possible roadblock to progressive trade liberalization in high-tech industries. India’s refusal to participate reflected the uncertainty before the 2014 election. But it also reflected an attempt to gain time for current attempts to reduce the maze of restrictive regulations that are blocking the growth of its electronics industry. However India’s absence hardly matters, given its insignificant role in the global electronics industry. In contrast, ITA-2 without China would be an oxymoron. Not only is China the world biggest smartphone market (Ernst and Naughton 2012), it is also by far the most important market for US semiconductor firms (PWC 2013). As John Neuffer, senior vice-president of global policy at the Information Technology Industry Council (ITIC) points out, “China has got to be part of this. They are too big a player. You can’t have an outcome without the Chinese” (Donnan 2013).


For instance, the Ministry of Industry and Information Technology (MIIT) and the National Development and Reform Commission (NDRC) have created a USD 20 billion national investment fund for developing the indigenous semiconductor industry in Beijing, Shenzhen, and Chengdu. This fund is supposed to cover the whole industry value chain (design, manufacturing, R&D, and industry consolidation/overseas M&A). Such massive public investments are quite unheard of anywhere.

A particularly telling sign is that India does not even show up in McKinsey’s list of top-10 countries in the global value-added electronics industry, http://www.slideshare.net/morellimarc/mckinsey-manufacturing-future-2013-22958651.
In short, without China, ITA-2 negotiations are likely to remain stalled. Mega-developing countries such as India and China have enough resources to cope with a possible stalemate of ITA-2 negotiations. For the majority of developing countries, however, such stalled and incomplete trade liberalization could have quite serious consequences, and deprive them from speedy access to critical productivity-enhancing information technologies.

Bold action is required to avoid zero-sum game or even negative-sum game outcomes and resultant trade conflicts. Thus far, policy debates on the distribution of trade gains and costs have focused on negotiating “special and differential” (SD) arrangements (delays, phase-outs for product coverage, and so on). However, there seems to be limited scope for expanding SD arrangements. For instance, in the case of ITA-2, long phase-outs for product coverage for large emerging economies such as China may “make the expanded agreement irrelevant due to the quick pace of technological change.”

For future policy debates, this raises questions like what changes are necessary in domestic regulations as well as in industrial and innovation policies to reap the potential benefits of ITA trade liberalization. And, equally important, how does a country’s innovation capacity in a particular industry affect its approach to and its position in multilateral and plurilateral trade agreements?

In the end, a broad portfolio of diverse policy approaches is required to enable developing countries to increase the gains that they can reap from ITA participation. The mix of policies will differ across countries and sectors. And the appropriate mix will evolve over time. Hence, flexibility in policy implementation is of the essence.

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Implemented jointly by ICTSD and the World Economic Forum, the E15 Initiative convenes world-class experts and institutions to generate strategic analysis and recommendations for government, business and civil society geared towards strengthening the global trade system.