Global Value Chains: Development Challenges and Policy Options
Proposals and Analysis

December 2013

E15 Expert Group on Global Value Chains: Development Challenges and Policy Options
Compilation Report

Co-convened with
Inter-American Development Bank
ACKNOWLEDGMENTS

Published by

International Centre for Trade and Sustainable Development (ICTSD)
7 Chemin de Balexert, 1219 Geneva, Switzerland
Tel: +41 22 917 8492 – E-mail: ictsd@ictsd.ch – Website: www.ictsd.org
Publisher and Chief Executive: Ricardo Meléndez-Ortiz

World Economic Forum
91-93 route de la Capite, 1223 Cologny/Geneva, Switzerland
Tel: +41 22 869 1212 – E-mail: contact@weforum.org – Website: www.weforum.org
Co-Publisher and Managing Director: Richard Samans

Acknowledgments

This paper has been produced under the E15 Initiative (E15). Implemented jointly by the International Centre for Trade and Sustainable Development (ICTSD) and the World Economic Forum, the E15 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.

For more information on the E15, please visit www.e15initiative.org

The Expert Group on Global Value Chains: Development Challenges and Policy Options is co-convened with the Inter-American Development Bank (IDB). www.iadb.org/

With the support of

And ICTSD’s Core and Thematic Donors:


The views expressed in this publication are those of the authors and do not necessarily reflect the views of ICTSD, World Economic Forum, or the funding institutions.

Copyright ©ICTSD and World Economic Forum, 2013. Readers are encouraged to quote this material for educational and non-profit purposes, provided the source is acknowledged. This work is licensed under the Creative Commons Attribution-Non-commercial-No-Derivative Works 3.0 License. To view a copy of this license, visit: http://creativecommons.org/licenses/by-nc-nd/3.0/ or send a letter to Creative Commons, 171 Second Street, Suite 300, San Francisco, California, 94105, USA.

ISSN 2313-3805
# CONTENTS

1. **Introduction.** By Ricardo Meléndez-Ortiz and Antoni Estevadeordal
   1

2. **Global Value Chains: The New Reality of International Trade**
   By Sherry Stephenson
   3

3. **Trade Policy in a Global Age**
   By Grant Aldonas
   14

4. **Global Value Chains and Industrial Policies**
   By Patrick Low and Julia Tijaja
   23

5. **Are Global Value Chains Really Global? Policies to Accelerate Countries’ Access to International Production Networks**
   By Antoni Estevadeordal, Juan Blyde and Katie Suominen
   30

   By Antoni Estevadeordal, Juan Blyde, Jeremy T. Harris and Christian Volpe Martincus
   45

7. **Who Captures the Value in the Global Value Chain? High Level Implications for the World Trade Organization**
   By Peter Draper and Andreas Freytag
   52

8. **About the Authors**
   59

9. **List of Expert Group Members**
   61
INTRODUCTION

THE E15 INITIATIVE

A plethora of critical, impending issues mire the multilateral trading system of today. Ensuring food security in times of high and volatile prices; addressing concerns around natural resource scarcity; or scaling up sustainable energy production and diffusion are just a few of many. The fragmentation of production through highly complex global value chains (GVCs) also poses critical challenges at the analytical and policy level. In the meantime, preferential trade agreements continue to proliferate and have now become the de facto locus to deepen integration and further liberalization. In the face of the Doha deadlock, some have questioned the way in which negotiations are conducted, arguing that the World Trade Organization’s (WTO) established practices of decision-making, such as the notion of a single undertaking, are ill suited to the fast-changing challenges of our times.

In the light of these pressing challenges, the E15 Initiative is a process aimed at exploring possible futures for the multilateral trade system. Launched in 2012 by the International Center for Trade and Sustainable Development (ICTSD), the initiative engages top global experts and institutions in thinking ahead on critical issues facing the multilateral trading system, bringing fresh ideas to the policy environment, and solutions and opportunities for governance reform.

THE E15 EXPERT GROUP ON GLOBAL VALUE CHAINS: DEVELOPMENT CHALLENGES AND POLICY OPTIONS

The Expert Group that was created on GVCs within the E15 process is jointly convened by the ICTSD and the Inter-American Development Bank (IDB) to examine the emergence of GVCs and their implications for different aspects of the multilateral trading system. With the objective of exploring the trade policy and sustainable development implications of GVCs, the E15 Expert Group has focused on identifying the main ways in which the multilateral trading system has changed as a function of the operation of GVCs and understanding the major reasons for these changes. The Expert Group will in its next phase focus on examining how existing trade rules might need to be reviewed, amended, and possibly extended by WTO Members so that the multilateral trading system remains relevant to firms and investors in a context where GVCs operate. The overview paper that appears first in this compilation, “Global Value Chains: The New Reality of International Trade” by Sherry Stephenson, provides an overview of the main trade policy and development issues that are raised by the new fragmented structure of international production and trade. These issues were the focus of the Expert Group’s dialogue during 2013 and included a wide range of topics, such as the drivers of GVCs; their impact on development and societies; and their interface with industrial policies and its possible implications for the WTO.

Experts from the group were asked to expand on some of these issues in various think pieces that explore in further depth how GVCs have new implications for trade and industrial policies; and the effects of regional trade agreements (RTAs) in achieving development objectives. The think pieces also try to address how and to what extent trade policies can and should address these challenges.

The second paper, “Trade Policy in a Global Age,” is a think piece by Grant Aldonas that assesses the extent to which the rise of GVCs demands a new approach to trade policy. It tries to identify concrete trade policy options that would advance the objectives of the multilateral trading system and its Members, given the new structures of trade and investment and the new motivations that drive firms in the 21st century. Aldonas argues that a reassessment of trade policy is well overdue and explains what it would signify for trade policy and the multilateral trading system as a whole.

Next comes a think piece by Patrick Low and Julia Tijaja, “Global Value Chains and Industrial Policies.” The authors examine a variety of strategies that countries, particularly developing ones, are employing to increase the benefits of participating in GVCs. Industrial policy practices are analyzed for their capacity to harvest the rewards of being an integral point in GVCs. In particular, government involvement; governance and integrity; technical and operational capabilities; strategic relationship building; and communication channels are evaluated for their importance in industrial policies.

Think pieces by economists at the IDB consider the influence RTAs, particularly those between major trading entities, have had in creating the current pattern of value chain operation through preferential rules of origin (RoO) and cumulation provisions, which have influenced investment flows and production sharing. Although factors such as distance and differences in languages and cultures may explain part of the difficulties that countries on the periphery have in linking up to GVCs in other regions, they suggest that a large part of the explanation for the regional pattern of GVCs may be distortions introduced by RTAs. Preferential RoO in RTAs may create important barriers for countries outside a trading bloc. And RTAs that contain deep disciplines often address behind-the-border regulatory issues and create more efficient logistical arrangements that are critical for the functioning of supply chains, putting countries outside a trading bloc at a disadvantage.
A final think piece by Peter Draper and Andreas Freytag, "Who Captures the Value in the Global Value Chain? High Level Implications for the World Trade Organization," highlights the differing perspectives on the developmental impacts of global value chains. Opinion is divided as to the desirability of incorporating the policy agenda associated with the “GVC narrative” into WTO negotiations. The authors briefly review the meanings of GVCs in relation to the debate over their developmental impacts, then sketch high level trade policy implications, and conclude with a brief assessment of the implications for negotiations in the WTO. Overall the authors advocate an explicitly plurilateral approach to negotiating modalities in the WTO.

The work of the E15 Expert Group on Global Value Chains: Development Challenges and Policy Options offers a strong, innovative set of ideas for reforming and improving how the multilateral trading system governs GVCs. The pieces in this compilation are initial concepts that offer insights into the thoughts and discussions of the leading experts in the working group. While the ideas presented here reflect the views of their authors, they together form a better picture of the possible direction in which the multilateral trading system could evolve to manage trends in current and future global marketplace.


Ricardo Meléndez-Ortiz  Antoni Estevadeordal
Chief Executive, ICTSD  Manager, IDB
GLOBAL VALUE CHAINS: THE NEW REALITY OF INTERNATIONAL TRADE

Sherry Stephenson

INTRODUCTION

The pattern of world trade has witnessed remarkable changes over the past 25 years, not least because of reductions in transport costs, the information technology revolution, and more open economic and trade policies. Today companies divide their operations across the world, from the design of the product and manufacturing of components to assembly and marketing. This has created international production chains that have altered the functioning of the world’s production and trade patterns. As a result, more and more products are “Made in the World” rather than “Made in a Specific Country” as noted by the World Trade Organization (WTO) and the Institute of Developing Economies of the Japan External Trade Organization (IDE-JETRO) in a ground-breaking report on trade patterns in Asia (WTO and IDE-JETRO 2011).

The phenomenon of global value chains (GVCs) is one of the manifestations of globalization. It is a product of the lowering of transport costs and the information technology revolution whose advances have given firms the ability to coordinate their production needs on a real-time basis, no matter what the geographical location of the producer. The importance of global value chains will continue to increase in our increasingly interdependent economic world, and the need to have a better understanding of all of its implications, including in particular for trade policy, is a critical task for policymakers.

The emergence of GVCs has promoted a sharp increase of trade flows in intermediate inputs, which now represent more than half of the goods imported by Organisation for Economic Co-operation and Development (OECD) economies and close to three-fourths of the imports of large developing economies, such as China and Brazil (Ali and Dadush 2011). Services are playing a key role in the operation of these GVCs and international production networks, especially transport, communications, and other business services, the fastest-growing component of world trade. Goods and services are now fully intertwined and inseparable in production, and investment decisions are pushing international trade flows and patterns.

This new reality of international trade is starting to be reflected in international trade statistics, which until recently had attributed the full commercial value of a good (or service) to the last country of export, thus overstating the commercial importance of the final producer in the value chain. In recognizing the need to adapt to reflect the new trade relationships, the WTO and OECD have jointly undertaken an effort to produce international trade statistics on a value-added basis, so as to be able to disaggregate the value that is added at each stage of the production chain and measure the contribution made by each trading partner. These new value-added trade statistics, first published in January 2013, allow for a much better understanding of the phenomenon of fragmented production and trade that constitutes GVCs. They also allow policy-makers to better appreciate the heightened importance of services, which are shown to represent nearly half of the value of world trade, thus further underlining the interdependence of goods and services in modern economies. The eventual publication of trade statistics on a regular basis, not only in gross terms but also in value-added terms, will help to drive home the reality of the new trade patterns that is taking place on the ground. We are at the beginning of the process of moving toward greater statistical accuracy for trade flows.

Global value chains are changing many aspects of economic and trade relations, and the policy ramifications are only now starting to be debated and better understood. The discussion of GVCs evokes many types of issues, including a better understanding of the motivations and operations of firms, the use of industrial policies, an awareness of the heightened importance and essential role of services and logistics in the operations of GVCs, the intimate link between investment and trade that is manifested even more in the operation of GVCs, and the influence of regional trade agreements and preferential rules of origin on the patterns of trade that have been developed by GVCs.


2. Ongoing statistical improvements to capture the reality of GVCs will continue to be undertaken by the WTO-OECD at two levels: first, to improve world input-output tables, and second, at the level of the firm, to match firm-level data with the world input-output database. Other statistical efforts that are being taken to capture the way in which contributions to trade are made up through value added are being carried out by the US International Trade Commission, the World Bank and the IMF working with the Global Trade Analysis Project (GTAP) database. UNCTAD has also published trade in value added indicators from a new database initiative they have created called EORA. The UNCTAD-EORA GVC Database is part of UNCTAD’s FDI-TNC-GVC Information System, and provides new perspectives on trade links between economies in the trade-investment nexus. Like the WTO-OECD database, the UNCTAD EORA database focuses on the distribution of value added between countries in international trade patterns and on how global investment drives patterns of value-added trade. See UNCTAD (2013), Global Value Chains and Development: Investment and Value-Added Trade in the Global Economy, http://unctad.org/en/PublicationsLibrary/diiae2013f1_en.pdf. These parallel efforts should allow for further expansion and refinement of the methodology for the value-added data base and will improve and eventually standardize measurement methodologies.
Importantly as well, developmental consequences can arise from participating—or not participating—in GVCs, affecting those countries that are inside the value chains as well as those countries that are outside. Smaller developing countries may view the operation of GVCs very differently from larger countries, and land-locked countries may view this differently from coastal states. This is because the impacts of GVCs may differ as well, depending upon the product line in question and the relative location on the value chain where firms are able to break into these patterns. Value chains that operate in mass consumption products (often electronics) may have very different development consequences from value chains that involve agricultural or natural resource products, or those that are technology-intensive. Services can also constitute value chains of their own, which are only now beginning to be identified. The potentially more favorable developmental implications of moving to supply “services” tasks within GVCs rather than intermediate products is under debate.

Given the above, not only trade statistics but also trade policies, must be re-evaluated and updated to reflect the new structure of world trade and the operation of GVCs. Current trade rules were designed for the 20th century, where goods were made and exported either fully or primarily by one country. They may thus be out of sync for disciplining and monitoring current patterns of international trade. GVCs have created a dichotomy between the reality of trade and the existing normative framework that governs it at the WTO level, which needs to be addressed. Likewise, international cooperation in trade policy issues must be rethought in the light of GVCs.

The following sections summarize some of the issues raised by GVCs. The concluding section looks at the major trade policy implications and sets out a few suggestions in terms of what is important for the members of the trading system to consider.5

GLOBAL VALUE CHAINS ARE REALLY “REGIONAL”

The myth should first be dispelled that GVCs are “global.” The operation of GVCs is “regional” in nature and focused on three hubs—North America, Europe, and East Asia. The first two regions are primarily centers of demand and the latter is a center of supply, although this may be changing as China moves to reform its economy toward more consumer-driven demand growth. Other developing regions of the world have been largely left out of the GVC picture for the time being, with a few exceptions of countries that are participating in certain aspects of supply chain functioning through off-shoring activities. Contributing to create this structure have been the factors of transportation costs, distance, communication, and the quality of infrastructure. However, the regional trade agreements (RTAs) that have been negotiated, particularly with major trading entities, have also played a key role in creating value chains through the way that their rules of origin (RoO) and cumulation provisions have influenced investment flows and production sharing.4

Rules of origin, especially in preferential RTAs, may have had a particularly important influence over the creation and pattern of operation of GVCs. With respect to goods, differing RoO matter a great deal and can strongly impact investment and trade flows, though this is less the case for services.5 Economists at the Inter-American Development Bank have argued that although factors such as distance and differences in languages and cultures may explain part of the difficulties that countries in the periphery have in linking up to GVCs in other regions, a large part of the explanation for the current pattern of GVCs may be attributed to the existence of RTAs and the preferential RoO that they entail. Such RoO may create important limitations for countries outside a given trading block. And the more dynamic the preferential arrangement in question, the harder it may be to break into a GVC. Regional trading arrangements, and particularly those that contain deep disciplines, often address behind-the-border regulatory issues and create more efficient logistical arrangements that are critical for the functioning of supply chains.

However, location in a GVC may also reflect regional comparative advantage; countries in regions that are not part of GVCs are often not producing a large amount of manufactures for themselves either. Several other factors may account for this, with GVCs just one aspect of a bigger picture.

THE DRIVERS OF GLOBAL VALUE CHAINS

It is the investment decisions of multinational corporations (MNCs), through their outsourcing and off-shoring activities, that are driving the creation of GVCs worldwide. Operation of GVCs stems from the changed behavior of firms and should be understood as part of the changed microeconomics of firm behavior. There are strong incentives at present for a firm within the world economy to “de-verticalize” its output. This process has fundamentally altered the nature of competition. The main motivations of the large firm in today’s world are to

---

3. The policy-related suggestions are a result of the preliminary reflections of the E15 Expert Group.

4. In several studies by economists at the Inter-American Development Bank on rules of origin, including the latest one by Estevadeordal et al. (2013) on global value chains and rules of origin, the authors argue that rather than trying to harmonize RoO (an extremely complex and difficult exercise), it would be more feasible to lower tariffs on a worldwide basis, which would bring greater benefit to the world economy and would stimulate the operation of GVCs in a more efficient manner without the distortions that accompany RoO.

5. There is much less of a regionalbias created by RoO for services. For services the benefits of a preferential trade agreement are usually granted to any firm having invested and carrying out “substantive business operations” within the territory of one of the members of the agreement. The nationality or origin of the firm in question is not of relevance.
reduce its transactions costs and lower its risks, in a context of globalized output. Within these MNC decisions, GVCs are not uniform—some are created by research-driven companies looking for high research-value added, while others are propelled by marketing-driven companies looking to source inputs in low-cost locations.

Smaller firms are drawn into GVCs through providing intermediate inputs or “tasks” in the case of services. The usual pattern is for MNCs from developed economies to source from small and medium-sized enterprises (SMEs) in developing countries. So while MNCs are the driver, SMEs can tap into the opportunities created by this demand. A key question in this context is how the benefits are divided between MNCs and SMEs. Also important is to differentiate between the various motives for off-shoring and the types of off-shoring activities that take place.

The barriers at the firm level that influence its ability to participate in GVC networks also may differ according to firm size (USITC 2010). Size may be an important determinant of firm behavior in the GVC context. Often overlooked is the fact that SMEs are by far the most numerous participants in GVCs. But they face different types of barriers than do larger firms, including primarily: i) access to trade financing; ii) identifying partners for GVC operations; and iii) payment processing. For MNCs, barriers to GVC operation are of a different nature.

This fact is relevant for development considerations, as most of the firms that participate in GVCs from developing countries are SMEs. Additionally, the location of SMEs vs. MNCs in the GVC (that is, the positioning upstream or downstream in the chain) can have different implications and influence the type of benefits realized by both the firm and the host economy. This is an area where little is known because a huge amount of activity is not captured in statistics, such as the sales of subsidiaries abroad for many countries.

Influencing the ability of MNCs and SMEs to position themselves and operate within the value chain structure are other variables as well, such as relative prices and macroeconomic factors. There is interdependence between macroeconomic variables and price/cost variables in the value chain. For example, Latin America is currently divided between countries with undervalued and overvalued exchange rates because of the importance of commodities in their exports, which has had a large influence in determining their participation and position in GVCs.

Services cannot be overlooked in their important role as both embodied and embedded activities along the whole gamut of the value chain for manufactured, agricultural, and natural resource products, as well as for other services activities. The service sector has been particularly important for the “capture” of tasks of offshore investment in activities feeding into value chains, for goods and for services (Drake-Brockman and Stephenson 2012). Firms from developing economies can access these tasks equally as well as those from developed economies, with often a cost advantage in addition, making services activities an attractive and important vehicle for SMEs from the former to insert themselves into global production networks (Box 1).

THE IMPORTANCE OF LOGISTICS COSTS/ TRADE FACILITATION IN GVC OPERATION

GVCs can only operate efficiently if the business and trade environment they face “enable” them to do so. In this context, transport costs and efficient border operations are key. Distance is an important factor in explaining why GVCs actually operate as “regional production patterns”—what matters is not only the distance between suppliers of inputs but also the distance to markets. The distance factor can be overcome, however, but only if the operation of port/airport facilities and accompanying services (ICT services, customs clearance procedures, low inventory cost systems, among others) can compensate for the greater distance with greater efficiency.

“Logistics” are thus critical. These include all aspects of border management—speed, automation in clearance procedures through customs, efficient port operations and cargo handlers, as well as the trade-related infrastructure in place and quality of transport services. Going further, distribution, telecommunication and express delivery services could be added to a broader logistics package. These factors, all of which contribute to the logistics dimensions of supply chain performance are often not put together as a focus for GVC operation by policy-makers. But they can make all the difference. For example, manufacturing a typical airplane today needs over 50,000 suppliers whose inputs of goods and services from around the world need to be combined in the most cost- and time-efficient way possible. Firms in countries with inefficient logistics infrastructure and operation will not be called upon to participate in such networks.

For governments, improving logistics/trade facilitation is a key challenge, not least for its implications for GVC operation. The Logistics Performance Index (LPI) produced by the World Bank every two years for 155 countries captures different dimensions of the determinants of their supply chain performance. In a similar manner, the World Economic Forum’s Enabling Trade Index (ETI) captures four major aspects relevant to the operation of supply chains:

---

6 The report finds that services SMEs are more export-intensive than large services exporters for the US, while trade barriers disproportionately affect SMEs relative to large firms, as do many business impediments, such as high transportation costs.

7 The LPI is based on a worldwide survey of trade operators on the ground (global freight forwarders and express carriers), who provide information on the relative efficiency/ barriers of the countries in which they operate and those with which they trade, supplemented with quantitative data on the performance of key components of the logistics chain for each country.
The role of services in GVCs is twofold—services provide the linkage points across the goods supply chains, and are also emerging as supply chains in their own right. As a result, there is now greater scope for a pro-trade alliance between goods and services firms, as goods firms understand that their own competitiveness is dependent on competitiveness in their services inputs.

Services GVCs encounter their own distinct challenges to efficiency and growth. For instance, Information and Communications Technology (ICT) inputs to services activities are becoming more important every day. This translates into an increasingly urgent e-commerce negotiation agenda and a heightened focus on facilitating cross-border data flows as well as modern telecom infrastructure.

The World Bank and OECD have measured the height and prevalence of obstacles to trade and investment in several services sectors. These obstacles are impeding the growth of services GVCs and also impeding the development of local and global service industries. The challenge is that there is no body of literature on how to grow a services industry. Few governments have explicit services development strategies.

Developing any services GVC is about nurturing and branding a cluster of talent and expertise, along with a customer focus, to which foreign clients can be attracted as an investment destination. Governments can, therefore play an important role in fostering inputting into GVCs. Since many services are skill-intensive, governments need to focus on national education and innovation policy. Governments also need to provide infrastructure required for services GVCs to operate, which includes all forms of transportation and broadband Internet. Governments can also adopt international services standards and quality assurance processes to attract investment in services GVCs.

The negotiations in Geneva for the Trade in International Agreement (TiSA) could help move in this direction. However, some reluctance on the part of many developing countries to engage in this effort to negotiate down the barriers to trade and investment in services may be due to uncertainty as to where their commercial interests lie. A greater understanding of the role and importance of services in the modern trading system and in GVCs could foster greater interest, understanding, and participation in services reform efforts, including the TiSA.
as countries increase their participation in GVCs, their gross domestic product (GDP) growth rates tend to rise as well. A statistical analysis correlating GVC participation and per capita GDP growth rates is seen to show a significant and positive relationship for both developed and developing economies (UNCTAD 2013).8

However, some policymakers have voiced doubts and have posed the critical question of "who captures the value in global value chains?" particularly as these are driven by large MNCs. Many developing countries fear that this agenda is driven by OECD countries to try and make the world "safe" for the operation of their MNCs and ask what value they can derive. They fear that developed economies are using GVCs to institutionalize what they perceive to be an advantage on world markets. And the question also arises as to what type of benefits may be derived from GVCs—those that can touch a large number of economic actors, or those benefits that may be more narrowly focused.

The spatial and distributional consequences of GVCs and their "regional" operation can advantage some countries and disadvantage others, depending on their geographical location. For instance, not many land-locked developing countries have been successful in breaking into GVCs. And many countries in more remote locations in Latin America or Africa are currently outside of the GVC structure. Such fragmentation of the world economy between "participants" and "non-participants" could undercut the multilateral nature of the trading system and create poles of divergent opportunities. Some regions may feel left behind, and consequently be reluctant to support future trade liberalization, accentuating existing inequities and creating the possibility for political backlash. Both would undermine the multilateral trading system.

### POSITIVE SPILLOVERS FROM GVCs

Responding to the above skepticism are those that underline the important role that GVCs can play as a source of jobs and growth. While this has been fairly well documented, the other positive spillovers they can generate are less well appreciated, for example, the opportunities that they open up for women, which are broader than their traditional role in the economy. This is because much of the intermediates and "tasks" flowing into GVCs are found in the services sector where the majority of women are employed.

It is also important to differentiate between entering the "value chain" per se and "capturing value in the chain." GVC participation depends upon upstream and downstream links in the value chain. Low value-added jobs can nonetheless be quite important, especially for developing countries, as they often represent the first step toward entry into a supply chain. Only later is it possible to begin moving up the value-added ladder. The Intel experience in Costa Rica is a case in

---

8 However, the report points out that these results only demonstrate a correlation between the variable of GVC participation and economic growth but do not necessarily show causality. For this to be demonstrated, the report advocates that more research be undertaken.

---

### BOX 2: Logistics and Global Value Chains

One of the key factors for a firm to participate in GVCs is the efficiency of logistics services in its economic environment. For instance, economists have estimated that every day it takes a consignment in Africa to get to its destination is equivalent to a 1.5 percent additional tax (Freund and Rocha 2011). Even if tariffs on exports are low, when firms confront high cost and inefficiency logistics, they will not be able to compete with firms that benefit from an efficient logistics environment.

The LPI illustrates how customs-clearance procedures and trade-related infrastructure affect the performance of logistics services providers. This includes timeliness of delivery and the ability to track and trace consignments. Over-restrictive policies of various types can impede the supply chain operation by introducing discontinuity and affecting reliability.

An important element to progress is agreeing on regulatory principles, consultation processes that allow the identification and elimination of chokepoints, and specific performance targets (for example, time-to-release commitments, a common list of data requirements for shipments). The business community has advocated a "whole of the supply chain approach," addressing inefficiencies in a variety of connected sectors and sub-sectors (for example, cargo handling, storage, agency services, freight services, and so on).

Many of the policies that artificially "break" the supply chain are regulatory in nature. Until progress can be made in improving logistics through international cooperation, there is much that national governments can and should do to improve logistics in their countries. The very large differences in logistics performance documented by the LPI are mostly a reflection of domestic factors that can be addressed by each country, which it is in its own self-interest to do.
point (World Bank Group MIGA 2006). Fifteen years ago, Intel created an assembly plant for microchips; now operations have evolved into research and development, and constitute an important source of new designs. Intel’s presence led to the training of a new generation of engineers, leading to positive spillover effects throughout the economy. As a result, new investors such as Hewlett Packard, have entered the market and are adding to the demand for locally trained engineers in cloud computing. The Costa Rican example also illustrates how governments can collaborate with MNCs in creating a new cadre of skilled workers. The IBM training center in San Jose examines the curricula taught in universities to make sure it is relevant for future industry needs. This example highlights how governments can make use of GVCs to advance their own development, starting at the lower end of the value chain and eventually scaling up with respect to both skills creation and innovation. Box 3 considers some development aspects of GVCs.

However, not all the potential benefits of GVCs materialize automatically. For countries to take advantage of participation in GVCs, they must be able to develop appropriate productive capacities, technology, and workplace skills. Importantly, it is necessary to have a more in-depth debate on whether there is a trade-off between GVC participation and lowering domestic value added, as well as the development paths that countries may take when they participate in GVCs, not all of which may yield the same benefits or results. Some of the questions to be further researched deal with how to engage in GVCs; how to compete within GVCs; how to possibly leap-frog over stages of development through participating in GVCs; and how to upgrade along the value chain once inside in order to maintain the relevant tasks within the economy.

THE HUMAN IMPACT OF GVCS

Often, the advent of GVCs can mean the elimination of a “task” or an intermediate input. GVCs magnify and accelerate skills-biased technological change, and countries need to adapt. In this context, the challenge for governments is also to focus on appropriate social policies, education and skills policy/training as well as on creating an appropriate “enabling competitive environment” in order to mitigate negative impacts and maximize the benefits to be realized from this new economic structure.

Global value chains bring with their potential benefits elements of concern that governments need to be aware of and address through appropriate accompanying policies. There is a concern that GVCs create a race to the bottom. Footloose industries, especially those operating in the lower value part of the value chains, are constantly looking for cost savings and are willing to relocate rapidly, causing the danger of losing one’s position in the chain. This can create the perception for governments of not being in control of their country’s own economic environment and future.

At the global level, MNCs can quickly shift their demand and their sourcing strategy, imparting a dynamic quality to

---

**BOX 3: Development Considerations and Global Value Chains**

The debate on GVCs in many development quarters has become highly politicized—GVCs are sometimes seen by policymakers and officials in developing countries as a tool of developed countries to maintain their economic edge. Countries therefore need to openly discuss how to best make use of GVCs in advancing their economic interests.

The debate needs to be depoliticized and should focus on the benefits that GVCs can bring to a host of issues—employment, growth, innovation, and skills development. In addition, GVCs can offer greater specialization opportunities for developing country firms in specific economic activities, reduce information costs, help firms to develop niche strategies, and allow them to tap into the international production network of MNCs. All these issues need to be stressed in policy formation.

An assessment of these benefits must be nuanced by sector—the benefits are quite different, say, in retail, IT, textiles, and manufacturing. There is a need for sector-specific discussions and country-specific discussion in this context. For example, land-locked developing countries’ participation in GVCs is different from those with access to the sea. A key element for the former to participate in GVCs is efficient logistics operations and agreements for transportation corridors. Developmental implications for equity distribution within national economies must be addressed by governments as well, as GVCs can create winners and losers at home, similar to the effects of other trade and sectoral policies.

The highly competitive and fluid trading environment brought about by GVCs means that portions of the value chain may leave one market and quickly relocate to another, which can negatively impact one developing country while positively impacting another. Innovation here is key, along with the flexibility to adapt to rapidly changing demand. This creates an even greater need for an open and predictable trading system, one with clear and coherent international rules.
GVCs, which are never fixed but ever evolving. Governments and firms need to be reviewing and adapting their policies accordingly. Innovation is key to being able to maintain a competitive edge and position in a GVC. Services firms, in particular, are big innovators. Firms need the flexibility to move people and ideas. Businesses today are project based, and often produce for clients rather than for a specific destination. A high-value added activity in services, such as KPO (knowledge process outsourcing) can be off-shored, but the control is usually retained at home by the MNC when it is very close to the core competence. This is in contrast to BPO (business process outsourcing) or ITO (information technology outsourcing) services activities, which may be sourced from any global location outside the parent company as they are more standardized and less core sensitive, thus easier to “capture” by foreign firms.

THE INTERFACE BETWEEN TRADE AND INDUSTRIAL POLICY AND GVCs

Given the globalized nature of production, investment, and trade, governments must ask themselves what kind of policies facilitate or inhibit participation in GVCs, keeping in mind that not everything that is useful will fall under the category of trade policy. Trade policy is a part of a broader package; it can do some things but not everything. And trade policy may have indirect, as well as direct, effects on the operation of firms in GVCs, which are important to understand. For example, the cost of a protectionist measure undertaken in a globalized context is higher than appreciated because such a policy impacts not only on final goods but on intermediate inputs that can be components of production elsewhere, thus magnifying their negative effect. Maintaining open markets for both goods and services as well as for data flows and FDI is critical for the operation of GVCs.9

Other policies are also important, particularly those affecting investment and competitiveness in the broadest sense. Many policy-makers feel that the GVC agenda is primarily a “domestic” one, and that governments will be more likely to make progress through better national policies rather than focusing on multilateral ones. In particular, the quality of institutions and infrastructure, the incentives in place for investors and firms operating in the local economy, and the level of corruption all play a role in decisions on investment for sourcing into GVCs. These opinions were expressed by those businessmen surveyed in the World Economic Forum Executive Opinion Survey (2012c).10 This speaks once again

**Industrial Policy and Global Value Chains**

Industrial policies, in the sense of policies designed to promote participation in GVCs, can play a significant role in a country’s development strategy. However, as was true even before GVCs became understood as a new concept, industrial policies can play a useful role only if they are done well; they can also be expensive and have many unintended consequences if they are done badly. This is most likely in weak governance environments, but can also happen in the world’s most advanced countries (for example, ethanol support policies in the United States).

Industrial policies play a positive role when they are designed on the basis of revealed comparative advantage, prioritize the removal of distortions, and are deployed within the ambit of the traditional government role, such as infrastructure or education investments that favor a sector or task of interest. More intrusive interventions, such as providing information and coordination services that promote a particular cluster, should be small and continuously evaluated.

In considering industrial policies, it is vital that countries understand the full extent—downstream and upstream—of the GVCs that are critical to their economy. This knowledge is needed to identify what is most important so that they situate their operations on the GVC, and then design policies to foster innovation in order to move up the value chain.

For instance in Africa, many countries are looking for opportunities to facilitate their resource exports, reduce service and transactions costs, and diversify into the downstream. Current infrastructure and education constraints may limit access to some GVCs, and industrial policy can promote investment in those areas that can facilitate participation in existing GVCs.

Industrial policy should also be tailored to the dynamic quality of GVCs. For instance in Asia, shifting labor costs and competitiveness means that new countries can begin to participate. Some assembly activity has been moving out of China into parts of South East Asia, while China has been focusing on moving into higher value-added activities within the GVC structures.

---

9 These points were made in the report of the World Economic Forum 2012, which was one of the first studies to delve more deeply into the policy ramifications of the operation of GVCs from a trade perspective.

10 The Executive Opinion Survey is a major component of the WEF Global Competitiveness Report (www.weforum.org/gcr) and provides information on a broad range of variables for which hard data sources are scarce or nonexistent.
to the importance of logistics and the trade facilitation agenda in this overall picture, as well as to improvements in the quality and access to services markets (both of which can indeed be addressed by trade policy).

Although not without controversy, many analysts feel that industrial policy can play a role in shaping the ability of a country to participate in GVCs. Comparative advantage can even be influenced, and sometimes created, by policy decisions. For example, Korea and Brazil’s use of targeted industrial policy in the past has resulted in the trade patterns they demonstrate at present. The debate on “revitalizing industrial policy” is currently under way. The question is whether or not these considerations may also be relevant in a similar way to GVCs; should governments try to choose tasks or promote sectors for involvement in value chains? These questions are addressed in Box 4.

Key in this discussion is to encourage innovation and highlight the spread of capital and ideas, much of which can be brought in through foreign direct investment. Other policies such as education and training can help to create this comparative advantage on a “home-grown” basis, particularly in the services area where human capital and skills are the key to competitiveness. When designed on the basis of revealed comparative advantage—always a challenge—industrial policies can play a positive role in promoting the globalization of firms. Particularly with regard to the constraints impacting the participation of SMEs in GVCs (namely, access to trade finance, information on potential MNC and other partners, and payment processing), government policies can play a useful and needed role.

**EVOLUTION OF THE WTO IN THE CONTEXT OF GVCs**

Global value chains have brought about important changes for the world trading system, not just in the structure and composition of trade but also in their implications for the role of the WTO. Governments in the GATT/WTO have traditionally been focused on unwinding barriers to trade and creating a set of disciplines to ensure that liberalization commitments are respected. The objective of the multilateral trading system and its member states in the past was to avoid the adoption of actions that would restrain trade, so trade policy has traditionally been aimed at inhibiting governments from intervening in the market through establishing and enforcing agreed disciplines in various areas including tariffs, quotas, local content requirements, subsidies, and so on.

However, the approach to trade that is needed now with the advent of GVCs goes well beyond the earlier trade agenda. Rather than being “at the border,” the new thinking that is required must also encompass “behind the border” policies of a regulatory nature, namely all of those aspects that affect the functioning of the supply chain at every point of its operation.

The operation of GVCs cuts across many current WTO disciplines. GVCs highlight the inadequacies of the WTO institutional and legal structure, which is still dealing with issues in silos rather than in one integrated framework, though production, investment and trade are all taking places in a bundled fashion. Likewise, the single-undertaking negotiating modality followed in the Uruguay Round and currently in the Doha Development Agenda may not be the right one for dealing with GVCs, as it makes it difficult to make progress on issues without numerous and complex economic and political trade-offs. In this context several complex questions arise.

**ARE WTO RULES AND NEGOTIATIONS NEEDED FOR GVCs?**

Do countries need binding WTO disciplines to make progress on GVCs? Where do GVCs fit into trade rules or new trade rules since so much of the necessary agenda is a domestic one? The WTO’s greatest assets are often considered to be its rules on trade policy and its dispute settlement mechanism to enforce them. But if the large majority of the GVC agenda is outside the WTO, then it will involve national and regional steps at the center of necessary action rather than multilateral negotiations, or will somehow require a way to intertwine the two.

Is it desirable for the WTO to play a negotiating role in the context of GVCs, and if so, what kind of a role, in what areas? At present it is unclear what might constitute the basis of a deal for all the different groups in the WTO with respect to the GVC issue—and what would be the tradeoffs. Though this is a compelling new phenomenon, the focus of the examination should be maintained in that the question asked is what GVCs can do for the WTO, not what the WTO can do for GVCs. How can frameworks for international trade adapt to this new reality?

The need for new WTO negotiations at this point may be premature. As the world economy has been living through a paradigm shift, underlined in the 2011 WTO/JETRO Report “Made in the World,” more understanding of this change could be required first. It is possible that countries are not ready for another set of negotiations at present and that more statistical and analytical information on how world trade is being carried out and how its structure is changing is needed.

The WTO will and should continue to carry out its traditional functions and to inhibit and sanction proscribed government intervention in trade-related areas, which will help to allow the operations of GVCs. However, the WTO Work Programme that is to be developed in 2015 following the December 2013 WTO Bali Ministerial Meeting, should ideally be a forward-looking document, conceived with the linkages created by GVCs in mind and with a focus on a holistic approach to trade.

Although the role of trade policy in the total GVC picture is limited, it can still be important. Trade policy can have a direct as well as an indirect role in certain areas; however, in
many areas key to the successful functioning of GVCs (such as human skills formation, innovation, firm behavior), it has no role at all. But though its role is limited, trade policy can still be very important for GVCs. The world is different today from 2001 when the Doha Round was launched and the Singapore Issues were controversial in discussions. No longer is the North-South divide of relevance. Several developing economies have become part of RTAs with deeper disciplines that go well beyond WTO rules. Many emerging economies are net services exporters. And many emerging economies have amassed substantial capital holdings and become international net investors; they may soon be demanding multilateral rules on investment, which is a big part of what is driving the creation and operation of GVCs. This includes not just China, but also India, Brazil, and South Africa. WTO discussions, debates, and negotiations may need to be rethought along new and more integrated and complementary lines—services, investment, and GVCs as a package.

DOES THE WTO NEED TO HAVE A BROADER FOCUS TODAY?

A new focus might be needed for the WTO today—rather than target the nation state or commercial region, the WTO should instead think more from a “firm” point of view; how do firms operate; what do they need to invest; how do they produce successfully? This would imply that the WTO needs to become more in tune with the reality of business and, in corollary, possibly find ways to involve the private sector more in its governance functions.

In this 21st century world, different types of certainty are important for firms. For example, one of the biggest beneficial impacts on world trade was the establishment of the UN Convention on Contracts for the International Sale of Goods, which successfully unified a broad area of commercial law (contracts) at the international level. The uniformity it brought about created certainty for firms, which had a big impact in opening up opportunities for trade. Similar types of harmonized rules in areas of commercial importance to firms could be considered.

The WTO does not have an advantage in adopting rules that matter for business since it has always adopted rules that were decided by government. The question is whether it will be capable of adapting to the new governance requirements brought about by GVCs within an institutional structure where the political economy decision-making process is far from functioning well at present. Incorporating new approaches and/or rules to take account of GVCs may need to be taken hand in hand with rethinking the governance and functioning of the WTO.

Already the WTO is facing a dual system in trade whereby several RTA members have adopted deep disciplines for trade through preferential agreements, some of which are beginning to address issues relevant to the operation of GVCs more directly (such as the ongoing Trans-Pacific Partnership or TPP negotiations, the Trans-Atlantic Trade and Investment Partnership or TTIP negotiations, and the Trade in International Services Agreement or TISA negotiations on services). On the other hand, lighter WTO disciplines are applied by all WTO Members, creating effectively a two-tiered system of trading rules. The question at present is whether it is possible that recognition of the reality of GVCs will help to change this dual system of trading rules to move to a more modern framework of trade governance within the WTO as all governments face similar policy challenges in a world of integrated production networks. Since GVCs are currently regional and not global, the WTO could have a role to play in reducing the current fragmentation in the multilateral trading system through designing policies to cut across and incorporate regions into this new structural phenomenon. Box 5 further discusses the nature of this challenge.

CONCLUSIONS

In an era of integrated investment, production and trade networks, GVCs will continue to increase in prominence and will define the global landscape of the 21st century. This will require governments and firms to review and adapt their policy stance on the one hand and their participation on the other. Only recently have trade policy and other policies come under scrutiny in terms of the implications of global value chains.

The GVC agenda requires a distinct debate from that on the global trade agenda since it goes well beyond it, though trade policy can also have an important impact on the operation of GVCs. There is a need, however, for a complementary policy agenda to cover important infrastructure, education, and other behind-the-border issues. Making the case to harness opportunities for GVCs requires differentiating between types of GVCs and the benefits they may bring. In this context, governments may need to think about sector-specific policies as well as overall policy objectives and prescriptions.

At the multilateral level, logistics, services, and trade facilitation issues should be viewed and discussed as a holistic package. This implies a need to revisit the WTO institutional and legal structure, which currently places cross-cutting issues in silos (Trade in Goods; Trade in Services;
GVC issues cut across several multilateral trade disciplines within the WTO—tariffs, non-tariff barriers (NTBs), customs and licensing procedures, trade in services, and intellectual property, to name a few. The WTO is the only forum that can set multilateral policies that cut across sectors. GVCs are also regional, centered around hubs, and seem to be moving in the direction of a few mega-regionals that could leave the most needy developing countries out of the trading picture. The WTO is the only forum that can set multilateral policies cutting across regions and ensure that all regions and economies have the opportunity to participate in GVCs. The WTO, therefore, has an important role in reducing fragmentation and the formation of exclusive production zones.

A large part of the GVC agenda is outside of the WTO, as it involves national and regional steps at the center of necessary action. However, there is a need for a complementary trade policy agenda at the WTO. GVCs represent a new structure of international trade and, therefore, can breathe fresh life into the WTO. Explicitly considering GVCs within the WTO could make the organization more responsive and relevant to the needs of Members in the context of a stymied Doha Round.

Trade officials are still at the beginning of the process in terms of understanding the policy ramifications of GVCs. Key questions about trade policy and the role of the WTO urgently need further examination. These include:

- What are the direct effects and indirect effects that trade policy has on GVCs?
- Is participating in GVCs an end in itself in terms of trade policy? Should this objective drive reform? Or should a national policy focus instead on participating in global markets?
- What is the most effective role for the WTO, given the operation of GVCs?
- Do WTO trade rules need to be adapted in light of 21st century globalized production networks? If so, in what way?
- How should the post-Bali WTO Work Programme be designed to best take into account the operation of GVCs?

It is to be hoped that the challenge of reflecting on these questions will be taken seriously. The speed of change in the 21st century is accelerating, and the gap between trade and investment practices and its normative framework should not be allowed to widen further.

**BOX 5:**

The WTO and Global Value Chains

GVC issues cut across several multilateral trade disciplines within the WTO—tariffs, non-tariff barriers (NTBs), customs and licensing procedures, trade in services, and intellectual property, to name a few. The WTO is the only forum that can set multilateral policies that cut across sectors. GVCs are also regional, centered around hubs, and seem to be moving in the direction of a few mega-regionals that could leave the most needy developing countries out of the trading picture. The WTO is the only forum that can set multilateral policies cutting across regions and ensure that all regions and economies have the opportunity to participate in GVCs. The WTO, therefore, has an important role in reducing fragmentation and the formation of exclusive production zones.

A large part of the GVC agenda is outside of the WTO, as it involves national and regional steps at the center of necessary action. However, there is a need for a complementary trade policy agenda at the WTO. GVCs represent a new structure of international trade and, therefore, can breathe fresh life into the WTO. Explicitly considering GVCs within the WTO could make the organization more responsive and relevant to the needs of Members in the context of a stymied Doha Round.

To date, discussions on GVCs have highlighted the inadequacies of the multilateral trade agenda and modalities. The agenda is incomplete, and policy issues pertinent to GVCs have been dealt with in silos when they should be dealt with together. The WTO’s decision-making principle of a single undertaking is likewise very confining and makes it very hard to get meaningful progress.

There may be lower-hanging and higher-hanging fruit in considering GVCs within the context of the WTO. The lower-hanging fruit is less political and involves the “hardware” of integration—logistics services and trade facilitation. It also includes less controversial policies, such as reducing certification costs for SMEs to become suppliers to multinational firms or enhancing opportunities for dialogue among developing nations on the best ways to enter GVCs.

The higher-hanging fruit include multilateral rules on investment, multilateral disciplines on NTBs, and an ambitious Aid for Trade package, along with further complementary policies that facilitate globalization of GVCs. A change to the WTO’s single undertaking modality would allow issues pertinent to GVCs to be negotiated among coalitions of the willing.
REFERENCES


TRADE POLICY IN A GLOBAL AGE

Grant Aldonas

INTRODUCTION

The following discussion has two aims—to assess the extent to which the rise of global value chains (GVCs) demands a new approach to trade policy, and to identify concrete trade policy options that would advance the objectives of the world trading system and its members.

More and more of the world’s economic activity is now organized through GVCs and strategic networks, rather than through arm’s length sales between vertically integrated buyers and sellers in different countries, as the textbook examples of international trade imply. The most obvious evidence of that trend lies in the percentage of world trade made up of intermediate goods—a nearly 60 percent share of world imports (Sturgeon and Memedovic 2011).

But the impact of GVCs extends well beyond the higher volume of trade in intermediates. Global value chains draw “a broader range of establishments, firms, workers, and countries into increasingly complex and dynamic divisions of labour,” which has driven a much deeper and more far-reaching change in the organization of production globally and the basis of competition (Sturgeon and Memedovic 2011).

To the extent that participation in GVCs represents the new gateway to global markets, firms “must find ways to participate, add value, and specialize” (Sturgeon and Memedovic 2011). Trade policy should be geared toward facilitating that process (Whittaker et al. 2008).

For now, however, the World Trade Organization (WTO) and its Members remain preoccupied with the removal of barriers to trade introduced in the early 20th century in between two world wars and in the midst of the Great Depression. That focus, reflected in the enduring stalemate of the Doha Development Agenda (DDA), comes at a cost. It inhibits the WTO’s ability to turn to the challenges that a more networked global economy presents.

For the WTO to remain relevant, much less to fulfil its function as one of the pillars of global economic governance, its rules and its capacity to encourage trade liberalization must address those challenges. Otherwise, governments and market participants will turn to alternative means for arranging their economic relations.

The trend toward preferential trade arrangements suggests that process is well under way. That trend implies an answer to the first question above—a reassessment of the aims and means of trade policy in light of the changes in the global economy of which GVCs are a part is overdue.

The discussion in the succeeding section elaborates on why that is the case and what that reassessment means for trade policy and the trading system as a whole.

THE CHALLENGE GVCs POSE FOR TRADE POLICY

The Marrakesh Agreement establishing the WTO provides a useful starting point for thinking about the implications of GVCs for trade policy and for the multilateral trading system. In Marrakesh, the WTO Members agreed that “their relations in the field of trade and economic endeavour should be conducted with a view to “raising standards of living, ensuring full employment and a rising "real income and effective demand,” and expanding the "production of and trade in goods and services,” while, at the same time, "allowing for the optimal use of the world’s resources in accordance with the objective of sustainable development" (Agreement Establishing the World Trade Organization 1994). To that list of aspirations, the Members added the commitment to “ensure that developing countries, and especially the least developed among them, secure a share in the growth in international trade commensurate with the needs of their economic development” (Agreement Establishing the World Trade Organization 1994).

The challenge for trade policy was then, and remains now, how best to achieve those objectives. In Marrakesh, WTO Members also indicated the means by which they intended to achieve those goals. They declared their intent to enter
into “reciprocal and mutually advantageous arrangements directed to the substantial reduction of tariffs and other barriers to trade and to the elimination of discriminatory treatment in international trade relations” as a means of achieving those objectives (Agreement Establishing the World Trade Organization 1994). The DDA fully reflects that approach.

The question now is whether that approach to trade policy will suffice in light of the fundamental changes in the global economy since Marrakesh.

THE FORCES BEHIND THE RISE OF GVCs

Since the WTO Members met in Marrakesh, globalization (that is, the various forces driving the integration of world markets) has fundamentally altered the way we trade, the way production is organized, and the basis of competition in the international economy. The rise of GVCs represents an integral part of that process.

That process began with the Cold War’s end. The resolution of that conflict erased political barriers that divided the world economy for the better part of the 20th century. Erasing those barriers had the effect of dramatically expanding the reach of global markets and creating new opportunities for trade and specialization.

At the same time, many countries in the developing world began to rely more heavily on markets as a means of organizing economic activity. The shift toward reliance on markets included a shift away from policies that isolated their markets from the world economy and a greater openness to trade and foreign investment, particularly in Asia. Like the Cold War’s end, that shift had the effect of integrating those developing country economies with the world economy and expanding the reach of global markets.

Just as important, however, the shift toward greater reliance on markets implied the need to adopt their institutional underpinnings, from property rights to freedom of contract to greater regulatory certainty.

The reforms reduced the uncertainty, risk, and transaction costs associated with doing business in those markets.

The momentous changes in the world economy paralleled a revolution in computing, communications, transportation, logistics, and finance. That revolution’s most obvious impact was a further sharp reduction in transaction costs associated with engaging in trade. But, the revolution’s far deeper impact lies in its diffusion of technology.

One of the lessons that have emerged from the study of economic growth in the past three decades is the importance of technology in raising productivity and making higher standards of living possible. The foundation for the “new growth” theory has been the non-rival quality of ideas (that is, ideas are not consumed in the production process; they can be used simultaneously by any number of users) (Jones and Romer 2009).

Forces encouraging the diffusion of ideas create multiple opportunities to raise productivity and the prospects for growth (Jones and Romer 2009).

That, in the end, is what the revolution in technology has done. The end of the Cold War and the shift toward organizing economic activity through markets expanded the plane surface of the global economy; the technological revolution accelerated the diffusion of technology across that plane and reduced the cost of engaging in trade. In the process, the forces driving globalization created conditions that gave rise to GVCs.

Understanding why requires a brief excursion into the economics of industrial organization.

IMPLICATIONS FOR THE ORGANIZATION OF PRODUCTION AND THE BASIS OF COMPETITION

What the economics of industrial organization tells us is that firms offer a means of organizing economic activity that reduces or avoids a number of costs that would otherwise arise from trying to achieve the same result through a series of market-based exchanges (Coase 1937; Williamson 1985; Grossman and Hart 1986). An environment of high transaction costs favours vertical integration of production within a single firm. A low transaction cost environment, on the other hand, enhances the ability to engage in impersonal exchange and, therefore, reduces the need for vertical integration (Sturgeon 2000). It favours de-verticalization, greater horizontal reach, and softer boundaries at the edges of an enterprise.

The forces driving globalization simply extend that logic to world markets. By erasing political divisions in the world economy, creating a much broader space within which the institutional underpinnings of markets applied, and introducing technologies that allowed for a radical reduction in the cost of doing business internationally and a broad diffusion of technology, those forces created the environment that gave rise to GVCs (Feenstra 1998).

Linkages in a value chain consist of “more than just the purchase of raw materials and standardized intermediate...”

“Higher transaction costs lead firms to internalize functions, while lower costs result in industry structures where amalgams of smaller firms interact through arm-length, price-based market transactions—the Marshallian norm.”

“The rising integration of world markets has brought with it a disintegration of the production process, in which manufacturing or services activities done abroad are combined with those performed at home. Companies are now finding it profitable to outsource increasing amounts of the production process, a process which can happen either domestically or abroad. This represents a breakdown in the vertically integrated mode of production.”
goods” (Grossman and Helpman 2002). It requires “finding a partner with which a firm can establish a bilateral relationship and having the partner undertake relationship-specific investments so that it becomes able to produce goods or services that fit the firm’s particular needs” (Grossman and Helpman 2002). Establishing the required linkages to form a global value chain “depends inter alia on the thickness of the domestic and foreign market for input suppliers, the relative cost of searching in each market, the relative cost of customizing inputs, and the nature of the contracting environment in each country” (Grossman and Helpman 2002).

In that respect, participation in GVCs is fundamentally different from engaging in exchange in the textbook example of a completely undistorted market under conditions of perfect competition. In the case of arm’s length sales, price is both the principal determinant of competition and the principal means of conveying information about the value that buyer and seller attach to the good or service exchanged (Gereffi et al. 2005). Very little more needs to be shared between buyer and seller to effect a transaction, particularly if the exchange is an isolated, rather than a repeated, event.

In contrast to market-based transactions, participation in a firm’s supply and value chain requires a good deal more in the way of sharing information, which underscores the importance of rules and other institutional arrangements that protect that information, whether in the form of patents, copyrights, trade secrets, or other institutional arrangements (Gereffi, et al. 2005). Participation in value chains also requires the ability to communicate effectively up and down the chain, which requires an infrastructure that supports such communication, as well as rules that protect those communications (Sturgeon 2000).

Increasingly, participation in value chains also requires the ability to innovate with other links in the chain, which requires a higher level of both technological sophistication and human capital and institutions that foster entrepreneurial innovation (Gereffi et al. 2005; Sturgeon and Florida 2000).

As a consequence, competition in this networked world is not based on price alone but depends as well on the capacity of firms and of economies to integrate themselves into the value chains that serve global consumer markets. That, as it turns out, has significant implications for how we define “market access” in a more globalized world economy.

**MARKET ACCESS IN A NETWORKED WORLD**

The effect of the forces driving globalization on transaction costs and, ultimately, on the organization of production and the basis of competition helps explain why removing conventional barriers to trade has less traction in a networked world. A tariff, for example, affords protection by virtue of its impact on the delivered price of imports, whether inputs or finished goods. To the extent that price is less relevant to the decision to buy, a tariff necessarily has less impact, and a trade policy aimed solely at reducing tariffs in potential export markets has less to offer local firms confronted with the challenge of connecting to GVCs.

From the local firm’s perspective, tariffs are only one of any number of transaction costs associated with engaging in the international exchange of goods and services. Indeed, while not insignificant, tariffs (particularly on industrial goods) are low in comparison to other costs that inhibit participation in GVCs (for example, the lack of communications and transport infrastructure; information barriers that make it difficult to receive price signals or find new customers, and so on).

Accordingly, a trade policy that focuses exclusively on reducing tariffs, and implicitly defines market access in terms of lowering such barriers in a particular “export market,” risks marginalizing itself and the WTO in the process. What matters more is improving the institutions and building the capacity, whether as a firm or as a nation, that facilitate participation in the more networked world economy of which GVCs are a part.
In this networked world, steps aimed at increasing the quality and reliability of goods and services, decreasing time to market, and enhancing the ability to innovate matter more than lowering the price wedge that tariffs can create. Enabling local firms’ participation in GVCs requires a focus on improving both an economy’s “hardware” (for example, transportation and communications infrastructure) and its “software” (that is, its institutional arrangements, such as quality and safety standards; improvements in customs procedures, and so on).

All of which suggests the need for a broader focus for trade policy—one informed by the need to create an environment that facilitates participation in such value chains. The demand for progress within the DDA on trade facilitation, relative to the stasis on tariff liberalization, reflects that reality. But the policies needed to enable successful participation in GVCs and a more networked global economy go much further than trade facilitation alone.

Wholly apart from creating an environment that facilitates trade, participating in a more networked world economy depends on access to factors of production—capital, talent and ideas—that are essential for innovation and economic growth and for exploiting the opportunities for trade and specialization that a more globalized world economy creates. Success in the global economy, whether as a firm or as a nation, depends increasingly on the ability to develop or attract those factors of production. That implies a greater need to focus on liberalizing restraints on investment, adopting measures to facilitate access to finance, adopting rules that encourage innovation and the exchange of ideas, and institutions that foster the development of human capital.

Imposing disciplines on tariffs and non-tariff measures and ensuring non-discriminatory treatment in international trade, to which the WTO Members committed themselves in Marrakesh, can play a role in that process. But in a more networked global economy, such efforts are only likely to help facilitate a local firm’s participation if the liberalization is reciprocal.

To understand why, it helps to think of what a firm must do to participate effectively in a global value chain. It must, first and foremost, be able to deliver a high quality product or input at a competitive price. That means the firm must have access to the highest quality and lowest cost inputs. From a trade policy perspective, that implies the need to lower tariffs and other barriers to trade in the firm’s inputs, as well as to seek a reduction in such barriers in the markets for the firm’s goods or services.

That logic applies with equal force in other areas, like building human capital. Ensuring one laptop or tablet per child to facilitate their acquisition of computing and communication skills at an early age, for example, means reducing trade barriers that raise the cost of putting the tools of the modern global economy in their hands.

Seen in that light, a mercantilist approach to trade policy—even in the name of helping the least developed countries—is self-defeating. It undermines a local firm’s ability to participate in a more networked global economy by raising the firm’s costs and by foreclosing one of the main channels through which technology is diffused. A broader liberalization of trade barriers would have the opposite effect, if accompanied by parallel approaches to improve an economy’s ability to attract those factors of production critical to participating in a more networked global economy.

EXPANDING THE SCOPE OF TRADE POLICY

Exploring the reasons for the success of a number of Asian economies over the past five decades offers some helpful insights into what mix of policies might prove useful in attracting those factors of production and facilitating participation in the value chains serving global markets. The conventional debate over the “East Asian miracle” tends to break down into two groups—those that attribute the extraordinary growth among those countries to getting the “economic fundamentals” right (that is, macroeconomic stability; trade openness, and so on), and those that attribute their success to the implementation of heterodox approaches to economic policy, including a significant role for the state in “industrial policy” (Rodriguez and Rodrik 2001).

In retrospect, the approach of Asia’s success stories was heterodox, but not in the way that that term is generally used. The key to the Asian Tigers’ success, much like the previous success of Japan and the more recent success of China, lay in their ability to create environments that allowed them to develop or attract the factors of production critical to exploiting new opportunities for trade in a globalizing world economy. Building the institutional underpinnings of markets, reducing transaction costs, and investing in human capital in their own economies had the effect of encouraging inbound investment and facilitating linkages between local firms and GVCs (Lall 2000). While each of the countries did engage in “selectively promoting capital and knowledge intensive industries,” it is clear that their success flowed more from creating the environment that fostered profitable, internationally competitive firms (Page 1994).

1 It has been argued, citing the work of Dani Rodrik, that the Asian Tigers’ success derives, in part, from their adoption of heterodox approaches to trade policy. Those arguments tend to misstate Rodrik’s work, which provides a critique of a variety of measures used to demonstrate a causal link between trade openness and growth. The arguments tend to ignore the fact that Rodrik’s argument has largely been about what the measures show or fail to show, rather than an argument in favour of isolating an economy, particularly a developing economy, from the global economy. Rodrik has consistently argued that there is “no credible evidence—at least for the post-1945 period—that suggests that trade restrictions are systematically associated with higher growth rates.” Instead, his point was to question the view that “integration into the world economy is such a potent force for economic growth that it can effectively substitute for a development strategy.” The argument outlined above for a new approach to trade policy as part of a country’s development strategy is consistent with Rodrik’s conclusion, rather than a departure from it.
Trade policy is, of course, an important part of creating an environment that fosters internationally competitive firms capable of participating in a world economy organized around GVCs. Focusing on the pathologies of trade policy in Asia, however, has obscured the fact that the region has taken a very pragmatic approach that resulted in far more liberalization than is often recognized.

The countries of the region liberalized significantly through bilateral and regional arrangements in areas where it was politically feasible, and multilaterally where it otherwise served their economic objectives, as in the case of the region’s participation in the Information Technology Agreement (ITA). More importantly, they focused on reducing barriers to trade in other potentially more tangible ways.

They were among the first countries to recognize that “openness” depended on lowering transaction costs and friction across the board, rather than convenient fictions, such as binding tariffs at levels well above the applied rates. Their policies focused, as a consequence, on eliminating friction in the channels of trade—reducing regulation and harmonizing customs entry procedures—in ways that facilitated the ability of their firms to occupy different niches in the value chains that serve global consumer markets, particularly in the area of electronics.

The success of the first movers in Asia demonstrates the benefits of a broader engagement in the global economy and fostering the economic environment that enables local firms to make those linkages as an integral part of a nation’s trade policy and its development strategy. Their success also points toward a trade policy far more attuned to the reality of a more networked world.

THE DEVELOPING WORLD’S STAKE

Rethinking trade policy and market access in terms of facilitating participation in a networked global economy is particularly important for achieving the last of the goals set by WTO Members—ensuring that “developing countries, and especially the least developed among them, secure a share in the growth in international trade commensurate with the needs of their economic development.” The reason why thinking in terms of linkages to GVCs is critical for developing countries, particularly the least developed, is that they start farther away from the technological frontier, and the pace of technological change is accelerating.

In part for that reason, developing countries have a far smaller stake in the emerging trade in intermediate goods and possible diffusion of technology that participating in that trade might encourage (Antras 2003). Participation in trade is an important means for acquiring technology and building the human capital that allows a country to interact with and reap greater benefits from the global economy and close the gap between its current state and the technological frontier in the process (Sturgeon and Memedovic 2011). By the same token, because the pace of technological change is accelerating and the technological frontier is being pushed outward at a corresponding rate, the failure of a developing country to connect its firms and workers effectively to GVCs implies that it will fall behind at a faster rate, with all that implies for its citizens’ standard of living and wellbeing (Sturgeon and Memedovic 2011). Given that fact, developing countries—the least developed most of all—have the most to gain from expanding the aims of trade policy and the most to lose if trade policy and the definition of market access remain that articulated in Marrakesh.

RESPONDING TO THE CHALLENGE A NETWORKED GLOBAL ECONOMY PRESENTS

In a more networked world economy, a country’s ability to engage in and benefit from trade depends on facilitating the participation of its firms in the GVCs that have become the new gateways to global commerce. The discussion below identifies a number of concrete options that would meet the challenge that a more networked global economy presents, while reinforcing the WTO as a core institution of global economic governance.

CONCLUDING THE DOHA DEVELOPMENT AGENDA

Recognizing the need to liberalize imports as well as exports as a means of facilitating local firms’ participation in GVCs helps clarify the objective of tariff negotiations. The aim should be (1) to foster real liberalization by all WTO Members and (2) to reduce the friction that customs classification decisions introduces into the equation.

A formula for moving toward a tariff-free world

Achieving both goals points toward a formula approach that would result in no more than three bands of tariff levels after a staging period of five to ten years (for example, zero percent
tariffs on goods where applied rates are currently below 5 percent; 5 percent tariffs on goods where applied rates are currently between 5–25 percent; 10 percent tariffs on goods where applied rates are currently above 25 percent). That would have the effect not only of sharply reducing tariffs, but also of eliminating virtually all classification decisions that customs services are now obliged to make, which slow down the process of trade, create uncertainty, and open opportunities for graft and corruption, which serve as trade barriers themselves in a more networked world.

The formula would leave plenty of room for acceleration where possible (for example, elimination of all tariffs within five years by developed countries). It would also leave plenty of scope for “policy space” for further reductions (for example, joining the ITA in order to facilitate one laptop or one tablet per child programs), as well as room for further negotiations along the lines outlined below. Lastly, it would allow developing countries to maintain a sufficient uniform tariff to the extent they still rely on tariffs as an important source of government revenue until tariffs could be replaced by a more economically efficient means of taxation.

**Liberalizing value chains**

Either as an adjunct or alternative to the formula outlined above, WTO Members should think in terms of liberalizing entire value chains (that is, removing all tariff and non-tariff barriers that impede the flow of goods from inputs to delivery of a finished product to a consumer). As an adjunct, liberalizing an entire value chain could take the form of negotiations over the staging or "pace" of liberalization toward the goals established by the formula. As an alternative, it could offer a means of accelerating liberalization beyond the commitments reflected in the formula used as an example above.

What would negotiations aimed at liberalizing an entire value chain look like? The DDA negotiations over agricultural trade offer a salient example. The current talks implicitly define “agriculture” in terms of liberalizing entire value chains (that is, removing all tariff and non-tariff barriers that impede the flow of goods from inputs to delivery of a finished product to a consumer). As an adjunct, liberalizing an entire value chain could take the form of negotiations over the staging or “pace” of liberalization toward the goals established by the formula. As an alternative, it could offer a means of accelerating liberalization beyond the commitments reflected in the formula used as an example above.

To accomplish that, farmers do not simply need a reduction in tariff barriers affecting their exports in particular markets. They also need to reduce the cost of their inputs and their storage, handling, and transport. They would also benefit from access to communications technology that would offer them greater access to technology (for example, agronomy, soil science, and so on) and up-to-date market information that would help them with planting and harvesting decisions. In short, what they need is the removal of all tariff and non-tariff measures that impede their ability to raise their productivity and connect to markets.

WTO negotiations could make those interests work in favour of trade liberalization if it expressly undertook to liberalize the entire agribusiness value chain. In so doing, they would create a broader range of opportunities for trade-offs that would facilitate the conclusion of an agreement. The formula outlined above consciously draws no distinction between industrial or agricultural tariffs for that reason. A developed country agricultural producer, for example, might be induced to liberalize on agricultural supports more rapidly if there were reciprocal benefits for its firms operating in other parts of the agribusiness value chain.\(^\text{14}\)

**INCREASING THE WTO’S RELEVANCE**

Increasing the WTO’s relevance does not, in every instance, expand its purview. The WTO could add to its relevance simply by providing a more policy-oriented focus to trade negotiations that fall squarely within the WTO’s purview.

The most salient example involves agriculture and the challenge of food security. Although the WTO’s founding document implicitly assumes that trade liberalization contributes to growth and is, therefore, a positive end in itself, that perspective is less widely shared in practice than the Marrakesh agreement suggests. The goal of achieving greater food security, on the other hand, is widely shared, as recent statements of the G-20 and various other groups suggest.\(^\text{15}\)

Reorienting the current negotiations on agriculture in the DDA to focus on liberalization and reforms that would contribute to the goal of food security has the potential to change the nature of that game from zero sum to positive sum, both economically and politically. It would also build new constituencies in support of liberalization and reform.

Just as important, it would create a vehicle for negotiating liberalization and reform on the basis of value chains,  

---

\(^\text{14}\) An example helps explain how that might work. A number of West African countries have sought the elimination or sharp reduction of US support for cotton. But the current structure of the West African markets is such that there are a limited number of buyers. In that context, if the US lowered its support for cotton, the economic rents from that choice would likely flow to the buyers of West African cotton, rather than the producers. If, on the other hand, the West African producers had access to a wider range of buyers, their bargaining leverage would improve and they would benefit more from the US change than would otherwise be the case. One possible way to achieve that outcome would be to liberalize current barriers in West Africa that impede the farmers’ access to communications technology and services. Equally, the West African countries could liberalize the markets for downstream services (for example, storage, handling, shipping, and processing) in ways that might attract additional buyers to their markets. Both steps would be entirely consistent with a trade policy aimed at facilitating links between their cotton farmers and global markets. From a US perspective, additional market access for telecommunications goods and services or services and investment liberalizations in areas like storage, handling, shipping, and processing might not be sufficient alone to induce the policy reforms the West African countries seek on cotton. But progress along those lines could add to a total package of liberalizations that did make such action workable for the US, as well as the West African cotton producers.

\(^\text{15}\) Ministerial Declaration, Action Plan on Food Price Volatility and Agriculture, Meeting of G-20 Agriculture Ministers (June 2011).
given that the goal of food security would best be achieved by expanding farmers’ access to technology and capital equipment that would boost their productivity, particularly in the developing world, and by reducing the transaction costs and market distortions that inhibit their ability to connect to markets, locally and globally.

**BROADENING THE WTO’S REACH**

As noted above, the failure to conclude the DDA has had the effect of limiting the WTO's agenda largely to the arena of conventional trade barriers, although the recent effort on services holds promise. WTO members have proved reluctant even to consider areas acknowledged to be directly related to trade, such as government procurement and investment.

But the changes in the global economy are forcing a reconsideration of what should be a part of future trade negotiations. The evidence for that lies in the various bilateral and regional arrangements that have proliferated while the DDA has been under negotiation. So the question is not whether they will be addressed as a part of trade negotiations. The only question is whether they will be addressed in the WTO or solely in bilateral and regional arrangements beyond the WTO’s ambit.

Thinking in terms of enabling local firms to participate effectively in GVCs does imply a need for high quality rules on investment and intellectual property, which presuppose solid institutions like private property and the enforceability of contracts. What that suggests is the need for the WTO to expand its remit to include negotiation of rules that create the institutional underpinnings of a global market economy.

The idea is not as novel as it first seems. Before the rise of the General Agreement on Tariffs and Trade (GATT) and the WTO, there was a long tradition of addressing investment rules, contract law, and even the jurisdiction of courts in commercial matters in trade agreements (for example, treaties of “friendship, commerce and navigation”) that remain a part of the fabric that is international trade law even today. In addition, wholly apart from the panoply of intellectual property conventions (for example, the Berne Convention on copyright; the Paris Convention on patents and trademarks), there are many examples in international law of treaties or agreements that create uniform rules of that sort. Two such are the United Nations Convention on the International Sale of Goods, which incorporates widely accepted principles of contract law shared by both common law and civil law traditions, and the International Chamber of Commerce’s Uniform Customs and Practice for Documentary Credits, a set of privately developed rules on the issuance and use of letters of credit.

The WTO’s role is not to supplant what exists, although that ad hoc architecture would benefit from greater oversight. Rather, the WTO’s role should be to incorporate what exists, improve upon it, and build out the remaining institutional architecture in ways that reduce transaction costs, encourage innovation and the diffusion of technology, and, above all, reduce uncertainty in the legal environment, which will allow importers and exporters to allocate risk between themselves with certainty over the legal outcome.

**REINFORCING THE WTO’S ROLE AS A PILLAR OF GLOBAL ECONOMIC GOVERNANCE**

As noted above, the success of the GATT and the WTO lies in establishing the foundation of a rules-based trading system. While often overlooked, its role in establishing trade rules and creating a mechanism for resolving disputes over the implementation and interpretation of those rules has a powerful liberalizing effect wholly apart from the WTO’s contribution to reducing tariffs and other trade barriers. That liberalizing effect flows from the greater consistency it encourages in the application of the rules of the game, which has the effect of reducing uncertainty and risk associated with international trade, just as sound domestic legal institutions do in the area of contracts.

That raises the question of whether there is a contribution that the WTO could make along those lines even in a world in which bilateral and regional trade agreements are proliferating. The answer is that the WTO can make a significant contribution by extending the reach of its dispute settlement mechanism to the application and interpretation of such bilateral and regional agreements.

There are sound legal and economic reasons for suggesting that bilateral and regional arrangements make use of the WTO’s dispute settlement mechanism. As a matter of law, such arrangements coexist with the WTO only by virtue of their compliance with Article XXIV of GATT 1994. But both bilateral and regional arrangements frequently use WTO agreements as their baseline—a starting point from which they liberalize further. To the extent that interpretations of the underpinnings of those agreements imply interpretations of the WTO rules, they should be subject to the WTO disputes process. To do otherwise militates against the uniformity of interpretation that the WTO disputes procedure was expressly designed to foster.

The economic rationale is just as strong. As in every other area of law, experience is the best teacher. Legal systems succeed by virtue of aggregating the lessons of individual cases into legal doctrines that reflect an evolving set of best practices. The product of those legal systems is a certainty that reduces uncertainty and risk and fosters the flow of goods and services in a market economy.

That logic applies with equal force in the area of international law. The trading system as a whole would benefit from the WTO’s service as an aggregator of legal best practices in the areas under its jurisdiction. Incorporating the WTO dispute settlement process into bilateral and regional arrangements would contribute to the organization’s ability to fill in the architecture of trade law in ways that fostered, rather than undercut, the legal certainty needed for goods and services to flow through the global economy.
EXPANDING THE PARTICIPATION OF THE DEVELOPING WORLD

What the discussion above underscores is that the conventional means for encouraging greater developing-country participation in international trade and in the trading systems have become counterproductive. Expanding preferential access to developed-country markets or creating new allowances for special and differential treatment will not help developing-country firms participate in a more networked global economy. As noted above, firms in the developing world need access to imports not only as inputs but also as a channel for the diffusion of technology. One-sided liberalization in the form of preferential access to developed-country export markets does nothing to foster that access.

The key to broadening developing-country participation in a more networked world lies in policy instruments outside of trade policy as conventionally defined. The recent focus on “aid for trade” comes closer, but is still not sufficient to address the underlying problem that countries face when they are far from the technology frontier. What is needed, instead, is an approach to bargaining that fully integrates trade negotiations and development assistance in support of a strategy aimed at closing the gap between a developing country’s current position and the technology frontier.

The nature of what is needed comes closer to the structural adjustment lending the World Bank did as its contribution to resolving the various debt and financial crises affecting the developing world in the 1980s and 1990s. But the structural adjustment in this instance would involve policy reforms aimed at enabling local firms and workers to engage successfully in the global economy. That agenda could embrace financing for hardware (physical infrastructure) and software (institutional change).

Whether thought of as “structural adjustment” or simply an expanded aid for trade agenda, the object of the effort must also take into account that creating an enabling environment that allows local firms to connect to GVCs can generate its own challenges. The risk of “policy stretch” for governments faced with the need to establish sound macroeconomic fundamentals and foster structural change, all the while providing world class customs services that reduce time to market and a system of education that provides everything from basic literacy and access to world class tertiary education is self-evident, as is the need for development assistance focused on those tasks.

BALI AND THE WTO WORK PROGRAM

The upcoming Bali ministerial represents an opportunity in two respects. The first is to reap what can be harvested from the past decade’s work under the Doha Development Agenda and to put the talks on a path to a successful conclusion.

From the perspective of what would contribute most in a more networked global economy, the obvious answer is an agreement on trade facilitation. But, that should be coupled with an agreement on the negotiating modalities that will lead to the conclusion of the round within a year’s time. Those modalities should incorporate the sort of formula discussed above, in the case of tariff negotiations, and the idea of fully liberalizing the agribusiness valuation chain, both as a means to eliminate the market distortions that afflict agriculture and as a means to achieve the goal of food security.

The second opportunity flows from the first. Success in Bali would allow the WTO and its members to turn their attention to the challenges the new patterns of trade present. WTO ministers should use Bali as an opportunity for a serious discussion of a work program within the WTO expressly designed to illuminate the challenges of connecting to world markets in an era in which global value chains and strategic networks have become a permanent, if not dominant, feature of world trade.

The objective should be to establish a forward-looking agenda – one that assumes success in the DDA and, therefore, looks past the current round to the real challenges that WTO members face in ensuring the ability of their firms and workers to participate effectively in the global economy and benefit from the contribution it can make to rising productivity and higher standards of living.

That forward looking agenda should start from the perspective of reinforcing the WTO’s role as a pillar of global economic governance, which implies the need to broaden the focus of trade policy along the lines discussed above.
References


Whittaker, D. H.; Zhu, Tianbiao; Sturgeon, T. J.; Tsai, Mon Han; and Okita, T. 2008. "Compressed Development."
GLOBAL VALUE CHAINS AND INDUSTRIAL POLICIES

Patrick Low and Julia Tijaja

INTRODUCTION

Governments in developing countries are increasingly asking themselves how they can increase the benefits of participating in global value chains (GVCs) in a world of internationally fragmented production structures. In many ways, this is a new take on an old question. Since the beginnings of the process of industrialization, manufacturing has been seen as a vehicle for economic diversification and a source of growth and prosperity. Trade has always figured in this story, as has the role of government in shaping economic structures. The current terms of the debate have been largely fashioned since the second half of the 20th century by the emergence of development as a branch of economic, social, and political analysis. The term “industrial policy” does not carry a precise meaning in the literature, other than to denote a role for government in creating conditions that promote industrial development. The influence of ideological preferences on whether governments should have any role at all in shaping economic incentives has sometimes obstructed a much more relevant debate over the efficacy of different options.

Two important developments in recent years have influenced the nature and content of the debate over industrial policy. Both of them are largely the result of technological advances, predominantly in the fields of transport, communications, and production technology. First, increased efficiency in transportation and communication technology has led to the shrinkage of distance and acceleration of transactional speed. This means that as opportunities to gain from trade have increased, so too have the costs of poorly conceived or designed government policies. Second, advances in production technology and the development of standards have facilitated the fragmentation of production processes, fostering the rise of GVCs and broadening opportunities for participation in international production sharing. Here too there is a role for government policy in promoting a conducive operating environment, and stimulating participation in competitive GVCs.

The nature and configuration of GVCs permit a degree of geographically substitutable value creation along supply chains. This is where industrial policy comes in. Governments may seek higher shares of value added on existing chains through “upgrading”, or through participating in new production sharing activities. Upgrading has been defined as “the shift in firms’ activity in the GVCs to sustain higher earnings” (Humphrey and Schmitz 2000).

Governments and firms do not necessarily share the same objectives. Governments seek to maximise value capture at the national level to promote objectives such as better living standards, higher productivity, the deployment of new technologies, increased employment opportunities, and more diversified and resilient economies. Part of this effort must focus on managing market failures, including a range of positive and negative spillovers.

The key interest of firms is to maximise profits. Lead firms on vertically integrated value chains typically seek to locate activities where they yield the highest returns. This may or may not offer participatory or upgrading opportunities for particular countries and value chain participants within their borders. Domestic value chain participants will want to maximise their own value added and will seek ways of doing so, including by engaging with other supply chains or seeking to become lead firms themselves.

Different motivations and objectives may reasonably be expected to result in varying perceptions of the most desirable outcomes. In a world of constrained optimization, the challenge is to seek mutually accommodating outcomes between markets and the state. In the final analysis, however, it is the responsibility of governments to do whatever is required to maximise social welfare. The conception and design of industrial policy is fundamental to the successful pursuit of this objective, where governments seek to maximise alignments with firms as value chain actors.

SCOPING POLICY OPTIONS

TWO KINDS OF POLICIES: HORIZONTAL AND INDUSTRY-SPECIFIC

Policies can be broadly or narrowly focused. Broad-based or horizontal policies are targeted at removing inefficiencies and dead-weight losses, thereby increasing competitiveness. Such policies may include streamlining administrative procedures; lowering the costs of doing business; strengthening institutions; investing in human capital; and developing infrastructure. The main point about horizontal policies is that they have economy-wide implications rather than being specific to sectors, industries, or firms. These kinds of policies are less contentious than narrowly focused approaches and carry considerably less risk in terms of the unforeseen consequences of policy-induced relative price relationships.

Footnote:

1 Upgrading is only one mechanism for adding additional value from supply chain participation. Gunter (2011) distinguishes between industrial diversification, industrial expansion and upgrading, and industrial deepening.
The fact that horizontal policies can affect many different aspects of the operating environment means that they may be more or less affordable, and may yield tangible results over quite different time-frames. Administrative reform and various measures of trade facilitation can be relatively costless and yield rapid results. Institutional reform is of a more basic character, will be harder to achieve, and may take longer to yield dividends. Investment in human capital through training and education and physical infrastructural investment may be costly and take some time to produce results, but will be high-yielding.

In effect, these kinds of horizontal reforms and investments would not be regarded by some as industrial policy. This taxonomical approach typically reserves the definition of industrial policy to interventions specifically targeted at industries or even firms.

Industry-specific policies, on the other hand, seek to change the incentive structure and stimulate activities in particular areas. A typical justification for such actions would be that market failures result in resource misallocation, leading the economy to a suboptimal future. A major argument of those opposing industry-specific policies is that government failures more often than not substitute for market failures.

Renewed interest in industrial policy has emerged recently in the light of major changes in the global trade landscape. These changes include the fact that trade in intermediates has surpassed trade in final goods (at least by some definitions of intermediates); services have become a more important part of the production process; trade in tasks is a rising phenomenon; tariffs have fallen while non-tariff measures, including standards, have increased in significance; and geographically dispersed production has placed additional emphasis on trade facilitation and connectivity. The emergence of the somewhat more complex world of GVCs calls for more effective strategic collaboration between governments and the private sector, and accentuates the importance of government capabilities for policy effectiveness (Rodrik 2004).

Different terms have been used to refer to variants of updated approaches to industrial policy, from Strategic Industrial Policy (SIP) (Gunther 2011), and New Industrial Policy (Devlin and Moguillansky 2012) to Global Value Chain-Oriented Industrial Policy (Gereffi and Sturgeon 2013). Instead of proposing a new term, this note considers how old approaches might be updated. An advantage of this approach is to remind us that the industrial policy debate is a good deal older than the GVC phenomenon we witness today.

APPROACHES TO INDUSTRIAL POLICY

In the long and varied debate on industrial policy over the last six decades or so, different approaches have emerged. They can be broadly placed in the five main categories that follow. The typology is rough and the categories can overlap in terms of their respective policy or strategic emphases.

Moreover, the approaches may not always be mutually exclusive.

Import substituting industrialisation

Import substituting industrialisation (ISI) relies on the domestic market for economies of scale and diversification, and conventionally focuses on the production of final goods and services. This approach can be viable for a certain time in countries with sizable domestic markets and the ability to identify sources of dynamic comparative advantage. Domestic enterprises typically receive low-priced (duty-free) imported inputs and are insulated from competing imports. These industries are expected to overcome their cost disadvantages through learning-by-doing and the realisation of economies of scale (if any), eventually becoming internationally competitive. Identifying the right industries that have the highest potential to be competitive in a sustainable way is a key challenge in this approach.

In GVCs, opportunities for upgrading and diversification may be present both upstream and downstream, in goods or services. A reduction in the anti-export bias that is frequently encountered under ISI policies—brought about by high-cost production and misaligned exchange rates—would help firms overcome the confines of domestic markets. Domestic market size is a crucial determinant of the potential success of ISI policies. The most obvious policy tool for ISI is tariffs, although some countries have resorted to quantitative restrictions in the past. The scope for using tariffs for this purpose is broadly defined for WTO Members by their tariff commitments. Tariff levels are also likely to be constrained by commitments under preferential trade agreements (PTAs).

For ISI to yield positive results for development, it should provide limited, time-bound protection. Industries that fail to become competitive should not be protected indefinitely. Effective consultation with the private sector, industry experts, consumer groups, competition authorities, and research institutions would help to identify bottlenecks and opportunities while mitigating the influence of vested interests.

Export-oriented industrialisation

Export-oriented industrialisation (EOI) strategies rely on exports to diversify the domestic economy. This industry-specific incentive structure is typically designed to ensure that returns to exports are no less attractive than returns to domestic sales. The policy mix requires that where possible inputs are provided at world prices, exports of the final product are subsidised to compensate for more costly inputs domestic provenance. At the same time, the domestic market is not strongly protected from competing imports.

Support to the industry is removed within a specified timeframe, so the beneficiaries know that they have to compete internationally to survive. This approach was successfully followed by some South-East Asian economies in the second
half of the 20th century. EOI may start with exporting processed resource-based products before graduating to manufacturing exports of increasing technological content. It is likely to have more backward (and forward) linkages to domestic markets than export processing zones and buyer–
driven, assembly-oriented GVCs.

In GVCs, EOI can be targeted at intermediate products, allowing countries to focus on parts of production where they already have a comparative advantage. The available tools for EOI are now constrained by the prohibition of export performance-based subsidies under the WTO for many countries. As standards increasingly play a role in coordinating international production sharing, concerted efforts to improve the standards compliance capacity of firms and the general trade facilitation infrastructure become crucial for competitiveness.

**Resource-based industrialisation**

Resource-based industrialisation (RBI) is a strategy that may be used if a country has an exportable raw material and the potential to elaborate that raw material into a manufactured good locally for export. The key policy instrument is an export tax on the raw material that lowers its domestic price, effectively subsidising domestic downstream manufacturing. This diversification strategy may have negative domestic distributional consequences, at least in the short term, if producers are already poor or if domestic processing capacity is inadequate or commercially infeasible.

Downstream processing of natural resources may not be feasible for all countries or products. As noted by Kaplinsky (2011), other ways of increasing domestic participation in commodity supply chains involve the development of upstream and downstream linkages in complementary markets relevant to the commodity supply chain. These could be fiscal linkages, and production and consumption linkages, including services.

In the past, WTO rules have not constrained the use of export taxes, but this has changed for some countries that have joined the WTO in recent years. Some PTAs also have provisions on export taxes. More generally, pressure is likely to increase on limiting the use of export taxes.

**Export processing zones**

Export processing zones (EPZs) can be viewed as the poor cousin of EOI, but may be one of the few viable options for economies with neither a sizable domestic market nor resource endowments. Zones are demarcated as extra-
territorial for fiscal and regulatory purposes and are normally supplied with essential infrastructure for production and exports. EPZs may often be little more than assembly or light manufacturing operations relying almost entirely on imported inputs.

They frequently come with the risks of footloose investment (investments with low fixed costs that flee as soon as preferences end); minimal backward linkages; and entrapment in a race to the bottom. Labour and environmental standards may also be compromised in EPZs as host countries compete for a limited pool of investment projects. On the other hand, successful EPZs may develop into more than just job opportunities for unskilled workers. They could be the incubator for innovation and the gradual development of backward and forward linkages. A broader spectrum of ancillary goods and services may also emerge over time with the promise of capturing a greater share of value added.

**Industrialisation though innovation (ItI)**

Unlike the former approaches that focus on changing the external framing conditions in which firms operate, the emphasis of industrialisation though innovation (ItI) is on change from within. Firms’ upgrading potential can be enhanced by strengthening innovation systems and firm-
level technological capabilities, including through networking and building mutually advantageous relationships with other firms, suppliers, consumers, governments, and relevant non-state actors. Value chain upgrading, after all, means innovating better than competitors.

GVC participation provides firms with access to technology and upgrading assistance from their networks, that is, the lead firms and other sources. This approach also acknowledges that technological learning is not costless. Technological capabilities differ among firms and allow those that possess them to seize the learning opportunities from GVC participation for successful upgrading (Lall 1992; Morrison et al. 2006).

The outcomes of firms’ technological learning and upgrading efforts are affected by the environment in which learning is taking place, that is, the innovation systems (Tijaja 2012). Innovation systems are defined as the flow of technology and information among people, enterprises, and institutions that facilitate innovation and are a key to firms’ competitiveness. Firms located in an efficient innovation system can cope better with the complexity of GVC transactions.

Innovation systems can be strengthened through effective science and technology policy, and activities and initiatives such as industry-specific dialogues; science competitions; internships or work placements; collaboration with universities/research institutes; research and development (R&D) support; joint R&D; science parks; business incubators; and personnel mobility. Many of these policies may seem horizontal in the first instance, but the peculiar nature of technology means that after a certain (low) threshold, effective intervention will become sector specific (Lall 1992).

---

2 These are also referred to as soft-meso industrial policy (Wade 2012).
Innovation systems are multi-layered at the national, sub-national and sectoral levels. Malerba (2002) defines a sectoral system of innovations as “a set of products and the set of agents carrying out market and non-market interactions for the creation, production and sale of those products.” The conditions required to facilitate learning differ across sectors (Malerba and Nelson 2011). In some, technology might be embedded in capital goods, calling for close interactive relations with suppliers for successful upgrading. In others, like agriculture, the low appropriability of innovations may require prompting by public institutions. Innovation-led industrialisation is complementary to other approaches, regardless of country characteristics.

As noted above, international agreements sometimes constrain the use of policies aimed at protecting domestic production, including tariffs, subsidies, and local content requirements. A risk is that some policies are constrained while others are not, resulting in the use of less-efficient policies or hidden protection.

**WTO RULES**

This short note does not enter into all the subtleties surrounding the interpretation of the legal permissibility of trade policies required for the pursuit of different kinds of industrial policy. Many of these have been highlighted, if not fully resolved, through the WTO dispute settlement mechanism. In other cases, ambiguity or uncertainty remains because governments have chosen not to mount legal challenges.

The note does not cover departures from WTO rules in PTAs or in government procurement contracts. PTAs may well be more important than the WTO for some developing countries in defining the degree of flexibility they enjoy in pursuing industry-specific policies. Even within the WTO, the degree of policy flexibility will almost certainly be different for economies that acceded to it after it came into force in 1995. This is because acceding Members have typically been persuaded to agree to conditions in their protocols of accession that go beyond the legal obligations template of the WTO. WTO obligations will also vary among Members at different levels of development due to special and differential treatment provisions.

In what follows, we take each of the policy areas identified along the horizontal axis of Table 1 and consider the extent to which WTO rules do, or are likely to, constrain the ability of countries to apply the policies in question. This will provide us with a first take on the degree to which WTO obligations may constrain the pursuit of industrial policies. It should be noted that these constraints will turn out to be real only when one WTO Member mounts a successful legal challenge against another for the use of a particular policy. In legal terms, government measures are presumed to be WTO-consistent until the Dispute Settlement Body concludes otherwise.

One should not underestimate, however, the fact that the possibility of a legal challenge introduces uncertainty, which bears a cost.

In Table 1, we have distinguished between those policies judged to be essential to the pursuit of a particular industrial policy and those that could be additionally used to attain or reinforce the same end, but in a strict sense could be considered non-essential. This implies a degree of subjectivity in the assessment of how essential particular interventions are to the attainment of the objective. On the other hand, the distinction is useful in helping to sharpen the focus on the nature of WTO-imposed constraints on policy flexibility.

Underlying this distinction between essential and non-essential interventions there are also efficiency issues on which disagreements are likely to arise. It would be argued by many, for example, that quantitative restrictions are generally more costly than tariffs because of their particular incentive- and price-distorting effects. If tariffs can achieve the same end as quantitative restrictions, then WTO strictures on the use of the latter may be a welcome constraint on policy flexibility. Provisos to this argument are that the price effect of tariffs will act with a time lag and that it can be difficult to determine the appropriate tariff rate to achieve a particular result. These considerations would need to be weighed against the costly features of quantitative restrictions. A similar set of arguments in relation to price versus quantity interventions might be made in relation to domestic content requirements.

Traditional economic analysis also establishes the welfare superiority of subsidies over tariffs. This argument is based on the fact that tariffs create distortions in consumption that are avoided by subsidies. This is a reason why RBI might be considered superior to ISI. One drawback with this argument, however, is that it assumes the revenue required for paying out subsidies can be collected in a relative price-neutral manner. An additional consideration is that developing countries will find it easier to tax than to subsidize because of a sparse revenue base. These debates are not entered into in any detail in this note.

**TARIFFS**

Individual WTO Members have consolidated their tariffs on goods under the WTO Agreement (Article II, General Agreement on Tariffs and Trade [GATT] 1994) to differing degrees and at different levels. Except for some customs unions, no two Members have identical maximum tariff obligations (bindings). Nor do Members generally share identical applied tariff rates. This is a reflection of several factors, including levels of development, the degree of participation in rounds of negotiations, and the conditions under which countries joined the GATT (accession or succession under Article XXVI, GATT 1947).

With the exception of RBI and ItI, the industrial policy approaches listed in Table 1 depend to some degree on
differentiated tariff levels, typically ranging from high tariffs on competing imports and low or zero tariffs on inputs. For ISI, this kind of structure is essential. The picture becomes more complicated if a domestic input industry is also being protected. For EOI, levels of protection in the domestic market may be less pronounced because of the export orientation of the strategy and the objective of equalizing returns to domestic and export sales. However, the policy generally seeks to ensure that imported inputs can be acquired at world prices. For RBI, high tariffs are not essential because the source of support is lower production costs resulting from taxes or restrictions on exports of manufacturing inputs. In the case of EPZs, imported inputs attract zero tariffs.

Although the experiences of individual countries may vary in terms of the factors determining bound tariff levels, it remains the case that many developing countries still maintain applied tariffs below their bound rates. This suggests that for these countries, tariffs are not likely to be among the most significant constraining policy instruments in their industrial policy design. Moreover, the provisions of Article XXVIII, GATT 1994 allow for the renegotiation of tariff bindings.

**EXPORT TAXES**

For historical reasons, export taxes have never received the same attention as import taxes. This is reflected in the absence of systematic bindings of export taxes, as well as any flanking policies dealing with valuation for tax purposes and with licensing (both elements of the WTO regime for imports). RBI is the only industrial policy that relies on export taxes, given the source of protection applied for this kind of diversification/industrialisation policy. It is precisely because RBI typically applies in cases where domestic (agricultural and non-agricultural) raw materials can be restricted on world markets that some countries are pressing for negotiations on new disciplines in this area. For the time being, however, apart from the case of some economies that have acceded under the WTO, the possibility of freely deploying export taxes remains open.

**QUANTITATIVE IMPORT AND EXPORT RESTRICTIONS**

Quantitative trade restrictions are generally frowned upon in economic analysis because of their distortionary and cost-raising impact in comparison to price-based measures. These arguments may be modified over long periods under uncertainty, as the recent literature dealing with climate change policies has demonstrated.

The general prohibition of quantitative trade measures, save in carefully specified exceptional circumstances (including for public policy reasons under Article XX, GATT 1994), does not appear to have been especially contentious. If anything, emphasis has been placed on ensuring that the legitimate use of quantitative limitations on trade is not compromised by hidden protection. It may be noted that in Table 1 all the listed industrial policy options except ItI could deploy quantitative restrictions instead of, or as well as, price-based measures. But we have argued that constraints here are not a strong restraint on flexibility precisely because of available alternatives.

**TRADE-RELATED INVESTMENT MEASURES**

The WTO strictures on the use of trade-related investment measures are perhaps more contentious than those applying to quantitative trade restrictions. The WTO Agreement on Trade-Related Investment Measures (TRIMs) prohibits the use of any measures linked to investment that infringe the national treatment provisions of Article III, GATT 1994, as well as...
as the general prohibition on quantitative restrictions under Article XI, GATT 1994. The Agreement makes a temporary exception for developing countries in relation to the use of quantitative restrictions on balance-of-payments grounds.

TRIMs place a range of regulatory requirements on the purchasing or marketing behaviour of investors. These requirements will in one way or another favour domestic production over imports. Investors are expected to accept these constraints in exchange for cost-offsetting advantages such as privileged market access (protection against competing imports) or subsidization (for example, corporate tax breaks). Both the obligation imposed on an investor and the reward offered in exchange may in some cases fall foul of WTO law.

While these WTO provisions restrict the use of industrial policy in different ways, a question arises as to whether alternative approaches might be available to achieve the same objectives, possibly at a lower cost. This is a similar argument to the one made in relation to quantitative trade restrictions in terms of efficiency costs. A possible objection to the comparison is that TRIMs may be less susceptible to the kinds of distortions that plague quantitative restrictions. The basic issue is whether the objective of securing favourable market conditions for domestic products in relation to competing imports could be better achieved through the tariff structure or through subsidies. This kind of argument has not prevented the fairly widespread use of TRIMs.

SUBSIDIES

The Agreement on Subsidies and Countervailing Measures (SCM) deems a subsidy to exist if there is a financial contribution (including revenue foregone) or any form of government-sanctioned income or price support, and a benefit is thereby conferred. An important additional element of the definition is specificity. A subsidy is considered specific if access to it is explicitly limited in some way (including to specific sectors, industries, or firms), either in terms of design or possibly outcome. In addition, Article 3 of the SCM Agreement prohibits subsidies that are contingent on exports or the use of domestic over imported goods. Both these are presumed to be specific subsidies. In practice, this is the key difference in the treatment of production and export subsidies, where the former are not ruled prima facie illegal, although they may turn out to be so in cases where adverse effects are established through a dispute settlement finding.

Potentially important exceptions to this framework arise in the case of agriculture, and for some developing countries. The Agreement on Agriculture (AoA) contains provisions permitting the continued use of export (and production) subsidies at negotiated levels, but this only applies to countries that were using such subsidies at the time the AoA was negotiated, and most developing countries have not negotiated such flexibility for the use of subsidies. It is notable that the definition of agricultural products includes processed foodstuffs.

In addition, Article 27 of the AoA allows least developed countries to continue to use export subsidies on manufactures, and other developing countries to do so provided their income per capita is below USD 1,000 per annum. Under Article 27.2 (b), developing countries were granted an eight-year period following the entry into force of the Agreement during which they were permitted to use export subsidies. This provision was subsequently renewed for certain developing countries on a set of specified products. Without further action to extend these exemptions, those that remain will soon expire.

Whether or not subsidies are considered illegal, they may be subject to countervailing or anti-dumping duties. This possibility clearly reduces any security that countries might otherwise enjoy in terms of legally sanctioned access to certain subsidy practices.

As far as the use of subsidies for industrial policy is concerned, WTO provisions are both constraining and a source of uncertainty. Production subsidies would seem to be an essential ingredient of ItI policies. Export subsidies are also a key ingredient of EOI and EPZs. Ultimately, the exposure to risk from WTO-sanctioned actions against countries using subsidies as a development tool depends on whether trading partners wish to take action. The likelihood that they will generally increases with country size and competitiveness.

In analytical terms, it is straightforward to distinguish between good and bad subsidies from a social welfare perspective. In practice, however, such distinctions are complex and contentious. Nevertheless, a case could be made for refining the legal approach to subsidisation on developmental and perhaps technological grounds (for example, R&D subsidies), while at the same time exploring ways of softening the competitiveness consequences of subsidies in the market place. It is worth recalling that Article 8 of the SCM Agreement provided for such partial flexibilities, but there was no consensus to continue its application at the end of the transition period in 2000.

CONCLUSIONS

Some of the strategies reviewed are more promising than others, both intrinsically and as a result of the influence of GVCs in production. Country or domestic market size can be a crucial determinant of opportunities, as can resource endowments. A key question underlying all this literature is how far policy can effectively shift resources to alternative, more desirable uses while ensuring competitiveness over time. The answer will obviously be context-specific and quite a few industrial policy experiments have foundered over the years.

The close involvement of governments in many variants of industrial policy can be a source of considerable risk. Good governance and integrity must be well developed. Technical, analytical, and operational capabilities must be strong.
strategic relationships and communication channels between governments, the private sector, and other relevant non-state actors need to be in place. In the absence of a certain level of attainment in these underlying conditions, the pursuit of these policies could leave a country no better off than it would be with no industrial policy at all.

Moreover, the greater the extent to which a government convincingly pursues what are commonly described as horizontal policies, the greater the likelihood that conditions will exist for the successful application of industrial policy. Most horizontal policies are less subject to constraining external influences that trading partners could deploy through the exercise of their WTO rights. On the contrary, aid-dependent countries may be able, with relative ease, to convince their major trading partners to provide financial and technical assistance to pursue horizontal reforms and build development infrastructure, including through such initiatives as Aid for Trade.

Governments will not necessarily do better than the market in identifying winners and must be able to act decisively in dropping failures before they become burdens on the economy. All said, however, the risks of leaving matters entirely to the market are likely to be as great.

As to the question of policy flexibility afforded by the WTO to pursue industrial policy, and the degree to which this may be considered a worthwhile issue for negotiation in the future, the note has laid out the issues without offering a systematic prescription. We have not entirely refrained, however, from offering views as to the direction one might look towards in addressing these issues. One of the stronger economic cases for seeking to negotiate modifications in WTO rules appears to be in the field of subsidies.

REFERENCES


EXECUTIVE SUMMARY

The world economy has recently seen an increasing trend in international production fragmentation, or the geographic separation of the activities involved in producing a good or a service across two or more countries. The resulting international organization of production has substantially increased interdependencies among economies around the globe, and has translated into a fast growing trade in intermediate inputs and services.

The process of fragmentation tends to eliminate the need to gain competency in all aspects of the production of a good, and allows developing countries to enter into the network of cross-border production sharing by specializing in just one or a few stages of the production activities involved in making a final good. This type of specialization allows developing countries to participate in a finer international division of labor. In its absence, emerging economies would have to master entire production processes to become strong competitors in world markets.

However, global value chains (GVCs) have not been spread evenly across the world as the main networks concentrate around East Asia, Europe, and North America. Many developing countries in Africa and Latin America, in particular, remain at the sidelines in cross-border production sharing. Indeed, the regional bias in GVC structures means that GVCs as currently structured are not optimal. We find that the regional bias stems from high transport and logistics costs that discourage value chains spanning long distances, and from trade policies—first and foremost preferential trading arrangements (PTAs), which have often been formed among neighboring countries. While being a member of a trade agreement does not necessarily impede a country from developing supply chains with non-member countries, most PTAs have rules of origin that disincentivize the use of materials from outside the bloc.

There are a number of multilateral and regional measures to reduce distortions in GVCs and encourage developing nations’ access to global production sharing.

First, while important for trade in general, the quality of logistics systems are particularly relevant for participating in cross-border production processes in which low inventory cost strategies, such as just-in-time delivery services, continue to be the norm. The WTO should pay keen attention to several other policy areas that affect transport costs in developing nations, including trade facilitation, Aid for Trade, and trade in transport services.

Second, cumulation of production across the various PTAs criss-crossing the world can be quite effective in reducing the distortive effect of rules of origin and spur cross-border production sharing. Granted, multilateral tariff and non-tariff liberalization would also reduce the bite of restrictive rules of origin—and in general encourage trade intermediates.

There is also a need for further analytical work on factors that arbitrate GVC structures. For example, more detailed evidence on how specific aspects of the logistics infrastructure (for example, port and airport efficiency, information and communication infrastructure, and customs procedures) interact with the participation of countries in a GVC is an important issue to examine further. Another important area is the optimal architecture of trade agreements—and balancing the need to curb trade deflection with the importance of keeping rules flexible enough to allow for offshoring opportunities.

INTRODUCTION

The world economy has recently seen an increasing trend in international production fragmentation, or the geographic separation of activities involved in producing a good or a service across two or more countries. The resulting international organization of production has substantially increased interdependencies among economies around the globe, and has translated into a fast growing trade in intermediate inputs and services (Yeats 2001; Hummels et al. 2001; UNCTAD 2004). There has certainly been no shortage of names for this phenomenon, from offshoring, global value chains (GVCs), and international production networks to slicing the value added chain (Krugman 1995), disintegration of production (Feenstra 1998), delocalization (Leamer 1996), and the great unbundling (Baldwin 2006). All this reflect a rush by economists and business people alike to cope with a fast-moving trend that is changing the world’s trade and production patterns.
From the point of view of developing countries, the increase in international product fragmentation provides opportunities to engage in international trade transactions that were virtually not available before. The process of fragmentation tends to eliminate the need to gain competence in all aspects of the production of a good, and allows developing countries to enter into the network of cross-border production sharing by specializing in just one or a few stages of the production activities involved in making a final good. This type of specialization allows developing countries to participate in a finer international division of labor. In its absence, they would have to master entire production processes to become strong competitors in world markets. For example, in stark contrast to the harsh development process followed by Germany and Japan in which entire supply chains were built domestically, countries such as China and Vietnam are following a different path to industrialization through entering existing international supply chains (Baldwin 2011).

But GVCs have not been spread evenly across the world as the main networks concentrate around East Asia, Europe, and North America. We find such regional biases are mostly due to trade costs and trade policies. The implication of the regional bias is that many developing countries, especially in Africa and Latin America, remain at the sidelines in cross-border production sharing, and GVCs are hardly optimized. Since participation in GVCs entails new opportunities for industrialization and development, it is important to optimize them. This paper seeks to deepen our understanding of the obstacles to optimal GVC structures and the access of countries to GVCs.

The paper is organized as follows. In Section 2, we explain the rationale for the analysis by summarizing the relevant empirical and theoretical literature. In Section 3, we present systematic evidence on the extent to which GVCs are regional. An econometric model is developed in Section 4 to measure the impact of specific drivers of production location on the regional patterns of GVCs. The section also discusses what the findings of this model imply for developing countries seeking to join GVCs. Section 5 discusses multilateral and regional policies for optimizing GVCs. Section 6 concludes by re-emphasizing the main findings.

**EMPIRICAL AND THEORETICAL BACKGROUND**

Most of the evidence on GVCs consists of cases involving countries in similar regions. Examples abound, from Mexico’s maquiladoras and Canadian suppliers linked to United States (US) multinational corporations (MNCs) to Japanese firms outsourcing production processes in East Asia. Even in the well-documented cases of US-designed iPods and iPhones, most of the actual manufacturing takes place “regionally” with China assembling parts and components provided by Japan, Korea, and Taiwan (Dedrick et al. 2008, 2012). The anecdotal evidence is supported by more systematic analyses such as those using micro data of MNCs. For instance, Kimura and Ando (2005) show that 80 percent of MNCs in Japan locate foreign affiliates in East Asia and more than half of all their affiliates are only located in this region. This is not to suggest the absence of truly global supply chains with firms linked across faraway regions, but existing evidence tends to support the claim that the majority of international production networks are regionally oriented.

While transport costs are the main factor that comes to mind to explain the regional character of many supply chains, casual evidence also suggests that many regional supply chains are intrinsically related to certain agreements and/or arrangements that occur across nearby countries. For instance, before the 1965 US-Canada Auto Agreement, trade in auto parts between these two countries practically did not exist. After the 1965 agreement reduced tariffs to zero, auto trade soared, igniting a successful US-Canada auto supply chain in which 60 percent of US auto exports to Canada are engines and parts, while 75 percent of Canadian auto exports to the US are finished cars and trucks (Hummels et al. 1998).

The emergence of “factory Asia” is another example in which the surge of Asian supply chains coincided with a series of actions (not always well-organized policies designed for the formation of international production networks) that were adopted regionally and may have helped spur the growth of regional cross-border production sharing in that part of the world. For example, starting in the 1970s, many countries began implementing policies for the aggressive attraction of foreign direct investment (FDI)—the backbone of many supply chains—and after the Asian currency crisis in 1997–98, the trading bloc became much more integrated (Kimura 2006), deepening trade linkages within the region, particularly in parts and components. Today, low protection levels on semi-processed products are a common factor across the Asian region (WTO IDE-Jetro 2011).

The enlargement of the EU provides additional evidence on the relationship between common regional actions and forming regional production networks. For instance, using trade data, Curran and Zignago (2012) show that the reliance of EU industry on other member states, which has been traditionally large, has only increased since enlargement. The process of enlargement, which required the new member states to apply the same common external tariffs of the bloc, triggered unprecedented flows of FDI from the old to the new members, with the main recipients being Hungary, the Czech Republic, and Poland, the three countries that have since become crucial parts of the European supply chain (Karkkinen 2008).

In the next section, using world data on trade in value added, we provide systematic evidence on the extent to which GVCs are regionally oriented. Before moving to this, however, it is useful to review the relevant literature behind the formation of GVCs to highlight some of the forces that may explain regional patterns behind the international organization of production.
During the last two decades, the literature on the so-called theory of fragmentation or offshoring has been growing rapidly. Following the work of Jones and Kierzkowski (1990), economists have been outlining models that explicitly recognize the fact that firms are increasingly fragmenting production processes into various stages or tasks and moving them to places with different location advantages (Jones and Findlay 2000, 2001; Jones and Kierkowski 1998, 2000, 2001; Deardorff 2001a, 2001b; Grossman and Rossi-Hansberg 2008). These studies examine the main forces behind the international organization of production. Most of the models in this literature share features from the earlier literature on FDI, namely that firms will fragment production across different countries to arbitrage international differences in factor prices (Helpman 1984; Helpman and Krugman 1985).  

The basic rationale behind the theory of fragmentation is as follows. In traditional production processes, inputs are organized and combined to generate final outputs in the same location. In the presence of many inputs, coordination is normally necessary and proximity helps keep the costs of coordination low. But if firms could separate the production process into various production blocks and relocate them in places with lower factor costs, the total cost of production could be lowered. Thus, firms may unbundle their production processes as long as the saved production costs arising from the fragmentation process compensate for the additional costs of coordinating remotely located production blocks plus the costs of moving these production blocks around.  

This framework highlights the main forces behind the international unbundling of production, namely comparative advantage considerations such as differences in factor prices across countries, as well as the overall costs of coordinating activities and moving various inputs from one country to another. In this respect, trade impediments such as tariffs and costs of transportation are likely to be major factors behind the costs of moving inputs across borders.

It is then reasonable to expect that countries that are part of a regional trade agreement (RTA) are more likely to engage in cross-border production sharing, particularly because of the proportionally larger effects of lowering a tariff rate on a production process that crosses borders many times (as it is often the case in international supply chains) as opposed to a final good that crosses borders only once. Additionally, due to the impact of transport costs, large distances can potentially erode the saved production costs that emanate from the fragmentation and relocation of production, limiting the range of countries that could join a given supply chain.  

An additional factor that may limit the physical distance between buyers and suppliers is related to uncertainty. Uncertainty in the delivery of any single component of a supply chain can have quite disrupted impacts in the production of a final good as entire production lines might be shut down until all the necessary inputs have arrived. Companies can face this uncertainty by holding large quantities of inventory, but modern supply chain practices are increasingly moving towards low inventory holdings in an effort to cut costs, part of so-called lean production strategies. To the extent that uncertainty in delivery increases with distance, clustering would be the most likely outcome to assure timely delivery of all the components. This is indeed the prediction of a theoretical analysis by Harrigan and Venables (2006).  

Based on the above discussion, and after presenting evidence on the regional patterns of GVC participation in the next section, Section 4 points to an econometric model that examines the relationship between regional patterns of trade in GVCs and the specific drivers of GVC location.

**THE PATTERNS OF TRADE IN VALUE ADDED**

One way to account for the participation of countries in GVCs is to trace the value added of each source country in a globally integrated production network. Studies like this have emerged on a case-by-case basis, from the iPod and iPhone (Dedrick et al. 2008, 2012) to the less technologically intensive but still widespread multi-country production of Barbie dolls (Tempest 1996). The information in these case studies is very rich as they show which countries participate in the supply chain of a particular good and how much value they add to its production. The studies have revealed, for example, that even though China exports the iPod and the full value of this product accrues in its trade statistics, the country only contributes 3.8 percent of the value as many other countries participate in the production. This case-by-case examination of specific international supply chains is very revealing, but the approach is so data demanding that it would be unfeasible to cover the supply chain of every good that a country co-produces. This makes the technique impractical to generate aggregate measures of the participation of countries in GVCs.

---

1. The new models of fragmentation are generally not limited to multinationals exclusively. The main predictions of these models tend to apply to companies that fragment production internationally regardless of whether this is done within the boundaries of the firm or through independent suppliers. A more recent strand of the literature examines the more specific issue of whether the fragmentation of production occurs within the boundaries of the firm or through an independent supplier (Antrás 2003; Antrás and Helpman 2004, 2008). This is called the internalization decision.

2. This class of models is called the vertical model of FDI and it was developed in parallel to the horizontal model of FDI in which the objective behind the MNC is to save on the trade costs associated with exporting by setting up foreign subsidiaries producing similar goods to those produced at home (Markusen 1984; Horstmann and Markusen 1987). Later on, the knowledge-capital model was developed, simultaneously allowing horizontal and vertical FDIs (Markusen 1997).

3. This notion is formally developed by Ishii and Yi 1997. They show that tariff reductions have a proportionately greater effect on vertical trade involving goods produced sequentially in multiple countries relative to goods produced entirely in one country.
Recently, however, a new literature has emerged, combining input-output tables with bilateral trade statistics to trace the value added of a country’s trade flows (for example, Hummels et al. 2001; Johnson and Noguera 2012a, 2012b; Miroudot and Ragoussis 2009; Koopman et al. 2008; Koopman et al. 2010; De La Cruz et al. 2011). The literature has evolved rapidly and produced an array of indicators assisting in the quantification of the extent to which countries participate in cross-border production sharing.

One aspect that might seem puzzling at first is the relatively small value of foreign value added in North America relative to the values observed in Europe and Asia. This, however, can be explained by two factors. On the one hand, large countries such as the US or Canada usually find more factors and resources within their own borders than small countries. It is well known that this generates small values in traditional trade measures such as “openness” and generates small values on our measure of foreign value added. The second factor is that in some industrialized countries, primarily in the US, some of the value added incorporated in their imported inputs originates from that country itself. Consider the example of a US firm that exports materials to Mexico for processing, which are then re-exported back to the US and used as intermediate inputs in a final good that is later exported to other countries. The original value added from the US that is incorporated in these imported inputs from Mexico is not included in our calculation of foreign value added. This is called “reflected domestic value added” in the literature or the domestic value added that returns home (Koopman et al. 2010). In countries such as the US, where the domestic value added that returns home is large, the foreign value added tends to be relatively smaller than in other countries. But this does not mean that the country does not participate in cross-border production sharing. It only means that the participation of the US in GVCs is much more complex than the participation of other countries because it enters the supply chain at various points. In Figure 2, we add this “reflected value added” to the measure of foreign value added presented before, and we can see that the participation of the North America region increases substantially.

Another measure that is useful in assessing how countries participate in supply chains is the GVC position (see the Appendix). Koopman et al. (2010) measure GVC position as the ratio of indirect value added to foreign value added, where indirect value added is the value added of a country that is embodied in the exports of its partners. We employ the same measure here. When the GVC position is high, a country tends to participate more as a provider of value added than as a recipient of foreign value added. Therefore, the country is relatively upstream in the chain. Conversely, when this measure is small, a country tends to participate more as a recipient of value added than as provider, and it is relatively downstream in the chain. Figure 3 shows the average GVC position by regions. The Latin American region has the largest GVC position, which is not surprising. Latin American countries tend to export natural resource-intensive goods and these types of goods tend to be located upstream in the chain. Europe, on the other hand, has the smallest value, reflecting a position in GVCs much closer to the end of the production process. North America and Asia-Pacific are in the middle of the range, indicating a mix of production processes in which the participation in GVCs as providers and as recipients of value added is somewhat balanced.

4 It is worth noting that including Mexico in the Latin America group does not qualitatively change any of the results.
REGIONAL PATTERNS OF TRADE IN GVCS

The previous indicators were useful in highlighting differences across regions in terms of their overall participations and positions in GVCS. However, the indicators did not say anything about the regional bias of the involvement in GVCS. For instance, we do not know if the foreign value added of Asian exports comes mostly from countries in Asia or from other regions. The usefulness of the methodology employed in this paper, based on international input-output tables, is that we can track the origin of the foreign value added by source country/region. This allows us to move beyond the casual evidence mentioned in Section 2 and present more systematic evidence of the extent to which participation in GVCS is regionally biased. This is what we do now.

Figure 4 shows the contribution of foreign value added of each region by countries in its own region and by countries from other regions. The results unequivocally show a large regional bias in GVCS participation. On average, about half of the foreign value added originates from countries in the same region. In Europe, Asia-Pacific, and North America, for example, the within-regional contribution to foreign value added is 51 percent, 47 percent, and 43 percent, respectively, and in none of these cases does the contribution from extra-regional sources reach 20 percent. Only in Latin America is the contribution of another region, North America (28 percent), practically similar to the contribution of its own region (27 percent), but even in this case the contributions of more distant regions such as Europe and Asia are smaller.

These results point to a strong role for proximity in explaining the patterns by which countries unbundle their production processes and locate them abroad. As mentioned in Section 2, there can be various mechanisms that could explain why proximity may matter, most notably the costs of shipping bundles of goods across space and the existence of RTAs among nearby countries. In the next section we present an econometric model to disentangle the role of each of these forces while controlling for other elements.

DETERMINANTS BEHIND REGIONAL PATTERNS OF GVCS

In this section, we estimate an empirical model to isolate the impact of specific drivers behind the regional patterns of GVCS. The model is based on a gravity equation, the workhorse of empirical international trade. Gravity equations, which have been shown to have theoretical underpinnings,\textsuperscript{5} are typically estimated using gross trade flows. More recently, however, they have also been employed to examine trade in value added (Johnson and Noguera 2012b). The specific gravity model that we employ takes the following form:

\[
Y_{ij} = \theta + \alpha D_i + \beta D_j + \delta X_{ij} + \phi PTA_{ij} + \epsilon_{ijk} \tag{1}
\]

where \(Y_{ij}\) is the foreign value added from country \(j\) in the exports of country \(i\); \(D_i\) and \(D_j\) are fixed effects for country \(i\) and country \(j\), respectively, \(X_{ij}\) is a vector of bilateral variables, and \(PTA_{ij}\) is a variable that captures PTAs. The formulation follows others in using individual country fixed effects to estimate trade equations (Feenstra 2004; Eaton and Kortum 2001, 2002).\textsuperscript{6} More specifically, the vector \(X_{ij}\) comprises a series of variables that are standard in gravity models. These variables are the bilateral distance between both countries and dummy variables for the same border, same language, and same colonial ties. The dummy variable \(PTA_{ij}\) is equal to one if the countries are part of the same PTA and zero otherwise.

\textsuperscript{5} See Anderson and van Wincoop 2003, Eaton and Kortum 2002.

\textsuperscript{6} These individual country-fixed effects play the same role as the multilateral resistance index introduced by Anderson and van Wincoop 2003. Additionally, potential econometric problems related to exogeneity and omitted variables are largely reduced by using these fixed effects (Anderson and Yotov 2012).
In this paper, we are particularly interested in the coefficients for distance and for the trade agreement variables. Note that in our specification the fixed effects $D_i$ and $D_j$ will control for any country characteristics such as size (for example, gross domestic product [GDP], population, and area) or level of development (for example, GDP per capita) that may also affect the extent to which countries use foreign value added.

The results of our baseline estimation are in Table 1. As noted in columns 1 and 2, countries that share the same border, language, and colonial ties are more likely to engage in cross-border production sharing. More importantly, the results show that physical distance substantially decreases foreign value added. In column 2, for example, the results imply that an increase of 10 percent in distance reduces foreign value added, on an average, by around 67 percent. Physical distance is a proxy for the costs of transportation, and the finding supports the notion mentioned in Section 2 that if these costs are large they can erode the saved costs from locating blocks of production in other countries, particularly if they are far away.

Another finding from column 2 is that even after controlling for the effect of distance, foreign value added is positively and significantly related to PTAs. Membership in the same PTA increases foreign value added, on an average, by around 15 percent. In other words, countries will source 15 percent more of their foreign value added from members of the same PTA than from non-members. Therefore, the fact that trading across borders in the same PTA does not add extra duties creates an incentive to source part of the production process from countries that share the same trade agreement.

It is worth mentioning that while the role of distance is clear in explaining the regional bias of GVC participation, the role of PTAs is less obvious; after all, PTAs have been signed between countries as distant as the US and Bahrain. More often than not, however, PTAs are signed between nearby countries or among countries in similar regions. Therefore, sharing a trade agreement often represents an incentive to source materials from proximate countries in addition to the incentives offered by transportation costs savings.

**DISCUSSION AND FURTHER EVIDENCE**

The econometric evidence shows that proximity matters. Global supply chains are less likely to flourish if the participating countries are at a distance. This opens up some questions on the options for many developing countries that are not close to major GVC regions but are aiming to improve their participation in them, such as countries in Latin America and the Caribbean (LAC). At least three issues are worth mentioning about this. First, a remote country/region is not entirely forbidden to join an international supply chain because of long distance. However, the results imply that some form of compensation for high transportation costs would probably be required. Most likely this compensation will take place with savings in production costs arising

---

**TABLE 1:**

Baseline Estimation

Note: ***, **, * significant at the 1 percent, 5 percent, and 10 percent levels respectively.

<table>
<thead>
<tr>
<th>Regressor</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contiguity</td>
<td>0.9059***</td>
<td>0.8989***</td>
</tr>
<tr>
<td></td>
<td>(0.0443)</td>
<td>(0.0442)</td>
</tr>
<tr>
<td>Common language</td>
<td>0.2355***</td>
<td>0.2334***</td>
</tr>
<tr>
<td></td>
<td>(0.0249)</td>
<td>(0.0248)</td>
</tr>
<tr>
<td>Colonial ties</td>
<td>0.2569***</td>
<td>0.2652***</td>
</tr>
<tr>
<td></td>
<td>(0.0531)</td>
<td>(0.0529)</td>
</tr>
<tr>
<td>Distance</td>
<td>-0.7088***</td>
<td>-0.6667***</td>
</tr>
<tr>
<td></td>
<td>(0.0109)</td>
<td>(0.0121)</td>
</tr>
<tr>
<td>PTA</td>
<td></td>
<td>0.1475***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0186)</td>
</tr>
<tr>
<td>Importing country fixed effect</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Exporting country fixed effect</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>11,740</td>
<td>11,740</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.91</td>
<td>0.91</td>
</tr>
</tbody>
</table>
from strong comparative advantages. Therefore, for many developing countries, like in LAC, accessing GVCs in other regions is likely to take place, at least initially, in sectors where comparative advantages are the strongest. Second, transport costs are not solely determined by distance. The costs of transportation also depend on issues such as volume, the level of containerization, the degree of competition among shipping companies, and the quality of the transport-related infrastructure, among others. It has been shown, for example, that around 30 percent of the larger freight rates of LAC’s exports to the US relative to those from Europe can be explained by differences in port efficiency (see Moreira et al. 2008). What the results then imply is that for faraway countries to join GVCs, issues such as improving port or airport efficiency are likely to be more important to offset the impact of distance than for nearby countries. Finally, countries away from major GVC regions can seek to develop their own regional value chains. This could be the case, for instance, across countries in LAC in which some regional value chains already exist. But even if these are the type of supply chains that are more likely to emerge in LAC, it is still important to be aware of the differences that exist in terms of distance across countries there versus the distances across countries in other regions. For example, the average bilateral distance across all the East Asian and ASEAN countries is around 2,400 kilometres while the average distance across countries in LAC is 3,000 km. If we include the US and Canada, the distance across the Americas is 3,200 km, or 30 percent more than in Asia. Therefore, even for the prospects of intra-regional supply chains in the Americas, the vast distances of the continent impose a challenge. In addition, because of the geography, most of the shipments across countries in Asia take place by sea while within LAC, many shipments take place by land, a mode with lower economies of scale and thus higher per unit freight costs. True, land transportation is the main shipping mode within Europe but the distances are much smaller. The average bilateral distance among all 27 European countries is 1,400 km, which is less than half the average distance across the Americas. Again, the issue of long distances does not necessarily mean that the prospects for the creation of regional supply chains are doomed to fail. It means that everything about connectivity, including the efficiency of port and airport infrastructure, and the quality of internal road networks, is relatively more important for LAC than for countries in other regions that are closer to each other.

The role of trade agreements is another issue emerging from the econometric results that is worth discussing further. As mentioned, the fact that many trade agreement occurs between countries in similar regions imply that sharing a trade agreement adds an additional layer of incentives, beyond transport costs, to co-locate production in nearby countries. So what does this imply for the prospects of countries that are not members of PTAs? In principle, being a member of a PTA does not necessarily impede a country from developing supply chains with non-member countries, particularly if tariff rates between them are not very large. However, most PTAs have rules, in the form of rules of origin (RoO) that disincentivize the use of materials from outside the bloc, particularly if they are employed to produce final goods that are later exported to other members of the PTA. In some cases, however, the RoO are flexible enough for countries to engage in cross-border production sharing even with members outside the PTA. Therefore, it is worth examining the issue of RoO in more detail.

RoO are critical parts of PTAs because they establish the conditions that a product must satisfy to be deemed as originating from the country seeking preferential access (Estevadeordal and Suominen 2006). They are primarily used to prevent trade deflection—that is, to avoid products from non-participating countries reaching a high-tariff PTA partner via transshipment through a low-tariff PTA member. But depending on how they are designed, RoO can have quite important implications on the way firms choose a location to fragment production.

The most obvious implication, as mentioned, is that RoO restrict outsourcing from countries outside a PTA. Take, for instance, a firm producing a good entirely in country A and selling it tariff free to country B within the same PTA. If the firm decides to use inputs from country C outside the PTA, depending on the RoO of the agreement, the final good that it is exported from A to B will now pay import duties. Therefore, the RoO can disincentivize outsourcing from outside the PTA, especially if the final destination of the good is within the PTA.

RoO can also limit the outsourcing of production processes among countries that have parallel or overlapping PTAs. Consider the example of country A that has separate PTAs with two countries B and C. Any final good produced in B or C would have tariff-free access to country A. However, a good produced in B using inputs from C and exported to A would not. In this case, RoO create disincentives for firms in country B to outsource part of the production process to country C even if it makes economic sense to do so.

Finally, RoO can even limit the outsourcing possibilities among countries in the same PTA. Take, for instance, the case of the North American Free Trade Agreement (NAFTA). In this agreement, the relevant RoO implies that a final good produced in the US with inputs from Canada can be exported to Canada with zero import duties in the same way as if the good was entirely produced in the US. However, if the inputs used in the US come from Mexico—another NAFTA country—the final good exported to Canada will have to pay an import duty. Again, this creates disincentives to relocate part of the production process from the US to Mexico.

While RoO can impose limits on the range of countries that can participate in the international fragmentation of production, it is also possible to reduce these limits through various instruments, for instance, with flexible cumulation rules (such as diagonal cumulation), with higher de minimis levels, or by allowing for duty drawbacks. Cumulation in

---

7 We use great-circle distances between the capitals of the countries.
inputs from Chile relative to Bolivia. Now, let us complete the PTA. China does not have any additional incentives to source or Bolivia. Therefore, beyond the incentives created by the same extra duties for using non-originating inputs from Chile exports to other members of its PTAs will need to pay the or, by the same token, from Bolivia. In other words, China’s is because none of China’s PTAs allow cumulation from Chile or Bolivia, even though it has an agreement with Chile. This does not have more of an incentive to import from Chile than with Bolivia. Again, this is the bilateral impact captured by the PTA dummy in the gravity equation. The second effect now implies that when it comes to importing goods that will be subsequently used in China’s exports to other members of its PTAs, China has more of an incentive to import from Thailand than from Chile or Bolivia because it can cumulate materials from Thailand to export to other ASEAN countries while it cannot do so from Chile or Bolivia. Therefore, the diagonal cumulation gives an extra incentive to imports from Thailand. Note that this incentive can take place regardless of whether there is an FTA between Thailand and China.

It is important to note that because RoOs can restrict the fragmentation of production even within the same PTA. Depending on how they are crafted, the mechanisms mentioned above (cumulation, de minimis, duty drawbacks) can act as incentives to encourage more cross-border production sharing among the countries of the same PTA and/or between them and non-PTA countries.

It is worth noting, however, that the capacity of these mechanisms to incentivize trade in general, particularly trade in inputs, has not been analyzed empirically before. From the results in Table 1, for example, we know that a country is more likely to obtain foreign value added from a member of its PTA, but we do not know what extra incentives mechanisms such as diagonal cumulation can create to encourage the participation of a country in GVCs. This is an issue that we explore now.

To gain some perspective before we proceed with an econometric analysis, let us consider the following example. China is a country that has 10 PTAs, including one with Chile. None of the PTAs that China has with countries other than Chile allows diagonal cumulation with Chile. This means that an export from China to any of its PTAs will enter with zero tariff if it is produced entirely in China but will pay a duty if it uses materials from Chile. This situation implies the following. On the one hand, the agreement with Chile means that when China sources imported inputs to be employed for domestic final demand or for exports to countries that are not part of its PTAs, it has more incentives to trade with Chile than, say, with Bolivia, a country with which it does not have a trade agreement. This effect is captured by the PTA dummy that we include in the gravity model in equation (1) and it is also the typically bilateral effect that is analyzed in the empirical literature on free trade agreements (FTAs) and trade. However, when it comes to importing goods that will be subsequently used in the exports of China to members of its PTAs, China does not have more of an incentive to import from Chile than from Bolivia, even though it has an agreement with Chile. This is because none of China’s PTAs allow cumulation from Chile or, by the same token, from Bolivia. In other words, China’s exports to other members of its PTAs will need to pay the same extra duties for using non-originating inputs from Chile or Bolivia. Therefore, beyond the incentives created by the preferences that China grants to Chile with its own bilateral PTA, China does not have any additional incentives to source inputs from Chile relative to Bolivia. Now, let us complete the exercise by introducing another country, Thailand. Thailand is a member of the ASEAN, with which China has a PTA. It is also the case that diagonal cumulation is allowed between ASEAN countries and China. This implies the following. First, when China sources imported inputs to be employed for domestic final demand or for exports to countries that are not part of China’s PTAs, it has more incentives to trade with Thailand than with Bolivia because of the trade agreement. This is similar to the additional incentive that China has to trade with Chile than with Bolivia. Again, this is the bilateral impact captured by the PTA dummy in the gravity equation. The second effect now implies that when it comes to importing goods that will be subsequently used in China’s exports to other members of its PTAs, China has more of an incentive to import from Thailand than from Chile or Bolivia because it can cumulate materials from Thailand to export to other ASEAN countries while it cannot do so from Chile or Bolivia. Therefore, the diagonal cumulation gives an extra incentive to imports from Thailand. Note that this incentive can take place regardless of whether there is an FTA between Thailand and China.

In what follows, we present an empirical exercise that examines the role of diagonal cumulation on cross-border production sharing. The exercise consists of augmenting the gravity model in equation (1) as follows:

$$Y_{ij} = \theta + \alpha D_{ij} + \beta D_{k} + \delta X_{ij} + \phi P_{ij} + \gamma CUM_{ij} + \epsilon_{ijk}$$

(2)

where $CUM_{ij}$ is equal to 1 if the importing country $i$ has a trade agreement with third countries that permit cumulation with country $j$ and zero otherwise, and the rest of the variables are the same as before. Note that the traditional bilateral effect of having a trade agreement will still be captured by the PTA variable. In other words, the PTA variable will still measure the incentives for country $i$ to source inputs from country $j$ because they share a trade agreement. But in addition to this effect, now the $CUM$ variable will capture the additional impact that involves a relationship between three parties. That is, $CUM$ will measure the incentives for country $i$ to source inputs from country $j$ because country $i$ can cumulate these inputs to export goods to third countries. Note that this modeling can encompass many different situations. For instance, country $i$ and $j$ might have a PTA, and this PTA might be the same as the PTA that country $i$ has with third countries. It can also be the case that the PTA between countries $i$ and $j$ is different from the PTA that country $i$ has with third countries. Finally, it is also possible that country $i$ and $j$ do not share a PTA. In all these situations, $CUM$ will be equal to 1 if country $i$ has a PTA with third countries that permit cumulation from country $j$.

Constructing the cumulation dummy is not an easy task. It involves, for each country $i$, analyzing each of its PTAs and identifying whether it permits cumulation with each of the countries in the sample. Accordingly, we restrict this exercise to a smaller set of countries. In particular, we examine the country members of the ASEAN FTA (AFTA; Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam), the ASEAN-China FTA (ACFTA;
ASEAN countries and China), the ASEAN-Korea FTA (AKFTA; ASEAN countries and Korea), and the Trans-Pacific Partnership (TPP; Brunei, New Zealand, Chile, and Singapore). More specifically, the sample of country i will be restricted to the countries in these agreements while the sample of country j includes all the countries as before. Note that the countries in each of these agreements are allowed to engage in diagonal cumulation among themselves. Note also that because any pair of countries could share the same PTA and also be allowed to cumulate with other members of the agreement, the variables PTA and CUM will be equal to 1 among all the country pairs of each of these agreements. The identification of the effect on cumulation comes from that many of these countries have PTAs with other nations with whom they cannot cumulate. In those cases, the PTA dummy is equal to 1 while the CUM dummy is equal to zero.⁸

The results of this exercise are shown in Table 2. Columns 1 and 2 depict similar specifications as columns 1 and 2 of Table 1; that is, without including the variable CUM. Note from these columns that the PTA dummy again has a positive and significant impact on foreign value added with a coefficient that is comparable to the results in Table 1. In column 3 we add the variable to capture the effect of cumulation. The results in this column indicate that the PTA variable is still positive and significant with a coefficient that decreases only slightly relative to column 2. Most importantly, there is this additional impact from the cumulation mechanism that is also positive and significant. The results imply that countries will source 9 percent more of their foreign value added from members of the same PTA and an additional 20 percent if cumulation is possible.

Column 4 presents an alternative specification to examine the same issue. Specifically, we include a PTA dummy that is equal to 1 if country i has a PTA with country j but no cumulation is possible (PTA – No cumulation), and another PTA dummy that is equal to 1 if country i has a PTA with country j but cumulation is possible (PTA – Cumulation). In essence, this specification presents the differential impact of PTAs that allow cumulation from those that do not allow cumulation.

---

**TABLE 2:**

The Role of Diagonal Cumulation

Note: ***, **, * significant at the 1 percent, 5 percent, and 10 percent levels respectively.

<table>
<thead>
<tr>
<th>Regressor</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contiguity</td>
<td>0.8620***</td>
<td>0.8454***</td>
<td>0.8295***</td>
<td>0.8295***</td>
</tr>
<tr>
<td></td>
<td>(0.1092)</td>
<td>(0.1094)</td>
<td>(0.1096)</td>
<td>(0.1096)</td>
</tr>
<tr>
<td>Common language</td>
<td>0.0331</td>
<td>0.0245</td>
<td>0.0316</td>
<td>0.0316</td>
</tr>
<tr>
<td></td>
<td>(0.0639)</td>
<td>(0.0640)</td>
<td>(0.0640)</td>
<td>(0.0640)</td>
</tr>
<tr>
<td>Colonial ties</td>
<td>0.3439*</td>
<td>0.3657***</td>
<td>0.3668**</td>
<td>0.3668**</td>
</tr>
<tr>
<td></td>
<td>(0.1807)</td>
<td>(0.1808)</td>
<td>(0.1807)</td>
<td>(0.1807)</td>
</tr>
<tr>
<td>Distance</td>
<td>-0.6488***</td>
<td>-0.6448***</td>
<td>-0.6290***</td>
<td>-0.6290***</td>
</tr>
<tr>
<td></td>
<td>(0.0426)</td>
<td>(0.0426)</td>
<td>(0.0435)</td>
<td>(0.0435)</td>
</tr>
<tr>
<td>PTA</td>
<td>0.1116**</td>
<td></td>
<td>0.0977*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0560)</td>
<td></td>
<td>(0.0565)</td>
<td></td>
</tr>
<tr>
<td>CUM</td>
<td></td>
<td></td>
<td>0.2079*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0186)</td>
<td></td>
</tr>
<tr>
<td>PTA - No cumulation</td>
<td></td>
<td></td>
<td></td>
<td>0.0977*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.0565)</td>
</tr>
<tr>
<td>PTA - Cumulation</td>
<td></td>
<td></td>
<td></td>
<td>0.3056**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.1222)</td>
</tr>
<tr>
<td>Importing country fixed effect</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Exporting country fixed effect</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>1,480</td>
<td>1,480</td>
<td>1,480</td>
<td>1,480</td>
</tr>
<tr>
<td>R²</td>
<td>0.93</td>
<td>0.93</td>
<td>0.93</td>
<td>0.93</td>
</tr>
</tbody>
</table>

⁸ It is also the case that the countries in these agreements do not have PTAs with many other countries in the sample.
more clearly. According to the results, countries will source 9 percent more of their foreign value added from members of the same agreement if the PTA does not allow cumulation, while they will source 30 percent more from members of the same agreement if the PTA allows cumulation. This result is equivalent to the one in column 3. Both results support the notion that the capacity to cumulate adds extra incentives to trade, especially to engage in cross-border production sharing.

Obviously, because the diagonal cumulation mechanism only takes places among countries of the same PTA in this exercise, the findings support the notion that it significantly encourages cross-border production sharing across PTA countries. But, in general terms, the results suggest that allowing diagonal cumulation can be an important mechanism to promote international linkages between PTA members and non-PTA members. The general idea is that even though a country is not part of a PTA, allowing cumulation with that country can go a long way in integrating it into regional supply chains. This is then one mechanism by which developing countries that are not members of certain PTAs could benefit as it improves their chances of accessing international/regional production networks.

**IMPLICATIONS FOR THE WTO**

GVCs are mostly regional. This is due primarily to transportation costs that rise with distance, and trade agreements, which have first and foremost been forged among neighboring countries. This regional bias in GVCs has two implications.

First, some countries (typically developing countries in Latin America and Africa) have remained at the periphery of GVCs. They are distant from the main GVC clusters and do not necessarily share trade agreements with "GVC hub regions."

Second, some of the regional clustering of GVCs is due to geographic factors that cannot be altered, but much is due to trade policy and transportation costs, which can be changed. Granted, these variables will likely evolve with changes in energy costs (which, if increasing, can incentivize shorter value chains); education and information technology (which, if improving, can obliterate distances); and new trade agreements (which are increasingly struck across continents). However, an optimal scenario where GVCs are unconstrained by trade or transportation barriers has yet to be reached.

Only a multilateral approach can effectively encourage globalization of value chains. There is unique value in a multilateral approach that includes all regions, and in a comprehensive approach across trade disciplines. This is something only the WTO can accomplish. To optimize GVCs by reducing transportation costs and trade barriers, work has to be done in at least six major areas.

- **Trade facilitation**: Trade facilitation is key to fluid trade in intermediate products and particularly critical for developing nations, which stand to gain considerably from policies and measures that help fuel trade. Trade facilitation is also a central issue in the Doha Round. However, the negotiations have been quite narrow in scope and implementing their outcome will take a long time. In the light of the urgency of trade facilitation to WTO Members, particularly developing nations, they should agree to implement the Trade Facilitation Agreement, possibly as a plurilateral agreement not requiring a formal conclusion of the Single Undertaking.

- **Aid for Trade**: To a large extent purported to catalyze investments in infrastructure improvements, the global Aid for Trade agenda, an integral part of the Doha Round, is an important complement to trade facilitation agreements in helping developing countries access GVCs.

- **Barriers to intermediate imports**: Protectionist reactions crept up in the wake of the Great Recession, and some nations have supported tariff and non-tariff measures, such as "buy local" provisions for replacing input imports with domestically made goods, generally to encourage production and job creation at home. Policies to keep imports out and production in are, however, ultimately self-defeating. They curb access to the most efficient intermediate goods for production of exports; undermine opportunities to absorb foreign technologies, and erode participation in GVCs (which would help create jobs). Non-tariff barriers such as regulations and standards can significantly limit trade in intermediates and must be dealt with rigorously at the multilateral level.

- **Services liberalization**: Quality of transportation services affects trade costs and is a major determinant of how GVCs are structured. Transport, communications, and distribution are key services sectors and closely linked to trade costs. Yet barriers to trade in services remain very steep, particularly in developing nations. Liberalization of transportation services could significantly enhance these countries' access to GVCs. Granted, PTAs have progressed well beyond the WTO and the General Agreement on Trade in Services (GATS) in services liberalization; for the WTO to catch up, Members may be well advised to seek a plurilateral agreement among a substantial coalition of the willing.

- **Cumulation across PTAs**: PTAs reduce trade policy barriers that otherwise may discourage value chains among the parties; however, PTAs’ RoO can undermine their members’ incentives and ability to participate in GVCs. Such problems can be reduced through further multilateral tariff liberalization (which reduces the attraction of PTA preferences and thus the need to comply with RoO), and cumulation across several RTAs into larger trade areas. This happened in Europe in the late 1990s, and is set to happen
in the Asia-Pacific through the TPP negotiations and in Latin America through the Pacific Alliance.

- **Intellectual property**: Outsourcing and "slicing" the production chain requires the sharing of a wide array of proprietary knowledge. Inadequate intellectual property (IP) protections erode innovators' profit margins and businesses' incentives to extend value chains to third countries for fear of IP theft. Concerns about IP have increased with recent efforts to incentivize technology transfer to certain nations through compulsory licensing of patents and "indigenous innovation" policies. China, for example, has established a preference in government procurement to products whose IP is owned and originally trademarked in China—which essentially means exchanging market access to foreign firms for technology transfer to China. This disadvantages foreign property rights holders across the world and discourages production sharing. The immediate priority at the multilateral level is to ensure effective enforcement of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

**CONCLUSIONS**

Rapid technical progress allowing the physical fragmentation of production in various bundles, combined with a general decline in transport costs and the improved capacity of communication and information systems, have allowed firms to separate production processes to take advantage of differences in relative prices across the world. While the importance of proximity has declined, it has not disappeared completely—international production networks continue to exist across nearby countries or in similar regions.

The regional bias in forming GVCs poses a challenge for developing countries that want to participate in GVCs but are far away from these industrial clusters. This paper shows that high transport costs accrued by long distances are a major determinant of countries' ability to participate in GVCs. This is no reason for fatalism—transport costs are not only about distance, but also about the quality of transport-related infrastructure, which includes aspects like the capacity of a port to move merchandise in and out without uncertainty, delays, and/or damages. While important for trade in general, the quality of logistics systems are particularly relevant for participating in cross-border production processes where low inventory cost strategies, such as just-in-time delivery services, continue to be the norm. More detailed evidence on how specific aspects of the logistics infrastructure (for example, port and airport efficiency, information and communication infrastructure, customs procedures) interact with the participation of countries in GVCs is an important issue to examine further. The WTO should pay attention to several other policy areas that affect transport costs, including trade facilitation, Aid for Trade, and trade in transport services.

We also show in this paper that the regional bias in GVCs stems from trade and other agreements among neighboring countries. While being a member of a trade agreement does not necessarily impede a country from developing supply chains with non-member countries, most PTAs have RoOs that disincentivize the use of materials from outside the bloc. This paper shows that RoOs have quite important implications in the way firms choose the location in which they fragment production, typically restricting outsourcing even from countries of the same PTA. Specifically, we provide some preliminary evidence showing that instruments like diagonal cumulation can be quite effective in reducing the strictness of these rules and spur cross-border production sharing among PTA members. Granted, multilateral tariff and non-tariff liberalization would also reduce the bite of restrictive RoOs—and in general encourage trade intermediates. Additional analysis on this area should be welcomed to further illuminate the extent to which this and other mechanisms can encourage production linkages between PTA members and non-members. More generally, the results of this paper suggest that another important area for further discussion is the optimal architecture of trade agreements, and the need to balance curbing trade deflection with rules flexible enough to allow for potential offshoring opportunities.
REFERENCES


Dedrick, Jason, Kraemer, Kenneth L. and Linden, Greg. 2012. “iPhone Profits.” In Communications of the ACM.


MEASURES OF TRADE IN VALUE-ADDED

*Foreign value-added of country s (FVA):* the value-added embodied in the exports of country s that comes from all the other countries. This is a measure of the extent to which imported inputs are used in the exports of country s.

*Indirect value-added of country s (IVA):* the value-added of country s that is embodied in the exports of all the other countries. This is a measure of the extent to which the exports of country s are used as inputs in the exports of other countries.

*GVC position of country s:* Ratio of IVA and FVA. If this ratio is high, the country tends to participate more as a provider of value added to other countries than as a recipient of foreign value added; therefore, the country is relatively upstream in the chain.

Conversely, if this ratio is low, the country tends to participate more as a recipient of foreign value added than as a provider of value added to other countries; therefore, the country is relatively downstream in the chain.

DATA SOURCES

All the measures are constructed using the GTAP (Global Trade Analysis Project) data which include bilateral trade statistics and I-O tables for many countries around the world. We employ GTAP versions 7 and 8, covering a total of 129 countries (regions) and 57 sectors for the years 2004 and 2007.

COUNTRY GROUPINGS

*EU-27:*
Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK

*Asia-Pacific:*
Australia, Cambodia, China, Hong Kong, Indonesia, Japan, Korea, Lao, Malaysia, Mongolia, Myanmar, New Zealand, Philippines, Singapore, Taiwan, Thailand, Vietnam

*North America:*
Canada, USA, Mexico

*LAC:*
Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela
GLOBAL VALUE CHAINS AND RULES OF ORIGIN

Antoni Estevadeordal, Juan Blyde, Jeremy T. Harris and Christian Volpe Martincus

INTRODUCTION

During the last two decades the world economy has seen an increasing trend in international production fragmentation—the geographic separation of activities involved in producing a good or a service across two or more countries. This has substantially increased interdependencies among economies around the globe, leading to a fast growing trade in intermediate inputs and services (Yeats 2001; Hummels et al. 2001; UNCTAD 2004, 2013; WTO-IDE-JETRO 2011).

The rise of global value chains (GVCs) has been fueled by the continuing removal of various obstacles that had been restraining the extent to which the production of a good could be unbundled internationally. The most significant trends in this regard have been the fall of tariff barriers; the drop in freight rates; the emergence of globally oriented logistics services; the massive increases in computing power; the Internet; a range of inexpensive information transmission capabilities; and improvements in the protection of intellectual property rights, particularly the World Trade Organization (WTO) agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

The international fragmentation of production is opening up opportunities for developing countries to participate in activities that were not available in the past. The process of fragmentation tends to eliminate the need to gain competency in all aspects of the production of a good and allows countries to enter into a network of cross-border production sharing by specializing in just one or a few stages involved in the making of a final good. Participation in international supply chains is also frequently associated with rapid learning, technology transfers, and knowledge spillovers that emanate from global firms to local suppliers (Gereffi 1999; Humphrey and Schmitz 2002; Sturgeon and Linden 2011).

Despite the clear benefits of joining international production networks, they have not spread evenly across the world and are mainly confined to East Asia, Europe, and North America. The regional bias of GVCs is problematic for many developing countries that find it hard to take advantage of production-sharing schemes in order to advance industrialization and development. Distance, and differences in languages and cultures, are some of the hindrances that periphery countries face in joining GVCs in other regions, but the regional bias is also driven by the existence of regional trade agreements (RTAs). Regional trade agreements have been a driving force behind the formation of many GVCs, but they also create major limitations for countries outside a trading block due to their rules of origin (RoO). The complexity and variety of RoO that exist today represents a challenge for many firms seeking to participate in production networks spanning various trade agreements. In this piece we discuss the relationship between trade agreements, RoO, and the formation of GVCs, and we advance some ideas on how to address the challenges that RoO create for the formation of international production networks.

STATE OF PLAY

While trade in general tends to be regionalized, evidence suggests that this is particularly so for trade flows associated with supply chains (Baldwin and Lopez-Gonzalez 2012). International production networks have largely evolved in three regions—North America, East Asia, and Europe—and these networks have been driven mainly (but not solely) by the fragmentation of production led by firms in the United States (US), Germany, and Japan, respectively. Recent studies show that trade associated with production networks is more sensitive to distance than trade in final goods (Gamberoni et al. 2010; Lopez-Gonzalez 2012); therefore, the regional character of GVCs is in part related to the importance of proximity. But proximity does not tell the whole story. Casual evidence and econometric studies also suggest that the "regionality" of supply chains is intrinsically related to certain agreements and/or arrangements that occur across countries. For instance, before the 1965 US-Canada Auto Agreement, trade in auto parts between these two countries did not exist. After the 1965 agreement reduced tariffs to zero, trade soared igniting a successful US-Canada auto supply chain in which 60 percent of US auto exports to Canada are engines and parts, while 75 percent of Canadian auto exports to the US are finished cars and trucks (Hummels et al. 1998).

Casual evidence of the role of trade agreements on value chain formation is also supported by more systematic analyses. For instance, Orefice and Rocha (2011) examine the effects of preferential trade agreements (PTAs) on trade in parts and components and find that countries with PTAs trade on average 51 percent more in parts and components than countries without PTAs. Hayakawa and Yamashita (2011) also provide results showing a positive impact of PTAs on trade in parts and components. The authors find that while the contemporaneous effect of a PTA is nil, there is a positive impact that emerges over time, which is still present after six to nine years of its formation, a result that makes intuitive sense as many PTAs include phase-in periods before their full implementation is completed. Johnson and Noguera (2012) estimate the impact of PTAs on measures
of value-added trade, and consistent with expectations, they find that lower domestic value added and more foreign value added are used in the production of exports that flow across countries with a PTA. The authors also find that deeper agreements generate larger effects than shallower agreements. Complementary evidence is shown in Blyde and Volpe (2013), who analyze the effects of PTAs on value chain formation using a measure that is based on foreign direct investment data instead of trade data. In particular, the authors examine bilateral relationships in terms of the number of vertical subsidiaries among pairs of countries. According to the authors, the number of vertical subsidiaries from a parent country located in a host country is 11 percent higher if both countries share a PTA. Likewise, a host country will experience 2.5 percent more entry of vertical subsidiaries from a parent country if they both belong to the same PTA.

Regional trade agreements, and particularly deep integration agreements, play an important role in the formation of GVCs because they tend to address a number of dimensions that are critical for the sound functioning of supply chains. To start with, crossing borders is associated with additional costs like those incurred in paying tariff duties, which are obviously removed in trade agreements. Beyond tariffs rates, however, establishing production networks across countries typically involves a multifaceted mix of flows related to trade, investment, and technical knowledge that may not be maximized without the close collaboration of the parties involved. For instance, offshoring from an affiliate implies engaging in cross-border investments that might not take place without adequate investment rules in the host country. Likewise, engaging in contract manufacturing with local suppliers may require the flow of knowledge that some lead firms could be reluctant to transfer without proper intellectual property rights. A rapid delivery of products, a feature of particular importance for many supply chains, might require the harmonization and streamlining of customs and security procedures across the parties involved. In short, complex cross-border activities tend to demand complex rules (Baldwin 2012). It is in this sense that deep integration schemes may be associated with more cross-border production sharing because they tend to incorporate disciplines beyond the simple reduction of tariff rates, including aspects like investment policy, intellectual property rights, or the harmonization of management techniques in customs procedures to expedite clearance of goods.

While deep integration schemes are associated with GVCs, there is no doubt that the multilateral approach would be the optimal way to foster global production networks. For instance, as the production of a good is sliced up across more and more countries, the barriers between third countries upstream or downstream become as important as the barriers between the two main partners, and they might be better addressed together. But the multilateral system has not moved in tandem with the modern trends of production fragmentation and has yet to provide, at a global level, the type of deep disciplines in which international supply chains tend to thrive.

Even though RTAs have been a driving factor behind the formation of international supply chains, they are also associated with important limitations. One particular limitation of the regional approach is related to the disincentives to employ cheaper parts and materials from third countries due to their stringent RoO, particularly if they are employed to produce final goods that are later exported to other members of the agreement. In this sense, RoO could augment production costs to the point where their compliance costs exceed the benefit of the agreement-conferred preferences (Estevadeordal and Suominen 2008). RoO, of course, are critical parts of many PTAs because they establish the conditions that a product must satisfy to be deemed eligible for preferential access in the member countries. They are primarily used to prevent trade deflection—that is, to avoid products from non-participating countries reaching a high-tariff PTA partner via the transshipment of the product through a low-tariff PTA member. But RoO can severely narrow the choices that firms have in order to locate slices of their production abroad.

Also related to RoO is the possibility that in a world with a rising number of RTAs, any firm seeking to participate in production networks spanning various trade agreements will find it increasing complex to keep track of all the differences in the rules governing them. When an exporter produces only one good, and most intermediate inputs are sourced domestically, the costs of complying with multiple RoO might not be too large. But when the number of exports rises and the fragmentation of production increases across more countries, the costs of dealing with multiple origins can be substantially larger. These costs may increase even more if suppliers are not wholly owned affiliates but independent firms in other countries, because it is less likely that there will be transparent channels for conveying the supplier’s origin information, as pricing and other sensitivity issues can arise. For instance, suppliers might not have enough incentives to provide their clients with complete sourcing information for fears that this might jeopardize their relationship, as the client might contact the subcontractor directly and cut the supplier out of the chain (Staples and Harris 2009).

The question is how to better align the legitimate practice of curbing trade deflection with the reality of GVCs. It is possible to reduce the constraints generally presented by RoO through the use of various mechanisms, for instance, with higher de minimis levels, by allowing for duty drawback, or with flexible cumulation rules. De minimis rules, for example, allow for a specified percentage of non-originating products to be used in the production process without affecting the origin status of the final product. Duty drawback is used to return the payment of duties applicable to the non-originating material employed in the production of a final product that is subsequently exported to other members of the agreement.

Finally, cumulation in general means that inputs from trading partners can be used in the production of a final good without undermining the origin of the product. Practically
all PTAs enable bilateral cumulation, such that materials originating in any one member country are considered as originating in the partner country, and vice versa. This is sometimes called diagonal cumulation in agreements among more than two countries. Full cumulation implies that any operation performed in any of the partner countries can be counted, whether or not the processing is sufficient to confer originating status to the materials themselves. Full cumulation is particularly beneficial to the formation of regional value chains, as it allows smaller contributions to the final product to be accounted and combined to establish origin of the final product. Additionally, there is a growing trend of employing expanded cumulation to allow three or more countries with separate but overlapping trade agreements to effectively merge their individual bilateral treaties so inputs can be sourced anywhere within the network. This approach could be the most effective strategy to “multilateralizing” RoO across trade agreements.

There is ample empirical evidence suggesting that some of these mechanisms can ease the constraints imposed by RoO and generate larger trade flows. The evidence is particularly forthcoming for the role of cumulation schemes (Augier et al. 2005; Blyde and Volpe 2013; Estevadeordal and Suominen 2008; Hayakawa 2012; Park and Park 2009). The evidence is based on different identification techniques. For instance, Estevadeordal and Suominen (2008) and Park and Park (2009) rely on the difference in trade flows across groups of country pairs (that is, differences between members of agreements with diagonal cumulation and members of agreements without diagonal cumulation). Augier et al. (2005) rely on the comparison of trade flows in the same country pairs before and after the introduction of diagonal cumulation, while Hayakawa (2012) relies on a comparison of trade flows that occur between the same two countries but under two kinds of schemes, one with bilateral cumulation and another with diagonal cumulation. All the analyses show positive and significant trade effects of more flexible cumulation schemes. For instance, Augier et al. (2005) and Hayakawa (2012) show trade creation effects in the order of 4–15 percent associated with diagonal accumulation. Even larger effects in the order of 30–100 percent are found when comparing members in full cumulation schemes relative to those in bilateral cumulation schemes (Estevadeordal and Suominen 2008; Park and Park 2009). Blyde and Volpe (2013) also provide estimates of the effect of cumulation on the entry and the number of vertical subsidiaries. They show that if diagonal cumulation with third parties is allowed, the host country will exhibit 12 percent more vertical subsidiaries and 3.6 percent more entry from the parent country relative to agreements with no diagonal cumulation.

There is, therefore, a compelling argument in favor of the simplification and harmonization of customs procedures and expansion of cumulation of RoO to reduce the implicit costs faced by active and potential participants in international production networks. The next section presents some examples of such efforts and a discussion about lessons learned and the principles that should guide the reform of RoO.

**RESPONSES**

First, it is important to emphasize that the most effective way to eliminate tariff barriers to the development of GVCs is on a most favored nation (MFN) basis. Preferential tariff reduction necessarily requires the definition and administration of RoO, and, therefore, generates some positive costs. While PTAs can include intellectual property and investment protections as well (which on average more than offset RoO costs), in a strict consideration of basic market access, non-preferential liberalization should be preferred. An illustration of this is the Information Technology Agreement (ITA), under which 70 countries agreed to eliminate tariffs on a set of information and communications technology (ICT)-related products on an MFN basis. These countries represent more than 97 percent of world trade in the covered products. In parallel, global value chains in ICT products are among the longest and most sophisticated. Learning from this experience, the goal of policy-makers seeking to maximize the potential for the formation of modern GVCs in other industries should be to create circumstances as similar to this as possible.

Conceptually, reforms of RoO can be divided into two categories—reforms to the specific rules applicable to any product (or all of them), and reforms to the broader architecture of the origin regime, dealing with issues such as cumulation and origin-related customs procedures.

In the former category, it is useful to consider the history of the RoO of the North American Free Trade Agreement (NAFTA). In the Americas, NAFTA was a key turning point in matters of RoO, as it was the most precise and detailed negotiation of RoO up to that point. Also, for a variety of economic and political reasons, the NAFTA RoO were some of the most restrictive in terms of the degree to which materials could be sourced outside of North America without losing eligibility for tariff preferences. Over the nearly 20 years of operation of the agreement, this has led to four rounds of changes to the NAFTA rules. The first was not long after implementation, the most recent was in 2009, and nearly all sectors have products whose rules have been amended (except textiles and apparel, where rule changes require congressional approval). In every case, these changes have meant new rules that are more permissive of materials from outside North America, that is, the use of products that allow for more sophisticated GVCs. Other agreements have similar mechanisms for amending their RoO over time, though as other agreements also learned from the NAFTA experience, they have tended to negotiate less restrictive rules in the first place. All the same, it is important that such mechanisms in new agreements be made as simple as possible, allowing the parties flexibility at the administrative level to modify rules as trading circumstances warrant.
Reforms of the broader architecture of origin regimes must focus on the application of cumulation. Here, the history and its lessons are rich. Perhaps the most substantial experiment in expansion of cumulation involved the Pan-Euro-Med cumulation zone. Although European Union (EU) expansion has made most of its more economically significant elements moot, the mechanism that went into effect in 1997 harmonized the RoO provisions of more than 10 bilateral EU agreements, and enables cumulation among all the partners. Note that the entry into force of this arrangement with each three-way partnership was subject to some strict conditions. First, for any pair of EU trading partners, say Morocco and Egypt, to be able to cumulate each other’s materials for purposes of accessing the EU market, they are required to have a bilateral agreement between them that specifies the same rules as their agreements with the EU, as well as several provisions on certification and verification of origin that allow administration across multiple national jurisdictions.

The requirement of identical rules on all three sides of the cumulation triangle is particularly strong. Any given bilateral agreement is going to face its own unique political economy based on factor endowments and the political-economic structure of domestic industries. In the absence of an outside standardizing force like the Pan-Euro-Med arrangement, it is unlikely that the same set of RoO would be optimal for any two agreements, especially the rather restrictive European rules. However, in this case the leadership of the EU, combined with its market size, was sufficient, and the study by Augier et al. (2005) showed that the arrangement generated significant trade benefits.

Within the Americas, the Pacific Alliance comprising Chile, Colombia, Mexico, and Peru (with additional countries participating as observers) made significant progress in establishing provisions for cumulation among them, thus essentially merging their six existing bilateral relationships under a single framework. As was the case with the European bilateral agreements, the solution chosen in this context was to define a single set of RoO to govern the plurilateral cumulation area. This solution was obtained without a hegemonic leader like the EU, though the differences in the rules across the six existing PTAs were not particularly significant.

In another example, in 2011 Mexico and the five countries of the Central American Common Market (CACM) signed a new agreement replacing three existing agreements. Between 1995 and 2001, Mexico had signed separate agreements with Costa Rica (1995), Nicaragua (1998) and the "Northern Triangle" of El Salvador, Guatemala, and Honduras (2001). These agreements did not provide for cumulation among all six countries, and thus acted to segment value chains that tied the CACM members to Mexico. The new agreement enables full cumulation across all six countries under a single set of RoO agreed among all parties.

The requirement of identical rules in order to achieve an expanded application of cumulation is consistent with the need for RoO in the first place, as differences in rules covering any bilateral segment of a plurilateral cumulation zone would make possible a type of triangulation similar to the trade deflection mentioned at the outset of this paper (Cornejo and Harris 2007). However, several countries in the Americas are currently pursuing frameworks that would allow expanded cumulation without this restriction. In principle, such mechanisms should prove easier to implement as they do not require substantial new negotiations.

An early case considers the agreements between Mercosur and the countries of the Andean Community in the early 2000s. Five different agreements cover this zone—the Andean Community and Mercosur themselves, plus one between Mercosur and Bolivia, one between Mercosur and Peru, and one combining Mercosur with Colombia, Ecuador, and Venezuela. Furthermore, the Mercosur countries each negotiated RoO bilaterally with Peru, Colombia, Ecuador, and Venezuela, such that there are 19 different sets of rules governing the trade among these nine countries. Nevertheless, the provisions of the respective agreements state that materials originating in any one of them can be considered as originating in any of the others when used in subsequent production. There are no formal studies seeking to identify the trade effects of this cumulation provision, but casual observation detects very little formation of sophisticated regional value chains. The overwhelming complexity of the tangled bilateral rules seems to be a serious impediment.

A more limited experiment is seen in the Dominican Republic-Central America Free Trade Agreement (DR-CAFTA) between the US, Central America, and the Dominican Republic. Strictly for apparel of woven fabrics under HS Chapter 62, this agreement allows cumulation of materials from Mexico. While application of this provision is limited to an annual quota, the limit has been set sufficiently high, so it has not been a binding restriction. Also, this mechanism does not require that the RoO between Mexico and Central America be identical to the DR-CAFTA rules. It requires only that the materials sourced in Mexico and processed in Central America be originating under the DR-CAFTA specifications. The experiment can thus be considered a qualified success. Its scope is limited though to a sector of economic significance to Central America, and the implementation procedures required negotiation of additional verification procedures with Mexico, which prevented its implementation until several years after the entry into force of the DR-CAFTA.

Another experiment in the early stages is Canada’s agreements with Peru and Colombia. Both feature a provision under which the countries commit to enabling cumulation with third parties with which both signatories have PTAs in force, subject to reciprocal agreement from those third parties. While there are multiple countries that satisfy the criteria of having PTAs in force with both Canada and either Colombia or Peru, the obvious first test case is among the three of them. Although at an early stage, these discussions are underway. As written in the agreements, this would
require that Peruvian materials used in Colombia for export to Canada will be considered as originating provided that they meet the criteria set forth in the Canada-Colombia agreement. This experiment merits close monitoring, as a successful implementation could provide valuable lessons for the future.

There are two negotiations underway that could have profound effects on the ability of companies to form sophisticated GVCs. First, the Trans-Pacific Partnership (TPP) seeks to bring together 14 countries under a single PTA, including the NAFTA countries, Japan, Peru, Chile, Australia, New Zealand, and four Association of Southeast Asian Nations (ASEAN) countries. From published negotiating texts, it is not clear how the countries intend to structure the cumulation provisions, but it is vital that this be as broad and inclusive as possible. While enabling cumulation is problematic when tariff elimination may vary across bilateral relationships, if complete cumulation including all members of the agreement for all products is not a feature of the TPP, its eventual value will be significantly undermined, especially for supporting the formation of GVCs. Furthermore, the TPP will include two of the three GVC hubs, Japan and the US. Cumulation is necessary if these complementarities are to be realized.

Second, the recently announced Transatlantic Trade and Investment Partnership (TTIP) between the US and the EU aims to eliminate tariffs and seeks regulatory harmonization between the world’s two largest economies. In matters of preferential market access, the US and the EU have large networks of PTAs with third countries in all regions of the globe. The elimination of bilateral tariffs will imply an erosion of those preferences, without any balancing benefits. While there is no obligation to mitigate preference erosion, this could be accomplished by explicitly including mechanisms for expanding cumulation to these third parties, perhaps following the example set out in the Canada-Colombia-Peru efforts. Such a mechanism would allow such third countries to participate in the GVCs that span these two economies, gaining benefits instead of being cut out. Where the US and the EU have already granted duty-free access to materials from these countries, it seems particularly unreasonable to exclude them from bilateral value chains.

A final note is worth including on harmonization of RoO. While the presence of identical RoO in different PTAs greatly facilitates provisions for the expansion of cumulation, in the strict bilateral context this can be more a barrier than a benefit. Imagine trade in something as simple as instant coffee. If a hypothetical international standard were devised in which instant coffee could only be originating for preferential purposes when produced from originating coffee beans, then there would never be free trade in NAFTA in instant coffee, because there is no significant cultivation of coffee in any of the members. In South America or Southeast Asia, on the other hand, this would not be particularly problematic, as many of the leading global producers are located there. This problem arises in numerous industries, whether based on factor endowments like land and a climate favorable to growing coffee, or historical patterns of production such that different regions possess a comparative advantage in particular industries. This is much of the problem underlying the lack of progress in negotiation of harmonized non-preferential RoO under the WTO Agreement on Rules of Origin, as each country wants its own contribution to the value chain to be the minimum acceptable contribution to confer origin.

Where harmonization does make sense is in matters of mechanisms and procedures. Differences in the methods of calculating regional value content for meeting value added requirements, and differences in procedures for certifying and verifying origin claims can create tremendous difficulties for firms seeking to take advantage of PTAs, often resulting in a decision to simply pay the MFN tariff and avoid the headache. Where “RoO harmonization” can add value is in this type of effort.

**CONCLUSIONS**

The emergence of GVCs is changing the way countries approach industrialization. The old development paradigm of building entire supply chains within a country—with all the challenges, costs and time that this entails—is giving way to a new development paradigm of joining international supply chains. As a result countries are industrializing much faster than before, as the experience of South Korea, China, or Vietnam shows. But international production networks have evolved mainly regionally around Japan, Germany and the US, leaving many countries far from these hubs scrambling for ways to benefit from these new trends of production sharing. We show that the regional pattern of GVCs is largely determined by the existence of RTAs, particularly deep ones, because they tend to incorporate disciplines like rules in investment policy, services, standards, intellectual property rights or the harmonization of custom procedures that are important for the multifaceted mix of trade, investment, and knowledge flows that are associated with GVCs.

But while RTAs have been a driving factor in the formation of GVCs, they also have limitations because of the RoO that tend to disincentivize the use of cheaper parts and materials from third countries. Also, firms seeking to fragment production across large geographic areas find that it can be prohibitively costly to deal with multiple origins at the same time.

Without doubt, the multilateral approach would be the optimal way to foster the development of GVCs, as preferential tariff reduction necessarily requires the definition and administration of RoO, with all the associated costs that this entails. But while the multilateral system catches up with the modern trends in production fragmentation, alternative policies can be derived to minimize the
shortcomings of the regional approach, particularly of those induced by the existence of RoO.

In this piece we argue that there are three specific areas in which countries can work to limit the undesired effects of RoO on GVC formation. The first area consists of reforms to specific RoO. History shows that members of existing trade agreements are capable of revisiting their old RoO and reforming them with simpler and less stringent rules. One particular recommendation for existing and future agreements is to allow the parties enough flexibility at the administrative level to modify rules as trading circumstances warrant.

The second area has to do with the broader architecture of RoO and the issue of cumulation across trade agreements. Here, the experience around the globe is quite rich. One lesson from past cumulation schemes is that imposing the requirement of identical rules on all three sides of a cumulation triangle can be particularly restricting, as any given bilateral agreement will have its own unique characteristics. More recent experiences that allow expanded cumulation without this restriction can be more accommodating for the wide variety of agreements that could benefit from such an approach.

Finally, there is the issue of harmonization of RoO. Here we argue that the focus should not be on the rules themselves but on the methods of calculating regional value content as well as on the procedures for certifying and verifying origin. Differences in these mechanisms and procedures have created tremendous difficulties for firms seeking to take advantage of PTAs, and thus the bulk of the gains from RoO harmonization is likely to be in this area.

REFERENCES


Enhanced by multilateral liberalization as well as decreasing communication and transportation costs, deeper integration has led to greater flexibility for firms. Production processes today are sliced or fragmented; and take place in global value chains (GVCs) or global networks. In recent years, GVCs have risen to the forefront of the global trade and investment policy debate, notably with respect to the World Trade Organization (WTO). In the context of the stalled Doha Round, many WTO Members are looking for new approaches to trade liberalization and negotiations, and some have been exploring the GVC approach. In essence, this approach advocates the liberalization of goods and services trade and investment to create host nation environments attractive to multinational corporations (MNCs) looking to optimize their global investment footprints (World Economic Forum 2012). Drawing on the success of China and other East Asian countries in inserting themselves into GVCs, proponents of this approach argue other developing countries should also pursue it if they want to develop.

The GVC approach has given rise to suspicions in some developing countries and some parts of the broader trade policy community. The argument is that what some term the “GVC narrative” is essentially a prescription for developing country liberalization adding up to the widely criticized Washington Consensus package, and through that to securing the preferences of developed countries in the Doha Round and beyond (Ismail 2013; South Centre 2014).

The core of the controversy is not hard to understand. GVCs are driven by MNCs predominantly headquartered in developed countries. The policy agenda associated with the GVC narrative is proffered by institutions that are either dominated by developed countries—the Organization for Economic Cooperation and Development (OECD) through its Trade in Value Added Initiative and to a lesser extent the World Bank (Cattaneo et al 2013)—or are perceived to be unduly influenced by developed countries—the WTO (2011) through its “Made in the World” initiative. The fact that the core of the policy agenda consists of trade and investment liberalization is seen to favour Western MNC interests, which would also benefit from a broadly liberalizing deal arising from the Doha Round. Consequently, in a negotiating environment as contested as the Doha Round, critics were bound to arise.

But the critics go further than the Doha Round dynamic to make their case. Central to their critique is inherent skepticism of the purported benefits of foreign direct investment (FDI) by MNCs for host countries. A broader questioning of trade liberalization as a policy approach reinforces this skepticism. Indeed, rather than embrace trade and investment liberalization per se, in this line of thinking, the preferred policy approach is active industrial policy led by autonomously embedded states (Evans 1995). Proponents argue that this is the real lesson to learn from East Asian success, rather than the liberalizing logic proffered by the GVC narrative. In this industrial policy logic, “strategically managing” MNCs in host nation environments is essential, through screening of FDI and imposition of performance requirements, among other things. Similarly, protection of domestic firms in order to build indigenous industrial capacity is advocated. It follows that, in the WTO context, liberalization should not be embraced for its own sake, but has to be more strategically engaged and coordinated with domestic industrial development imperatives as defined by the state, hopefully in partnership with (domestic) business (Asche et al. 2014).

This paper sets out some core propositions central to this debate, and sketches the high-level implications they have for the WTO. Section 2 addresses selected definitional and taxonomical issues to anchor the subsequent analysis of selected key arguments made by protagonists in the debate, which are set out in Section 3. Section 4 outlines the high-level implications for the WTO.

**DEFINITIONAL AND TAXONOMICAL ISSUES**

**THE NATURE OF GVCS AND THEIR ECONOMIC IMPLICATIONS**

Structural economic change occurs ever faster today, and challenges for individual workers, firms, and political entities grow in tandem with it. The GVC paradigm in trade theory implies that the comparative advantage of a country or a region changes much faster than earlier, and that it is not exclusively directed at goods, but at tasks. This tendency
Cattaneo et al (2013) see four detailed paradigm changes due to the emergence of GVCs.

1) A change of the strategic focus from countries to networks, GVCs, or firms reflects the trend that specialization is intensifying and comparative advantages are ever more dynamic.

2) A change of the unit of analysis from industries to tasks and functions implies that the units of decision-making have become smaller and that production processes are shared by smaller units. In the old Heckscher-Ohlin world, goods were produced in one country and traded across borders. This could be interpreted as the movement of factors (labor, human capital, and financial capital) incorporated into the goods (less so services). In the new GVC world, the movement of factors of production is being replaced by the movement and exchange of skills and tasks. Trade statistics cannot cope with this change and still report trade flows. To understand this new paradigm, input-output relations have to be analysed, and this lies at the heart of the OECD’s TiVA (Trade in Value Added) database.

3) A change of the relevant economic assets from (factor) endowments and stocks to flows shows the enormous increase in speed and the dynamic nature of production today—knowledge has to be written off faster and acquired continuously.

4) Finally, a change of relevant barriers and stimuli from the public to the private shows that trade policy moves from taxing goods and services at the border to a broader set of “behind the border” measures, which are complicated and interdependent. Because of the fragmented production process, granting effective protection is becoming more difficult. Private standards may well replace official non-tariff trade barriers. These changes may occur individually or even jointly.

Parallel to these recent developments in world trade is the increase of trade in services with FDI flows shifting from the secondary to the tertiary sector. Firms are increasingly outsourcing parts of their business functions. Services MNCs are also establishing services GVCs in their own right. Further, the operation of GVCs increasingly depends on the availability of supportive services, which have become a key component of value added (World Economic Forum 2012).

These changes can be used to identify the challenges ahead. They are particularly important from the perspective of developing and emerging economies, which want to upgrade in GVCs. These challenges are sharpened by the fact that GVCs are not evenly distributed, and not all countries are equally well placed to integrate into them or upgrade within them.

HOW ARE THEY DISTRIBUTED?

A recent development in GVCs is a shift in the geographical location of production processes. GVCs have been concentrated in what Richard Baldwin terms “Factory North America,” centred on the United States (US); “Factory Europe,” centred primarily on Germany; and “Factory Asia,” centred on Japan. In recent decades, China has been the world’s key player in international production fragmentation, serving as the key location for processing and assembling of manufactured goods (WTO 2011). However, with rising Chinese labor costs, production is relocating, partly back to the US (Sirkin et al. 2011) or to countries such as Vietnam, Cambodia, and Mexico (Draper and Lawrence 2013). It is this relocation process and potential that offers, in theory, opportunities to developing countries, such as in Africa, where factor costs are likely to be lower than in emerging economies. However, it also poses threats to new locations, such as poaching of the qualified workforce or environmental damages, and this may cause resistance in governments and non-governmental organizations (NGOs) in developing and developed countries.

Geography is not the only issue in the distribution debate. Much depends on the kind of GVC being considered. At the broadest level, services, manufacturing, and resources GVCs encompass widely diverging economic activities; require very different skills sets; have very dissimilar investment time horizons; and integrate very differently into host-nation environments. These sectoral dimensions interact very diversely with host-nation attractiveness, which also varies widely.

Consider the matter from an MNC point of view, in which locational decisions are the dominant criterion. The primary issue in location choice is what motivates the investment. Traditionally three motives are identified—resource-seeking; efficiency-seeking; and market-seeking.

If the purpose is to extract natural resources from the host nation for export, the investor is not likely to consider horizontal investments in ancillary activities unless these are wholly lacking and the investment cannot proceed without them. The onus is therefore on the host nation to ensure sufficient rents are earned from resource exports through taxation so that developmental investments can be made in the broader economy.

Efficiency-seeking investment, by contrast, consciously seeks to access low-cost, productive labour and take advantage of broader efficiencies in infrastructure and logistics. Some kinds of efficiency-seeking investments, such as in the clothing industry, are very low margin activities and remain sensitive to marginal cost increases. Therefore, such investment is footloose and not likely to leave a sustained development impact in itself. It follows that host nations
attractive to this kind of FDI need to actively promote upgrading possibilities, leveraging off the initially positive developmental impacts of this kind of investment. Other kinds of efficiency-seeking investments, such as logistics or transportation companies seeking to leverage their locations, can be more enduring and have wider, positive developmental impacts. This requires different responses from the host nation.

Finally, market-seeking FDI is generally there for the long haul and is the most sustainable. Over time, MNCs investing for this purpose are likely to locate more of their tasks in the host nation, and in its broader region, through constructing regional value chains (RVCs). The latter are likely to interact positively with logistics, transportation, and distribution services to deliver wider developmental outcomes. Of course, market-seeking FDI may also compete with domestic firms, threatening their profitability and, possibly, their survival. Offsetting this negative potential impact, market-seeking FDI should raise the productivity of competitors in the host nation and suppliers that are integrated into the value chain.

In conclusion, it is clear that not all GVCs are created equally, and that host nations need to consider this in making choices about how to interact with MNCs.

**KEY ISSUES IN THE DEBATE**

Notwithstanding a developing country’s potential to participate in GVCs, critics are inherently skeptical of MNC FDI. It would be too crude to say this view regards MNC investment as “exploitative,” although that is present in some strands of the literature. Rather, the core of this critique is nationalist, privileging domestic industrial development anchored in domestic firms and value addition. While most critics would likely accept that MNCs could make a valuable contribution to domestic industrial development, many would probably argue that such investment must be channelled into strategic locations and/or activities through purposive government action.

However, proponents regard FDI by MNCs as having primarily beneficial impacts. Some adherents to this view might acknowledge the critics’ concerns, but most would argue that these are best addressed through concerted efforts to build a host nation’s cross-cutting enabling environment (Draper et al. 2014; World Economic Forum 2012; OECD et al. 2013: Figure 2, p. 27). This would be attractive to MNCs, and also construct the country’s foundation for participation in the global economy, thereby contributing to productivity growth, increasing employment, and a positive shift in per-capita gross domestic product (GDP). Further, adherents point to the obvious reality that MNCs dominate global trade and investment, which means that participating in the global economy necessarily requires working with them, at worst. If done successfully, it can generate beneficial development outcomes, although these are not guaranteed (OECD et al 2013: p. 24).

With this in mind we now briefly consider three core issues in the broader debate.

**ENTRAPMENT IN COMPARATIVE ADVANTAGE?**

Since resources are furthest upstream in GVCs, it follows that simply extracting and exporting them does not generate much value for the economy. Adherents of this view do not have much faith that ancillary, particularly downstream, development will take place spontaneously. Therefore, critics worry that developing country resource exporters risk becoming enmeshed in “resource traps,” and advocate diversification from resource exports to higher value-adding activities, especially manufacturing. To encourage domestic value addition, various coercive instruments are advocated, ranging from export to investment restrictions. This “resource nationalist” perspective is gaining currency around the world.

It follows that a policy agenda advocating trade and investment liberalization is anathema to adherents of the resource diversification view. The term “liberalization” implies loosening controls and allowing market forces to determine outcomes, rather than outcomes being determined by conscious, state-led design. The primary objection to the GVC narrative, therefore, is that its liberalizing impulse will simply entrap developing countries in resource-intensive comparative advantage (Department of Trade and Industry 2010).

A variant of this view holds that while it is all very well to enter into GVCs in non-resource areas, particularly manufacturing, the political economy of value chain management makes it very difficult for new entrants to upgrade within the value chain (Gereffi and Sturgeon 2013). This is a function of lead firm-supplier power dynamics, in which MNCs drive efficiencies throughout the value chain and allegedly keep their suppliers in subordinate positions.

The notion of resource traps is contested. Bauer (2000) argues that if resources, or poverty, really “trapped” countries, Europe would still be stuck in the Stone Age. Morris et al. (2013) draw on Hirschmann’s (1981) notion of linkages and argue that backward, forward, and horizontal linkages have developed around resource extraction projects in the resource-dependent economies they study. The evident success of modern resource exporters such as the US, Australia, Sweden, Chile, and Botswana suggest there is more to the story than the resource trap literature implies. Central to this is what happens to the rents derived from resource...
extraction. If they are invested in economy-wide cross-cutting enablers that upgrade conditions for business as a whole, positive outcomes are foreseeable. Much depends on the governance capacities and arrangements in the host nation.

Nonetheless, the notion that resource extraction is inherently exploitative and unsustainable is widely held. This highlights the importance of equity considerations in the GVC debate.

**INIQUITOUS OUTCOMES?**

This concern applies primarily to labor-intensive GVCs, such as clothing, footwear, and the assembly phase of electronics. The latest manifestation of this concern was the tragic building collapses and factory fires that took place in Bangladesh in 2012 and 2013. These events clearly highlighted the egregious safety and human rights concerns associated with operating in this cutthroat industry. The fact that much of the value, and profits, associated with the clothing-textiles-retail value chain are captured by the MNC retailers that drive this GVC reinforce perceptions that the gains are unevenly distributed, while the human cost can be high.

Many observers also worry about the footloose nature of this pattern of FDI, since it is driven by low costs. Once wages are bid up in the currently favoured location, MNC investors will relocate to the next favoured destination. The core concern, then, is that the erstwhile host would not have built sufficient domestic value addition capability to reorient its participation in that GVC, notably to upgrade or diversify into other productive activities (Goger et al 2014). Further, while the wage structure would have improved, and people would have been employed in low-wage activities for a while, some worry that the country risks becoming caught in a middle-income trap (Spence 2011), unable to make the transition to higher levels of development. In addition, the low-wage jobs would have moved on.

The notion of a middle-income trap is contestable on the same intellectual grounds as resource or poverty traps (Bauer 2000). Nonetheless, most GVC proponents would recognize these concerns. Regarding the ethical environments characteristic of low-wage, assembly-driven GVCs, proponents note that MNCs, especially from developed countries, operate under various codes of conduct promulgated at the national and multilateral levels. Not only do MNC home nations enforce these codes, but also domestic pressure groups, principally through generating negative publicity, leading sometimes to consumer boycotts, for example. In this light, it was principally domestic companies, not MNC manufacturers or retailers, that perpetrated the Bangladesh tragedies. As in the case of resource governance, this highlights the role of the MNC host state in regulating and enforcing domestic working conditions, which in Bangladesh left much to be desired. While MNC retailers were divided in their responses to the tragedy, both firms in the US and the European Union (EU) did sign commitments to improve working conditions in Bangladesh. Developing country MNCs, by contrast, often do not operate under the same ethical constraints.

Regarding concerns over upgrading, targeted investments into, for example, training facilities and trainers in the industry concerned can also make a difference. If approached collaboratively, MNCs‘ global network could be leveraged towards this end, since MNCs are acutely conscious of the need to acquire skilled employees to prosper in the global marketplace. Further, in the process of incorporation into GVCs, even if at the lower end, some skills and technologies will be transferred. The more absorptive the domestic environment is, the more likely this will lead to upgrading. That highlights the importance, again, of investment into cross-cutting enablers, particularly education and training, by the host nation. Finally, many international studies over the years have shown that Western MNCs generally provide better working conditions and pay more than domestic companies (Bhagwati 2004).

**RACE TO THE BOTTOM?**

This argument derives from the liberalizing logic inherent in the GVC perspective. Essentially, the business of attracting MNC FDI into host nations is akin to a beauty contest in which the contestants try to outdo each other to be noticed, and favoured, by the MNC “judges.” This means, among other things, providing ever more liberal policy environments, since that is what MNCs presumably want.

The logic of providing generous incentives is particularly prevalent in the manufacturing sector, but also applies in certain services GVCs, notably finance and the attraction of headquarters FDI. It could have substantial implications for host nations’ overall fiscal position as tax holidays, fiscal incentives, local government grants, and so on, become increasingly generous in a competitive “race to the bottom” of the fiscal pool. Such an outcome would have deleterious consequences for necessary developmental expenditures, such as building infrastructure, redistributive social transfer schemes, or the crucial business of maintaining and developing the state’s institutional capacities.

This argument is essentially one for adopting sensible incentives packages. Proponents of GVCs are presumably in favor of that. Further, international investment promotion experience suggests that while incentives play a role in FDI location decisions, they are probably not decisive.2 Strategic factors, notably comparative advantages; competitive advantages; and the overall orientation of the host state towards FDI are more important. Regarding comparative advantages, the truth is that large parts of the developing world are not favoured locations for manufacturing FDI since their comparative advantages lie elsewhere (Draper and Lawrence 2013). Similarly, regarding competitive advantages,

---

2 Authors’ personal experiences in working in a policymaking environment, and in participating in training courses for investment promotion officials.
the decisive determinant is arguably institutional capacities in the economy at large, and in the state in particular. And of course MNCs are not likely to go where they are not wanted, nor where the investment environment is unattractive (World Economic Forum 2012). Very few countries possess the market power to impose strong conditions on MNCs—China and Brazil come to mind.

POLICY IMPLICATIONS

Thus developing countries face a strategic choice on their stand towards MNCs and GVCs (OECD et al. 2013). Much depends on the country’s comparative and competitive advantages, and economic policy orientations.

The core policy prescription advocated by critics is developing country states formulating conscious industrial strategies. This approach is gaining ground in key parts of the developing world, such as the region we are most actively engaged in—Africa (Asche et al. 2012; UNECA 2014). These approaches are more sophisticated than those prevalent in the 1960s and 1970s, in which crude import substitution combined with “picking winners” to deliver generally poor outcomes. Central to them is the notion of “deliberative targeting,” in which the state consults actively with business in an iterative process of identifying key blockages to domestic industrial development so that the strategy emerges from the bottom up (Asche et al. 2012). This is analogous to Hausmann et al.’s notion of “self-discovery” (2005) of the blockages to development in particular industries, and the broader notion of identifying the “binding constraints” or bottlenecks blocking economy-wide industrial development. Interactions with MNCs are not excluded a priori; indeed in the Rodrik, Hausmann and Velasco perspective they may be critical.

In this light, infrastructure is a decisive bottleneck to development in many developing countries (Draper et al. 2014). Further, the workforce has to be fit for the requirements of GVCs, which implies a solid knowledge and skill base (stocks) and—more important—the ability to adjust to new challenges (flows). Therefore, education plays a decisive role. Crucially, where skills are not available domestically, foreigners can be harnessed to fill the gap, and, in the process, train locals. These are key horizontal elements of industrial strategy.

In addition, the overarching strategy should inform targeted promotional efforts led by well-resourced and politically powerful investment promotion agencies (IPAs) that conclude bargains with key lead firms in selected GVCs. Relations with MNCs in different GVCs would presumably be filtered through the lens of their perceived value addition to the domestic economy. It follows that screening capacity is required in the state, preferably in the IPA, to determine whether the MNC in question is likely to add value. In some variants, coercive policy instruments to condition such screened MNC FDI on predetermined and negotiated policy outcomes are advocated. However, the success of such policies depends on institutional qualities of the state, and on the market power the country has relative to MNCs that have other choices. Moreover, rather than coercive policy approaches, we prefer that governments should minimize political barriers to trade. This includes tariffs, subsidies, and other non-tariff barriers. This would enable MNCs targeted for inward FDI to establish their tasks in the host nation as efficiently as possible, thus maximizing sustainability and linkage potential. Therefore, governments, especially in developing countries, should consider the importance of the institutional quality and governance structure in their country. Corruption, poorly defined property rights, weak rule of law, and the like, render all measures directed at investment conditionalities, human capital formation, infrastructure investments, and trade facilitation ineffective.

IMPLICATIONS FOR THE WTO: TOWARDS GVC PLURILATERALS

The policy issues associated with the GVC agenda, as canvassed above, are first and foremost unilateral in nature. States need to choose how to orient their countries towards GVCs, and the associated mix of policies and instruments to employ. Trade agreements can help to secure these preferences through external pressure, as China successfully demonstrated through its accession to the WTO in 2001, but the domestic choice comes first.

With this in mind, the broad choice should determine how the state in question orients itself towards the WTO in general, and negotiations under the rubric of the WTO in particular. Those that adopt a skeptical approach, and therefore seek to constrain the operations of MNCs, and, by extension, the access of outsiders to their markets, will be reticent when it comes to formulating new, potentially intrusive rules that apply mostly behind the border and to liberalizing their markets. Those that embrace GVCs and seek to lock in associated policy choices will presumably embrace multilateral negotiations among like-minded partners. No doubt a number of states will find themselves straddling these two positions, being open to proceed with negotiations in some areas but not in others.

It follows that for the WTO to remain relevant in a world characterised by divergent domestic policy orientations, those members that wish to proceed under its rubric should be allowed to do so provided the results do not impinge on the rights and obligations of the more reticent members. That requires plurilateral negotiating approaches, or potentially qualified majority voting mechanisms, but in either case modification of the current consensus-based approach subject to a single undertaking. Launching such an approach is politically complex and currently subject to veto since it would require explicit consensus. Therefore, trust needs to be built among the members to reassure those likely to remain outside plurilateral negotiations that their interests will not be unduly harmed (Draper and
This is the most fundamental issue requiring resolution if the GVC approach is to truly take root in the WTO. Otherwise, the organization will remain mired in 20th-century mercantilist thinking, and will slide increasingly into irrelevance as the real action moves to the regional front.

What could a broad-based plurilateral approach anchored on GVCs look like? It is clear that GVC issues are primarily about rules, particularly those governing trade and investment, with ancillary attention to traditional bargaining on market access. One way to think about this, as explicitly proposed by Hoekman (2014), is to construct a “GVC package” consisting of, among other things, trade facilitation; logistics, finance, and distribution services; investment rules; intellectual property rights (IPR); and a market access package for goods. Some of these issues, notably the market access component, could be negotiated on a critical mass basis and extended through the most favoured nation (MFN) mechanism to all WTO members—this would not require the broader membership’s consent nor should it harm their interests. Indeed, those in a position to do so would benefit. In this light, the trade facilitation agreement (TFA) could be an early candidate, although there are the formidable obstacles in its way.

The rules component, however, is much more challenging and requires much more serious thought. In a nutshell, it is difficult to see how new rules could be applied to small subsets of the membership and be subject to WTO dispute settlement without the full membership signing off. There may be a way, theoretically, to build sufficient consensus so that the full membership would sign off, notably through negotiating, upfront, a code of conduct to govern the negotiation of exclusive plurilaterals (World Economic Forum 2010). Such a code would have to pay careful attention to special and differential treatment (SDT). However, given the political currents swirling around Geneva, this result looks unlikely in the short to medium term.

On the positive side, the “behind the border” issues relevant to GVCs and related FDI are analogous to the types of issues encountered in TFA negotiations (Draper and Cunningham, forthcoming). The TFA negotiations had a substantial cooperative, as opposed to mercantilistic trading-off, element. This was because both importing and exporting interests had a common interest in reducing or eliminating logistical impediments to trade flows. It is possible to see GVC-related rules negotiations in a similar light, that is, both developing countries in need of investment and MNCs desirous of building more efficient GVCs have many common interests in reducing or eliminating barriers to GVC-related FDI. Perhaps a cooperation-focused type of negotiation could be constructed in which countries’ commitments to reduce/eliminate barriers to GVCs might be conjoined with codes of conduct or best practices for MNCs to follow in building their GVCs. Possibly central to this would be SDT provisions along the lines of those crafted for the TFA.

At the end of the day, if the voluntary plurilateral logic holds, it would be up to each Member state to make its own assessment of whether to sign up for the negotiation in question or not. Such assessments should be rooted in understanding the dynamics of upgrading within GVCs, and how negotiations for rules or for codes of conduct can affect this. The WTO and related multilateral agencies such as the World Bank, the United Nations Conference on Trade and Development (UNCTAD), and various regional agencies have crucial roles to play in providing such analyses. This points to the need for concerted, but informed, deliberation mechanisms linked to WTO processes, if not actually coordinated by the WTO itself (Hoekman 2014).

---

3 The following insights are from Draper and Cunningham, forthcoming.
ABOUT THE AUTHORS

GRANT ALDONAS

Grant D. Aldonas is the principal managing director of Split Rock International, a Washington, DC-based trade and investment consulting firm he founded in 2006. He also serves as an adjunct professor of law and member of the board of directors of the Institute for International Economic Law at Georgetown University’s Law Center, and is a member of the board of directors of the Center for International Private Enterprise and the Information Technology and Innovation Foundation. He has had a distinguished career in law, business, and government focusing on international trade and investment. He was, from 2001 to 2005, the US Under Secretary of Commerce for International Trade. Before that, he served as Chief International Trade Counsel to the Senate Finance Committee, the top trade policy position in Congress.

JUAN BLYDE

Juan S. Blyde is currently a Senior Economist at the Trade and Integration Sector of the Inter-American Development Bank. Juan’s areas of research have been on trade and firm productivity, trade and transport costs, and international value chains. Juan received his PhD in economics from the University of Colorado at Boulder in 1998 and a BS in economics from Universidad Católica Andrés Bello (Venezuela) in 1992. He joined the IDB in 2000. Juan’s research has been published in various academic journals such as Journal of International Economics, Review of International Economics, International Economic Journal and Review of World Economics, among others. Prior to the IDB he worked as an economist at the Congressional Economic and Financial Advisory Office of Venezuela.

ANTONI ESTEVADEORDAL

Antoni Estevadeordal of Spain joined the Inter-American Development Bank in 1993 and is currently the Manager of Integration and Trade. He has expertise in trade policy, economic integration and regional cooperation policies in Latin America and the Caribbean, Asia, and Europe. Before joining the IDB he taught at the University of Barcelona and Harvard University. He has published widely in major journals and co-authored and edited several books. He holds a PhD in Economics from Harvard University and a BA in Economics from the University of Barcelona.

JEREMY HARRIS

Jeremy T Harris has worked as Economist and Integration and Trade Specialist at the Inter-American Development Bank for more than eight years. In this context, Mr. Harris has participated in supporting several trade negotiation processes, including the FTAA and the DR-CAFTA, as well as others within Latin America, with an emphasis on rules of origin and market access. At the IDB he has participated in the design and development of several databases and information systems regarding market access, and has written on preferential trade agreements and their systemic effects on regional and global trade. Outside the IDB he has worked as a consultant for the UN-ECLAC, the CARICOM Secretariat, DFID, and GTZ. Mr. Harris holds a PhD in Economics from the University of Maryland.

PATRICK LOW

Patrick Low is a Senior Fellow at the Fung Global Institute, and formerly the Chief Economist at the World Trade Organization. He is also an Adjunct Professor of International Economics at the Graduate Institute, Geneva. He worked for the GATT from 1980 and 1988 and joined the WTO in 1995. For a short interlude from 1999 to 2001, he served as WTO Director-General Mike Moore’s Chief of Staff. He has taught at El Colegio de México, and served in the research complex of the World Bank from 1990 to 2004. He holds a PhD in economics from Sussex University and has written widely on trade policy issues.
SHERRY STEPHENSON

Sherry Stephenson is an expert in the area of international trade policy, particularly services trade. She is a Senior Fellow with the ICTSD and until recently was Senior Advisor for Services Trade at the Organization of American States (OAS) in Washington, DC. She received a Ph.D. in International Economics from the Graduate Institute of International and Development Studies, Geneva and an MA in Economics from New York University. She has served as an Advisor to the Minister of Trade in Indonesia and held positions with the OECD, GATT and UNCTAD Secretariats. She has edited two volumes on services trade and published more than 60 articles. She has advised governments on trade policy issues and taught courses in universities in the US, Switzerland, France, India, and Indonesia.

KATI SUOMINEN

Kati Suominen is Founder and CEO, TradeUp Capital Fund; Adjunct Fellow at the Center for Strategic and International Studies (CSIS) in Washington; Adjunct Professor at UCLA Anderson School of Management in Los Angeles; and Founder and Partner at US Export Capital, a start-up merchant bank and consulting firm. In 2010-12, Suominen was a Resident Fellow in the Economics Program of the German Marshall Fund of the US. In 2004-2010, she served as International Trade Economist at the Inter-American Development Bank, where she managed the Bank’s global and Asia-Pacific trade and economic policy research. In 2006-09, she also served as advisor to the Asia-Pacific Economic Cooperation (APEC). She has also worked with the Peterson Institute for International Economics, the Chatham House, and Italian Institute for International Affairs. She has authored over 60 articles and published eight books on trade and economics.

JULIA TIJAJA

Julia Tijaja is a Research Analyst at Fung Global Institute. Prior to this role Tijaja was a trade policy adviser at the Office of the Chief Trade Adviser (OCTA) for 13 Pacific Island countries based in Vanuatu. Tijaja specialization includes trade negotiations, regional economic integration, global value chains and the Asia Pacific region. Tijaja was awarded a PhD in development economics by the Open University–U.K. She also holds a Master’s degree in Economics for Development from the University of Oxford, and a Bachelor’s degree in Economics with Politics from Queen Mary, University of London.

CHRISTIAN VOLPE MARTINCUS

Christian Volpe Martincus is currently Lead Economist at the Integration and Trade Sector of the Inter-American Development Bank (IDB). Christian has expertise in international trade, regional integration, and economic geography. At the IDB he has been working on the impact of integration on specialization patterns, the role of export promotion in shaping countries’ export diversification profiles, the effect of certifications on firms’ export performance, the interplay between innovation and exports, the effect of transport costs on trade flows, and other international trade issues. Christian holds a PhD in economics from the University of Bonn and a Master in economics from the National University of La Plata (Argentina). He has presented in numerous international academic and policy workshops and conferences and has published on international trade and economic geography in several international professional journals.
EXPERT GROUP
GLOBAL VALUE CHAINS: DEVELOPMENT CHALLENGES AND POLICY OPTIONS

Sherry STEPHENSON - Theme Leader
Senior Fellow, ICTSD

Ricardo MELÉNDEZ-ORTIZ - Convener
Chief Executive, ICTSD

Antoni ESTEVADEORDAL - Co-convener
Manager of Integration and Trade, Inter-American Development Bank (IDB)

Christophe BELLMANN - Group Manager
Senior Fellow, ICTSD

Grant ALDONAS
Principal Managing Director, Split Rock International, Inc.

Uri DADUSH
Senior Associate and Director, Carnegie Endowment for International Peace

Jane DRAKE-BROCKMAN
Senior Services Advisor, International Trade Centre (ITC)

Peter DRAPER
Senior Research Fellow, South African Institute of International Affairs (SAIIA)

Margareta DRZENIEK HANOUZ
Director & Lead Economist, Global Competitiveness & Benchmarking Network, World Economic Forum

Simon EVENETT
Academic Director, University of St. Gallen

Anabel GONZÁLEZ
Senior Trade and Competitiveness Director, World Bank

Carlos GRAU TANNER
Director General, Global Express Association

Bernard HOEKMAN
Research Director at Robert Schuman Centre for Advanced Studies, European University Institute

Selina JACKSON
Special Representative to UN and WTO, World Bank

Patrick LOW
Vice President of Research, Fung Global Institute

Andreas MAURER
Chief of International Trade Statistics, World Trade Organization (WTO)

Sébastien MIROUDOT
Senior Trade Policy Analyst at OECD

Michitaka NAKATOMI
President, Japan External Trade Organization (JETRO)

Maika OSHIKAWA
Head, Asia and Pacific Desk, World Trade Organization (WTO)

Mark PEARSON
Independent Consultant

Pierre SAUVE
Director of External Programmes and Academic Partnerships, World Trade Institute (WTI)

Kati SUOMINEN
Founder and CEO, TradeUp Capital Fund

Ho-Mou WU
Professor at National School of Development, Peking University

Jaime ZABLUDOVSKY
Director, Consejo Mexicano de la Industria de Productos de Consumo, A.C.
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.