Making Global Value Chains Work for Development

Daria Taglioni • Deborah Winkler

This preview contains draft (not final) versions of the overview and chapters 1, 7, 8, and 9 of the full book, which will be online in late October and in print in early 2015.

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Making Global Value Chains Work for Development

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Building global value chains
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FOREWORD

The Global Value Chain Revolution has transformed trade, leading to changes in trade-growth-development links, trade-competitiveness links, and trade-governance options. In my view, 20th century globalization is about made-here-sold-there goods crossing borders: the trade system helped nations sell things. But 21st century globalization is also about factories crossing borders, so intrafactory flows of goods, know-how, investment, training, ideas, and people are now international commerce. The trade system now helps nations make things, not just sell things.

GVCs also denationalized comparative advantage, and this changed the options facing developing and developed nations. Instead of building the whole supply chain domestically to become competitive internationally (the 20th century way), in the 21st century, developing nations join GVCs to become competitive, and then industrialize by densifying their participation. The flip side is that developed-nation competitiveness options have changed. Globally competitive firms knit together national comparative advantages to make components in the most cost-effective location. Firms and nations that eschew GVCs must struggle to compete. In short, GVCs killed import-substitution for developing nations, and killed naively nationalistic industrial policies for developed nations.

The World Bank's *Making GVCs Work for Development* is very timely in that these facts are now very much coming into focus in the global discussion on development. Some developing nations have fully embraced the GVC Revolution—e.g., most East and Southeast Asia economies—but they are struggling with the challenge of making GVCs work better for their national development strategies. Other developing nations—especially in South America and Africa—are still viewing GVCs as some sort of trap—creating a new core–periphery pattern with "good" jobs in the North and "bad" jobs in the South. Yet even the most reluctant are coming around to the idea that the success of nations like China in the GVC competition means that all other developing nations have to face the sort of competition that comes when GVCs combine high-tech with low wages. In essence, GVCs killed import substitution as a viable industrialization strategy—making it almost unthinkable to pursue strategies that nations like the United States and the Republic of Korea pursued in the past. Here the book is extremely welcome. The GVC revolution requires fresh thinking—20th century paradigm are insufficient, or misleading, when applied to 21st century challenges. The book is a very solid step in this direction. There is much research to be done. But the book will help governments, and policy scholars, understand the issues.

The basic structure of the report is well thought through.

Part 1 introduces key concepts to provide an accessible and highly logical framework for thinking about GVCs and—importantly—for why GVCs require new thinking. This is a key element as I find that many developing-nation policymakers (and many developed-nation academics) view GVCs as just a new buzzword for rationalizing old policy ideas. It is essential to get this message out, so that governments will stop using old analytics to think through the new challenges. Firms in both developed and developing nations are much further along in the view of the changes, but they don't really have a way of conceptualizing them simply. The first chapter will help on both scores.

Part 2 is a helpful review of the many concepts and measurement tools that have been discussed over the 20 years or so since GVCs really took off. In the last three or four years, the range of GVC measurements exploded with new datasets—including the OECD's Trade in Value-Added (TiVA) and the World Input-Output Database (WIOD). The critical concepts used in these are a bit tricky since they are so far from the standard, blackbox/production-function approach to trade. Here again the book provides a good and accessible introduction to the measures and how they compare.

Part 3 is less well developed for the simple reason that the research doesn't really exist to take a diagnostic approach to policy. In the economic literature, there is a great deal of story-telling and macro data purporting to show that nations participating in GVCs are seeing faster growth and expanding exports on both the intensive and extensive margin, but we don't really know enough to guide policymakers' decisions on what exactly to do.

Overall, this is an excellent product. It is too early to write a definitive work on GVCs and development; my guess is that it'll take at least a decade of research to reach that point. But governments face challenges that must be met today. This book is an excellent contribution to helping make such decisions on a more solid, evidence-based foundation. I heartedly commend it.

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PREFACE

From banana chips to computer chips, the way the global economy produces and exchanges goods has never been more dynamic or more interconnected. The fragmentation of production across global chains and the importance of foreign inputs in virtually all sectors affect everybody: participants, non-participants, and countries at all income and development levels. These increasingly complex global value chains (GVCs) are a dominant economic reality in the 21st century. They present critical new challenges to the ways of evaluating and improving a country's trade and competitiveness.

This book comes at the perfect moment for developing countries seeking to join or upgrade in global value chains. Up until now, the development community has had a very emulative, unidirectional discourse. A narrow focus on the success stories along GVCs has resulted in policy prescriptions that too often seek to make each country the next Singapore. This simply will not suffice. Over the last few years, as some of these initial success stories—Ireland, or even my home country of Costa Rica—have come to face challenges in the sustainability of their position in GVCs, questions and concerns have been rightly raised.

In light of the new reality of GVCs, a thorough review of tools and policies is in order. It is time to re-evaluate conventional wisdom. How can the risk of investment attraction policies be more accurately assessed? What might their impact be on domestic investors? What are the inherent tensions between GVC attraction strategies—often based on low wages—and achieving higher labor productivity and better wages? For which type of countries are export processing zones a viable tool of industrialization? Will firms in these zones actually generate more spillovers than those outside?

This book presents a crucial starting point to apply fresh thinking to the GVC revolution and its implications for policy and development. It does so by providing three main contributions to the current debate on GVCs. First, it provides a framework for more easily conceptualizing GVCs and, thus, for more structured discussions and debates of GVCs and their implications for development. Second, it serves as a repository of analytical tools—one that the World Bank Group will work to consistently expand as new tools become available. Third, it is a collection of best practice policies illustrated through case studies, which will also be expanded to include evidence-based data. All this is accomplished through an innovative mix of methodologies from the economic and the business school literature, embracing both top down and bottom up approaches.

I see this work as the spearhead of the World Bank Group's newly established Trade and Competitiveness Global Practice effort to lead the intellectual and policy agenda on GVCs. It is a promising first step for better understanding the role of GVCs in economic development in the 21st century—especially their impact on increasing the prosperity of the bottom 40 percent of global citizens. I strongly believe that continuing to develop innovative tools is not only necessary but essential. Now is the time for questions, for reflection, and for nuances—and that is what this work brings.

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Overview

Making GVCs work for development

Making Global Value Chains Work for Development provides a framework, analytical tools, and policy options. It shows why global value chains (GVCs) require fresh thinking. It presents a methodology for quantifying the extent of a country's participation in GVCs, based on available data. It also proposes a strategic framework to guide policymakers in identifying the key objectives of GVC participation and development and in selecting suitable economic strategies to achieve them.

PART 1
WHY GVCs REQUIRE FRESH THINKING

Part 1 begins by arguing that GVCs need to be rethought in the 21st century. Internationally fragmented production is not new. For decades, developing nations have imported parts from countries with more advanced technology, though generally only for the assembly of locally sold goods. Because the goods produced were not part of a global network, flows of know-how were less intense. The new characteristic of GVCs from a development perspective is that factories in developing nations have become full-fledged participants in international manufacturing networks. They no longer are just importing parts for assembly for local sales. They are exporting parts and components used in some of the most sophisticated products on the planet.

The new GVC-enabled flow of know-how from developed to developing countries is a key factor in determining the role of GVCs in industrial development. Developing countries can now industrialize by joining GVCs instead of building their own value chain from scratch, as Japan and the Republic of Korea had to do in the 20th century. Developing countries can benefit from foreign-originated intellectual property, trademarks, managerial and business practices, marketing expertise, and organizational models. The result is that the flows of goods, services, people, ideas, and capital are now interdependent and need to be assessed jointly.

The international location of new production facilities is ultimately in the hands of GVC lead firms. Conceptually, it is useful to think of the new possibilities created by globalization and the information and communication technology revolution as creating two distinct sets of necessities for firms that countries are asked to address: connecting factories and protecting assets. Since cross-border factories must work as a unit, lead firms within GVCs care about efficiently connecting local factories with the relevant international production network, and about protecting proprietary assets.

The predictability, reliability, and time sensitivity of trade flows are important factors behind firms' location decisions, according to both major trade and competitiveness indexes and case studies. In many cases, countries cannot participate in some parts of GVCs because of requirements for timely production and delivery.

In the same way that import substitution industrialization gave way to export-oriented industrialization, the latter is now being replaced by efforts to identify an entry point into vertically specialized industries and to upgrade within GVCs. Attracting offshored factories and ensuring domestic firm participation in international GVCs has become a major priority for many policymakers in developing countries.

From a policy perspective, however, the critical issue is how GVCs integrate into the economy as a whole. It is not enough to attract and keep offshored factories. The policy challenge extends to creating and strengthening links with domestic firms and to ensuring that the host nation benefits from technology transfers, knowledge spillovers, and increased value addition in the country. But it is equally important to ensure that GVC participation benefits domestic society through more and better paid jobs, better living conditions, and social cohesion. In a nutshell, the key question is: How can developing nations make GVCs work for development?

PART 2 QUANTIFYING A COUNTRY'S POSITION IN GVCs

Integrating a country's domestic suppliers into GVCs increases the possibility for GVC spillovers through exporting to a buyer abroad or supplying to a multinational in the country. But countries should not neglect the opportunities that GVC participation can provide from a buyer's perspective. Instead of building a complete array of supply chains at home, firms can join existing supply chains of multinationals through cross-border trade in intermediates and components.

Quantitative measures of GVC participation and guidelines for analysis make it possible to deliver informed policy suggestions. The organizing framework and indicators in Part 2 enable answering questions related to a country's GVC Participation Assessment, including:

- How extensive is a country's or sector's GVC participation?
- What is a country's role in GVCs (buyer or seller)?
- What is a country's position in GVC networks (incoming spoke, outgoing spoke, or hub)?
- What is a country's type of GVC node in a network (headquarter or factory)?
- What is a country's specialization and domestic value added contribution?
- Where does the country export directly and where is the value added it produces finally consumed?
- What is the impact of GVC participation on task trade (goods and services) and on the factors of production (workers, ideas, investments)?

Part 2 assesses a country's GVC participation through three types of measures:

1. GVC participation measures, by country and sector (including trade in value added).
2. Firm-level measures of direct links in GVCs.
3. Network assessments of international trade.

GVC participation measures differentiate between buyer- and seller-related measures, and combine those measures to assess the overall GVC participation of countries. Growing GVCs mean that a country's exports increasingly rely on intermediate imports, so various measures drawing on trade in value added data estimate the source of value (domestic or foreign, by country and industry) that is added in producing goods and services for export or final demand.

Firm-level measures focusing on direct links in GVCs can be aggregated up to the sector and country levels. Firm-level survey data directly capture the main actors in a value chain—buyers and suppliers—and allow comparisons of GVC links across different industries in a country or in a single industry across different countries. The links between buyers and suppliers include multinational corporations (MNCs) and domestic suppliers in a country, domestic final producers and suppliers abroad, and domestic suppliers and buyers abroad.

Network metrics typically focus on a country's position in a sector, but can also be computed for overall trade or other groupings—in three ways. First are indicators that examine a country's centrality and structural integration in GVCs. Second, the network trade index is an alternative measure of assessing a country's position in a sector relative to peers. Third, bilateral network relations can be visualized as a world map of vertical trade networks. In this context, the concept of minimal spanning trees visually identifies the trade partners with the strongest links. Overall, network analysis helps to capture heterogeneity in the links between countries and to understand the complex multi-dimensional phenomena that characterize GVCs.

PART 3 STRATEGIC QUESTIONS AND POLICY OPTIONS

GVC participation does not automatically generate development. Part 3 shows that this requires getting more value added from a country's productive factors (economic upgrading), improving the quality and quantity of those factors (especially labor skills and technological capabilities), redressing market failures, and engineering equitable distributions of opportunities and outcomes (social cohesion). All this, while reinforcing living standards, including employment, wages, work conditions, economic rights, gender equality, economic security, and protecting the environment (social upgrading). The internationalization of production processes helps with very few of these development challenges but it provides the policy space to address them.

Following this perspective, the book offers policymakers analytical tools and policy options to formulate a country's GVC Participation Strategy—on how to enter a GVC and then leverage its position to expand GVC participation by shifting and improving resources in a way that advances development goals. This includes answering whether GVC delivers labor-market enhancing outcomes for workers at home. Thinking at the country level brings to the fore constraints such as the supply of various types of labor, skills, and absorptive capacity. GVCs can create new opportunities on the labor demand side, but supply and demand cannot meet if the supply is missing. That is why it is important to embed national GVC policies in a broader portfolio of policies to upgrade skills, physical and regulatory infrastructure, and social cohesion.

The strategic policy framework of Part 3 focuses on the following areas and objectives (figure A.1):

1. **Entering GVCs**
   Attracting FDI and facilitating domestic firms' entry into GVCs.
2. **Expanding and strengthening GVC participation**
   Promoting economic upgrading and densification, and strengthening domestic firms' absorptive capacity.
3. **Turning GVC participation into sustainable development**
   Promoting social upgrading and cohesion.

The goal is to enable policymakers to make informed choices. Therefore, the book raises strategic questions in each of the three focus areas, offering a range of possible answers and pointing to critical issues that need to be considered.

- How can GVC tasks be identified?
- Which form of GVC participation can a country pursue?
- What are possible risks of GVC participation?
- Which forms of governance exist between lead firms and suppliers?
- Which power relations characterize specific GVCs?
- Which foreign firm, domestic firm, and country characteristics mediate GVC spillovers?
- What are the GVC transmission channels?
- Which type of economic upgrading, densification, and social upgrading can countries pursue?
- What is the relationship between economic upgrading, social upgrading, and social cohesion?

For example, a country that seeks to participate in GVCs needs to ask which tasks it should focus on and which types of GVC governance are possible. Countries already integrated in GVCs need to evaluate risks that could threaten a country's survival in the value chain, such as becoming more vulnerable to external shocks. They also need to be aware of the different power relations in GVCs between the lead firm and other firms. Since a large part of GVC integration happens through foreign direct investment (FDI), countries also need to examine whether FDI leads to positive spillovers for local actors (especially domestic firms and workers) and know about possible factors mediating such benefits for foreign investors, domestic firms, and institutions. Countries also need to decide which type of economic upgrading (process, product, functional, intersectoral) and social upgrading (employment, wages, labor standards) they want to pursue.

Finally, policy options are proposed for each of the three focus areas:

1. Which policies support GVC entry?
2. How can policies influence the expansion and strengthening of GVC participation?
3. Which policies help turn GVC participation into sustainable development?

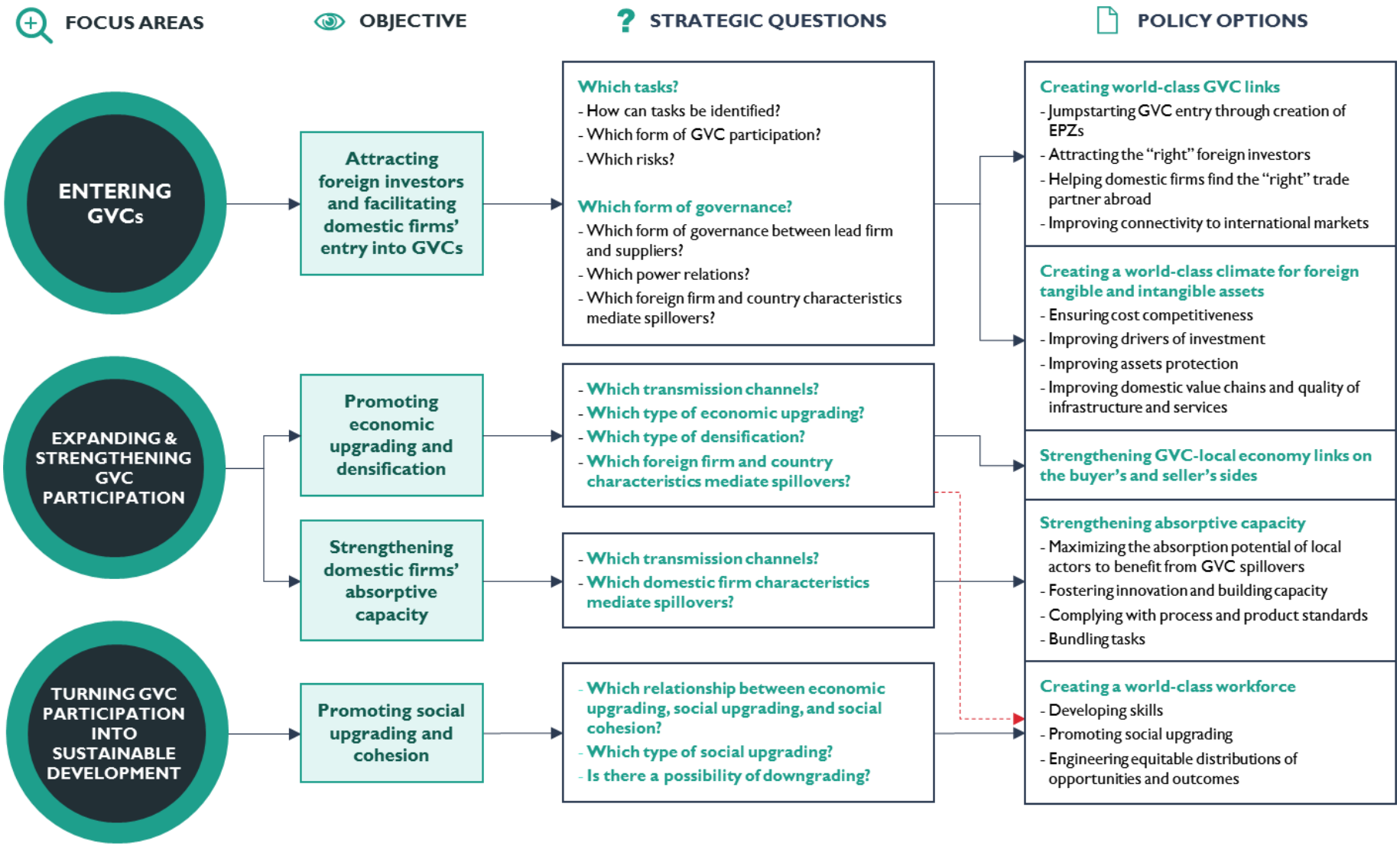
To guide policymakers in prioritizing policies, Part 3 also lists some performance indicators. Table A.1 lists select performance indicators, and many more are in Part 3.

Governments that seek to join GVCs need to create world-class GVC links and a world-class climate for foreign tangible and intangible assets. The first requires attracting the right foreign investors and improving connectivity to international markets. The second requires high-quality infrastructure and services. The ease of doing business indicator, for example, can give an overview of how attractive a country is to foreign investors, especially its assets protection. The logistics performance index can help countries assess how well they fare on connectivity to international markets and border efficiency. The logistics performance index can help examine the quality of a country's infrastructure and services.

To expand and strengthen a country's GVC participation, policymakers need to focus on strengthening existing GVC-local economy links as well as the absorptive capacity of local actors to help them maximize the benefits from GVC spillovers. Absorptive capacities include the innovation capacity that, for example, could be measured by research and development intensity.

FIGURE A. I

Strategic Policy Framework



Turning GVC participation into sustainable development also means creating a world-class workforce with policies that promote skills development, social upgrading, and equitable distributions of opportunities and outcomes. Performance indicators include, but are not limited to, education, wage, and employment statistics.

TABLE A.1

Policy objectives and performance indicators: overview

Focus area	Policy options	Select performance indicators
Entering GVCs	- Increasing connectivity to international markets	- Logistics performance index (international)—overall; efficiency of customs (WDI)
	- Ensuring cost competitiveness	- Unit labor costs
	- Improving drivers of investment	- Ease of doing business index—overall (WDI)
	- Improving assets protection	- Ease of doing business index—protecting investors (WDI)
	- Improving domestic value chains and quality of infrastructure and services	- Logistics performance index (domestic)—quality of infrastructure, quality and competence of services (WDI)
Expanding and strengthening GVC participation	- Fostering innovation and building capacity	- Research and development intensity
	- Improving standards	- Surveys / field assessments in country
Turning GVC participation into sustainable development	- Developing skills	- Education statistics
	- Promoting social upgrading	- Wage statistics; employment statistics

Source: Own compilation. WDI =World Development Indicators.

Part 1

Introduction

CHAPTER 1 Why GVCs require fresh thinking

GLOBAL VALUE CHAINS (GVCs) can be thought of as factories that cross international borders.[1] Producing high-quality goods and services in GVCs involves more than simply trading goods and services internationally—it also entails the cross-border movement of know-how, investments, and human capital. When Toyota makes car parts in Thailand, it does not rely on local know-how. Instead, it imports Toyota technology, management, logistics, and any other bits of know-how not available in Thailand since Thai-made parts have to fit seamlessly with parts made in Japan and elsewhere. GVCs, in effect, "unbundle" factories by offshoring firm-specific know-how along the stages of production, and these international flows of know-how are the key difference between GVCs and other types of trade and investment.

Internationally fragmented production is not new. For decades, developing nations have imported parts from countries with more advanced technology, though generally only for the assembly of locally sold goods. Because the goods produced were not part of a global network, flows of know-how were less intense. The new characteristic of GVCs from a development perspective is that factories in developing nations have become full-fledged participants in international manufacturing networks. They no longer are just importing parts for assembly for local sales. They are exporting parts and components used in some of the most sophisticated products on the planet.

Given the need to integrate production facilities internationally, large multinational corporations (MNCs) seek to improve local innovation, knowledge-based capital, and economic competencies. The Samsung Group—which employs 369,000 people in 510 offices worldwide—worries about shortages of technical and engineering skills in Africa and how this affects its efforts to embed its African workforce in their global production networks. In 2011, to address such shortages, it launched Samsung Electronics Engineering Academies in Kenya, Nigeria, and South Africa. Outstanding performers are sent to annual Learnership Programs in Seoul as part of Samsung's program for young leaders. This initiative serves the company's broader goal to develop 10,000 electronics engineers across the continent by 2015.[2]

The new GVC-enabled flow of know-how from developed to developing countries is a key factor in determining the role of GVCs in industrial development. Developing countries can now industrialize by joining GVCs instead of building their own value chain from scratch, as Japan and the Republic of Korea had to do in the 20th century.[3] Developing countries can benefit from foreign-originated intellectual property, trademarks, managerial and business practices, marketing expertise, and organizational models. The result is that the flows of goods, services, people, ideas, and capital are now interdependent and need to be assessed jointly (box 1.1).

BOX 1.1

Global value chains, global value networks, and the goods-services-investment-people-ideas nexus

From a business organization perspective, value chains describe the sequence of productive (value added) activities that capital and labor (or firms and workers) perform to bring a good or service from its conception to end-use and beyond (Porter 1985; Sturgeon 2001). Value chains are said to be "global" when the activities are carried out in interfirm networks on a global scale.[4] From an economic perspective, the phenomenon of global value chains (GVCs) identifies a production structure where tasks and business functions are spread over several companies, globally or regionally dispersed.[5] Typically coordinated by lead firms, they involve international trade flows within their networks of foreign affiliates (foreign direct investment), contractual partners (nonequity modes of investment), and arm's-length external suppliers.[6]

But most production processes do not happen in a sequence of dependent activities. Instead, they take place in more complex networks of production, where participating firms are specialists in one activity. To highlight the complexity of the interactions among global producers, recent literature makes reference to the concept of global production "networks" rather than "chains."[7] Accordingly, in the more realistic metaphor of networks, links can be seen as connecting nodes, some more central and some more peripheral. Given the predominance of the term GVCs in the literature, we use it to refer generically to chains, networks, or both. When more specific references are needed, it will be explicitly mentioned in the text.

Capital and labor are not the only factors of production. One can single out "ideas" as a third factor of production, although they could also be understood as high-skilled labor input. In a global context, the value added activity performed in one country crosses international borders in goods or services tasks. Different tasks of the value chain contain a different amount of such factors of production. For example, specialized workers tend to be necessary in higher value added tasks of the GVC. In the automotive, electronics, and electrical appliances industries, ideas are more strongly embedded in early preproduction stages such as research and development and design or in postproduction (logistics, marketing, branding), thus requiring such specialized workers in these tasks. In other industries, notably the craft-based (such as furniture), innovation development is maximized when ideas (product design) and manufacturing operations are joint.[8] This is so because innovation in these sectors often stems from a bottom-up approach.[9]

FIRM AND POLICY PERSPECTIVE

CONNECTING FACTORIES AND PROTECTING ASSETS WHEN DOING BUSINESS ABROAD: THE FIRM PERSPECTIVE

The international location of new production facilities is ultimately in the hands of GVC lead firms. Conceptually, it is useful to think of the new possibilities created by globalization and the information and communication technology revolution as creating two distinct sets of necessities for firms that countries are asked to address: connecting factories and protecting assets. Since cross-border factories must work as a unit, lead firms within GVCs care about efficiently connecting local factories with the relevant international production network, and about protecting proprietary assets.

The predictability, reliability, and time sensitivity of trade flows are important factors behind firms' location decisions, according to both major trade and competitiveness indexes and case studies.[10] In many cases, countries cannot participate in certain parts of GVCs because of requirements for timely production and delivery. In effect, time is money in GVCs. A day of delay in exporting has a tariff equivalent of 1 percent or more for time-sensitive products.[11] Slow and unpredictable land transport keeps most of Sub-Saharan Africa out of the electronics value chain.[12] Lead firms and intermediate producers in GVCs need reliable, predictable, and timely access to inputs and final products to satisfy demand on time.

Protecting firm assets is necessary because firms export valuable, firm-specific technology and know-how, only part of which can be protected through patents, trademarks, and other forms of intellectual property regulations. The know-how embodied in business and organizational models, managerial practices, production processes, and export processes cannot be patented or trademarked. Because global production networks necessarily involve contracting relationships between agents located in countries with heterogeneous legal systems and contracting institutions, "contracts are often neither explicit nor implicit; they simply remain incomplete."[13] How different national systems deal with contractual frictions and incomplete contracts is an additional dimension driving firms' choices of location, as are firm boundaries in global sourcing.[14]

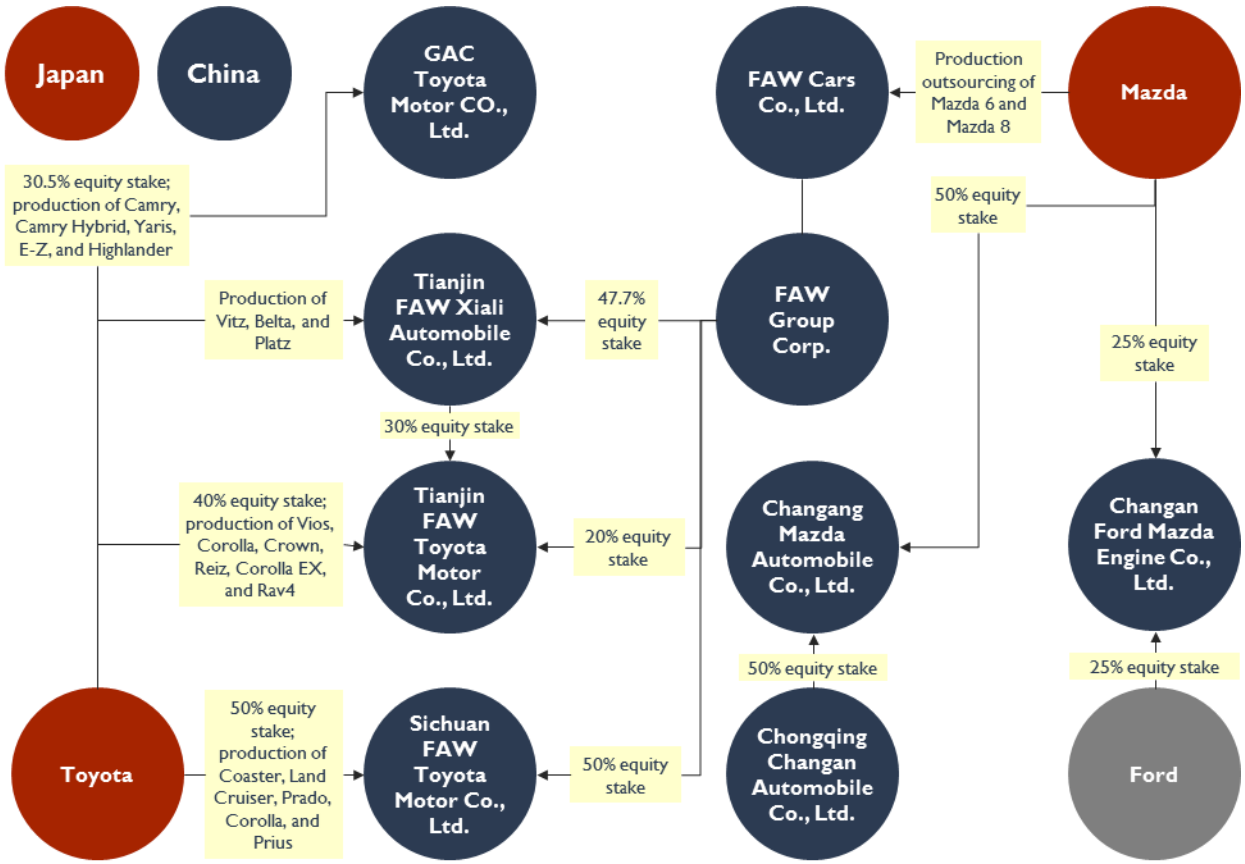
The connectivity of factories and the nature of contracting across countries are therefore key determinants—along with capital intensity—of a firm's decision to make or buy, and whether to do so domestically or internationally. Figure 1.1 illustrates the foregoing concepts using actual ownership relationships among some of the key suppliers and buyers in the Sino-Japanese auto industry. These relationships move from Japan to China—that is, from the higher income to the lower income country. The good connectivity between China and Japan and the proximity of the two countries satisfy the first concern of lead firms: connecting factories. Meanwhile, the correspondence between type of control and strategic importance of assets in the Sino-Japanese automotive sector accurately illustrates the second key concern of global investors: protecting assets.

Control of the subsidiary takes place in a variety of ways. The most strategic assets are tied to the lead firm through forms of direct capital control over the supplier (such as majority equity stakes). Assets of lower importance (such as older technologies) are instead just handed over through licensing agreements. Technical cooperation and arms-length trade signal looser forms of collaboration. With the dramatic growth of outsourcing practices, competition between companies has shifted from horizontal (with firms competing in the same sector for the same customer base) to vertical (with firms in the same value chain competing to perform specific and specialized tasks). Lead firms compete with first-tier and lower-tier suppliers.[15]

The links between Mazda, the fifth largest Japanese car manufacturer in production volumes, and China's FAW Car Group (FAW) illustrate the complexity of vertical competition (figure 1.1). While Mazda outsources the production of the Mazda 6 and 8 to FAW, the latter also competes with the former. FAW produces other models, under different brands, using technology from Mazda's competitors, including Daihatsu, Toyota, and Volkswagen. And it has its own line of luxury cars that directly competes with models from the lead firms.[16]

FIGURE 1.1

Supplier-buyer links between China and Japan in the automotive industry



Note: Japanese companies are red, Chinese counterparts blue. The arrows indicate ownership or other forms of control. The Japan Automobile Manufacturers Association states: "In principle, the tie-ups shown above cover only technical cooperation related to motor vehicle production and exclude sales tie-ups."
Source: Japanese Automobile Manufacturers Association (2013, p.55). Data as of March 2013.

CREATING LINKS TO THE LOCAL ECONOMY: THE POLICYMAKER PERSPECTIVE

In the same way that import substitution industrialization gave way to export-oriented industrialization, the latter is now being replaced by efforts to identify an entry point into vertically specialized industries and to upgrade within GVCs. Attracting offshored factories and ensuring domestic firm participation in international GVCs has become a major priority for many policymakers in developing countries.

From a policy perspective, however, the critical issue is how GVCs integrate into the economy as a whole. It is not enough to attract and keep offshored factories. The policy challenge extends to creating and strengthening links with domestic firms and to ensuring that the host nation benefits from technology transfers, knowledge spillovers, and increased value addition in the country. But

it is equally important to ensure that GVC participation benefits domestic society through more and better paid jobs, better living conditions, and social cohesion. In a nutshell, the key question is: How can developing nations make GVCs work for development?

STYLIZED FACTS ABOUT GVC TRADE

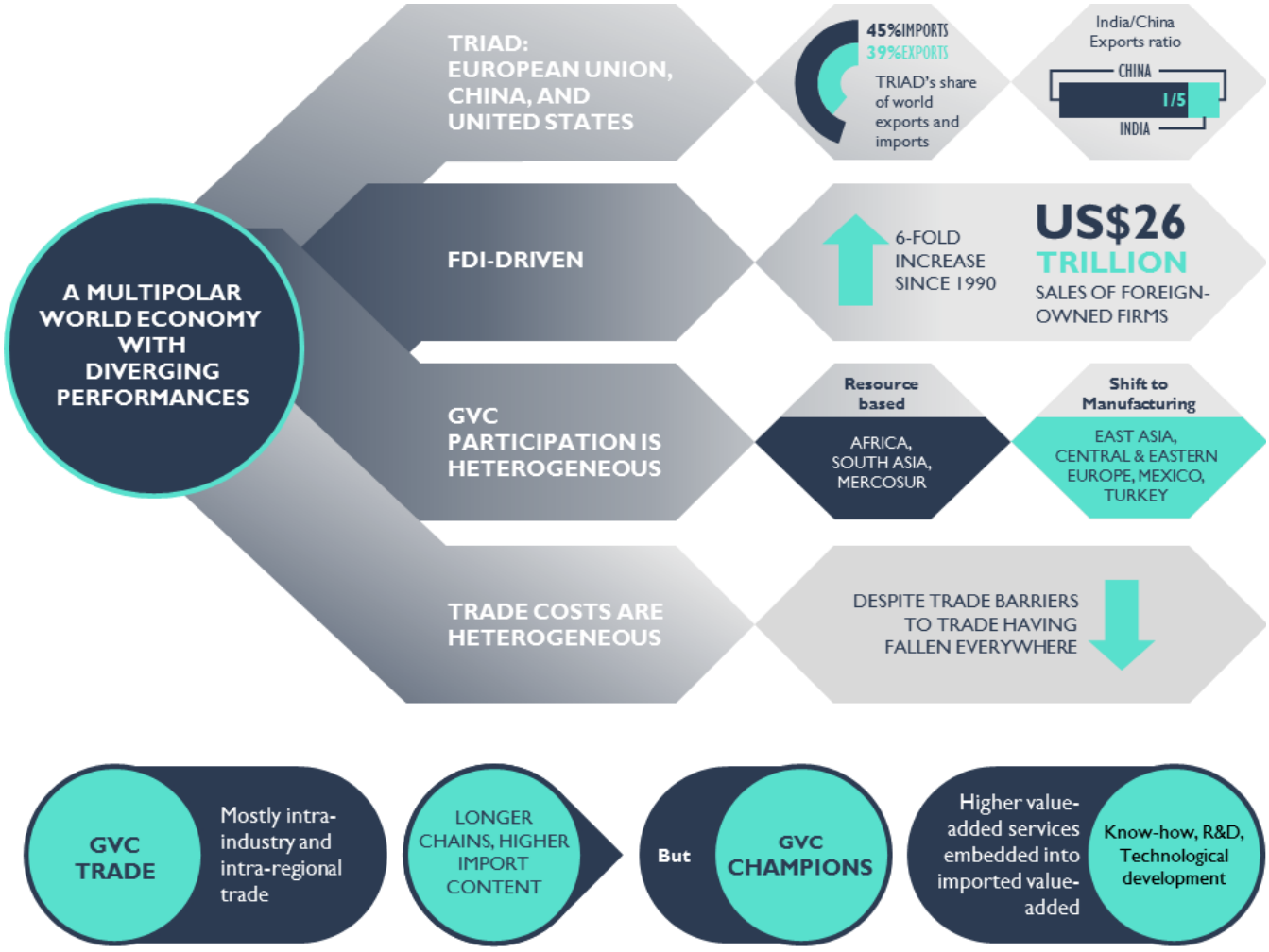
The increasing interdependence of countries in GVCs is best grasped by network analysis of global trade. Before discussing networks, however, it is useful to remind the reader of some key stylized facts about GVC trade.

Once concentrated among a few large economies, global flows of goods, services, and capital now reach an ever larger number of economies worldwide. Global trade in goods increased 10 times over 1980–2011, that in services 3 times, and that in financial flows 1.5 times.[17] FDI increased six times since 1990. As many as 3,000 bilateral investment treaties have been signed to create the framework of deep agreements necessary to connect factories and protect assets of foreign firms. The sales of foreign-owned firms amounted to $26 trillion.[18]

All these flows have grown over time, creating increasingly dense and complex networks, and the value of goods flows is now greater than the GDP of participants for most bilateral flows between major world regions (United States, Western Europe, Eastern Europe, Asia, and Latin America). In 1980, by contrast, the only flows of goods exceeding the value of GDP were those connecting the United States and Western Europe and Western Europe with the Middle East, North Africa, and Sub-Saharan Africa. Yet the globe has grown into a multipolar world economy with diverging performances (figure 1.2). The triad formed by the European Union, China, and the United States now accounts for 39 percent of world exports and 45 percent of world imports. India's trade, by comparison, is very small, accounting only for one-fifth of China's trade. GVC participation and trade costs remain heterogeneous. While East Asia, Central and Eastern Europe, Mexico, and parts of the Middle East such as Turkey and Morocco are increasingly integrated in GVCs, other parts of the world remain marginal. This is the case for most of Africa, South Asia, and Mercosur. Another key difference between the first group of countries and regions and the second is that while the latter remain resource-based economies, the former have shifted their specialization to manufacturing. According to Hoekman (2014), the heterogeneity in GVC participation is largely due to persistent heterogeneity in trade costs.

FIGURE 1.2

Stylized facts about GVCs: A multipolar world with diverging performances



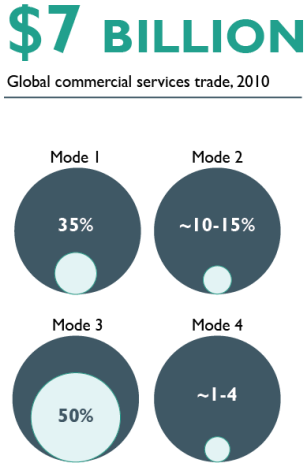
Source: Authors based on Comtrade and UNCTAD data and insights from UNCTAD (2013), Manyka and others (2014), and Hoekman (2014).

GVC trade is mostly intra-industry and intraregional. The fragmentation of production has implied that in most manufacturing processes, the value chains have become longer. A mechanical consequence is that most countries have increased the import content of their exports. Yet GVC champions, such as China; Taiwan, China; Vietnam; Turkey; and Poland, to name a few, have seen their domestic value added increase.

The GVC revolution has been accompanied by important changes in the services sector, too, underscoring the importance of the nexus of goods, services and FDI (box 1.1). Service trade and the role of services in boosting the economy as a whole have increased: more than 60 percent of the current stock of global FDI is in services. The composition of services has also changed, with modern services gaining in importance at the expense of traditional services.[19] FDI is also a main engine of growth for service trade. Mode 3 (delivery through foreign affiliates) covers about 50 percent of overall service trade (figure 1.3).

FIGURE 1.3

Service trade



Source: Saez and others (2014).

Not only has service trade increased over time, but services have also increased their importance as a determinant of competitiveness in the economy as a whole. Countries with a higher content of services in the downstream economy are also those producing more complex goods (figure 1.4). The explosion of services and service trade is due to falling trade and investment barriers as well as new digital technology, which have reduced costs for service delivery across borders and transformed many goods into services (box 1.2). The deregulation in air and road transport, the abolition of antitrust exemptions for maritime liner transport, the privatization of ports and port services, and the divestiture and breakup of telecoms monopolies are, according to Hoekman, the main examples of regulatory measures reducing the cost of service delivery across borders.[20]

The agricultural sector has also evolved. It now represents just 2 percent of global trade (9 percent in the 1960s) and—just like services—the composition of trade in agriculture has changed, from a dominance of traditional commodities to increasing trade of higher-value processed products. This shift is also tightly linked to GVCs. The efficiency and functioning of the agrifood value chain is a function of availability and quality of a variety of embedded services, including quality control, logistics, storage facilities, packaging, insurance, and distribution.

Take avocados, as portrayed by a USAID (2009) case study for Chile. This fruit can be sold locally or internationally at very different stages of processing. At the most basic "ingredient" level, the fruit is grown with little control over its quality, harvested, and sold to intermediaries for low profit margins. The same producers of avocados can instead achieve better bargaining power and profit margins by entering or setting up more complex and sophisticated value chains, and by focusing on producing higher-quality primary products (production tasks) that can be sold in far away and demanding markets. They can do so by embedding the range of services just mentioned (quality control and so on) and by adding to the production technology that enhances the quality of fruits and that better controls the ripening of the fruit, to ensure that it happens at the point of destination—no matter whether this is next door or on the other side of the globe.

FIGURE 1.4

Services forward linkages

Source: Saez and others (2014).

To achieve the standards demanded in global markets, the producers of the primary good (the fruit) need a quality management system that grants higher quality standards by controlling harvest and postharvest procedures. Doing this is doing better the tasks of comparative advantage (agricultural production) with the assistance of more technology and services.

BOX 1.2

The potentially disruptive effects of computer-aided technologies and digital innovation

Value chains are rapidly changing under the pressure of digital innovation. As companies develop more sophisticated ways to leverage digital technology, they are also shifting many processes to computer-aided machinery that used to be labor intensive. The digitization of manufacturing may soon allow customized production at no incremental cost and in fewer numbers (which means lower overall costs) than with assembly lines. The result is not only that the advantages of standardized mass production may be fading away, but also that the distinction between preproduction, production, and postproduction may become less and less relevant.

Model-based definition, additive manufacturing (such as 3-D printing), and copy-exact techniques are only three cutting-edge technologies transforming supply chains and processes. Such computer-based technologies can be disruptive, particularly for companies and countries specializing into standardized production and assembly activities and not investing in human capital and technological empowerment, because they have the potential to change the conventional upgrading patterns. They do so by transforming goods into online transfers of data, which allow production at the consumer's location. 3-D printing, for instance, is a process for individual machines to build products by depositing layer upon layer of material. Model-based definition instead uses fully annotated 3-D digital models as master and provides a seamless flow of digital thread through the product life cycle. Copy-exact techniques allow for duplicating entire production processes in remote locations and at larger or smaller scales. This technique was used for example by Intel to match its manufacturing site to its development site at all levels, from equipment to process, and data collected at a number of levels were compared with data from research and development (R&D) sites to get an exact match.

While these methods are now used mainly for R&D, prototypes, and building very complex components, it is likely that—with time—they will also be used for manufacturing consumer products, from toys to bicycles.

ASSESSING A COUNTRY'S POTENTIAL IN GVCs

To guide policymakers in achieving development through GVC integration, one needs to investigate key concepts and metrics of a country's GVC participation. Understanding how countries fare in such key concepts and metrics allows a better identification of specific value chains and business segments, which are the object of case studies—analyses focusing on specific value chains, activities, or business segments, such as those based on Michael Porter's five forces.[21]

Assessments of country GVC participation focus on three concepts:

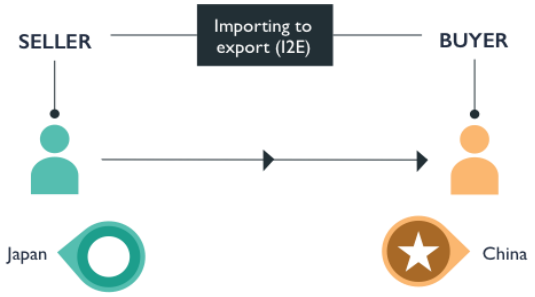
1. **Role in GVCs**: the buyer's versus the seller's perspective.
2. **Specialization and domestic value added contribution**: specialization in low value added or high value added activities, assembly activities, preproduction, support activities, or postproduction.
3. **Position in GVC network and type of GVC node***:* incoming spoke, hub, outgoing spoke, clustering properties, centrality in the global network.

The multidimensional nature of GVCs can be captured by looking at the relationship between goods, services, workers, ideas, and investments, going beyond value added, to look at who are the actors of GVCs and how to assess GVCs' impact on jobs and wages.

ROLE IN GVCS: THE BUYER'S VERSUS THE SELLER'S PERSPECTIVE

FIGURE I.3

Two perspectives when measuring GVC participation



Classic trade involves goods made 100 percent in one country and sold in another. Measures of GVC trade quantify deviations from this classic trade concept—essentially, how much of a country's exports consist of value that was added in another country. The basic concept is "importing to export" or I2E, as Baldwin and Lopez-Gonzales (2013) call it. As figure 1.5 illustrates, one country (Japan in this example) exports parts that are incorporated in the exports of another country (China here). This single flow of intermediate goods is the basis of two key measures of GVC integration:

- On the sales side, it indicates that Japanese exporters are selling to a GVC.
- On the sourcing side, it indicates that China is buying from a GVC.

The term GVC typically refers to I2E of manufactured goods and related services, but more generally it also includes imported raw materials used in exports.[22] The relevance of I2E on the seller's and buyer's sides is illustrated in detail in Part 2.

To put this in an operational context, the book introduces a distinction between the seller's and buyer's sides of GVC participation. In many cases, countries host both GVC buyers and GVC sellers. But the purpose of this distinction is to identify more precisely the nature of a country's participation in GVCs. Consider three types of buyer roles in GVCs: input purchases for production of intermediate inputs in the value chain, for production of final exports, and for assembly. The main supplier functions are also three: supply of turnkey components, of other inputs, and of primary inputs (figure 1.6).

The types of flows (goods, services, people, ideas, and capital) predominantly associated with either the buyer's or supplier's role are more easily discussed by first focusing on the buyer's or supplier's functions separately then considering them jointly. This is more easily actionable from the policy angle. If, for example, the domestic value chain is found to be short or there is little transformation domestically, it is possible to identify more readily the supply-side bottlenecks and opportunities for expansion from those on the selling side.

SPECIALIZATION AND VALUE ADDITION

Ultimately, what matters is the value addition generated in the country and whether it increases over time. This is not a new question for economics. Value addition is a function of productivity, but is associated with the breadth, variety, and sophistication of tasks and activities in which a country specializes.

The range of activities in a value chain is very broad. Porter distinguishes primary, support, and sales activities.[23] Primary activities range from manufacturing inputs, outputs, and assembly operations to inbound and outbound logistics, marketing, sales, and a range of other service activities. Support activities include the production of other inputs, machinery, and equipment as well as R&D, technological development, and activities aimed at organizing the firm's infrastructure, human resource management, and procurement. Broadly, the value added content of such activities and tasks tends to increase as the technological and know-how requirements needed to perform the task increase.

In many value chains, the value added lies with intangible activities, which are intensive in human capital and technology.[24] In some industries, such as electronics and apparel, the latter tend to be located either at the beginning of the value chain (preproduction activities such as basic and applied R&D, design) or at the end (postproduction activities driven by marketing knowledge, such as marketing, commercialization, advertising, brand management, specialized logistics, and after-sale customer services). In other industries, such as furniture, the intangible, high value added activities (such as design) are likely to take place jointly with production.[25] Finally, in sectors such as chemicals, the value added tends to be concentrated upstream.

The value added in different industries can be in different segments of the value chain, but invariably, higher income countries have a stronger specialization in higher value added activities within value chains. This reflects the greater use of technology and support services in each production process—whether in agriculture, industry, or services and whether in preproduction, production, or postproduction.

The ability of a small country such as Denmark to establish and maintain its position among the top eight world exporters of food products exemplifies this. It achieved this position through massively applying information and communication technologies and support services (R&D, logistics, commercialization, advertising, after-sale services) to the production and processing of food. Moreover, and linked to the first item, it has made continuing efforts to upgrade processes through introducing capital-intensive inputs, increasing value addition.

Digitization also makes every step of the production process more productive and in some cases changes the nature of production. Digitization is transforming some goods into services (e-books, digital news, and entertainment), and 3-D printing transforms goods into online transfers of data that locate the production process next to the consumer (box 1.2). The ubiquity of emails, tools for virtual collaboration (Dropbox or Google Docs), online labor market places, eBay as a cost-convenient platform for sales by small and medium enterprises (SMEs)—all are productivity-enhancing instruments grounded in digital technology.

FIGURE 1.6

Two perspectives when measuring GVC seller functions and buyer functions

So, in a world dominated by complex and fragmented production processes, development can be achieved by functional upgrading, moving to higher value added tasks, or by process upgrading, specializing in the tasks and activities of comparative advantage and by putting more technology, know-how, and auxiliary services into those tasks. This does not necessarily mean transitioning from an agricultural to a services economy as traditional development views suggest (development in broad sectors, or the "old paradigm" as dubbed by the GVC literature). It means instead increasingly embracing higher value added production with the assistance of more technology, services, and know-how. In this sense, process upgrading overcomes the "old paradigm" and extends the "new paradigm," focused on functional upgrading (figure 1.7). Denmark's strength in global food production and Chile's production of high-quality avocados for export provide a clear case for identifying the tasks or activities of comparative advantage within sectors and for then identifying policies to empower such activities of comparative advantage with technology and better human capital inputs (figure 1.8). Part 3 outlines strategies that countries pursue to do so.

POSITION IN GVC NETWORKS AND TYPE OF GVC NODE

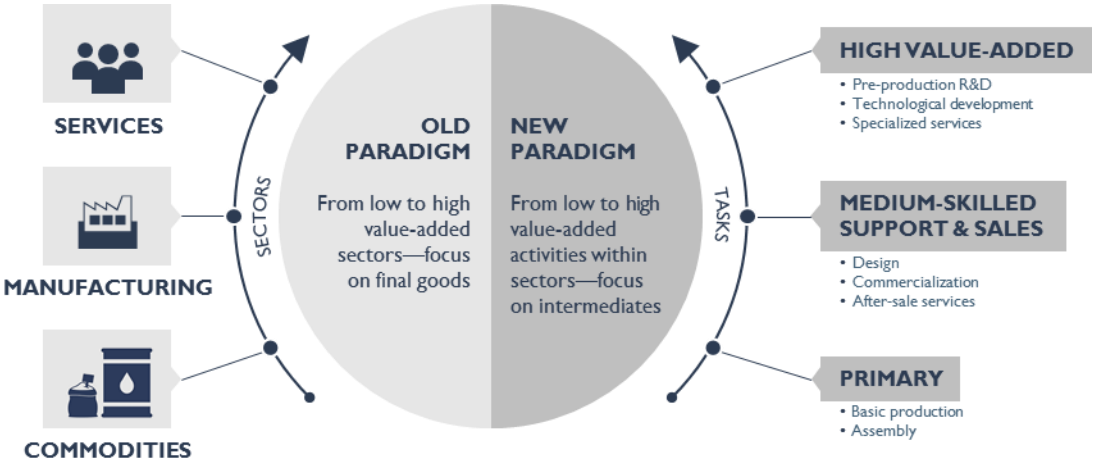
In the complex and multidimensional space of GVCs, how do countries fare overall? Network analysis and metrics shed some light on this by capturing the complexity and heterogeneity of actors and trade links (box 1.3). Assessing large and dense networks may be easier done by creating a network topology, consisting of a set of centrality measures that capture different aspects of the network. Stylized representations of the network also help visualize some dominant aspects of the network and of the actors.

The most relevant measures are:

1. **Strength**: average flow for country *c*.
2. **Closeness**: mean distance from country *c* to all other countries.
3. **Centrality**: the centrality of country *c* relative to the overall structure of the network measures "structural integration" in the network.
4. **Clustering**: the transitivity of the network, how much the neighbors of country *c* are themselves connected.
5. **Visualization through a minimal spanning tree**: This visualizes the network reporting the strongest flow for each node (box 1.3). The most connected countries—the central nodes, as they are the main trade partner for several countries—are the "roots" of the tree, distinguished from the peripheral countries, the "leaves," The size of the node reflects a country's strength or centrality in the network (figure 1.9).

FIGURE 1.7

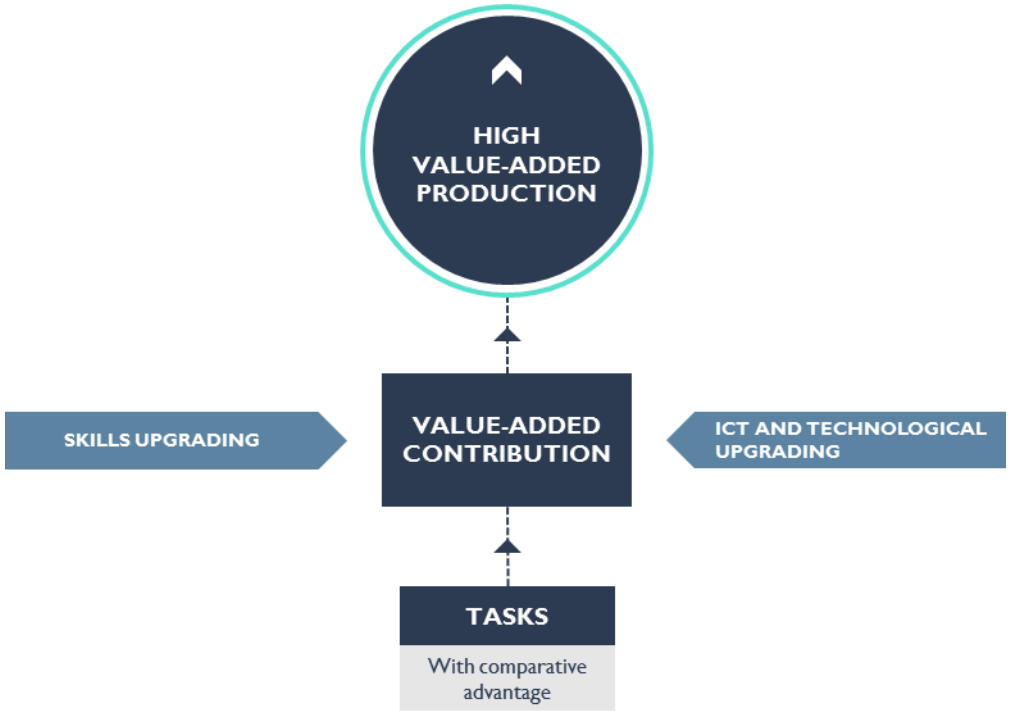
From sectoral to functional upgrading



Source: Authors based on Cattaneo and Mirodout (2012).

FIGURE 1.8

Adding process upgrading



Source: Authors.

BOX 1.3

What is special about network analysis: finding structure in economic problems

Network analysis and metrics are primarily about finding structure in the data describing the link between the nodes (agents, countries, firms). This approach differs from traditional econometrics in many ways.

The first difference is that network analysis accounts for heterogeneity in the linkages between individual observations. This is not the case for traditional econometrics, which assumes a fully connected network or random connections. This difference is key as it has computational implications. It also clearly underscores that the usefulness of network analysis goes beyond visualizations of phenomena.

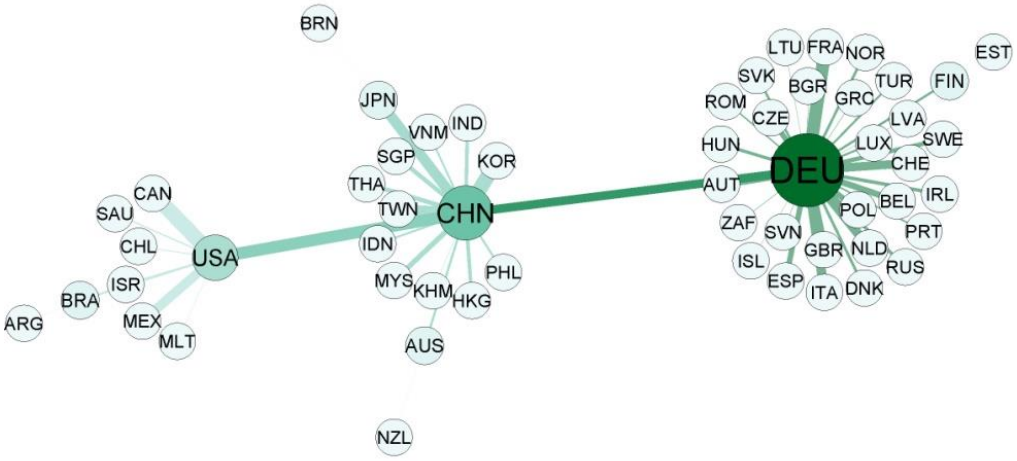
The second difference lies in the assessment of the structure of the network. Network analysis allows for a number of metrics to synthetize a node's complex and multi-dimensional set of characteristics in one indicator, such as centrality metrics. Standard econometrics would proceed otherwise to explore the structure of the network. It would, for instance, regress the values of the adjacency matrix against independent variables, working de facto with averages. In network analysis, as opposed to typical econometrics, nodes retain their full set of characteristics (or complexity), and the result of the analysis is the position of the node, presented in a visual graphics or quantifications by a single indicator.

A third difference is that, in econometrics, indicators are usually related to independent variables. This is also possible with network metrics, as with centrality measures. But typically the result of the network analysis does not need this complement, because the structure of the network speaks for itself. A previous generation of dimensionality reduction tools also looked for structure in the data: principal component analysis, multi-dimensional scaling, clustering. The network toolbox is more eclectic and flexible to accommodate non-linearity and topology. For instance, a network representation of proximity matrix will be more visual than the traditional dendogram of a clustering analysis. However, some more recent tools from complexity and computer science can be superior to a strictly speaking network toolbox for certain applications, while retaining some of its advantages in representing the same data. Two examples include: the self-organizing map (SOM) of Kohonen, and non-linear (exponential) component analysis.

Gravity modeling, the workhouse of empirical international and spatial economics. The resulting concept of connectivity, for example, is associated with economic benefits for the more connected nodes on transport networks (Arvis and others 2014).

FIGURE 1.9

Network representation of value added trade, 2009



Source: Santoni and Taglioni (2014) using OECD-WTO TiVA data.

Network indexes and tree representations are useful in many ways. They can be constructed to account for the heterogeneity of trade links and, accordingly, to visualize trade flows relevant to GVCs, such as value added trade as well as other types of flows (parts, components, services, FDI) or flows in individual sectors and products. They allow observers to identify the position of individual countries in GVC networks, their centrality, and the nature of the trade flows.

Moreover, network measures, such as centrality and clustering, reveal the indirect links between countries. For example, trade in intermediates of many Central American countries is connected to the United States through Panama, the region's main logistics hub. Looking at various network measures in combination allows analysts to detect this aspect of Panama's participation in trade and GVC networks.

CAPTURING THE MULTIDIMENSIONAL NATURE OF GVCS

A multifaceted, multidirectional approach looks at the nexus of goods, services, investments, workers, and ideas in GVCs. Specifically, the framework covers tasks to produce goods and services and factors of production—that is, capital flows including FDI, as well as workers, ideas, information, and intellectual property (patents, trademarks, copyrights). Connecting tasks with factors of production has become increasingly important as the quality and availability of production factors in a country affect downstream activities in the GVC.

Looking at the relationship between some of these components is not new. Economists have examined the relationship between trade and investment for quite some time. The economics profession has traditionally tended to view trade and investment as separate phenomena—the standard question was whether they were complements or substitutes.[26] The emphasis now is to look at them jointly. Similarly, economists and policymakers should analyze tasks and production factors of a GVC jointly.

To capture this concept of "jointness," annex table 0.1 describes examples of patterns expected in goods, services tasks, as well as in the factors of production, including workers, ideas, and investments, depending on their role in GVCs. This additional information is very rarely available in the form of hard data and needs to be gathered primarily by surveys or field assessments.

POLICY DIMENSION: ENTERING GVCs, EXPANDING PARTICIPATION, AND ENSURING SUSTAINABLE DEVELOPMENT

GVCs now represent a new path for development. They can help developing countries accelerate industrialization and the "servicifying" of the economy. For policymakers, the focus is on shifting and improving access to resources while also advancing development goals—and on whether GVC participation delivers labor-market enhancing outcomes for workers at home, as well as social upgrading.

GVCs can lead to development. But at the country level, such constraints as inadequate skills, labor, and absorptive capacity remain. GVCs can create new opportunities on the labor demand side, but supply and demand cannot meet if the supply is missing. This potential gap illustrates the importance of embedding national GVC policies into a broader portfolio of policies aimed at upgrading skills, improving physical and regulatory infrastructure, and enhancing social cohesion.

To discuss all these policy dimensions of GVC-led development, Part 3 proposes a framework that identifies three focus areas (entering GVCs, expanding and strengthening participation in GVCs, and turning them into sustainable development) and links them with specific objectives, strategic questions, and ensuing policy options (figure A.1).

JOINING GVCs: POLICY OPTIONS TO FACILITATE GVC ENTRY

The integration of domestic firms (suppliers and final producers) into GVCs can help developing countries accelerate their industrialization. Facilitating GVC entry requires creating world-class GVC links and a world-class climate for foreign tangible and intangible assets. However, GVC participation is a necessary but not a sufficient condition for development. While GVCs open doors, they are not magical. Most of the hard work still has to be done at home with domestic pro-investment, pro-skills, pro-jobs, and pro-growth reforms. Creating demand for high-productivity workers must be matched with a supply of capable workers with the relevant skills. In other words, when thinking about the first step in facilitating GVC entry, policymakers must have a clear roadmap of how it will lead to economic and social upgrading. They must keep a keen eye on their workforce's competencies and how these match up with the foreign investment.

- **Creating world-class GVC links**

Countries can join GVCs either by facilitating domestic firms' entry or by attracting FDI. The FDI option includes more direct access to foreign know-how and technology. Costa Rica and Thailand have managed to attract FDI and turn it into sustainable GVC participation in very different ways. In all cases, however, it is necessary to provide a set of conditions that include excellent infrastructure, streamlined export procedures, and a tariff-friendly environment.

One way to jumpstart this process, particularly for countries with poor national infrastructure and high import tariffs, is to create export-processing zones (EPZs)—rapidly built sites equipped with excellent infrastructure, streamlined procedures, and favorable tax conditions (such as tariff drawbacks on imports of intermediates). In many lower income countries, exports come overwhelmingly from EPZs. The critical second step is to connect the EPZs to the rest of the economy. However, by their nature they resist such links for several reasons. Most studies of the backward links from firms in EPZs find them to be minimal, with domestic orders remaining very low and technology spillovers rare.[27]

EPZs are a special case. Governments can also facilitate domestic firms' GVC participation through arm's-length trade by helping them find "the right" trade partners abroad. That can include setting up firm directories, offering practical advice, and promoting exports and imports more generally. In the long run, however, GVC entry requires the improvement of a country's connectivity with international markets. Bad connectivity means high costs, low speeds, and high uncertainty. Thus, successful participation in GVCs requires policymakers not just to address barriers at the border, but also to increase the connectivity of domestic markets and enhance the resilience and efficiency of the domestic segment of the supply chain.

Barriers at the border refer to traditional trade barriers, such as preferential market access, domestic tariffs, and the like. For GVCs, the focus expands from traditional export barriers to also include import barriers: a country's competitiveness and ability to participate in GVCs depends as much on its capacity to efficiently import world-class inputs as on its capacity to export processed or final goods. Customs efficiency can be another obstacle at the border, particularly in developing countries, where delays add to the speed and uncertainty of buying or selling in GVCs. Several developing countries have improved their logistics performance index (LPI) score by improving customs efficiency. Morocco combined border management reform with port investments. And the Lao People's Democratic Republic provided information on customs procedures on an electronic platform.

Domestic market connectivity is as important as international connectivity. The benefits of efficient transportation and logistics at the border could be undermined by inefficient domestic links (such as the unreliability or high cost of domestic transportation or lack of cool chains for fresh products) as well as regulatory bottlenecks. Foreign investors evaluate the ease of access to efficient services and infrastructure in the host country, including access to cheap and reliable energy, finance and trade support, telecommunications (for e-commerce or electronic transfer), and transport.[28] Indonesia reduced vessel dwell time by reforming storage fees, which improved the country's LPI score.

In addition, several other dimensions beyond connectivity need to be considered when designing policies to attract FDI and facilitate domestic firms' participation, such as the ecosystem of firms in the host economy, the design of investment promotion policies, and the type of industrial policy.

On the conditions in the host economy, the sophistication and competitiveness of domestic firms are key. Countries that are home to large and competitive companies have an advantage in attracting FDI and in fostering domestic firms' participation through arm's-length trade, since the domestic firms can act as turnkey suppliers. Some of these firms also have the potential to become lead firms themselves. Countries with predominantly SMEs find it more difficult to enter GVCs, unless its SMEs are part of a well-established and integrated industrial cluster, such as the Italian industrial districts.[29]

In designing investment promotion measures, various factors are important for policymakers to consider, particularly those that explicitly target FDI. Policymakers should, however, ensure that they do not discriminate against domestic investors. They also need to identify and attract "the right" foreign investors. This includes assessing the nature of investment and the motivations of potential FDI (efficiency-seeking export platform, resource-seeking, or market-seeking) as well as their technology contribution and the technology gap with domestic firms. Investment promotion should not only focus on lead firms in GVCs but also target turnkey global suppliers and possibly important lower tier suppliers.[30]

Meanwhile, a light-handed industrial policy can foster both participation in GVCs and links with the domestic economy by overcoming market failures or capturing coordination externalities. An analogy is urban policy. If individual initiatives are completely uncoordinated, the result can be over congested cities that fail in the basic goal of improving the lives of residents. At the other extreme, government control of every investment decision can stifle growth and innovation and also fail to improve lives. A key difference between GVC-led development and other avenues of development is that government coordination needs to take place at the micro level. It is necessary not to pick a sector as the "winner," but to help plan and encourage both entry into the appropriate tasks and, consequently, densification of GVC participation that has already begun.

► **Creating a world-class climate for firms' assets**

Low wages may be a way for countries to enter GVCs, and low-wage industrial jobs can be a big productivity step up from subsistence agriculture, underemployment, and low-skill service jobs. The goal, however, should be higher labor productivity so that the country can remain cost-competitive despite rising wages and living standards.

What matters are unit labor costs, not wages. Chinese labor, for example, remains cost-effective despite rising wages because labor productivity is also rising. Moreover, low unit labor costs alone are not sufficient—the capacity to meet production requirements must also be taken into consideration.[31] Put simply, low labor costs will not attract GVC-linked FDI without the right infrastructure and capacity building. So, labor policies aimed at attracting FDI should be matched by other initiatives, including packages of infrastructure and public-private vocational training.

Removing restrictions and barriers to foreign investment, and increasing the protection of foreign assets, are key to attracting FDI. This implies policies such as allowing more foreign equity into domestic companies,[32] facilitating the movement and employment of key personnel, relaxing domestic content rules when their role and purpose are not clearly defined, relaxing rules on foreign exchange and repatriation of benefits, and strengthening investor protection and the right to challenge domestic regulations and decisions.

COMPLETING THE FIRMS' ECOSYSTEM: POLICY OPTIONS TO EXPAND DEVELOPMENT BEYOND THE INITIAL GVC ENCLAVE

After entering GVCs, the next set of policy considerations must ensure that GVCs are as integrated as possible into the domestic economy. The logic here is that strong links with the domestic economy should result in greater diffusion of knowledge, technology, and know-how from foreign investors. The problem is that foreign investors do not actively pursue—and sometimes resist—such integration. The reasons range from economic constraints to technological and quality gaps with domestic suppliers and to shortages in specialized workers and skills.

For policymakers, economic upgrading and "densification" turn GVC participation into sustainable development. Economic upgrading is largely about gaining competitiveness in higher value added processes and raising domestic labor productivity and skills. Densification involves fostering spillovers from GVC participation and engaging more local firms in the supply network. Part of this effort should include understanding how the potential for FDI spillovers differs across firms, sectors, and tasks—and designing investment attraction policies that do not discriminate against domestic players.[33] It is also important to ask what economic upgrading through GVCs means for average living standards, such as employment, wages, work conditions, economic security—and for wider social upgrading, for distributional concerns and nonmaterial factors such as democracy, labor rights, human rights, gender equality, environment, cultural issues, respect for minority rights, and more.

The main transmission channels for economic and social upgrading include:

- **Forward links**: sales of GVC-linked intermediates to the local economy, spurring production in various downstream sectors.
- **Backward links**: GVC-linked purchases of local inputs, spurring production in various upstream sectors.
- **Technology spillovers**: improved productivity of local firms in the same or related downstream or upstream sectors as a result of GVC production.
- **Skills upgrading**: similar to technology spillovers but transferred through the training of and demand for skilled labor.
- **Minimum scale**: for example, GVC participation may stimulate investments in infrastructure that would otherwise not be profitable and that may spur local production in other sectors.

These transmission channels enable GVCs to support development and industrialization efforts in four ways (figure 1.10):[34]

First, GVCs—through forward and backward supply chain links—generate a demand effect and an assistance effect in the host country:

- **Demand effect**: lead firms tend to require more or better inputs from local suppliers.
- **Assistance effect**: lead firms can assist local suppliers through knowledge and technology sharing, advance payments, and other types of assistance.

In turn, the forward and backward links generate technology spillovers, improving the productivity of local firms through two mechanisms:

- **Diffusion effect**: assistance effect leads to diffusion of knowledge and technology in the suppliers' industry.

- **Availability and quality effects**: GVC participation increases the availability and quality of inputs.

Second, GVC participation can translate into procompetitive market restructuring effects that are not limited to GVC participants, but extend to nonparticipants.

- **Procompetition effect**: GVC participation increases competition for limited resources in the country (between MNCs and local firms, but also between participants and nonparticipants in GVCs), increasing overall average productivity in the medium run.[35]
- **Demonstration effect**: knowledge and technology spillovers arise from direct imitation or reverse engineering by local firms (both GVC and non-GVC participants)—of GVC products, business models, marketing strategies, production processes, and export processes.

Third, minimum scale achievements have a twofold impact:

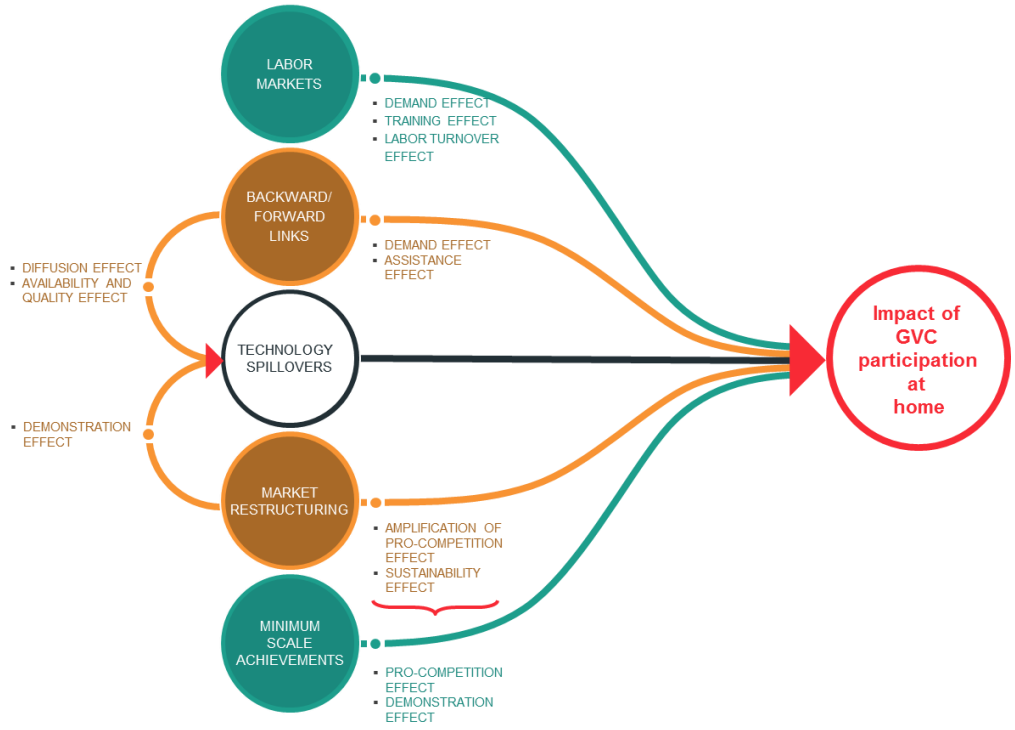
- **Amplification effect**: minimum scale achievements amplify procompetition effects. They stimulate investment in infrastructure and backbone services, which would not be realized without the scale of activity generated by GVCs. Once the infrastructure is in place, it is likely to spur local production in other sectors and in the non-GVC economy.
- **Sustainability effect**: minimum scale achievements also strengthen the ability of the country to sustain GVC participation over time. GVC literature is rife with examples of the key role of improvements in backbone infrastructure and services, such as logistics, to improve timeliness and reliability in transporting goods, parts and components, and therefore enable countries to integrate vertically into GVCs.[36]

Fourth, GVCs also benefit labor markets through the following four mechanisms:

- **Demand effect**: GVC participation is characterized by higher demand for skilled labor from MNCs or other GVC participants. Multinationals may temporarily bid away human capital by paying higher wages or offering enhanced employment benefits. This effect tends to dim, however, as soon as the productivity of domestic firms is also raised or the market adjusts to the tighter labor supply.
- **Training effect**: local firms participating in GVCs are more likely to receive training (say, from MNCs or their international buyers).
- **Labor turnover effect**: knowledge embodied in the workforce of participating firms (such as MNCs or their local suppliers) moves to other local firms.

FIGURE 1.10

GVC transmission channels



► Strengthening absorptive capacity

The degree to which local firms and workers benefit from knowledge and technology spillovers ultimately depends on the absorptive capacity of domestic actors. This is the most important area of GVC-spillover policy, particularly in helping local firms and workers access opportunities. Building the absorptive capacity of local firms requires both general and industry-specific investments to upgrade technical capacity and, most important, to achieve quality standards. Both industry-specific and general education policy are critical to sustaining long-term spillovers.

An important part of absorptive capacity is bolstering productivity, production and innovation capacities, including human capital and other resources. This can be done by developing public-private partnerships aimed at research and development collaboration, increasing the supply of sufficiently qualified researchers in local universities, and aligning higher education curricula and training specializations with local economic activities. Policymakers should also help domestic firms comply with process and product standards. Such public, private, or voluntary standards need to be respected throughout the entire value chain, because every stage of production can affect the quality of the final product or service, which could affect the lead firm's reputation. A country cannot offer a single task, but must offer a bundle of tasks. Diversifying into service tasks and promoting service exports offer a largely untapped income potential for many developing countries.[37]

► **Creating a world-class workforce and engineering equitable distributions of opportunities and outcomes**

Developing skills is a key element of competitiveness and the ability to participate in GVCs and of economic and social upgrading within GVCs. Economic upgrading requires the availability of new skills and knowledge either by increasing the skill content of a country's activities (and thus workforce), or by developing competencies in niche market segments.[38] Economic and social upgrading are thus linked and dependent on each other. There are indeed strong incentives for lead firms to train their workforces to comply with their standards. Beyond private initiatives, there is a strong case for public investment in skills development to meet the needs of international trade and participation in GVCs.[39]

Economic upgrading may drive social upgrading, but this is not automatic. There is a role for complementary policy to promote social upgrading and maximize the sustainable development impact of GVC activities. Social policies are needed to create an equitable distribution of opportunities and outcomes. Without social cohesion and policies ensuring that all segments of society benefit from GVC participation, development would indeed be unsustainable. Social upgrading can be supported through labor regulation and monitoring, such as occupational safety, health, and environmental standards in GVC production sites. Well-functioning labor markets are also important, because integrating into GVCs also requires reallocating resources.

For social upgrading to translate into social cohesion through better living standards, countries must ensure equal opportunities to strengthen social cohesion by creating a sense of belonging and active participation, promoting trust, offering upward social mobility, and fighting inequality and exclusion. Equal access to jobs (including for women and minorities) is the most important opportunity in GVCs. Access to widely advertised information about job vacancies and practical advice on how to get these jobs is a precondition (through job search assistance). But workers also need to be informed about their rights. Farmers, self-employed, or informal workers in particular are often unaware of their rights in relation to landowners, traders, or employers, despite their important role in the labor market. Cooperatives, associations, and trade unions can be effective channels of information.

But these information channels require that freedom of association and collective bargaining rights already exist in the country. These provisions encourage pro-active social dialogue that can address tensions before they lead to conflict. And facilitating access to jobs for excluded or disadvantaged groups helps economies tap a largely idle segment of the workforce with productive potential and increases social cohesion. Antidiscrimination laws and mandatory or voluntary affirmative action programs, such as proactive measures for hiring women, minorities, or other groups, are important for more equality of opportunities.[40]

Part 3

Strategic questions and policy options

By integrating their domestic firms (suppliers and final producers) into global value chains (GVCs), developing countries can help their economies industrialize and become services oriented faster, and move closer to their development goals. Part 2 suggested how to assess various aspects of GVC participation (including the rate, strength, and consistency across sectors and industries) and so to identify key policy needs.

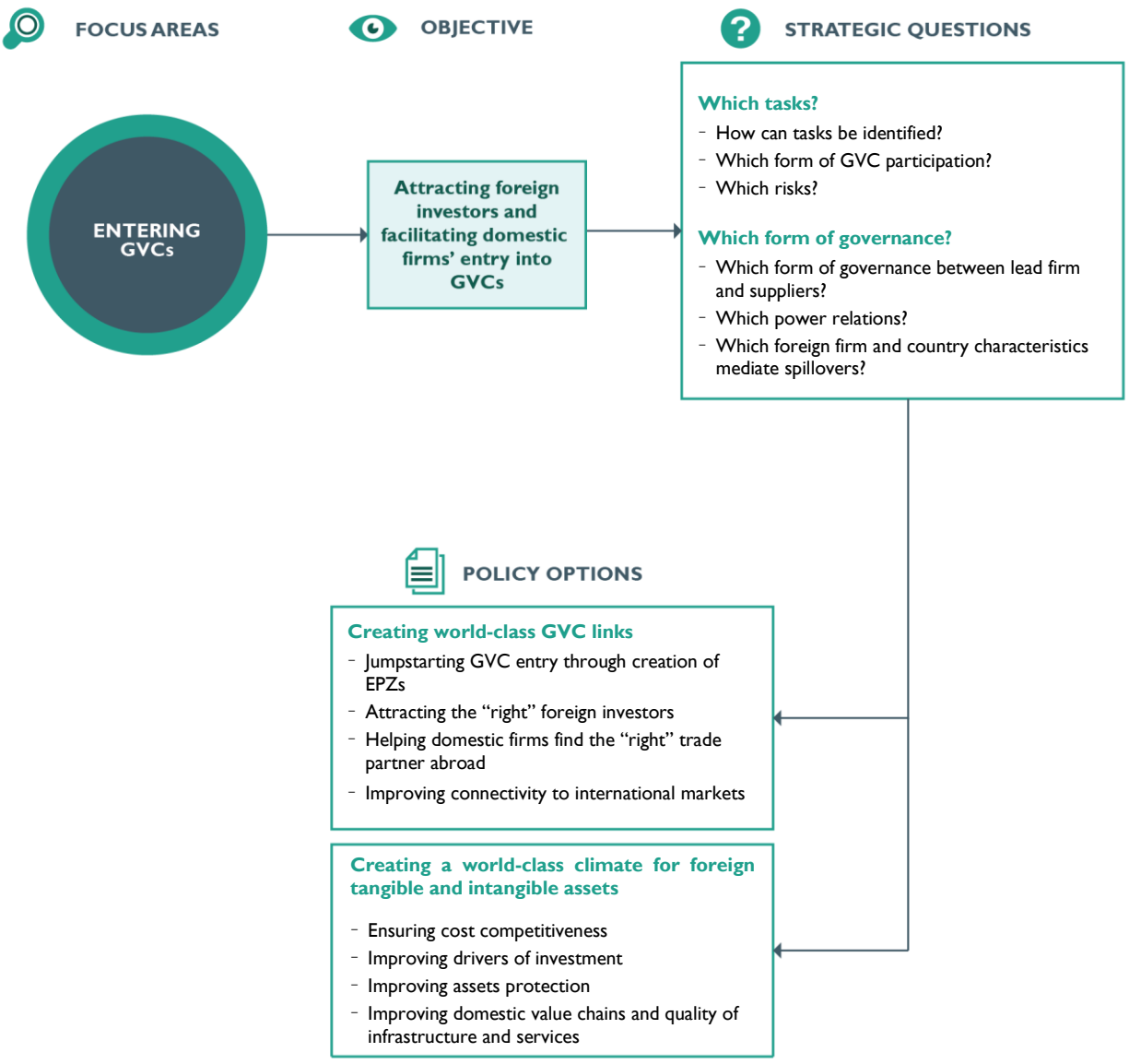
This part builds on those findings, suggesting "strategic questions" and approaches to addressing them—"policy options." Including real-world examples, it proposes a diagnostics exercise to identify three focus areas.

Chapter 7 discusses ways for countries to enter global production networks—*Entering GVCs*. This includes ways to attract foreign investors as well as strategies to enhance the participation of domestic firms in GVCs. It encompasses measures to ensure that the country can offer world-class connectivity to the global economy and create a friendly business climate for foreign tangible and intangible assets.

Chapter 8 discusses ways for countries to lever their position and enhance domestic production, achieving higher value addition through economic upgrading and densification—*Expanding and strengthening participation in GVCs*. The concept of economic upgrading is largely about gaining competitiveness in higher value-added processes and raising domestic labor productivity and skills. Densification involves fostering spillovers from GVC participation and engaging more local firms in the supply network.

Chapter 9 tackles the question of *Turning GVC participation into sustainable development*. It explores the conditions under which GVC participation delivers labor-market enhancing outcomes for workers at home (social upgrading) and translates into a more equitable distribution of opportunities and outcomes. Thinking at the country level brings to the fore constraints such as the supply and domestic mobility of types of labor, skills, and absorptive capacity. Creating more good jobs and social upgrading require national GVC policies to be embedded in a broader portfolio of policies aimed at upgrading skills, building physical and regulatory infrastructure, and increasing social cohesion.

CHAPTER 7 Entering GVCs



Attracting foreign investors and facilitating domestic firms' entry into GVCs

Entering a global value chain (GVC) requires answering two strategic questions—what tasks are performed in a GVC? And what form of governance does the GVC follow? The first is more at a country level, the second is more that entry into GVCs is ultimately a firm's decision. This chapter also discusses different forms of GVC participation and governance.

STRATEGIC QUESTIONS

Which tasks?

The first strategic question has three subquestions: which form of GVC participation? How can tasks be identified? Which risks? Before country analysts consider them, they should be aware of the pitfalls of basing their strategies on sector-based conceptual frameworks. Chapter 1 showed that reasoning along broad sector lines assumes that countries sell final goods to each other and that, as countries grow richer, they transition from specializing in the primary sector to manufacturing and ultimately to services.

In contrast to this sector-based vision, a "new paradigm" centered on tasks has recently gained popularity. Its premise is that in the world of GVCs—dominated by complex and fragmented production processes—development is best achieved by specializing in the tasks and activities of comparative advantage among the broad range available. After all, a firm's location decisions are task-specific. Yet this approach too is partial, as it captures only functional upgrading efforts and strategies. Product, process, and intersectoral upgrading—defined in chapter 8—are also necessary, and can be achieved through more inputs of technology, know-how, and auxiliary services. That higher income countries have a stronger specialization in manufacturing and services than lower income economies indeed reflects their greater use of technology and support services in each production process, whether in agriculture, industry, or services. This is what is meant by task-based development strategies. So, this part discusses all four forms of upgrading in GVCs—product, process, functional, and intersectoral.

► **Which form of GVC participation?**

Before identifying and focusing on the tasks and risks in GVCs, countries need to be aware of the two sets of approaches for entering GVCs: attracting foreign investors and facilitating domestic firms' access to GVCs ("internationalizing" these firms).

On the first approach, why is it that countries go to great lengths to attract FDI? One simple answer is that many of them have built up too little domestic capital to stimulate growth. FDI thus represents an important source of private capital. And given the relatively long-term outlook of direct (versus portfolio) investors, FDI is generally less risky than other financial flows as it tends to be less vulnerable to rapid outflows caused by exogenous shocks. Moreover, pervasive information asymmetries—with powerful lead firms able to maintain and increase markups and with competitive suppliers subject to pressure from buyers on supply price, delivery time, quality, and payment schedule at the bottom—may lead to a suboptimal level of cross-border investment, justifying public intervention.[41]

But the more important answer is that FDI has the potential to deliver far greater "dynamic" benefits to host economies through the spillovers they deliver (mainly through technological and other advantages that stimulate higher productivity). Spillovers here generally refer to the diffusion of knowledge—unintentional or intentional if it is not compensated in some way—from multinational affiliates to local firms. This encompasses both technology and all forms of codified and tacit knowledge related to production, including management and organizational practices. It also includes the benefits that can accrue to local actors from linking into the global networks of multinational investors.[42]

Not all FDI is the same, however: its development impact varies depending on the extent of foreign ownership. Fully foreign-owned FDI, for example, may induce the lead firm to transfer more knowledge—through technology, say—to the host country.[43] Partly foreign-owned FDI could also be beneficial for local firms, as the lead firm's interests are less well protected, making technology leakages more likely. Larger domestic participation might also increase the chances of relying on domestic suppliers.[44]

On the second approach—internationalizing domestic firms—one important spillover from foreign investors is the potential they create to help internationalize domestic firms, particularly their suppliers. They do this in two main ways: indirectly by bringing demands for meeting international standards (as in quality and delivery) and by contributing to building the scale and productivity of their domestic suppliers; and directly by providing access to their international marketing, supply, and distribution networks.[45]

Still, linking to foreign-owned subsidiaries of foreign firms is not the only way for domestic firms to join GVCs. They can consider other approaches that involve arm's-length trade:

- As exporting inputs to international buyers.
- As domestic final producers that import intermediates.

There is also the hybrid case of contract manufacturers who produce fully assembled goods for large retailers (such as Wal-Mart or the Gap) or so-called "fab-less" firms, such as Nike, Calvin Klein or Fischer-Price.[46] Contract manufacturers therefore fall into the latter two categories. They are part of nonequity modes of investment (NEMs), which also include other forms, such as contract farming, business process outsourcing, franchising, contract management, strategic alliances, and joint ventures. In these cases, a multinational has a contractual relationship with a domestic firm in the host country and maintains some degree of control over the operation and conduct of business (more so than in the case of arm's-length trade) but has no ownership stake.[47] GVC participation through arm's-length trade and NEMs can also lead to spillovers.

This chapter clarifies that the form of GVC participation matters for development. It also discuss how the form of governance in GVCs is not a prerogative of public policy but endogenous to lead firms, although countries can adopt complementary policies to meet lead firms' needs to lever GVC opportunities.

► How can tasks be identified?

It is often hard for policymakers and analysts to identify the tasks in which a country has a comparative advantage, partly because full production- and trade-related statistics are rarely available at the task level in developing countries. Combining different approaches—complementary but different in data requirements—allows investigators to identify broad sectors, value chains, and specific activities, enabling the country to determine its GVC entry strategy.

One strategy encourages entry into tasks in sectors or value chains where the country already has expertise. It internationalizes the existing production of goods or services or that of new tasks in a more aggregated sector or in a value chain in which the country already specializes. For example, Kenya—already an important producer of fruits and vegetables—later joined the horticulture GVC within the same industry. Tasks can be identified in three steps. Step 1 identifies broad export sectors in which a country has a revealed comparative advantage (RCA), which can be based on value-added export data. Step 2 analyzes the upstream and downstream output of a GVC product. Step 3 identifies differences in economic characteristics of tasks within these export sectors and value chains, such as tasks that may create the largest domestic value added and/or have an important potential for diversification.

(Another strategy identifies a country's potential for entry into tasks in sectors where the country is not yet active. In this case, countries can focus on the third step, giving less attention to the starting sectoral or product specialization. Concepts of economic proximity between products may help identify the difficulties inherent in "jumping" to new sectors and activities.)

STEP 1: **Identify sectors with highest RCA based on value-added export data**

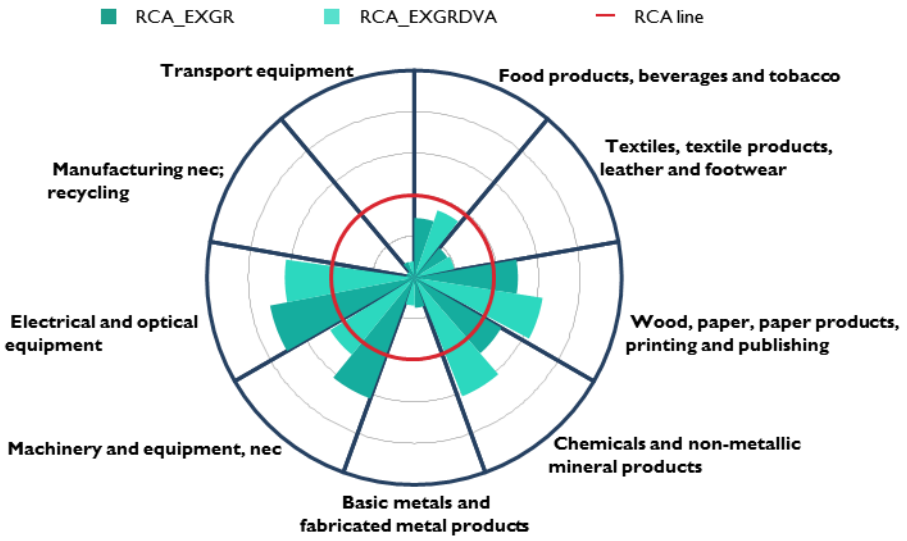
Identifying export sectors in which a country has an RCA should be based on value-added rather than gross export data.[48] Malaysia, for example, has an RCA greater than one in four of nine manufacturing sectors—Electrical and Optical Equipment (the most important GVC sector); Machinery and Equipment (nec); Chemicals and Non-Metallic Mineral Products; and Wood, Paper, Paper Products, Printing and Publishing—on both measures (figure 7.1). But for Electrical and Optical Equipment, the value added–based RCA is about 15 percent lower—a key distinction.

STEP 2: **Analysis of upstream and downstream output of a GVC product**[49]

Network analysis applied to input-output (I-O) tables can help in assessing the features of the value chains a country specializes in. Using the U.S. I-O tables has the advantage of documenting I-O relationships at the finest level of disaggregation. But using those tables for assessing tasks in third countries has one important caveat: the analysis may be biased due to differences in technology across nations. Still, the richness from the very detailed documentation of the production structure of U.S. I-O tables and the absence of comparable data for almost all countries worldwide justifies their use.

FIGURE 7.1

Malaysia: RCA, gross exports (RCA_EXGR) vs. domestic value-added embodied in the country's gross exports (RCA_EXGRDVA)



Source: Authors' illustration based on OECD-WTO TiVA Database.

The method has the following steps:

1. Identify the positioning of the export product of interest in the wider network of intersectoral production links.
2. Identify sectors that are the main buyers of the product and sectors that are the main suppliers and their relative economic contribution (measured in value added and/or exports).
3. Assess the relative position of countries of interest as suppliers of the product, as well as in the production of upstream and downstream products, and the relative value added and/or export contribution.
4. Repeat steps 1-3 for upstream and downstream sectors, to map out a wider portion of the value chain of the product of interest.

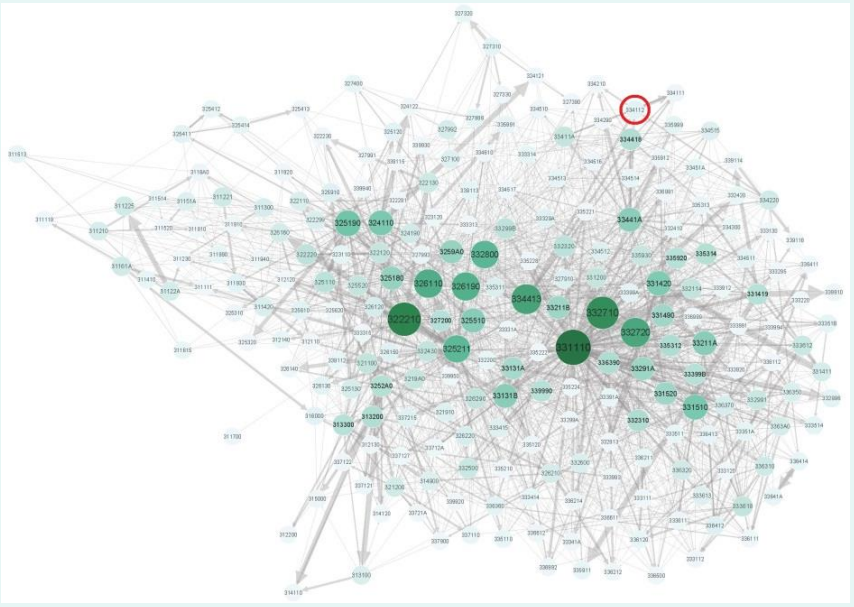
Box 7.1 applies this concept to "computer storage devices," Malaysia's main export product. It reveals that the product is small and peripheral to the manufacturing production network (based on U.S. I-O tables) and that the product's main buyers are relatively concentrated in more sophisticated sectors, which are all likely to require a higher technological and skill content. Matching these findings to trade data, the analysis shows that while Malaysia's position as an exporter of downstream products is relatively marginal, its most important competitor in producing computer storage devices is China, which is also the biggest buyer of Malaysian exports of the product as well as a leading exporter of downstream products—factors that may help shape entry strategies.

BOX 7.1

Network analysis of a product value chain through I-O tables

BOX FIGURE 1

Manufacturing intersectoral linkages (NAICS 2007 31-33)

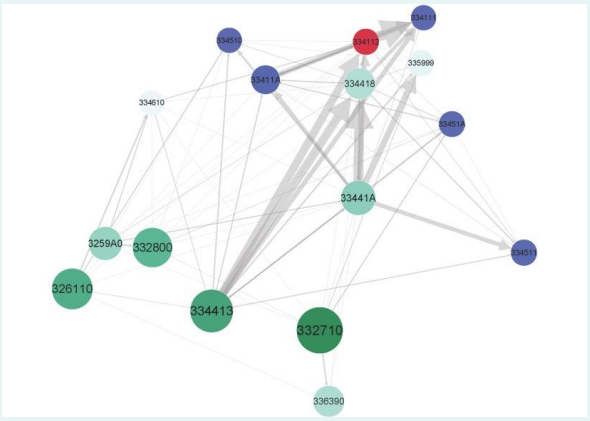


Box figure 1 shows the intersectoral links for the products in manufacturing using the highest available disaggregation provided by the U.S. I-O tables (388 products) for 2007.[50] The node size is proportional to the so-called OUT-degree: bigger nodes are those that supply intermediates to a larger number of industries (the color is correlated to the size of the node—that is, they deliver the same information). Links, from sector i to j, are proportional to the share of i's on the overall input demand of j, excluding j's inputs sourced from j. The network is built considering all intermediate flows from i to j using all the information available in the network structure, but—to avoid clutter—in the visualization we only report as nodes the products that represent at least 1 percent of total intermediates requirements in the production of j. Arrows reflect the direction of the flow. Just for visual clarity we show only flows above the 5 percent threshold (of total intermediate requirements of j). NAICS product 331110, i.e. iron and steel mills and ferroalloys, is the most structurally integrated into the manufacturing production network. The network visualization also puts into perspective the position of product 334112, computer storage devices, an important exported product of middle-income countries—such as Malaysia—involved in electronic industry GVCs. It shows that it is relatively small and peripheral to the manufacturing production network (circled in red).

Sector buyers of this product. Box figure 2 reports the outflows of sector 334112. Blue nodes are industries that use 334112 as input in the production and for which computer storage devices represent at least 1 percent of the total input requirements for their production (nodes and links are built as in box figure 3. These are sector 334510 (Electromedical and Electrotherapeutic Apparatus), sector 334111 (Electronic Computer Manufacturing with SBA Small Business Standard, which includes manufacturing and/or assembling electronic computers, such as mainframes, personal computers, workstations, laptops, and computer servers), sector 33411A (other computer manufacturing), sector 334511 (Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing), and sector 33451A (other measuring and controlling device manufacturing).[51] These sectors are more sophisticated than computer storage devices, suggesting that entering these downstream stages of production may imply for Malaysia a need to upgrade its technology and skills. A detailed analysis of the production structure and relative value added of the downstream products to the item of interest—as the one suggested in step 3 of the main text—would further allow one to assess how easy it is to jump to the next step in the downstream value chain.

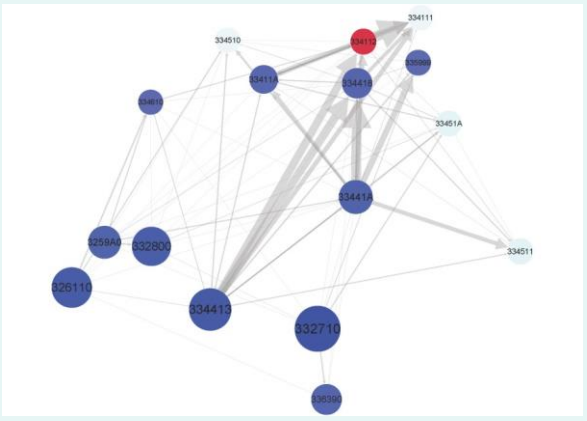
BOX FIGURE 2

Most relevant buyers (in blue) of computer storage devices—NAICS 334112 (in red)



BOX FIGURE 3

Most relevant suppliers (in blue) for computer storage devices—NAICS 334112 (in red)



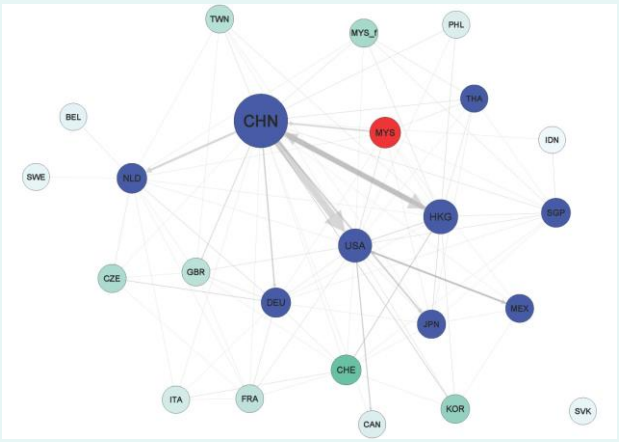
Source: Santoni and Taglioni (mimeo) based on U.S. I-O table

Sector suppliers of this product. Box figure 3 displays the inflows to 334112—that is, the most important suppliers of intermediates for this sector: sectors 334610 (Software Reproduction), 33411A (Other Computer Manufacturing), 334418 (Printed Circuit Assembly), 335999 (All Other Miscellaneous Electrical Equipment and Component Manufacturing), 33441A (Other Electronic Component Manufacturing), 332800 (Metal Treating), 3259A0 (Other Chemical Product and Preparation Manufacturing), 326110 (Plastics Packaging Materials and Unlaminated Film and Sheet Manufacturing), 334413 (Semiconductor and Related Device Manufacturing), 332710 (Machine Shops), and 336390 (Other Motor Vehicle Parts Manufacturing).[52]

Relative position of countries as suppliers of this product. Box figure 4 depicts the relative position of Malaysia (node MYS) as suppliers of hard disks in 2012 (NAICS 2007 code 334112: "computer storage devices"). The links among the other nodes show the exports of downstream products—products using hard disk devices as major inputs—using U.S. IO tables for 2007.[53] The node size is proportional to a country's market share in world exports. For Malaysia, the market share for hard disk exports in 2012 was 5.6 percent. The most important competitor was China.

BOX FIGURE 4

Electronic devices network for Malaysia



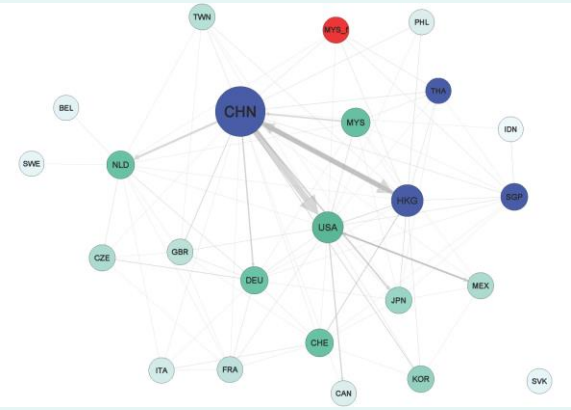
Source: Santoni and Taglioni (mimeo) based on U.S. I-O table and trade data (BACI of CEPII)

The nine biggest buyers of Malaysian exports of hard disk computer devices absorbed 50 percent of the country's exports in this sector. For the other countries the size of nodes reflects the market share in exports of downstream products: China is the most important exporter of downstream products, with an export market share of 37.3 percent. Exports from China to the United States are 10 percent of world flows, and flows from China to Hong Kong SAR, China are 8.2 percent of world flows. (In the other direction exports from Hong Kong SAR, China to China represent 6.3 percent of overall world flows).

Box figure 5 visualizes the position of Malaysia as a buyer of downstream products (with respect to hard disk devices) from other countries. The Node MYS_f considers the position of the country as an importer of downstream products. Box figure 6 reports the position of Malaysia as a seller of downstream products (with respect to hard disk devices) to other countries. The Node MYS_f considers the position of the country as an exporter of downstream products.

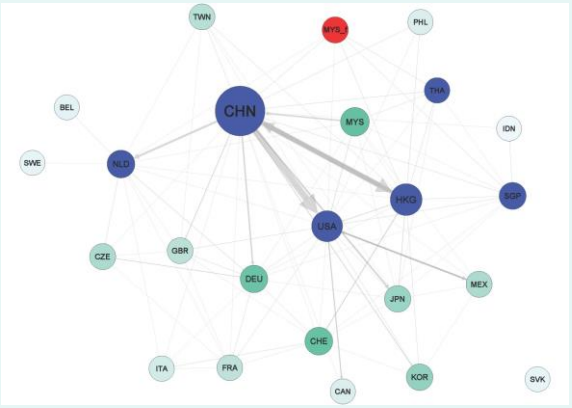
BOX FIGURE 5

Malaysia as importer of downstream products.



BOX FIGURE 6

Malaysia as exporter of downstream products



Source: Santoni and Taglioni (mimeo) based on U.S. I-O table and trade data (BACI of CEPII)

STEP 3: **Identify which tasks within a broad sector or value chain create the largest domestic value added or promise for growth and development**

In the absence of market failures (monopolistic rent or exclusive or controlled access to resources), these tasks tend to depend on the know-how (quantity and quality of workers) and on the capital stock (including technology) available to perform them. So, if only a fraction of the workforce is highly skilled, it does not make sense for a country to launch into tasks that depend primarily on skilled workers. The goal is to choose tasks in a sector that create the largest domestic value added, given the labor and capital endowments at home.

This is indeed what Morocco did to develop its aerospace Industry (box 7.2) based on its predominantly low-skilled workforce. Good performance allowed it to transition to higher value-added segments.

BOX 7.2

The Moroccan aerospace industry moves up the chain

Over the past decade, leading aviation companies such as Boeing of the United States or Bombardier of Canada have invested in increasingly sophisticated factories in Morocco. This is part of the government's strategy to expand into more advanced manufacturing, including aerospace and electronics, which is expected to attract more basic industries in its wake.

BOX FIGURE 1

In 2001, Boeing and French electrical-wiring company Labinal opened a small operation, Matis, preparing cables for Boeing 737 jetliners. Workers prepared wire bundles and shipped them to Boeing plants in the United States for installation. Initially, this work did not require any technical background, but workers hit 70 percent efficiency of industry norms within two years. As the company expanded, job openings attracted many highly educated applicants, more than 80 percent of them with few job opportunities in traditional industries. Today, Matis workers prepare wires not just for Boeing but also for General Electric, Dassault Aviation and Airbus.

Matis's parent company—now called Safran—then invested in more advanced manufacturing. In 2006, its Aircelle division opened a plant producing jet-engine housings.

Morocco's aviation industry recently employed almost 9,000 people (box figure 1) who are paid around 15 percent more than the country's average monthly wage of some US$320.

Source: Wall Street Journal (2012) and interviews by the authors' with the private sector in Morocco.

Information on the value added of tasks cannot be easily obtained using statistical data. For this reason, the assessment needs to be based on different sources and methodologies.

Traditional methodologies for identifying tasks within sectors include gathering information from one or more of the following: industry associations, chambers of commerce and industry, ministries of trade and/or industry, or existing value-chain case studies.

I-O tables are one way to address the data constraints and quantify value added and manufacturing links. In particular, U.S. I-O tables allow analysts to document I-O relationships at the finest level of disaggregation.

Still, traditional and I-O approaches also need detailed assessments of suitable tasks. Countries can follow methodologies that combine strategic analysis with cluster change management tools (Duch 2000, 2004; USAID 2006).[54]

The methodology used for the strategic analysis is usually based on the concepts developed by Michael E. Porter, a professor at Harvard University.[55] It includes evaluating the sources of a cluster's competitive advantage; detailed and forward-looking industry analysis, with emphasis on future trends; evaluation of the strategic positioning for the producers and firms in a country and

recommendations on attainable strategic options; and highlights of the value chain in which firms operate in and main areas of improvement. Issues of strategic analysis as applied to GVCs are:

- World industry analysis, with special emphasis on recent changes and future trends.
- Strategic positioning of firms and recommendations for attainable strategic options.
- Gap analysis of the value chain of companies in the cluster.

Market analysis should be based on few key principles.[56]

- The end-market should be identified through quantitative and qualitative analysis with an eye on opportunities and challenges. It should be segmented as much as possible, since there generally are multiple actual and potential end-markets, each with different demand characteristics and returns.
- The market analysis should address: What is required to compete in each market? What are the benefits and risks of selling into them? And because markets are dynamic, what is the structure of the market and how it is evolving and changing?
- The market analysis should include a benchmarking exercise on key attributes (quality, price, reliability of supply, flexibility, time from order to delivery) against competitors.
- Value chain stakeholders should be included in the analytical process and market analysis should be conducted at multiple stages in the project.

Once strategic analysis has identified suitable tasks, methodologies focusing on the process of change can help clearly identify actions to generate short-term results and engage an industry or a cluster, in a given country, in the dynamics of change. The underlying idea is that once some firms in a cluster start changing, others will follow. USAID (2006) suggests the following best practices:

- Identification of interventions should be market-driven.
- Flexibility in the implementation phase is necessary to respond to dynamic markets and contexts.
- Implementers should facilitate—and not replace—stakeholders' actions.
- Implementers should catalyze behavior change.
- Facilitation must start small but then be taken to scale.

Box 7.3 provides examples of how such methodologies allow identifying tasks in high-income countries, challenged by the loss of jobs and business to lower cost countries.[57]

BOX 7.3

Examples of strategic analysis and cluster change management tool: Ventilation industry and truck cluster in Sweden, and seafood cluster in the UK

Companies of all sizes are globalizing production, often through value-chain clustering: low-cost countries may create satellite clusters of companies to a lead firm, as seen with Bangalore's hi-tech cluster or Timisoara's footwear and auto clusters. High-income countries have responded by moving jobs and business models to higher productivity tasks. Cluster policies have helped companies redefine their business model and identify tasks of comparative advantage. Greater value added can be created either through incorporating new technologies originating from strong research and development capabilities, usually upstream from the production process, or through inserting (or expanding) value-added services, which originate from a deep and sophisticated knowledge of customers with technology (such as using "big data").

Duch proposed an analysis of two clusters in Sweden—the ventilation industry and trucks—based on 10 steps: mapping the cluster; strategic segmentation; evolution of the segment's attractiveness; advanced demand analysis; generic strategic options for the future; key success factors for options; ideal value chain and cluster diamond for chosen option/s; benchmarking of cluster against reference/ideal cluster; feasible options for firms in the cluster; and areas of improvement.

This approach allowed the country's ventilation industry to understand the need to shift from selling HVAC equipment to selling clean air services—in order to survive. It also encouraged the truck industry to refocus from selling trucks to offering full transport solutions. In both cases the shift entailed moving from selling products to selling concepts and services, such as fleet-management systems.

While such an approach seems most useful to the private sector, it is important for public policy, too, since it can align private initiatives and public interventions.

Source: Duch 2000, 2004.

Finally, GVC frameworks that use firm-level analysis to determine the different stages of production of a sector and the value of each task can also be helpful.[58] They are often based on ad hoc surveys, however, because firm-level as census and balance sheet data seldom have the detailed information required.

► **Which risks?**

GVC integration entails not only economic benefits but also risks on both the sourcing and selling sides, which countries need to be aware of. Yet governments cannot control these risks directly, as GVC participation is the endogenous result of a choice made by firms.

The seller's risk refers to demand shocks that include end-market risks and to a wider range of other downstream risks along the value chain. Similarly, the buyer's upstream risks refer to supply shocks on the sourcing side, due to unforeseen events or bottlenecks taking place along the value chain of upstream suppliers.

Downstream and upstream risks are larger in GVCs than in non-GVC trade or exports based on purely domestic supply chains. They are also larger for more complex goods such as automobiles, whose parts and components are produced in different countries and assembled in one location. The higher the number of countries involved in key tasks of production and the higher the customization of the task to the downstream output, the higher the exposure of participants to potential risks. Conversely, exports of unprocessed consumer goods or goods produced by purely domestic supply chains, which are organized in a single country, or final goods produced in shorter and less sophisticated GVCs, are likely to be more resilient.

Downstream and upstream risks in GVCs can more generally be related to "operational risks" due to the dependence of the supplier on a monopsony for its product; multiple border crossings, modes of transport, hand-offs, and countries; and disparate technology issues and security concerns.[59] They can also be caused by "shifts in firm strategies," such as GVC consolidation or task bundling.

A final effect is the uncertainty of firms in an economic downturn. It is bigger for more peripheral firms, and is found more frequently among upstream firms. When demand for final goods slows, exporters can continue for a while on inventory rather than ordering new intermediates. Having less information about any fall in demand for final goods, suppliers of inputs may start avoiding risk—by cutting production and trade in intermediate goods—faster than if they had the same information as final-goods producers.[60]

We now look more closely at sellers' end-market and downstream risks—and at buyers' upstream risks.

Sellers' end-market and downstream risks

A seller's end-market risk has been discussed for quite some time. Sectoral, firm, or geographic concentration is a potential source of high volatility in value added and a likely determinant of sharp readjustments in a country's GDP during a crisis. By contrast, a diversified portfolio generally helps dampen price fluctuations, as having more products, firms, or production facilities in diverse geographic areas is likely to lead to independent price dynamics, with smoothing effects on total earnings. Put differently, a more diversified production portfolio should lead to a more stable stream of export revenues.

The export diversification discussion applies well to a world of final goods exporters (rather than smaller countries)—to the lead firm or final goods producer. Suppliers in GVCs, by contrast, do not have this option, as they often produce specialized (customized) inputs for only one (or a few) buyers. They may also depend on the technology and know-how provided by the lead firm (see for example figure 2.3). Or in an effort to become a supplier in GVCs, they might incur specific sunk-cost investments, making it more difficult for them to find alternative buyers. This risk includes contract manufacturers that produce final goods for large buyers.

Risks are also larger for suppliers and buyers in GVCs than for lead firms. GVCs adjust quickly to demand changes in end markets, as lead firms seek to shift the burden of risks (associated with declines in demand) to supplier firms, especially when supply chains are well coordinated.[61] This burden shifting came though strongly in the economic crisis of 2008 and importers' ensuing inventory changes, revealing GVC countries' vulnerability.[62] For the apparel GVC, declining demand from leading apparel-importing countries led to a fall in apparel volumes and values for suppliers in developing countries and to higher unemployment and more factory closures.[63]

There is also a "pecking order" of risk among suppliers. First-tier and second-tier suppliers tend to face less risk than marginal suppliers: in a crisis or another unexpected shock, buyers tend to transfer business from marginal outfits to their core operations. During the 2008-2009 global trade collapse, foreign-owned Polish firms were more resilient than average, partly due to intragroup lending mechanisms that supported affiliates facing external credit constraints.[64] Many foreign-owned firms in Poland were turnkey suppliers for foreign multinationals.

From a seller's perspective, major novel elements in many supply chains are changes in lead-firm strategies and management. Strategic changes are enabled by the asymmetric power relations between suppliers (competing with each other) and the lead firm (frequently a buyer far downstream in the GVC with oligopoly power).

Thailand's high-technology and small and medium corporate sectors, for example, are highly dependent on the decisions of Japanese companies in Thailand. Some of them, like Nikon (cameras) and Yazaki (car parts) are shifting production of lower value manufacturing to lower cost neighbors such as Cambodia and the Lao People's Democratic Republic.[65] Improving regional transport links are therefore increasing the opportunities—and risks—for the region's economies overall as the lower-cost countries continue their moves to attract foreign investment.

Buyers' upstream risks

From a buyer's perspective, the novel element relates to upstream supply shocks, as importing goods (or services) to export increases a buyer's dependence on upstream inputs. Two such upstream risks are natural disasters and changes in, this time, suppliers' strategies.

The 2011 flooding in Thailand (box 7.4), and the triple Tohoku disaster in Japan—earthquake, tsunami, and nuclear—starkly revealed GVCs' vulnerability to natural events. Tohoku was especially pernicious in automotive, computers, and consumer electronics, where downstream producers rely heavily on Japanese suppliers of specialized parts and components.[66] Besides the severe effects on Japan's economy, the Tohoku disaster also took a toll on, especially, other Asian countries, which have higher shares of intermediate goods imports than other parts of the world.[67]

Changes in upstream supplier strategies may also pose a risk for intermediate buyers in GVCs. Suppliers that, due to the underlying GVC governance structure, have more market power or that target economic upgrading within the GVC could perform new tasks to supplement and build on existing ones. This poses a threat to existing downstream suppliers of these tasks, particularly if the upstream supplier manages to offer the bundled tasks at a competitive cost.

BOX 7.4

The impact of Thailand's 2011 flooding

Thailand's 2011 flooding—combined with the government's inefficiency in managing the recovery—led to price hikes and production cuts in third countries.

The flooding hit many industrial clusters in central areas. According to a business survey by the Bank of Thailand in 2012, 43 percent of businesses reported that usual operations could be restored only within three months, 46 percent in four to six months, and the remaining 11 percent in more than six months.

Manufacturing was hit hardest. While 56 percent of manufacturing firms reported that the impact on their businesses was "severe" or "very severe," only 41 percent of nonmanufacturing firms did. In contrast, 31 percent of nonmanufacturing firms reported "no or a small impact," but only 14 percent of manufacturing firms. The stronger impact on manufacturing stemmed largely from disruptions of intermediate input supplies in the automotive and electronics sectors and in computers and optical instruments.

The flooding had a ripple effect on final production in other countries: shortages of auto parts from an inundated plant in Ayutthaya forced Honda to cut production around the world.[68] It also caused price hikes for hard disk drives because of the direct impact of stoppage of production and the indirect impacts of defensive purchases by consumers and inventory hoarding by resellers and wholesalers.[69]

The flooding and the government's inefficiency in managing flood recovery have raised investor concerns about rising production costs due to higher insurance premiums and to building their own flood defenses. That could undermine Thailand's longer-term investment attractiveness. Of 50 multinational firms directly affected by the floods, 38 percent intend to "scale back" activities.

Source: JETRO (2012), reported in Ye and Abe (2012).

► **Which form of governance between lead firms and suppliers?** [70]

Which form of governance?

As GVCs have developed and suppliers have increased their technological sophistication and scale of operations, the dichotomy between in-house ("make") and arm's-length ("buy") global supply relations has given way to a multiplicity of lead-firm–supplier relations involving various degrees of investment, technical support, and long-term contracting and monitoring, as reflected in the growing importance of NEMs for internationalization. It is largely for this reason that the form of governance matters (box 7.5).

BOX 7.5

Why the form of governance matters

The scope for entering global value chains (GVCs) and determining the value of exports in GVCs is not fully in the hands of countries. Most lead firms decide strategically where to produce (domestically or offshore) and whether to make certain levels of the value chain abroad (foreign direct investment) or buy them from an external firm either at arm's length (offshore outsourcing) or through non-equity modes of investment such as contract manufacturing. The firm's governance decisions go beyond mere transactions costs and core competencies. Consider a theoretical model in which firms, on the basis of productivity and sectoral characteristics, decide whether to integrate production of intermediate inputs or outsource it.[71] Firms with different productivity levels choose different ownership structures and supplier locations, and this affects the relative prevalence of different organizational forms. Comparing vertical foreign direct investment versus arm's-length outsourcing, Grover (2011) postulates that outsourcing is more welfare enhancing if the domestic absorptive capacity is above a certain threshold.

Similar to firms, countries should think strategically about the forms of GVC participation that will best advance their development goals. They may not be able to freely choose the governance structure, but they should be aware of how governance characteristics can mediate the impacts from GVC participation—and therefore condition firms' decisions.

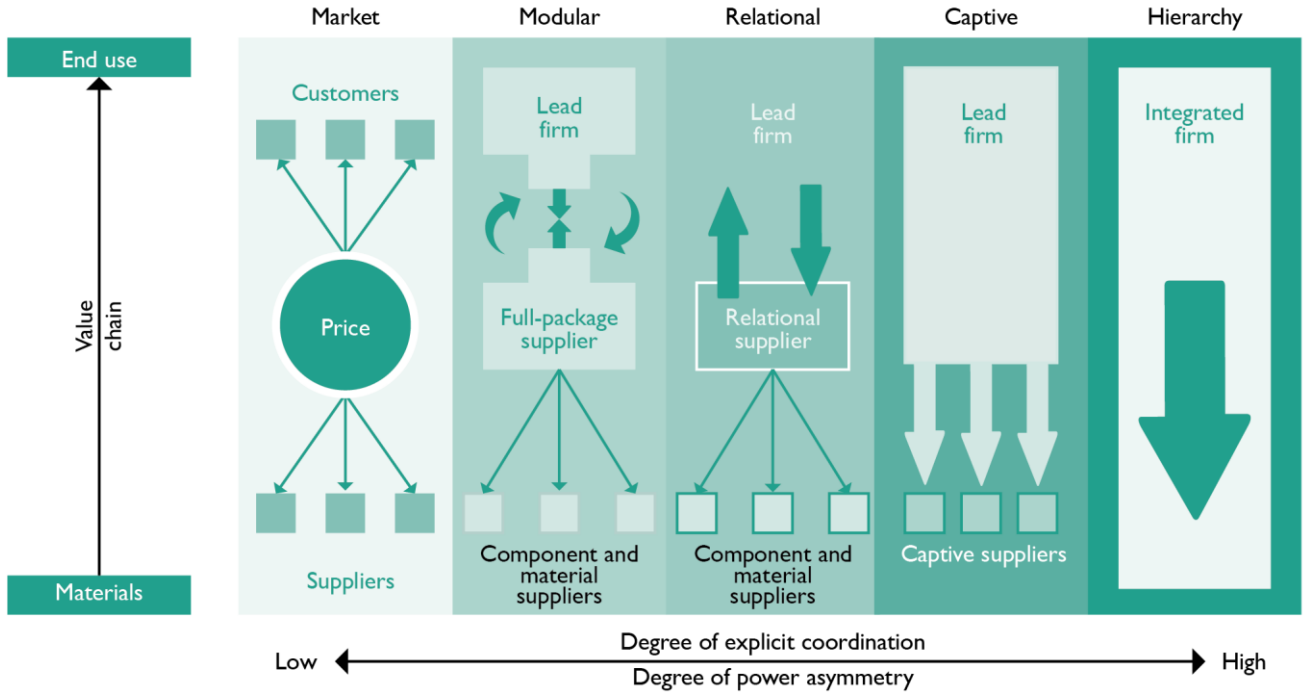
Consider five governance structures in GVCs: market, modular, relational, captive, and hierarchical (figure 7.8).[72] They can be measured by three variables: complexity of information between actors in the chain; how the information for production can be codified; and supplier competence.[73]

Market governance. This involves fairly simple transactions. Information on product specifications is easily transmitted, and suppliers can make products with minimal input from buyers. Exchanges are usually at arm's-length between the lead firm and its suppliers—buy relations requiring little or no formal cooperation where costs of switching to new partners is low on both sides. The central governance mechanism is price rather than a powerful lead firm.

Modular governance. This occurs when complex transactions are fairly easy to codify. Suppliers in modular chains typically make products to a customer's specifications and take full responsibility for process technology using generic machinery that spreads investments across a wide customer base. Such governance often appears in industries dominated by transactions between a lead firm and turnkey, full-package suppliers—especially in autos, apparel, footwear, electronics, and business services. This structure keeps switching costs low and transaction-specific investments few, even though buyer-supplier interactions can be very complex. Links (or relationships) are more substantial than in simple market structures because of the high volume of information flowing across the interfirm link. Information technology and standards for exchanging information are key to how it functions.

FIGURE 7.8

Five GVC governance structures



Source: Gereffi and others (2005, p. 89).

Relational governance. Buyers and sellers rely on complex information not easily transmitted or learned, driving frequent interactions and knowledge sharing between the parties. Such links require trust and generate mutual reliance, which are regulated through reputation, social and spatial proximity, family and ethnic ties, and the like. Despite mutual dependence, however, lead firms still specify what is needed, and thus have the ability to exert some level of control over suppliers. Producers in relational chains are more likely to supply differentiated products based on quality, geographic origin, or other unique characteristics. Relational links take time to build, so the costs and difficulties in switching to a new partner are usually high.

Captive governance. In these structures, small suppliers depend on one or a few buyers that often wield a great deal of power. Such networks feature a high degree of monitoring and control by the lead firm. The power asymmetry forces suppliers to link to their buyer under conditions set by, and often specific to, that buyer, leading to "thick" ties and high switching costs for both parties. The core competence of the lead firms tends to be in areas outside production, so helping their suppliers upgrade their production capabilities does not encroach on this attribute but benefits the lead firm by increasing the efficiency of its supply chain. Ethical leadership is important to ensure that suppliers receive fair treatment and an equitable share of the market price.

Hierarchical governance. Chains characterized by vertical integration and managerial control within lead firms that develop and manufacture products in house (make). This usually occurs when product specifications cannot be codified, products are complex, or highly competent suppliers cannot be found. While less common than in the past, this sort of vertical integration is still important in the global economy.

Over time, any of these forms of governance can change as an industry evolves; similarly, governance patterns within an industry can vary from one link of the chain to the next. Depending on the nature of the lead firm in the chain, one can also distinguish between buyer-driven and "producer-driven" value chains.[74] The former occur mainly in consumer products such as apparel, footwear, and toys. The GVC is driven by large retailers that do not manufacture but focus on design and marketing while subcontracting production. The latter are typical in industries, such as automobiles and aeronautics, which require mid- to high-technology production as well as substantial scale economies. They are driven by multinational producing firms that may subcontract some aspects of production but that keep research and development and final goods production at the firm. They are, however, major cases of buyer-driven relationships, including the BMW (buyer)-Ducati (producer) relationship in motorcycles.

► **Which power relations in GVCs?**[75]

The governance structure of GVCs is particularly important because it defines the GVC's power relations, which determine how financial, material, and human resources are allocated within the chain.[76] Different governance structures have different degrees of power asymmetries (box 7.6 and figure 7.8), including those in agrifood, consumer electronics, textiles, and apparel.

BOX 7.6

Four strategies to widen power asymmetries in GVCs

Asymmetric power is often endogenous to the formation and governance of some GVCs, as oligopolistic lead firms follow a cost-cutting strategy managed through offshore sourcing in GVCs. Such endogenous asymmetry can take a variety of forms depending on the lead firm's strategic focus. Four strategies stand out:

- **Inducing competition** is the process of diversifying among suppliers to spur competition among them. Playing one supplier off another, working with multiple suppliers, and even creating new supplier firms have become a standard strategy of lead firms in GVCs to keep input prices low. This diversification also reduces risk, after, say, a political, economic, or natural disaster in a country, or a unionization effort or work protest at a given plant. It is easiest where global capacity is already excessive.
- **Offloading** risk to suppliers has been documented in a variety of industries, including apparel and electronics.
- **Branding** is a textbook example of constructing an entry barrier. Despite considerable theoretical analysis of entry barriers, study of the economics of pure branding within GVCs has been limited. Branding tilts bargaining power in production to the firm that holds the brand. In industries with standardized production technology—including apparel, footwear, airlines, computing (at times), consumer electronics, and automobiles—branding is a key part of a lead firm's strategy.
- **Minimizing technology sharing**. Boeing carefully controls technology in its sourcing with Japanese, U.K. (and U.S.) parts producers.[77]

Although extremely useful from an analytical perspective, the five governance structures do not consider a firm's location. Firms in GVCs have two basic locational decisions: stay in their home country or open an affiliate or NEM abroad. These options generally apply to lead firms and large first-tier suppliers with market power in GVCs. Lower tier suppliers do not have the capacity to carry the sunk costs of foreign investment. And while governments cannot directly influence this decision (it is the firm's), they can adopt policies to attract FDI or NEMs.

A major determinant of country policies to attract FDI is the potential to deliver substantial knowledge or productivity spillovers for local firms and workers. A vast set of empirical evidence has been amassed over the past decade on the existence and direction of FDI-generated horizontal and vertical productivity spillovers.

Local firms, including NEMs, can similarly benefit from international trade within GVCs, particularly when exporting inputs to international buyers abroad but also when importing intermediates from international suppliers. The extent of spillovers to domestic suppliers in the first case depends on the type of governance structure between the lead firm and its local suppliers.

Besides the governance structure in GVCs, international buyer characteristics can mediate potential spillovers from belonging to a GVC. The buyer's motives (whether market-, cost-, resource-, or asset-seeking), its global production and sourcing strategies (which could also involve cosourcing and colocation), its technology intensity, its home country, and the duration of supplier relations can all, through international trade, influence this potential in a similar way to foreign investor characteristics mediating FDI spillover potential.

Likewise, some host-country characteristics and institutions important for FDI spillovers can lead to spillovers through domestic firms' involvement in international trade. Host-country characteristics and institutions affecting the availability and quality of labor (a country's learning and innovation infrastructure) and the international movement of goods and services (a country's trade policy) are of major importance here.

POLICY OPTIONS

Lead firms think strategically when making decisions, so governments should, too, when reviewing two sets of policies creating world-class links in GVCs to optimize international flows of inputs and outputs among production facilities and create efficient links with global markets; and creating a world-class business climate for foreign tangible and intangible assets (see figure 2.10).

Creating world-class GVC links

Countries can join GVCs either by facilitating domestic firms' entry or by attracting FDI. The FDI option includes more direct access to foreign know-how and technology. Nations like Costa Rica and Thailand have managed to attract FDI and turn it into sustainable GVC participation in very different ways. In all cases, however, it is necessary to provide excellent infrastructure, streamlined export procedures, and a tariff-friendly environment. One way to jumpstart this process, particularly for countries with poor national infrastructure and high import tariffs, is to create export processing zones (EPZs)—rapidly built sites equipped with excellent infrastructure, streamlined procedures, and favorable tax conditions (such as tariff drawbacks on imports of intermediates).

► **Jumpstarting GVC entry through creation of EPZs**[78]

In many lower income countries, exports come overwhelmingly from EPZs, which can provide a way for the country not just to attract foreign capital but also to connect the local labor force to established GVCs. The critical second step is then to connect the EPZs to the rest of the economy.[79] So, within the framework of GVCs, EPZs have a clear rationale.

EPZs are spaces in a country aimed at attracting export-oriented companies by offering these companies special concessions on taxes, tariffs, and regulations. Some of the typical special incentives for EPZs include exemption from some or all export taxes; exemption from some or all duties on imports of raw materials or intermediate goods; exemption from direct taxes such as profit, municipal, and property taxes; exemption from indirect taxes such as value-added tax on domestic purchases; exemption from national foreign exchange controls; free profit repatriation for foreign companies; provision of streamlined administrative services, especially to facilitate import and export; and free provision of enhanced physical infrastructure for production, transport, and logistics.

Other, less transparent features of EPZs sometimes provide further incentives for firm investment and export. One is a relaxed regulatory environment, including labor rights and standards (notably the right to unionize), foreign ownership, and leasing or purchasing of land. Another (though clearly not available to all countries simultaneously) is an undervalued currency that renders costs lower (in foreign currency terms) and raises export competitiveness.

EPZs continue to contribute an important share of national gross exports in many developing countries, particularly lower-income economies. During the 1990s many countries vastly expanded their EPZ exports: Costa Rica's EPZs, for example, shot up from 10 percent of manufactured gross exports in 1990 to 50–52 percent in the early 2000s; Bangladesh saw its gross EPZ exports rise from 3.4 percent in 1990 to 21.3 percent in 2003.[80] In some smaller developing countries, EPZ exports accounted for 80 percent or more of gross exports in 2006.

For EPZs to contribute to sustained economic development, however, they have to be linked to the rest of the economy. The problem is that by their nature, they resist such links for several reasons. For one, they are generally created to attract foreign firms to promote jobs and exports precisely because domestic firms are uncompetitive internationally and cannot generate foreign exchange. So, from the start, domestic firms are behind in their capacity to provide low-cost, high-quality inputs to production in EPZs.

Add to the fact that EPZs are dominated by foreign firms with well-established relations with foreign input producers. Many foreign firms may follow a cosourcing strategy, relying on imported inputs from established suppliers abroad. Or, they may follow colocation strategies requiring established foreign input suppliers also to enter EPZs. Most studies of the backward links from firms in EPZs find them to be minimal, with domestic orders remaining very low and technology spillovers rare. This underpins the terms-of-trade weakness for many developing-country manufacturing exports.

Moreover, most EPZs allow duty-free imports of material inputs. Non-EPZ domestic firms cannot import inputs duty-free, putting them at a cost disadvantage in input production. The share of inputs purchased from domestic suppliers commonly ranges from 3 percent to 9 percent, reported for Sri Lanka, Philippines, Guatemala and El Salvador in the mid- to late 1990s. In the Dominican Republic in 2004, after 30 years of EPZ presence and robust growth in EPZ exports and employment, EPZs purchased 0.0001 percent of material inputs from the domestic market.[81]

There are some important exceptions, including the Republic of Korea, where the share of inputs purchased from the domestic economy rose from 13 percent in 1972 to 32 percent in 1978 and remained that high through the 1980s.[82] The country's EPZs were set up to attract foreign investment and promote the electronics sector. The level of integration is particularly impressive given that about 80 percent of investment in the EPZs was foreign. The state played an important role in fostering the linkage by providing duty drawbacks to non-EPZ firms in its "equal footing policy."[83]

Technology spillovers are also limited, as the low-skill assembly-type production so common in EPZs is simply not conducive to technology transfer. And the higher skill-intensive EPZs, such as those involving software or other business services, are often enclaves, delinked from the rest of the economy except for its high-skill labor force. The technology is embodied in imported capital, and the knowledge is embodied in management. Evidence shows, for example in the case again of Republic of Korea in the mid-1980s that knowledge transfers increase when the skill intensity of production rises.[84]

At least two other characteristics of EPZs restrain their potential to advance development. First, EPZs may indeed create employment and pay average wages slightly above those in similar jobs outside them, but they generally have not been associated with notable improvement in wages and labor standards. Second, EPZs raise an issue of the compatibility of some incentives with WTO agreements—notably, offshore production creates obstacles to aligning domestic onshore rules with best international practices.[85]

► **Attracting the "right" foreign investors**

EPZs are a special case. Governments can also attract foreign investors through more general measures. In designing investment promotion measures, there are various important factors for policymakers to consider, particularly those that explicitly target FDI. Not all foreign investors are the same when it comes to their potential to deliver spillovers.[86] Governments need therefore to identify and attract "the right" foreign investors, in steps that include assessing the nature of investment and the motivations of potential FDI or NEM (for example, efficiency-seeking/export platform, resource-seeking, or market-seeking) as well as their technology contribution and the technology gap with domestic firms. Investment promotion should not only focus on lead firms in GVCs, but also target turnkey global suppliers and, possibly, important lower-tier suppliers.[87]

A light-handed industrial policy can foster participation in GVCs and links with the domestic economy by overcoming market failures or capturing coordination externalities. An analogy is urban policy: if individual initiatives are completely uncoordinated, the result can be overcongested cities that fail in the basic goal of improving citizens' lives. At the other extreme, government control of every investment decision can stifle growth and innovation—and so also fail to improve everyone's lives, in cities, towns, and rural areas alike.

A key difference between GVC-led and other avenues of development is that government coordination is needed at the micro level. Still, it should not aim to pick a sector as the "winner" (box 7.7). It should instead help plan and encourage entry into the appropriate tasks and, consequently, densification of already-begun GVC participation (see, for example USAID, 2006 as discussed in Step 3 above).

BOX 7.7

Negative lessons from failed industrial policies

Many countries have designed and run industrial policies to promote production transformation, reconversion, or upgrading. Some policies have achieved their objectives, but many others have failed. Even the success stories include elements of failure over time, as countries learn through trial and error. It is common to focus on the lessons from success, but failure can be just as instructive:

- **Indiscriminate subsidies**. Granting subsidies without conditions increases the risk of adverse selection of beneficiaries and the development of assistance-dependent behavior among firms rarely—and translates into productivity improvements.
- **Never-ending support**. The absence of sunset clauses in support programs to companies discourages efforts to increase productivity.
- **Cathedrals in the desert**. Building factories or research laboratories in remote locations works only when they are part of a broader plan for creating backward and forward links, and when the policy is matched with programs to foster local infrastructure development.
- **Preventing competition**. While the creation of new activities and industries may require support in early stages (the traditional "infant industry" argument), gradual exposure to internal and external competition can ensure that these activities grow in a productive way.
- **Closed-door bureaucracy-led priorities.** This cuts the chances of generating the information flows and trust essential to get the private sector to commit to investing in innovation and production.
- **Capture by incumbents**. Consultations with the private sector often end up being led by incumbents, while innovation and production diversification also depend on the creation and expansion of new firms. Targeted mechanisms to encourage the creation of startups are needed to avoid the risks of policies that will only help to maintain the status quo instead of catalyzing dynamic change.
- **Low critical mass for investments.** If the government contribution is too small, it will not be able to mobilize the matching funds from the private sector.
- **Short-term horizon and annual budgeting**. The creation and strengthening of domestic scientific, technological, and production capabilities take time, so industrial policies with short-term horizons and based on annual budgets tend not to be credible. Multiyear plans and budgets are necessary to achieve results, but they require robust M&E to correct failures during implementation.
- **Lack of M&E mechanisms.** The limited capacity to generate feedback between policy design and implementation reduces the effectiveness of policies that evolve through trial and error. This lack also narrows the scope for regularly revising the policy to reduce the risks of capture and adverse selection.

Source: OECD-WTO-UNCTAD-World Bank report for G-20 (2014)

Here are recommendations for designing public policy to attract FDI and NEMs with potential for spillovers.[88]

- Keep the most important policies focused on ensuring an attractive general investment climate and a trade-conducive policy environment.
- Ensure that investment policy explicitly considers the nature of investment and the motivations of potential FDI and NEMs, as their degree of spillover is likely to vary.
- Assess the appropriate-technology contribution explicitly during FDI evaluation. This could include ascertaining how much the technologies that investors may bring are likely to be absorbed in the economy, given their current capacity.
- Target promotion efforts beyond original equipment manufacturers and lead firms to tier-one global suppliers and beyond. This means that both requirements and incentives to promote spillovers should be pushed down below the lead firms to include first-tier—or even second-tier—suppliers and the investors to whom they contract out operations.
- Avoid bidding away the benefits of spillovers by excessive firm-specific incentives to attract FDI and NEMs. Incentives tend to be most commonly associated with attracting export-platform investment, given its more footloose nature, although realizing spillovers from exactly this type of investment may be the most challenging.
- Recognize that the "right" investment to deliver spillovers requires both foreign and domestic investors—so, ensure that investment policies do not run a bias against domestic investors and do support mutual interaction. EPZs are one example of bias: they are often established primarily for foreign investors and may have explicit or de facto barriers to domestic investors. Countries that are home to large and competitive companies have an advantage in attracting FDI because the domestic firms can act as turnkey suppliers. Countries where firms are predominantly small and medium enterprises (SMEs) find it harder, and so become inclined to provide overgenerous incentives. Devoting some of these resources to helping SMEs become part of a well-established and integrated industrial cluster, as with Italian industrial districts brings greater "bang for the buck."[89]
- Facilitate joint ventures (JVs) where they can add value, but avoid coercion. JVs appear to be effective for facilitating spillovers, particularly of older technologies and know-how (which, for low-income countries, are likely to be most relevant). This should not, however, be misread to argue for attempts to force investors to engage in JVs with local partners. The correlation depends on the FDI/NEM motive, and demand-led JVs are more likely to openly share knowledge than are forced partnerships.
- Use industrial policy light-handedly. Weaknesses in institutions, in private sector capacity and organization, and in skills and absorptive capacity are the norm in low-income countries, raising an array of challenges to fostering links. The trick is to fashion a light-handed industrial policy (in chosen sectors that conform to reasonable projections of comparative advantage) that focuses on overcoming market failures or capturing coordination externalities, including packages of infrastructure expenditures and public–private vocational training.

► **Helping domestic firms find the "right" trade partners and technology abroad**

Governments can help potential buyers and suppliers—domestic and international—by making the right connections—say, by setting up an online firm directory including the sector, expertise, and firm profile. Such directories should include information on certificates that local suppliers have obtained. Becoming a supplier to lead firms requires meeting specific quality, legal, labor, health, safety, environmental, and other standards in the first place. Walmart, for example, provides a manual including "responsible sourcing" requirements that potential suppliers need to comply with.[90] And the International Trade Centre (UNCTAD/WTO) has launched a tool called Standard Maps, a tool that provides comprehensive, verified, and transparent information on voluntary standards and other initiatives covering issues such as food quality and safety. This tool also includes self-assessments for producers to rate their business against standard requirements.[91]

Government assistance can also include e-tools to help domestic companies to commercialize their intellectual property and to identify and exploit freely available technologies or assist them to establish licensing agreements, as Morocco does through the *Office Marocain de la Propriété Industrielle (OMPIC)* in the framework of its Horizon 2015 program.[92] Other practical advice that governments can provide to potential local suppliers includes the requirements they need to meet to become exporters of intermediates. Effective forms of matchmaking include holding buyer-supplier fairs or meetings.

The government's role also covers the promotion and marketing of exports and imports. Export promotion ranges from country image building, to export support services (such as trade fairs) to market research and publications. Japan's External Trade Organization (JETRO), for example, has been successful in promoting exports partly due to its emphasis on researching foreign markets and providing this information to Japanese firms.[93] Chile's export promotion agency—the Chilean Trade Commission, or ProChile for short—has helped promote Chilean salmon in the U.S. market, working with Canadian producers;[94] Chile's 2001 Internalization Plan helped improve the exporting skills of smaller exporters and encouraged new SME exporters (box 7.8).

In a world of GVCs, however, importing to export also requires public efforts to focus on import promotion, because a country's ability to participate in GVCs depends on its capacity to import world-class inputs. JETRO, for instance, established import promotion facilities as early as the 1990s to adapt to the increasing openness of Japan's trade.[95]

BOX 7.8

Chile: *ProChile* Internationalization Plan

Chile is a middle-income country with heavy reliance on mining and metals but substantial agricultural export capacity. In the past two decades, it has become a major export success in agriculture and agro-processing, including salmon, wine, and horticulture. ProChile is widely acknowledged as having played a critical role in the country's export growth.

To improve the export skills of smaller existing exporters, and to encourage new small and medium enterprise (SME) exporters, ProChile developed its Internalization Plan in 2001. One component, Interpac, is for agricultural SMEs; the other, Interpyme, is for industrial SMEs. These programs provide Chilean companies with systematic training in exporting issues faced by SMEs. They include training Parts on production capabilities, market research, logistics, marketing plans, banking, international law, searching for partners, and the export process. Interpac and Interpyme are operated by a team of private sector consultants hired by ProChile, and participants are provided with individualized one-on-one counseling. They complete one part at a time, and when they have completed the full program, they become eligible for ProChile co-financing programs, if they have promising export plans. These programs take about one year to complete. ProChile covers up to 90 percent of the cost, if participants have an exportable product for which there is international demand and if they use labor-intensive production methods.

Since the early 1990s, the number of exporters in Chile has doubled. The diversification of sectors, products, and markets has been dramatic, with the number of new products doubling, the number of markets growing by more than 50 percent, and the relative concentration of the mining sector falling sharply. Between 1996 and 2006, Chile's nontraditional exports (which account for 90 percent of its SME exports) increased from US$6 billion to US$15 billion. Several impact evaluation studies have shown that ProChile has had a positive and significant impact on export participation, new product introduction, and firm-level technological and management improvements.

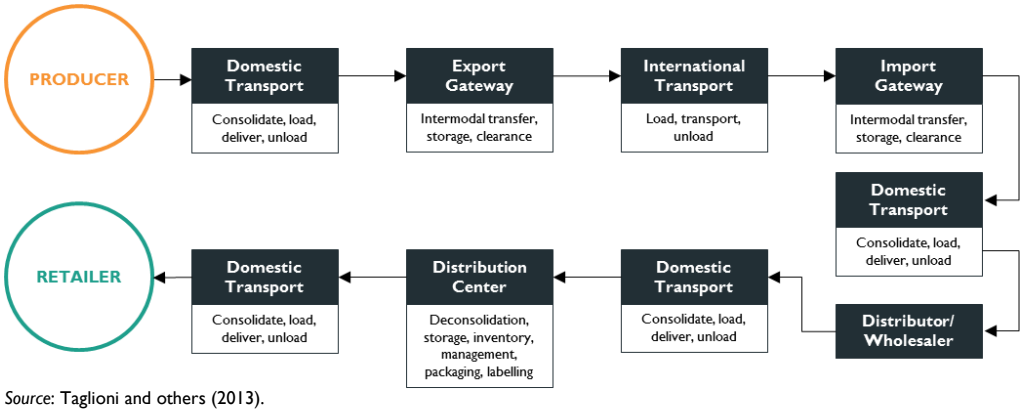
Source: Partly derived from Nathan Associates (2004) Best Practices in Export Promotion, Technical Report submitted to USAID, April, 2004

► Improving connectivity to international markets

How effectively does a country's logistics infrastructure operate and connect to its neighbors and to global markets? Geography plays a role, with countries in remote locations (Chile, Kazakhstan, Mongolia) or with large archipelagos (Indonesia, Greece) at a disadvantage. However, policy matters for logistics performance, whether for infrastructure investment and operation or for regulatory matters (licensing, implementation, enforcement, or trade facilitation at the border). In short, policy is key for creating an overall conducive environment for logistics services (figure 7.9).

FIGURE 7.9

Logistics services in a typical supply chain



Source: Taglioni and others (2013).

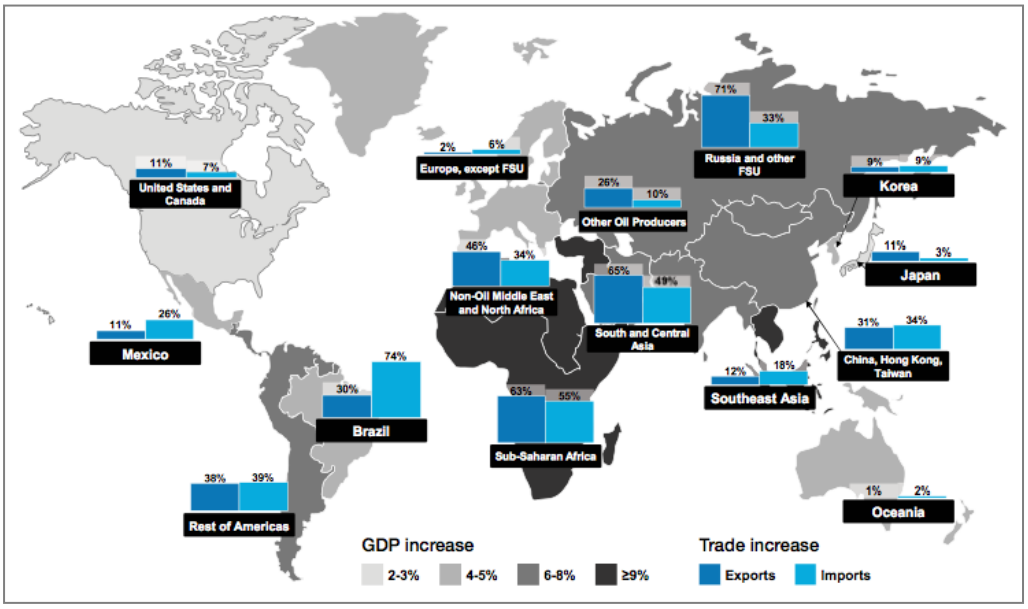
Rarely is there a single "magic bullet" of policy reform, and improving the international connectivity of a country touches on many dimensions: tightening forward and backward links within GVCs; securing the flow of inputs and outputs; creating efficient links with global markets; reducing "the thickness of borders;"[96] lowering traditional barriers to trade; and promoting trade facilitation. Improved connectivity also serves goals of GVC participation: lowering costs, increasing speed, and reducing uncertainty.

On cost reduction, GVCs have changed the perspective on traditional barriers to trade, such as tariffs. Some recent studies suggest that reducing supply-chain barriers to trade (border administration, transport and communications infrastructure, and related services) would have greater impact on growth of GDP and of trade than the complete elimination of tariffs. Cutting supply-chain barriers to trade could increase GDP by nearly 5 percent and trade by 5 percent, against less than 1 percent and 10 percent, respectively, for complete tariff removal.[97] Developing countries would be the main benefactors of trade facilitation (figure 7.10). Transport costs, according to developing country suppliers, remain the main obstacle to entering, establishing, or moving up in GVCs.[98]

Although drivers for offshore outsourcing have often been linked to a desire to cut labor costs, they also include predictability, reliability, and time-sensitiveness—i.e. increasing speed and reducing uncertainty.[99] Many countries cannot join certain stages of GVCs because of their inability to meet requirements for timely production and delivery—time really is money. A day of delay in exporting has a tariff equivalent of 1 percent or more for time-sensitive products.[100] Slow and unpredictable land transport keeps most of Sub-Saharan Africa out of the electronics value chain.[101] Sellers are often willing to pay more for air freight. Delays in GVCs also create uncertainty, inhibiting countries from participating in GVCs for goods such as electronics or fruits and vegetables.[102]

FIGURE 7.10

Reducing supply-chain barriers: Impact on GDP and trade growth



Source: WEF (2013).

To guide policymakers in enacting reforms of the logistics sector, the World Bank launched the now widely accepted concept of logistics performance in 2007. It also introduced a framework, now a standard, to analyze national supply chains. Logistics performance captures the different dimensions of supply chain efficiency, including how supply chains connect globally and regionally, and how each is influenced by national endowments and policies. The three pillars of logistics performance include:

- Availability and quality of trade-related infrastructure: ports, airports, roads, railroads.
- Friendliness and transparency of trade procedures implemented by customs and other border control agencies.
- Development and quality of logistics services such as trucking, warehousing, freight-forwarding, shipping and customs clearing, and value-added logistics services (third and fourth party logistics).

So, logistics performance and the ability of countries to connect to international markets depend upon a range of policy interventions that can be implemented at the national or, increasingly, at the regional level. Priority areas for logistics performance improvement in most countries include:

- Regional integration and development of trade corridors: border crossings and transit regimes.
- Customs reform and trade facilitation.
- Border management extending beyond customs.
- Port reform.
- Regulations and development of logistics services (such as trucking, third party logistics, freight forwarding, and warehousing).
- Development of performance metrics.
- Building public-private coalitions for reforms.

Addressing obstacles at the border[103]

Policies on obstacles at the border (table 7.1) should address traditional barriers to trade as well as customs matters, notably efficiency and procedures, including rules of origin. But when production is within GVCs, there is a much greater need to address the traditional barriers to trade, for two main reasons.

TABLE 7.1

Addressing obstacles at the border: policy objectives and performance indicators

Policy objectives	
• Addressing obstacles to trade at the border, including trade facilitation. • Suppress quotas and other quantitative restrictions on imports and exports • Reduce tariffs, suppress tariff peaks and tariff escalation, or simplify tariff schedules • Modernize (reform) customs, and harmonize procedures and cooperation across borders	• Simplify customs procedures, including sanitary and phytosanitary, technical barriers to trade, and other certifications, rules of origin, valuation, etc. to conform with agreements or international best practices • Implement WTO or regional/ bilateral commitments (e.g. common external tariff)
Performance indicators	
• Trade restrictiveness indices—OTRI, TTRI (WTI 1.1) • Binding coverage and bound rates (WDI) • Share of tariff lines with peaks/specific rates (WDI, WTI 1.6) • MFN applied tariffs—AV+AVE or AV only (WDI, WTI 1.2, 1.3) • Applied tariffs incl. preferences (WDI, WTI 1.4) • Tariff escalation (WTI 1.5) • MFN 0 tariff lines / Import value (WTI 1.7) • Tariff bounds / Overhang (WTI 1.8) • Non-AV tariffs (WTI 1.9) • Nontariff measures (WTI 1.10) • Customs duties (WTI 1.11)	• Export restrictions (WTI 1.13) • Logistics performance index and its indicators—efficiency of customs and other border procedures (LPI, WTI 4.1) • Trading across borders—Doing business (IFC, WTI 4.2) • Trade enabling and global competitiveness indexes—goods market efficiency: burden of customs procedures, prevalence of trade barriers, trade tariffs, efficiency of customs administration, efficiency of import-export procedures, transparency of border administration (WEF GCI 6.10, 6.11, 6.13, ETI 1.01-4.02) • Average time to clear exports through customs / time to export/import (WDI) • Documents to export / import (WDI)

Source: Cattaneo and others (2013) based on OECD (2012b). Acronyms: AV = Ad valorem, AVE = Ad valorem equivalent, ETI = Enabling Trade Index, GCI = Global Competitiveness Index, IFC = International Finance Corporation, LPI = Logistics Performance Index, OTRI = Overall Trade Restrictiveness Index, TTRI = Trade Tariff Restrictiveness Index, WDI = World Development Indicators, WEF = World Economic Forum., WTI = World Trade Indicators, WTO = World Trade Organization.

First, GVCs broaden the scope from traditional export barriers to include barriers to imports: a country's competitiveness and ability to participate in GVCs depends as much on its capacity to efficiently import world-class inputs as on its capacity to export processed or final goods.

Second, trade within GVCs magnifies the costs of tariff protection when intermediate inputs are traded across borders multiple times, and the efficiency of the value chain could be challenged if a country at an intermediate stage of production has high tariffs.[104] Tariff escalation is a further, direct obstacle to the offshore outsourcing of key stages of production, reducing both the length of a GVC and the upgrading prospects of developing countries in the chain.

Customs efficiency can be another obstacle at the border, often in developing countries. One approach to simplify border processing and clearance is a National Single Window system—buyers and sellers submit all information through a single electronic gateway. But it requires a strong government mandate supported by political will and stakeholder engagement as well as the cooperation of multiple government agencies, many of which need to undergo substantial institutional reform.[105]

Increasing the connectivity of domestic markets

The policy objectives and measures in table 7.2 aim to increase connectivity of domestic markets through improvements in logistics and in transport and telecommunications, with a greater focus on transport for goods and telecommunications for offshoring services.

TABLE 7.2

Increasing connectivity of domestic markets: policy objectives and performance indicators

Policy objectives	
• Increasing the accessibility and connectivity of the domestic market, and the security, predictability, reliability and efficiency of transports/ logistics, telecommunications and ICT: • Reform the telecommunications sector, including infrastructure, regulation, competition, and access for all segments to include fixed lines and mobiles • Develop the ICT sector and the Internet (infrastructure, regulation, competition, access)	• Reforms transport, logistics and ancillary services, including infrastructure, regulation, competition for land (road and rail), maritime/water and air • Harmonize regional infrastructure for trade corridors, and ensure other forms of regulatory cooperation • Improve vertical governance in infrastructure, including through fast-tracking and streamlining the regulatory environment and private-public dialogue on regulatory changes needed and enhancement of execution of budget capital execution
Performance indicators	
• Logistics performance index and its indicators—quality of transports and IT infrastructure, international transport costs, logistics competence, traceability and timeliness of shipments, domestic transport costs (WDI, LPI, WTI 4.1) • Trading across borders—Doing business (IFC, WTI 4.2) • Trade enabling and global competitiveness indexes—infrastructure: quality of infrastructure overall, roads, railroads, ports, air transport, available seats, fixed telephone lines/100, mobile phone subscriptions/100, availability and quality of transport infrastructure and services, availability and use of ICTs (WEF GCI 2.01-2.09, WEF ETI 4.01-7.05, WDI); • Technological readiness (WEF GCI 9.01-9.06) • Africa infrastructure country diagnostic (AICD) • Liner shipping connectivity index (UNCTAD, WTI 4.3) • Baltic Exchange Dry Index (WTI 4.3) • Lead time to export/import (WDI) • Port container traffic (WDI, WTI 4.3) • Total / air freight and costs (WTI, 4.3)	• Number of seats available, airlines, international routes, airport passenger statistics (IATA, WDI) • World telecommunication / ICT indicators database and ICT development index (ITU) • Foreign participation / ownership in telecoms (ITU, WTI 1.14) • Competition index in telecoms (ITU, WTI 1.14) • Number of international gateways, landing stations, licenses for fixed and mobile phone, Internet providers (national data, WB and OECD STRI) • Mobile and fixed-line telephone subscribers / population covered by mobile cellular network (WDI, WTI 4.4) • Average cost of 3-minute call to the United States (WTI 4.4) • Personal computers (WTI 4.4) • Internet/broadband users / subscribers (WDI, WTI 4.4) • Internet bandwidth, secured servers (ITU, WDI)

Source: Cattaneo and others (2013) based on OECD (2012b). Acronyms: AICD = Africa infrastructure country diagnostic, ETI = Enabling Trade Index, GCI = Global Competitiveness Index, IATA = International Air Transport Association, ICT = Information and communication technology, IFC = International Finance Corporation, ITU = International Telecommunication Union, LPI = Logistics Performance Index, OECD = Organisation for Economic Co-operation and Development, STRI = Services Trade Restrictiveness Index, UNCTAD = United Nations Conference on Trade and development, WDI = World Development Indicators, WEF = World Economic Forum, WTI = World Trade Indicators.

Importer logistics performance is associated with higher components and parts trade.[106] And the influence of importer logistics performance is much higher for trade in parts and components than for trade in final goods. The quality of logistics in the importing country is thus an important determinant in a lead firm's location decisions, but the relationship is less clear between logistics performance in the exporting country and trade in parts and components.

Besides logistics performance, the development of GVCs—particularly offshoring services—was to a large extent fostered by information and communication technologies (ICTs), which transmit codified design specifications between actors in product-based chains and are the main medium for participation in cross-border services exports. ICT has made it possible to uncouple information from physical storage, rendering the transfer of huge amounts of data possible in seconds, eroding the prior dominance of producing and consuming a service on site.

Developing countries have caught up on ICT penetration and interregional internet bandwidth, increasing their ability to produce and export services. But there is still a long way to go for the poorest among them. This progress has been accompanied by liberalization of service sectors in developing countries, fostered by constant privatization, competition, and independent regulation over the past two decades. Most developing countries that are now attracting large amounts of FDI in the services sector were characterized by protectionist policies before opening to foreign ownership of companies.

Creating a world-class business climate for foreign tangible and intangible assets[107]

► **Ensuring cost competitiveness while avoiding the trap of low-cost tasks**

Low wages may be a way for countries to enter GVCs. According to firm surveys, costs (production, labor, transport, investment), and tax incentives are major drivers of lead firms' decisions to invest or source production in developing countries. Indeed, wage differentials have been primary drivers of the globalization of production. But costs encompass a wide range of drivers, and high costs could, for example, stem from a lack of infrastructure or competition in basic services. They could also result from excessive administrative burdens (including those at the border) or strict labor laws (a weak business environment), or from widespread insecurity or corruption.

The goal, however, should be higher labor productivity and wages, allowing the country to remain cost competitive despite rising living standards. Unit labor costs in themselves are irrelevant—China, for example, remains competitive even with rising labor costs. Productivity and capacity to meet production requirements must also be considered when assessing costs. If cost savings due to relocation go hand in hand with productivity losses, lead firms might end up facing *higher* overall costs. Moreover, value chain tasks based exclusively on labor cost advantages tend to be easy to relocate. A strategy based on low wages exclusively is therefore risky and unsustainable over the long term. Investment or tax incentives should be carefully used to foster productivity gains, skills development, and technological empowerment.

► **Improving drivers of investment and protecting foreign assets**

Drivers of investment, particularly the protection of foreign assets, have a large influence on a country's location attractiveness for foreign investors, affecting a country's participation in GVCs, regardless of their governance structure.

Protecting assets is mainly about protecting firm-specific technology and know-how, but only some of these elements can be defended through patents, trademarks, and other forms of intellectual property. Many others cannot be protected this way, including business and organizational models, managerial practices, production processes, and export procedures. As global production networks necessarily involve contracting relationships between agents in countries with differing legal systems and contracting institutions, contracts are often incomplete.[108] The reasons for incomplete contracting in international settings include a limited amount of repeated interactions; lack of collective punishment mechanisms; and natural difficulties in contract disputes, such as determining which country's laws apply—and even when that is known, local courts may be reluctant to enforce a contract involving residents of foreign countries.[109] How different national systems deal with contractual frictions and incomplete contracts is therefore important in driving firm choices of location and of firm boundaries in global sourcing.[110]

This is also proven empirically. The *Doing Business* (World Bank) and *Global Competitiveness* (WEF) reports provide lists of key measures for business operations, as well as indications of a country's performance based on selected criteria. The range of measures is very large, from the regulatory environment to the functioning of markets (such as state trading enterprises and government procurement). Protection of intellectual property is a tipping decision point for many lead firms. The cost of administrative burdens also becomes larger in GVCs, as management needs to coordinate a wider range of actors.

A country's political stability, governance, and corruption are other factors in the decision to join a GVC. These metrics (with others, summarized in table 7.3) relate to security (including assets and personnel) and predictability, the key drivers of intrafirm GVC trade (FDI) and on-time delivery to the consumers. Within GVCs, suppliers are often expected to meet the lead firm's corporate social responsibility codes, raising challenges for audit and execution in small developing countries' firms.[111]

To prevent a "race to the bottom" on incentives, however, policymakers can seek to promote investment through regional integration. This includes four steps: identifying regional investment barriers (such as through intensive private sector consultations and interviews), defining the reform agenda, implementing reforms, and benchmarking reform progress against the defined reform agenda. Throughout this process, it is important to engage the private sector with the national public sector and regional institutions (such as through private-public dialogues) as a feedback mechanism and reform engine.[112]

TABLE 7.3

Improving drivers of investment: policy objectives and performance indicators

Policy objectives	
• Intellectual property protection: • Improve the intellectual property regime and administration to comply with trade agreements, to include patents, authors' rights, geographic indications, etc. • Improve enforcement mechanisms and practices • Promote the intellectual property regime and related training or technical assistance • Competition, including privatizations and concessions: • Privatize, offer concessions, and open sectors to competition • Elaborate and implement a competition framework, including competition law, competition authority (e.g. independence, resources, etc.), competition law enforcement (e.g. investigations, sanctions, etc.) and related training or technical assistance • Government procurement: • Adjust laws pertaining to public procurement, including transparency, selection criteria, national preference, etc. • Corruption: • Reform to fight corruption in the public (e.g. customs) and private sectors	• Promote and adopt international instruments • Administrative burden: • Adopt administrative reforms to simplify and reduce administrative procedures (e.g. guillotine reform); increase transparency, predictability, timeliness, and security of administrative decisions (e.g. suppression of authorizations) • Other constraint resolution: • Create EPZs, business clusters, technology centers, etc. • Revise labor regulations for greater labor market efficiency • Revise regulations on the form of business operations and partnerships (e.g. franchises, multi-sector partnerships) • Increase security of operations and staff against crime and violence • Promote investment through regional integration: • Eliminate barriers to expansion of cross-border investments within region • Converge levels of investment protection within region and increase transparency to prevent "race to the bottom" on incentives
Performance indicators	
• Ease of doing business index (IFC, WTI 3.1, WDI) • World governance indicators—corruption, rule of law, government effectiveness, regulatory quality, political stability (WTI 3.2) • Enabling trade and global competitiveness indexes – Regulatory environment (WEF ETI, 8.01-08) – Institutions: property rights, ethics and corruption, undue influence, government inefficiency, security (WEF GCI 1.01-1.16) – Labor market efficiency (WEF GCI 7.01-7.09); – Goods market efficiency (WEF GCI 6.01-6.16) – Business sophistication: state of cluster development (WEF GCI 11.03) • Enterprise ownership (government, private foreign, private domestic) (ADI) • Cost of business startup procedure / procedures to register a business (WDI) • Time spent in meetings with tax officials / expected gifts / informal payments to public officials (WDI)	• Firms using banks to finance investment (WDI) • Strength of legal rights index (WDI) • Time required to enforce a contract (WDI) • Time required to obtain an operating license / register property / start a business (WDI) • Value of seized counterfeited goods (national statistics) • Number of registered trademarks, patents, etc. (WIPO, WDI) • Number of competition investigations and sanctions (national statistics) • Public procurement penetration ratio—Public imports / public demand percent (national statistics) • Security costs (ADI)

Source: Cattaneo and others (2013) based on OECD (2012b) and World Bank (2014). Acronyms: ADI = African Development Indicators, EPZ = Export processing zone, ETI = Enabling Trade Index, GCI = Global Competitiveness Index, IFC = International Finance Corporation, WDI = World Development Indicators, WEF = World Economic Forum, WIPO = World Intellectual Property Organization, WTI = World Trade Indicators.

GVC entry through foreign investment requires a maximum fluidity in the mobility of production factors. Barriers to FDI are likely to either exclude a country from major GVCs, or confine them to certain forms of GVC governance. Also important are stability clauses in contracts and participation in major international (including regional) arbitration and dispute settlement mechanisms (table 7.4).

TABLE 7.4

Encouraging and protecting foreign investment: policy objectives and performance indicators

Policy objectives
• Removing barriers to foreign investment • Allow more foreign equity /ownership / partnership • Facilitate the movement and employment of key personnel • Remove discriminatory policies (including licensing, taxes, subsidies, etc.) • Increasing the protection of foreign assets • Strengthen investor protection, including rights to challenge domestic regulations / decisions • Develop alternative dispute resolution mechanisms for foreign investors (e.g. recognition of international arbitration, bolstering of domestic arbitration capacities) • Adjust the laws on nationalization, expropriation, foreign ownership, stability clauses, etc.
Performance indicators
• GATS commitments (WTO), regional commitments, and domestic laws • Services trade restrictiveness indexes (WB, OECD) • Arbitration awards (ICSID and other arbitration bodies statistics) • Protecting investors (ADI)

Source: Cattaneo and others (2013) based on OECD (2012b). Acronyms: ADI = African Development Indicators, GATS = General Agreement on Trade in Services, ICSID = International Centre for Settlement of Investment Disputes, OECD = Organisation for Economic Co-operation and Development, WB = World Bank, WTO = World Trade Organization.

► Organizing domestic value chains and improving the quality of infrastructure and services

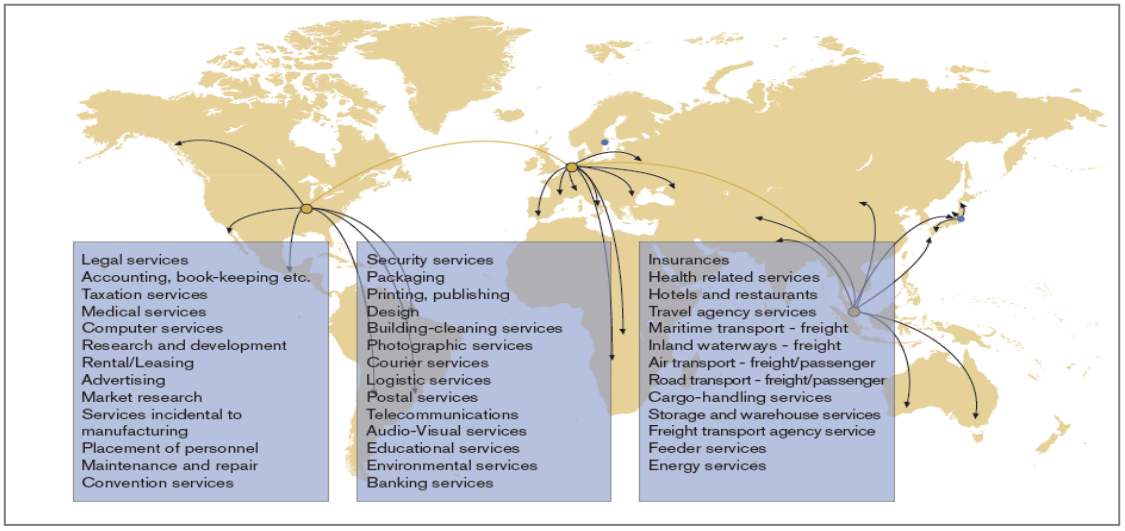
How well the domestic segment of the value chain is organized is as important as that for the international segment. The benefits of efficient transport and logistics at the border, for example, can be undermined by inefficient domestic links (including unreliability or high cost of domestic transport, the fresh-product cool chain, and low-quality storage). Regional markets and stocks are critical for inclusion in GVCs for agriculture.

Locational attractiveness to foreign investors is also determined by ease of access to efficient services and infrastructure. This includes access to energy (cheap and reliable), financial and trade support, telecommunications, and transport. Access to finance (for 52 percent of the firms surveyed) and transport infrastructure (for 39 percent) were the two most serious national supply-side constraints identified by developing-country GVC suppliers as affecting their ability to enter, establish, or move up in a GVC.[113]

The "servicification" of manufacturing is particularly important as production internationalizes, as up to 40 services may be involved when a manufacturing firm internationalizes (figure 7.11). Recent trade in value-added data suggest that services represent about 30 percent of the share of value added in manufacturing trade.[114] Thus a country cannot be competitive and join GVCs, even in manufacturing, unless it has efficient domestic services or is open to importing them. Managing the complexity of the value chain and preserving production standards along it require strong coordination efforts that rely on efficient services (auditors, lawyers, and managers) and the movement of key personnel across borders (table 7.5).

FIGURE 7.11

Services involved in the internationalization of production (at Sandvik Tooling)



Source: National Board of Trade (2010).

TABLE 7.5

Improving domestic services infrastructure and market structure: policy objectives and performance indicators

Policy objectives	Performance indicators
Improving access to finance: • Reform the financial sector, including microfinance, to increase affordability and availability of financial services • Ensure export credit and trade finance	• Banking GATS commitment index (USITC, WTI 1.14) • Export credit—insured exposures (WTI 4.5) • Indicators of financial structure, development and soundness (IMF) • Access to finance (WDI) • Enabling trade and global competitiveness indexes—financial market development (WEF GCI 8.01-8.08)
Improving other domestic infrastructure, including storage and energy: • Upgrade storage infrastructure • Reform access, regulation, and competition in energy (production and distribution) and other natural resources essential to certain activities (e.g. water in agriculture)	• Procedures and time to build a warehouse (WDI) • Time required to get electricity (WDI) • Energy statistics / Access to electricity (IEA, WDI) • Quality of electricity supply (WEF 2.07) • Power outages in firms / value lost in power outages (WDI) • Electricity cost (WTI 4.6) • Pump price for fuel (WTI 4.6)
Improving business support and the organization, connectivity and performance of markets, including e-commerce: • Adopt export and investment promotion and incentives • Give analyses and information on markets, opportunities, threats, etc. • Undertake marketing, branding, international presence, and promotion efforts • Form sectoral, professional, or other forms of associations (e.g. chambers of commerce) and consultations • Develop trade corridors and other regional forms of hard and soft networks (e.g. regional regulatory agency, regional distribution network) • Develop regional markets and stocks, boards of trade, and price regulation mechanisms • Organize value chains and sectors, including storage and distribution channels • Develop e-commerce (e.g. infrastructure, legal framework, protection of data, security of payments)	• Logistics performance index and its indicators—quality of transports and IT infrastructure, international transport costs, logistics competence, trackability and timeliness of shipments, domestic transport costs (WB, WTI 4.1) • Global competitiveness index—business sophistication: extent of marketing, state of cluster development, value chain breadth, control of international distribution production process sophistication, delegation of authority (WEF GCI 11.05-11.09) • Goods market efficiency • Value of e-commerce, number of ICT firms, number of secured servers (WDI, ITU, national statistics) • Post-harvest losses (African Postharvest losses Information System)

Source: Cattaneo and others (2013) based on OECD (2012b). Acronyms: GCI = Global Competitiveness Index, IEA = International Energy Agency, IMF = International Monetary Fund, ITU = International Telecommunication Union, USITC = U.S. International Trade Commission, WB = World Bank, WDI = World Development Indicators, WEF = World Economic Forum, WTI = World Trade Indicators.

Improving a country's domestic logistics environment—a key services sector in GVCs—requires infrastructural interventions and regulatory changes spanning many different sectors, as seen in Greece (box 7.9).

BOX 7.9

Case study: Regulatory reform and infrastructure building in Greek logistics

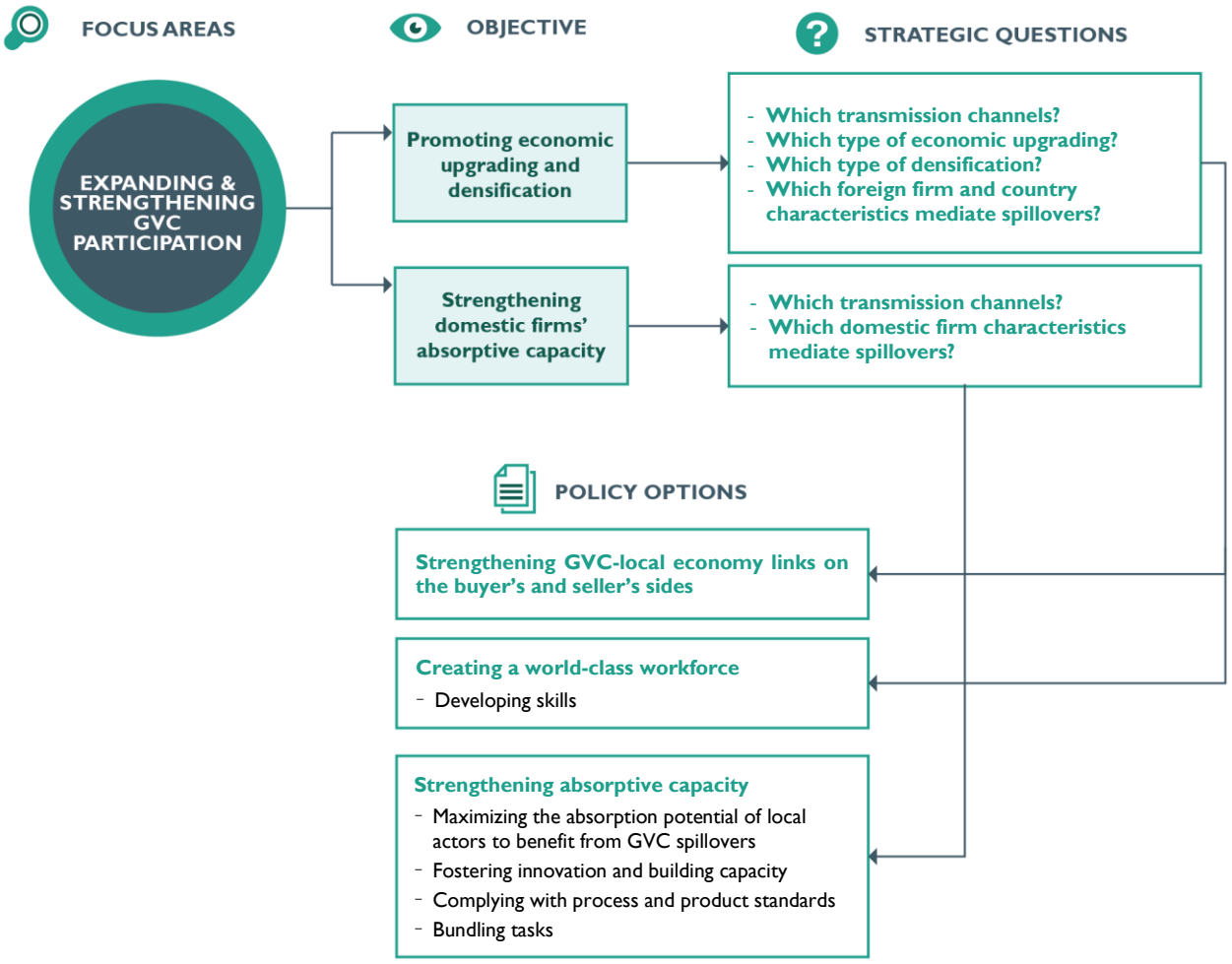
More than 95 percent of goods traded between Europe and Asia are transported over deep seas, through two primary routes. Large container ships leave ports in Asia and go to Rotterdam, Netherlands. Many go through the Suez Canal, entering the Mediterranean, usually bypassing Greece. Greece's economic crisis, however, has helped focus domestic policymakers' attention on the potential benefits of being a regional transport hub in the way the Netherlands is in northern Europe.

But becoming a regional gateway requires competitive logistics along the whole supply chain, beyond efficient ports and railway connections, requiring extensive reforms and strategic investments. To facilitate that goal, the government, advised by the World Bank, is taking steps to remove regulatory bottlenecks and improve the country's international connectivity, including reforms in transformational sectors like trucking, rail, and ports; in the regulatory environment; and in smaller micro initiatives such as improving enforcement of regulations, promoting coordination between authorities, enhancing transparency vis-à-vis the private sector, and better monitoring the performance of the sector and evaluating the impact of reforms with modern methods. Key actions enacted since 2010 include:

- **Privatizing port operations** at Piraeus port (Greece's main port) of the Piraeus Port Authority and the national railway company, Trainose. Piraeus is the focal point of a logistics push by the government. Part operated by the China-based Cosco Pacific Ltd., it is the 11th largest container-shipping port in the European Union, and the fastest growing port in the European Union (by number of containers) since Cosco started operations.
- **Investing in infrastructure**. The government completed in 2013 a long-delayed 17-kilometer link from the port to the national rail network following Cosco Pacific's arrival. This is now attracting international investors such as Hewlett Packard to Greece.
- **Improving the regulatory environment**. Reforms should improve the viability of Greek logistics companies, improve logistics efficiency, and encourage competition along all the segments of the logistics value chain. Key actions include drafting a logistics strategy and of a logistics master plan, passing a new law on the logistics industry, and establishing a strong institutional framework where the private sector has the power to come in and hold the public sector accountable.
- **Adopting a trade facilitation strategy**. The strategy has established a single window for trade facilitation and additional initiatives, such as setting up business process analysis to map export procedures, improving customs procedures, and introducing risk management methods.

Source: Taglioni and others (2013).

CHAPTER 8 Expanding and strengthening participation in GVCs



Promoting economic upgrading and densification in GVCs

STRATEGIC QUESTIONS

How can countries complete the firm ecosystem beyond the initial global value chain (GVC) enclave and ensure that GVCs are integrated into the domestic economy? The logic here is that strong links with the domestic economy result in greater diffusion of knowledge, technology, and know-how from foreign investors or trade partners abroad. The problem is that foreign investors and trade partners do not actively pursue—and sometimes resist—such integration for reasons ranging from economic constraints to technological and quality gaps with domestic suppliers and to shortages in specialized workers and skills.

For policymakers, economic upgrading and densification are keys to turning GVC participation into sustainable development. The concept of economic upgrading is largely about gaining competitiveness in higher value-added processes and raising domestic labor productivity and skills. GVC densification speaks to fostering spillovers from GVC participation and engaging more local firms in the supply network.

This chapter concentrates on two options to expand development beyond the initial enclave: promoting economic upgrading and densification in GVCs; and strengthening domestic firms' absorptive capacity to benefit from foreign direct investment (FDI) spillovers (see figure A.1).

Economic upgrading and densification as a development strategy

Policy can help move a country's resources into higher value-added activities. Value-added is defined as the sum of wage income, profit income, and tax revenue. All factors that influence these three elements can be considered determinants of value added, including the ability to produce goods at a higher quality and sophistication as well as access to skills, knowledge, innovation, and technology. But before discussing such policy options, the chapter focuses on three basic strategic questions facing developing countries.

Which transmission channels?

To efficiently target policy efforts, it helps to identify the main transmission channels for economic and social upgrading (see figure 1.10):

- **Forward links**. Sales of GVC-linked intermediates to the local economy, spurring production in downstream sectors.
- **Backward links.** GVC-linked purchases of local inputs, spurring production in various upstream sectors.
- **Technology spillovers**. Improved productivity of local firms in the same or related downstream or upstream sectors as a result of GVC production.
- **Skills demand and upgrading.** Similar to technology spillovers but transferred through the training of and demand for skilled labor.
- **Minimum scale achievements**. GVC participation may stimulate investments in infrastructure that would otherwise not be profitable and that may spur local production in other sectors.

These transmission channels enable GVCs to support development and industrialization in four ways:[115]

First, GVCs—through forward and backward links—generate a demand effect (lead firms tend to require more or better inputs from local suppliers) and an assistance effect (lead firms can assist local suppliers through, for example, sharing knowledge and technology, advance payments) in the host country: The forward and backward links generate technology spillovers, improving the

productivity of local firms through the diffusion effect (the assistance effect diffuses knowledge and technology in the supplier's industry) as well as the availability and quality effects (GVC participation increases availability and quality of inputs).

Second, GVC participation can translate into procompetitive market restructuring effects that extend to nonparticipants through the procompetition effect (GVC participation increases competition for limited resources in the country between MNCs and local firms, and between participants and nonparticipants in GVCs, raising overall average productivity in the medium run[116])—and through the demonstration effect of GVC products, business models, marketing strategies, production processes or export processes (knowledge and technology spillovers arise from direct imitation or reverse engineering by local firms, whether or not GVC participants).

Third, minimum scale achievements have a twin impact. In the amplification effect, they amplify procompetition effects, stimulating investment in infrastructure and backbone services, which would not be realized without the scale of activity generated by GVCs. The infrastructure, once in place, is likely to spur local production in other sectors and in the non-GVC economy. With the sustainability effect, they strengthen the country's ability to sustain GVC participation over time. The GVC literature is rife with examples of the key role of improvements in backbone infrastructure and services, such as logistics, to improve timeliness and reliability in transporting goods, parts and components, enabling countries to vertically integrate into GVCs.[117]

Fourth, GVCs benefit labor markets through the following:

- Demand effect. GVC participation is characterized by higher demand for skilled labor from multinational corporations (MNCs) or other GVC participants. Multinationals may temporarily bid away human capital by paying higher wages or offering enhanced employment benefits, but this effect tends to dim as soon as the productivity of domestic firms is raised or the market adjusts to tightening labor supply.
- Training effect. Local firms in GVCs are more likely to receive training (for example, from MNCs or their international buyers).
- Labor turnover effect. Knowledge embodied in the workforce of participating firms (such as MNCs or their local suppliers) moves to other local firms.

Which type of economic upgrading?

Depending on the type of economic upgrading that a country pursues, we can define four objectives.

Increasing productivity in existing GVC tasks (process upgrading).
Domestic firms performing GVC tasks can pursue process upgrading by better organizing their production or introducing new technologies to capture efficiency gains.[118] In other words, this refers to total factor productivity growth in existing activities in the value chain, which cannot be directly attributed to the production factors of labor or capital.

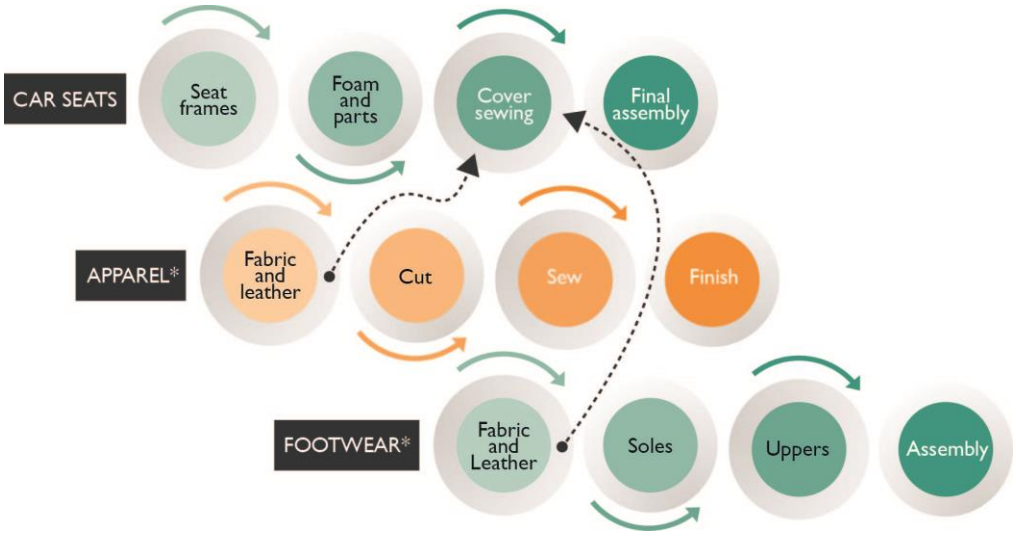
Moving into more sophisticated products in the existing value chain (product upgrading). Product upgrading is the move into more sophisticated products within the same value chain.[119] Product sophistication can be measured in increased unit values or higher value added as a share of output.

Increasing value-added's share (in output of final product) in existing GVC tasks (functional upgrading).
Functional upgrading is defined as the move into more technologically sophisticated or more integrated tasks of a production process and relates to the overall skill content of activities.[120]

Moving into new supply chains with higher value-added shares (intersectoral upgrading).
Firms can pursue intersectoral upgrading, moving horizontally into new supply chains that require similar knowledge and skills (figure 8.1).[121] To qualify such a move as economic upgrading, it should involve tasks with a higher value added share (in output of final product). For example, knowledge acquired in the television GVC may be used in the monitor/computer GVC. Taiwan, China has been successful in such intersectoral upgrading.[122] Another possible example could be the move from sewing activities in Nicaragua's apparel and footwear industries to sewing covers for car seats.

FIGURE 8.1

Example for possible intersectoral upgrading in Nicaragua



Source: Sturgeon and Zylberberg (2012).
* Industry value chains that are currently active in Nicaragua.

Once countries have singled out the tasks in which they have a comparative advantage (though this may be difficult), they need to identify sectors that require similar tasks but add more value (per output of final product). The following measures can be used here:

- To get a first indication of the labor intensity, a simple way is look at labor's share in value added.
- If sectoral data by type of labor input are available (say, by using firm-level data), one can calculate the skill intensity of sectors.
- A more sophisticated measure is to identify similar sectors by their technology intensity. The classification by Lall (2000) has high-, medium-, and low-tech, resource-based, and primary sectors/products.

These measures are most meaningful if undertaken at a highly disaggregated sectoral level. To detect similar tasks with higher value added in other industries, analysts should also use value chain analysis, which helps show which sectors are similar in their processes and required tasks, and which type of intersectoral upgrading has been successful in other countries. Ideally, this information should be backed up by interviews (with firms that have moved into higher value-added products).

Other measures of economic upgrading include profits growth, export growth, growth in export market shares, reduced relative incidence of unit labor costs, and increase in capital intensity.[123]

Which type of densification?

Densification is about fostering spillovers from GVC participation, especially FDI, and engaging more local firms in the supply network. Policymakers should assess which of these is priority for a country, drawing on the following analytics.

Which foreign firm and country characteristics mediate spillovers?

A major determinant of country policies to attract FDI and nonequity modes of investment (NEMs) is the potential to deliver substantial spillovers of knowledge—and ultimately productivity—to local firms and workers. Vast set of empirical evidence has been amassed over the past decade on the presence and direction of FDI-generated horizontal and vertical productivity spillovers. Overall, the results are mixed and suggest that the theoretical postulated spillover effects do not automatically materialize with FDI, prompting still more research.

Three groups of mediating factors determine potential spillovers to domestic firm productivity: the spillover potential by the foreign firm, the absorptive capacity of firms in the host economy, and the national characteristics and institutions of the host country. GVC entry via FDI attraction is mainly determined by the first and third groups. We discuss these two items following the conceptual framework developed in Farole, Staritz, and Winkler (2014). The second group is discussed in the next section.

Given the increasing importance of GVCs and export-platform FDI, understanding how spillover potential differs is likely to become an important policy priority, particularly for small and low-income countries that rely on this type of investment.

► **Which factors influence the foreign firms' spillover potential?**[124]

The *degree of foreign ownership* affects local firms' potential to absorb FDI spillovers. A higher share of foreign ownership, and thus larger control over management and lower potential for knowledge leakages, correlates positively with the parent firm's incentive to transfer knowledge, as in the form of technology.[125] Yet a larger domestic ownership share could also be beneficial for local firms, because the foreign investor's interests are less well protected, making technology leakages more likely. Larger domestic participation might further increase the likelihood of relying on domestic suppliers.[126] Empirical studies controlling for different *structures of foreign ownership* tend to support the more positive spillover effects of joint ventures.[127] Explanations include the possibility of more vertical links as well as stronger technology leakages for partly-owned foreign firms.[128]

Different *motivations* for FDI and NEMs are likely to mediate the spillover potential. The conventional wisdom is that resource-seeking investment has less potential for spillovers, due to its capital and technology intensity and limited time horizons. By contrast, manufacturing investment is often considered to have higher spillover potential because it is driven largely by efficiency-seeking motives. Indeed, the more labor-intensive nature of manufacturing investment, its requirements for a broad range of goods and services inputs, and the lower barriers to domestic forward links (relative to resource-seeking investment) make it a strong candidate for contributing spillovers. Market-seeking investment, particularly in retail, is also considered to provide higher spillover potential as retailers tend to source from local producers, in particular food and other perishables. However, evidence remains ambiguous, suggesting context specificity.

Analogously, a multinational firm's *sourcing strategy* may affect spillover potential. If an MNC sources on a global scale, it may follow a co-sourcing strategy, increasing its reliance on imported inputs from established suppliers abroad. Or, it might follow colocation strategies requiring an established foreign input supplier to also enter the host country. Both could make the entrance of new local suppliers more difficult. This is particularly common for multinationals in the clothing, footwear, electronics, and automotive sectors.[129] Moreover, the share of intermediates sourced locally by multinationals is likely to increase with the distance between the host and the source economy. It is also likely to be larger for multinationals originating in countries outside the country's preferential trade agreement, as it makes imports from the home country less attractive.[130]

Spillovers also depend on the *technology intensity* of the multinational's goods produced in the host country.[131] More technology- or research and development (R&D)-intensive products generally contain a greater element of knowledge and a broader set of skills. But the production of high-tech products might also involve low-tech processes, which could offset this effect.[132]

Related to the previous factor is the *foreign investor's home country,* which may have an effect on the production strategy and technologies in host countries but may also have other effects on the spillover potential. It influences managerial practices and cultures on the use of expatriate workers, attitudes to training local workers, and skills development more generally. Further, end-market segmentation—closely linked to foreign investor's home countries through historical, cultural, and language ties, as well as trade policies—is common. All these patterns affect the spillover potential.[133] The foreign investor's home country also positively influences domestic firms' absorptive capacity as they observe and imitate technologies, management practices, and cultural values.[134] And a foreign affiliate's distance to its parent firm affects its spillover potential, particularly for efficiency-seeking investment. Several studies find that foreign investors are more likely to purchase local inputs from domestic suppliers if the home country is farther away.[135]

A multinational firm's *entry mode* may influence the pace or extent of investment-induced benefits for local firms. For example, a greenfield investment is more likely to be accompanied by technology, while with mergers and acquisitions (M&As) the multinational firm is more likely to adopt the host country's technology and only gradually improve its technology.[136] While greenfield investments self-evidently increase investment, capacity, and employment, M&A and other types of brownfield investments may not, as the new foreign owners may rationalize and even reduce capacity and employment.

The *pace and irregularity of foreign entry* can also affect spillovers, as they may constrain multinationals from building up stable relationships with local suppliers, making it less likely for them to rely on domestic inputs. Further, local firms might not have enough time to observe and imi-

tate good practices and local workers to acquire skills, resulting in negative competition effects.[137]

Finally is the *length of foreign presence*. Foreign firms with a longer presence in the country may have a more positive impact on productivity spillovers, largely due to longer supplier relationships—though this impact may taper off.[138]

► **Which host country characteristics and institutions influence spillovers?**[139]

Host-country and institutional factors can influence foreign and domestic firm characteristics, as well as the transmission channels for knowledge diffusion from multinational to local firms. While the focus here is on spillovers from FDI, many host country characteristics can also be expected to lead to spillovers from GVC participation through NEMs.

Labor market regulations can influence the effect of foreign investment on domestic firms through various channels. Higher absolute and relative labor market flexibility than in the foreign investor's home country seems to have a positive impact on the chances of foreign investment in the first place.[140] Labor market regulations in general, and wage constraints in particular, can affect skills in a firm and hence their absorptive capacity.[141] Overly rigid labor markets can reduce the likelihood of labor turnover and FDI spillovers. But conversely, overly flexible labor markets may generate frequent labor turnover, lowering the time for domestic workers to acquire skills and knowledge in foreign firms.

The strength of *intellectual property rights* in a host country can help attract high-quality foreign investment initially and therefore the potential for FDI spillovers.[142] But some argue that while strong intellectual property rights may help attract such investment and allow knowledge and technology to be transferred to the affiliate, they may also hinder their transmission beyond that to the local market.[143]

Multinational firms use several instruments in addition to strong property rights to protect technology spillovers to local competitors in the same sector, such as paying higher wages to avoid labor turnover, ensuring trade secrecy, and locating in countries with few serious competitors.[144] Policies that mandate technology transfer to local firms may increase the transmission of knowledge and technology between the affiliate and the local market, but may result in the foreign investor limiting the level and nature of knowledge it transfers to the affiliate in the first place.

Financial markets in developing countries can also be a factor in absorption of spillovers.[145] Multinationals can have an ambiguous impact on access to finance for local firms: they may ease such access by bringing in scarce capital to developing countries, but if they borrow locally, they may increase local firms' financing constraints.[146] This in turn can influence a local firm's absorptive capacity. And well-developed markets may facilitate a domestic firm's absorptive capacity links.[147]

A country's *trade policy* shapes the amount and type of foreign investment. Spillovers are larger in countries more open to trade. A country's trade policy regime is related to its capacity to attract foreign firms in the first place, since foreign investors are less constrained by the size and efficiency of the local market.[148] Moreover, foreign investors in an open trade setting are globally more integrated and thus tend to adopt the newest technologies. One can also argue, however,

that foreign investors in an outward-oriented trade policy regime tend to focus more on international distribution and marketing and less on new technologies.[149]

Trade policy also affects domestic firms, which in an open trade regime are more exposed to international competitive pressures, which will prepare them to absorb spillovers.[150] Moreover, a country's trade policy also affects the likelihood of domestic firms becoming exporters and learning by exporting. Although the effect of exporting on the domestic firms' absorptive capacities is ambiguous, exporting clearly moderates the direction and extent of FDI spillovers. FDI spillovers are larger in countries more open to trade.[151] For China, horizontal and vertical spillover effects from FDI are negative when final goods and input tariffs are higher.[152]

Investment policy and promotion mediate spillovers by helping attract foreign investment in general (the focus of most export promotion efforts) and by encouraging policies to promote spillovers (much less common). Investment promotion contributes to bringing in firms that should have higher spillover potential, given their quality and technology position.[153] And positive FDI spillovers in Chinese manufacturing are higher from foreign firms enjoying investment subsidies and exemptions from value added taxes relative to spillovers from foreign firms that do not.[154]

Special economic zones (SEZs) may affect spillovers. Local Chinese manufacturing firms in SEZs have smaller productivity spillovers from FDI than non-SEZ domestic firms.[155] This may be because most SEZs focus on export processing combined with a high percentage of imported inputs, which limits FDI the potential because demand for local suppliers is constrained. Moreover, the spatial and legal structures that govern SEZs often inhibit their integration with the local economy.

Industrial policies, particularly programs to support the development of local SMEs, can mediate FDI spillovers, especially where the technology and productivity gaps between foreign and local firms are large, or where few local firms exist. Collaboration with foreign firms and support to develop local supplier networks through supplier development programs run by foreign affiliates but supported by governments have done much to facilitate spillovers in, for example, the automotive and electronics sectors. Local content provisions require that a certain share of inputs to be sourced locally have also gained prominence, as in China, but their track record is mixed, and they depend on domestic absorption capacity and supplier development.

Weak institutions—including corruption, red tape, and intellectual property rights—are linked to protection for local firms, network-driven business practices, and inefficient markets, possibly constraining foreign investors from fully exploiting their competitive advantages. This drawback may influence the type of FDI and NEM initially attracted, as well as domestic firms' absorptive capacities. Empirical evidence is mixed. Firm-level data for 17 emerging countries over 2002–05 reveal no evidence that the extent of FDI spillovers is affected by the degree of corruption or red tape.[156] There is also evidence that a country's transparency has a U-shaped effect on FDI spillovers: countries with a medium level of transparency benefit least from FDI, but countries with low and high levels show stronger FDI spillovers.[157]

The local innovation and learning infrastructure influences the share of human capital in firms (most studies find that FDI spillovers increase with average education and innovation), and is particularly important for expanding GVC participation.[158]

Strengthening domestic firms' absorptive capacity to internalize GVC spillovers[159]

At the domestic firm level, R&D, human capital, firm size, firm location, export behavior, the technology gap, type of ownership, and sectoral competition are mediating factors that allow countries to adopt complementary policies for levering the opportunities of GVC participation. These factors determine the local firm's absorptive capacity. While the focus here is on spillovers from FDI, many firm characteristics can also be expected to lead to spillovers from GVC participation through international trade and NEMs, especially in modular or relational governance forms where the degree of knowledge sharing is relatively high (see *Which form of governance?* in chapter 7*)*.

The *technology gap* between foreign and domestic firms has been identified as one the most important mediating factors for FDI spillovers.[160] A large gap can be beneficial for local firms since their catching-up potential increases,[161] but local firms might not be able to absorb positive FDI spillovers if the gap is too big or too small.[162] Some studies reconcile the two views and find a nonlinear relationship between a domestic firm's technology gap and FDI-induced productivity benefits.[163]

The *supportive role of R&D* in local firms is sold in high-income countries such as Spain,[164] the United States, Ireland, and Sweden.[165] It is also strong in developing or emerging countries, including the Czech Republic, India, Hungary and Slovakia, Indonesia, and large cross-section of 78 developing countries.[166]

A domestic firm's ability to absorb foreign technology can be positively related to its share of *skilled labor*.[167] But that may apply only to smaller firms.[168] In that case, FDI does not affect large domestic firms with a high proportion of human capital, as these firms are probably the most similar to multinationals on technology and market share. There is no evidence for a positive effect of skilled workers.[169]

In contrast, the *competition effect* might enable larger domestic firms to keep skilled workers more readily than smaller firms, leading to negative spillovers.[170]

Firm size has been positively related to a domestic firm's capacity to absorb FDI spillovers.[171] Larger firms may be better positioned to compete with multinationals and to imitate their tools.[172] Larger firms may pay better wages and therefore find it easier to attract workers employed by multinational firms. Larger firms might also be more visible, perhaps organized in associations, and thus more likely to be selected as local suppliers by foreign firms.

Several aspects of domestic *firm location* are important in FDI productivity spillovers. Foreign firms collocating (agglomeration) in the same sector and region, for example, can significantly increase productivity and employment of local firms.[173] Firm location in SEZs, though, can have a negative impact on FDI spillovers if the zone focuses on export processing and has a high share of imported inputs. More regional development and a domestic firm's geographic proximity to multinational firms seem to have a positive effect.[174]

Exporting has been linked to a domestic firm's absorptive capacity for at least two reasons. First, local exporting firms are generally characterized by higher productivity, whether through learning by exporting or self-selecting into exporting, making them more competitive against negative rivalry effects created by multinationals.[175] Second, the more a local firm exports, the less are

competitive pressures from multinational firms felt (assuming that the multinational firm does not enter the same export market)—hence the incentive to improve, which lowers the extent of positive FDI spillovers. But empirical studies show no clear evidence whether exporting increases or lowers the productivity gains from FDI.

Spillovers can also depend on the *sectors in which domestic firms operate*.[176] FDI-enhanced productivity spillovers in food processing, for example, seem to be driven by efficiency improvements, while technological progress appears the main driver in electrical machinery. FDI spillovers can be smaller for domestic firms in service sectors due to the lower absorptive capacities of firms in these sectors. A foreign presence in technology-intensive or high-tech industries tends to lead to larger positive spillovers than with labor-intensive or low-tech industries.[177]

Type of ownership is another factor. Some studies have focused on the difference between private versus state-owned firms, which can be studied best in the context of China or the transition economies in Central and Eastern Europe. Private firms may be more likely to benefit from FDI spillovers due to their willingness to restructure and imitate (demonstration effect) and a larger export orientation enabling these firms to access knowledge internationally.[178] By contrast, state-owned enterprises are typically larger, technically competitive, and may have easier access to finance, increasing their absorptive capacity, but they tend to be less market oriented, which may lower absorptive capacity.[179]

Finally, the level of *competition* also influences the extent of FDI spillovers. Competitive pressures from multinational firms might be lower if the local firm already faces stiff competition at the sectoral level. As with exports, local firms in competitive sectors may have less incentive to improve, resulting in lower benefits from FDI spillovers. Still, local firms may be better equipped to benefit from positive demonstration effects.[180]

POLICY OPTIONS

Expanding GVC participation requires three sets of policies: to strengthen existing links in GVCs, to strengthen a country's absorptive capacity to benefit from intensified GVC integration, and to create a world-class workforce (see figure A.1). While some policies in the third set aim to strengthen a country's absorptive capacity—for example by promoting skills development—this section also covers a broad range of policies targeting other aspects of social upgrading.

Strengthening GVC-local economy links on the buyer's and seller's sides

Strong links with the domestic economy—through forward and backward links, technology spillovers, skill demand and upgrading, and minimum-scale achievements (see figure 1.10 and *Which transmission channels?* a few pages above), and other forms of collaboration and interaction—should offer greater benefits of GVC participation at home. Linkage development can focus on the breadth of links (variety of local inputs) and on their depth (degree of local value added), so it is key to make a distinction.[181] Policies promoting links between GVCs and the local economy target foreign investors primarily, but can also include other international buyers outside the country.[182]

- *Ensure that the incentives used to attract foreign investors in the first place do not create a bias against local integration.* Most important, the issue is to ensure that foreign-owned companies do not have privileged access to instruments such as import-tax and duty concessions or duty drawbacks. Similarly, reserving EPZs for foreign-owned companies can create barriers to supply by domestic firms.
- *Lever investment and other incentives to promote actions that support spillovers.* If generating spillovers is among the principal rationales for offering incentives to foreign investors or other international buyers, those incentives should be predicated, if not on spillover out-

comes (which are difficult to measure), then at least on foreign investors or other international buyers engaging in activities to support spillovers.

- *Ensure that local content regulations operate under the right conditions and are clearly defined* (What is "local"? What is "content?", and so on). The focus should be on value addition rather than in-country ownership. But regulations can be effective only when the domestic supply side is up to the task of being a competitive supplier. Otherwise such regulations are likely to weaken the competitiveness of investors, undermining the overall outcomes. In any case, setting strict local content targets can be counterproductive and difficult to enforce. Instead of rigid local content requirements, the aim should be collaborative development of flexible localization plans where investors come up with their own proposals for delivering spillovers to the local economy. This allows for sufficient flexibility across sectors and firms.
- *Have a clear and comprehensive framework for supporting the upgrading of domestic firms*. This is important for facilitating supplier development programs to be initiated by foreign investors or other international buyers. Traditional linkage programs merely scratch the surface—they are likely to be effective only in the context of a more comprehensive set of policies on links. This includes bridging information gaps by facilitating exchanges of information on foreign investors' and other international buyers' needs and local supplier capabilities—as well as skill requirements. It also includes addressing gaps in domestic contract enforcement and other barriers to formal contracting with local suppliers.
- *Establish incentives for foreign investors and other international buyers to work with local universities, research institutes, and training institutes.* These include research funds, matching grant programs, or fiscal incentives for R&D in the host country, as well as internships, outplacements, and joint training and curriculum development.

While these policy options target international firms, particularly foreign investors, in GVCs, linkage development policies should emphasize the absorptive capacity of domestic firms to benefit from GVC participation and worker skills. The next two subsections address these areas.

Strengthening absorptive capacity

► Maximizing the absorption potential of local actors to benefit from GVC spillovers[183]

Attracting foreign investors and other international buyers and linking them to the domestic economy should create conditions for local firms and workers to benefit from spillovers of knowledge and technology. But the degree to which they ultimately benefit depends on the absorptive capacity of domestic actors. This is the area of spillover policy where government has the most important role, particularly by building the absorptive capacity of firms and workers—and by helping local firms and workers access opportunities. The Czech Republic has policies to help create a competitive local supplier network (box 8.1).

Policies should include:

- *Support supply-side capacity building, taking into account the heterogeneity of domestic firms.* The potential of domestic firms to supply foreign investors and other international buyers and to upgrade in higher value-added activities varies enormously across domestic firms. Supplying foreign investors and other international buyers should be an activity for the most productive, high-potential domestic firms. And government programs focused on upgrading technical capacity should focus primarily on those firms, setting out clear requirements for firm participation.

- *Build the absorptive capacity of local firms.* This requires general and industry-specific investments to upgrade technical capacity and, most important, achieve quality standards. As licensing of technology from foreign investors and other international buyers is a significant source of technical spillovers, governments should provide incentives for that. The biggest gap in support, however, is likely to be outside the technical arena and in basic business and financial management. Flexible delivery and financing models are required to allow for sector-specific approaches and collaboration with foreign investors.
- *Narrow the technical and managerial skills gap with foreign investors and other international buyers.* This includes actively engaging universities and research institutes to embed spillovers.
- Adopt open policies to promote imports and skilled immigration. This may be critical to promote localization in the long term. A policy of openness—not only for access to imported goods and services, but more controversially, for access to (imported) skilled workers—is likely to pay off in the long run by improving the sophistication and competitiveness of local firms.

BOX 8.1

The Czech Republic's supplier development program

After the country's emergence from Communism and entry into European Union, CzechInvest (the investment promotion agency—CI) learned from surveying investors that multinationals considered the local supplier network a key determinant in their investment decisions, second only to labor availability. Yet multinational investors imported 90–95 percent of their components to meet production requirements.

CI's top management saw an opportunity: to address investors' supply demand and willingness to source locally by strengthening the capabilities of Czech suppliers. From CI's perspective, a robust, competitive Czech supplier base for key prominent sectors was a way to embed FDI into the economy and channel its benefits, helping to retain and attract investors while supporting domestic suppliers. CI launched the Pilot Supplier Development Program (also called the Twinning Programme) in electronics, the country's fastest-growing and second-largest FDI sector after automotives.

The program's orientation was demand-driven and practical. Its overall objective was to equip suppliers with the information and skills to meet investor requirements and win more (and higher) value-added contracts. The program had three elements:

- Collecting and distributing information on the products and capabilities of potential Czech component suppliers, to enable foreign manufacturers to shortlist and contact potential suppliers.
- Matchmaking, by identifying the components and services foreign investors were considering subcontracting (Meet the Buyer), arranging seminars and exhibitions with Czech suppliers and foreign affiliates, and taking proposals to potential foreign investors.
- Upgrading selected Czech suppliers: Suppliers were selected according to predefined criteria in high-technology industries, then they produced an upgrading plan. In an electronics pilot, CI identified 45 companies as potential candidates, trained them, and after

seven months reevaluated them, offering tailored assistance to the 20 most promising.

The evaluation of the pilot 18 months after it ended in July 2002 showed that 15 suppliers had landed new, renewable contracts, worth more than US$46 million for 2000-03. Based on these results, CI rolled out Twinning II, extending the program to aeronautics, automotives, pharmaceuticals, and engineering.

Source: Potter, J. 2001. Embedding Foreign Direct Investment. OECD.; http://www.icpr3.org/en/foreign-direct-investment/czech-republic/.

► Fostering innovation and building capacity[184]

GVCs ease capacity constraints, since a country does not need to develop a fully integrated industry to participate in them. Still, capacities and productivity (as much as cost) are important drivers for foreign investors and lead firms that search for global offshore locations. Given the significance of flows in the new trade paradigm (as opposed to stocks), a location's responsiveness, capacity to innovate, and adaptability to the lead firm's requests are also key factors.[185]

With the shift in demand to emerging markets, lead firms have to define strategies where innovation "centers" are in fact decentralized. According to the concept of reverse innovation, lead firms need to innovate in developing countries, eventually bringing the results back home.[186] This requires the host country to develop innovation capabilities, based on education and skills, often involving public-private partnerships for R&D (box 8.2), increasing the supply of qualified researchers at local universities, and aligning higher education curricula and training with the local economy's needs.

BOX 8.2

Case study—The Renault-Dacia regional design and development activities in Romania

In 2007, Renault-Dacia moved part of its regional design and development activities to Renault Technologie Roumanie (RTR) in Romania, the largest Renault engineering center outside France with some 2,500 engineers.

RTR mainly accommodates engineering functions, along with purchasing, design, and support. With three locations in Romania, RTR brings together all the activities needed in an automotive project.

The relocation of the design and development activities was driven by Dacia's entry-level car and the idea that designing cars in an emerging market would help respond better to new consumer markets in East Europe and Asia. The center now oversees development of all entry-level vehicles (about 35 percent of all Renault vehicles worldwide).

Source: Authors' interviews with private sector stakeholders.

Possible policy objectives to foster innovation and capacity building as well as available performance indicators are summarized in table 8.1.

TABLE 8.1

Fostering innovation and building capacity: policy objectives and performance indicators

Policy objectives
Bolstering productivity, production and innovation capacities, including human capital and other resources: • Adopt innovation policies and incentives (e.g. R&D, innovation centers) and adapt/diffuse technologies in trade-oriented sectors • Provide education and training to match domestic skills with international standards and demand in trade-oriented sectors; upgrade skills • Develop production capacities in trade-oriented sectors, both hard (storage, conditioning, cooling chains, etc.) and soft (value-chain management, etc.) • Create clusters and other task-bundling efforts • Change production (methods and equipment) to more efficient and sustainable use of natural resources and energy
Performance indicators
• Computer, communications, and other services, ICT goods and services imports/exports (WDI) • Investment in telecoms with private participation (WDI) • Firms offering formal training (WDI) • Number of patent applications filed by residents and non-residents, domestically and abroad (WDI, WIPO) • Education statistics—secondary and tertiary education, specialties, male/female, etc. (UNESCO, ILO, WDI) • Global competitiveness index—business sophistication (WEF GCI 11.01-11.09); • Innovation (WEF GCI 12.01-12.07) • Extent of staff training (WEF GCI 5.08) • Labor statistics—activity rates, unemployment, male/female, etc. (ILO, WDI) • Innovation indicators and surveys—public and private R&D expenditure, high and medium-high technology manufacturing, knowledge intensive services (OECD) • Production capacities—sector output—and productivity statistics (national statistics, WIOD)

Source: Cattaneo and others (2013) based on OECD (2012b). Acronyms: GCI = Global Competitiveness Index, ICT = Information and communication technology, ILO = International Labour Office, OECD = Organisation for Economic Co-operation and Development, R&D = Research and development, UNESCO = United Nations Educational, Scientific and Cultural Organization, WDI = World Development Indicators, WEF = World Economic Forum, WIOD = World Input-Output Database, WIPO = World Intellectual Property Organization.

► Complying with process and product standards

Although respect for standards might vary depending on the maturity of the GVC's lead firm and the final market, it is a key element for the functioning of GVCs, so much so that "[f]ailure to comply with these standards can result in exclusion from the GVC."[187]

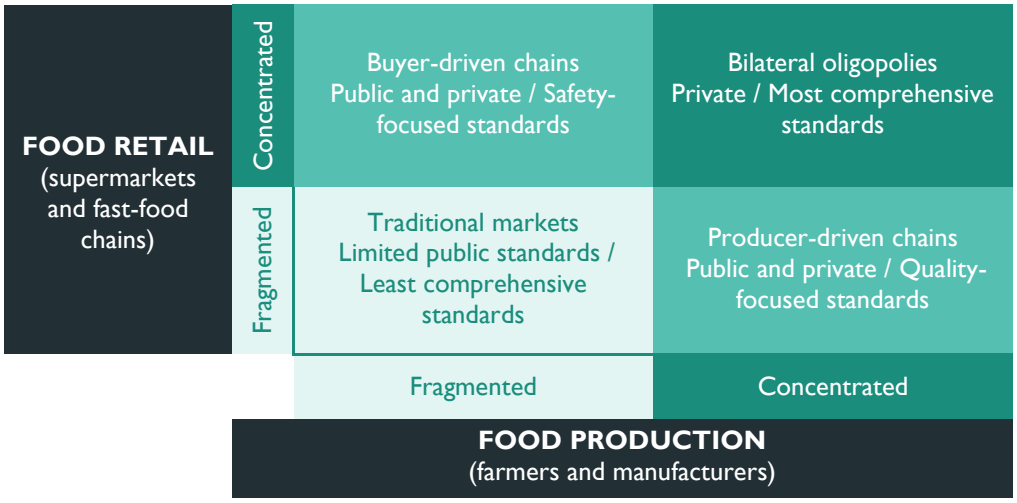
According to a recent business survey in the agrifood sector of 250 lead firms and suppliers in developing countries, about 60 percent of the firms named the ability to meet quality and safety standards as the main factor influencing sourcing and investment decisions in GVCs.[188] Similarly, 40 percent of the firms pointed to noncompliance with mandatory import requirements as a typical trade problem with developing country suppliers. About 37 percent suggested that improving the standards infrastructure and certification capacity would be the most effective way to integrate new developing-country suppliers into GVCs; almost half the firms providing trade-related technical and capacity building focused on compliance with safety and quality standards.

Standards relate to processes (such as labor, and environmental standards, often in a corporate social responsibility or code of conduct) and products (such as quality). The standards need to be respected along the entire value chain because every stage of production could affect the quality of the final product or service. In agrifoods, for example, such standards translate into traceability requirements aimed at protecting consumer health and increasing consumer information for them.

Standards in GVCs are public and private, with an increasing prevalence of "voluntary" standards imposed by lead firms (buyers or producers) on all input providers and assemblers along the chain.[189] Despite the role of private standards in GVCs, public standards, public infrastructure for certification and accreditation, and the enforcement by public authorities of health, safety, and environment rules are essential to attract GVC production segments. Inadequate public standards can raise the cost of local production or create unnecessary obstacles to trade—or both (figure 8.2).

FIGURE 8.2

Standards in agrifood GVCs



Source: Lee, Gereffi, and Beauvais (2012).

Excessively low or badly enforced local standards minimize the backward links and positive spillovers of FDI and offshore production in a country: inputs will have to be imported to meet the lead firm's standards, and the local tasks will be confined to basic transformation and manufacturing. The analysis of the retail sector suggests three phases: a first phase where no local products meet the retailer's standards and most products are imported; a second where local producers adjust to the standards of the retailer (often with its help) and local products replace imported ones; and a third where the best local products that meet international standards are exported and distributed by the retailer abroad.

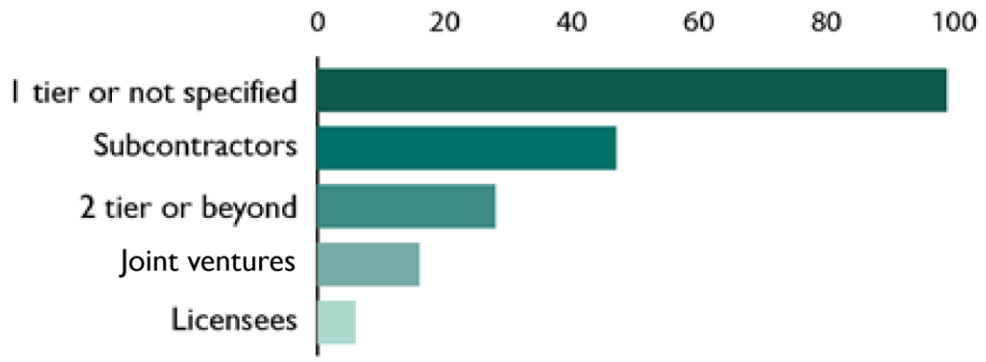
Conversely, excessively high local standards are equally disturbing and could constitute unnecessary obstacles to trade or disguised protectionism. A number of questions have been raised, for example, over ecolabeling and border adjustment taxes (so-called "carbon taxes").[190]

Where local standards and certification and accreditation meet international standards and best practice, the costs of value-chain management are sharply reduced, increasing a country's attractiveness. GVCs make therefore a strong case for regulatory convergence, harmonization, mutual recognition, and diffusion of international standards. It is very difficult and costly for lead firms to impose the respect of standards on their own, though many do so (figure 8.3): some transparency mechanisms, such as mapping pollution at micro level in China, helps the enforcement of green supply chains by providing an independent monitoring mechanism to lead firms' subcontracting production in China, as well as to civil society (IPE.org.cn).

FIGURE 8.3

Diffusion of standards and other codes of conduct in GVCs

Type of value chain member addressed in the supplier code of conduct (%; n=82)



Source: UNCTAD (2012).

Considering the risks associated with the prevalence of private standards in GVCs—particularly for smallholders and producers in developing countries, as well as consumers—the case is strong for multistakeholder dialogue and cooperation in defining and enforcing standards (table 8.2).[191]

TABLE 8.2

Improving standards: policy objectives and performance indicators

Policy objectives
• Technical and sanitary and phytosanitary standards: • Building capacity for certification and accreditation (labs, personnel, resources, etc.) • Adopt or reform domestic norms and standards to comply with international best practices • Promote standards, including voluntary standards, and related training • Ensure private sector support to comply with standards
Performance indicators
• Diffusion of voluntary standards and ISO certification ownership (WDI, national statistics) • Adoption of international standards • International accreditation of domestic accreditation/certification agencies

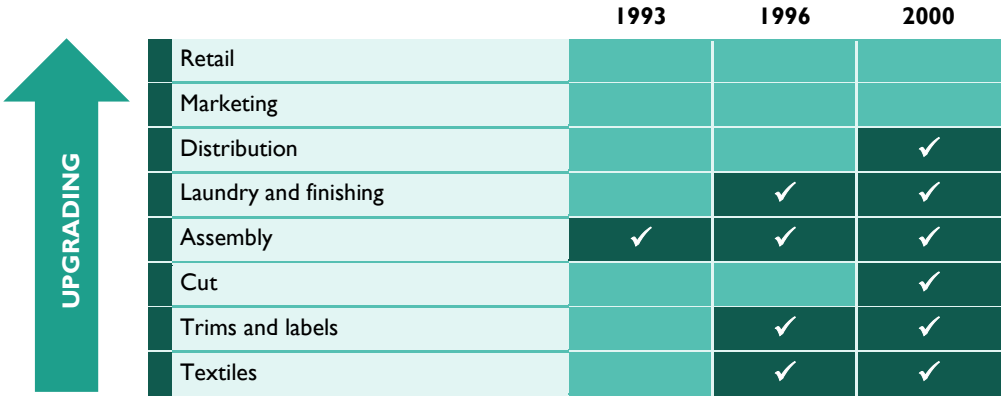
Source: Cattaneo and others (2013) based on OECD (2012b). Acronyms: ISO = International Organization for Standardization, WDI = World Development Indicators.

► **Bundling tasks**

The trend toward GVC consolidation suggests that a country cannot offer a single task, but needs to offer a bundle of tasks. Economic upgrading trajectories often reflect performing new tasks that build on existing ones (figure 8.4). Task bundling is necessary for consolidating GVCs, where lead firms reduce the number of intermediates and expect their suppliers to provide a more comprehensive package with a larger services content. Task bundling might also be necessary for potential offshore locations to attract the production of some tasks that cannot be performed independently.[192] For example, some tasks that can be easily offshored may be bundled with tasks that cannot, making the first set of tasks offshorable only to countries that can also perform the second set.

FIGURE 8.4

Tasks performed by apparel industries in Torreon, Mexico



Source: Bair and Gereffi (2001).

Creating a world-class workforce

Economic upgrading is often about "creating the knowledge behind the product." But a country might not be able to upgrade due to barriers in other stages of production, such as services. The diversification into service tasks and the promotion of service exports offer a largely untapped potential for many developing countries but also require them to be well prepared. For example, moving out of production into R&D, engineering, or marketing services requires flexibility in trading these services, including the temporary movement of service providers. It may also require establishing and enforcing intellectual property rights.

► **Developing skills**[193]

Skill development is a key element of competitiveness, participation in GVCs, and economic and social upgrading within GVCs. There is, for instance, a positive and statistically significant correlation between human capital and service exports.[194] Economic upgrading requires new skills and knowledge either by increasing the skill content of a country's activities (and thus workforce) or by developing competencies in niche market segments.[195] In other words, economic and social upgrading are mutually dependent.

Skill shortages can impede a country's upgrading. In Chile, Costa Rica, Ethiopia, and Rwanda upgrading strategies in GVCs have been most successful when accompanied by complementary workforce development interventions.[196] In Rwanda economic upgrading into the high-quality specialty coffee segment required skills development to manage workers, plantations, and financial risks, among others. For workforce development to be successful, it needs to be part of a coherent overall upgrading strategy involving key stakeholders. In addition, workforce development needs to be customized to the specific job requirements.[197]

GVCs contribute to skills development through lead-firm transfers. There are indeed strong incentives for lead firms to train their workforce to comply with their standards. Beyond private initiatives, there is a strong case for public investment in skill development to meet the needs of international trade and participation in GVCs. A look at the link between economic upgrading and skill development in four GVCs (apparel, tourism, offshore services, and fruit and vegetables) in some 20 developing countries reached the following conclusions.[198]

On workforce skills:

- Appropriate worker skills are essential to industry upgrading.
- The focus of skill development must reflect both local needs and those of the global economy.
- A new and evolving set of workforce skills is needed to participate in GVCs.
- Required skills and workforce development needs vary substantially by stage within industry-specific upgrading trajectories.
- Workers need soft skills in today's world of work.
- In developing countries, managerial skills for GVCs are in short supply.
- Upgrading in GVCs requires more and better professionals and technicians in bottleneck positions.

On stakeholders and institutions:

- Local education systems currently do not provide the range of skills required by GVCs.
- Technical training institutions and universities should coordinate more closely with industry stakeholders.
- New actors—such as individual firms, industry associations, NGOs, special government programs—can provide many of the skills required by GVCs.
- Private sector intermediaries can facilitate upgrading and skills development.
- Public-private partnerships have emerged as an efficient and effective method for skill development.

On global standards:

- Global standards define the upgrading requirements for the local workforce.
- Multistakeholder partnerships in developing countries coalesce in response to global standards.
- National certification of skills can be a powerful tool for GVC labor markets in developing countries.

Consider the successful upgrading in GVCs through developing a more skilled workforce for apparel in Turkey (box 8.3).

BOX 8.3

Own design and branding in Turkey

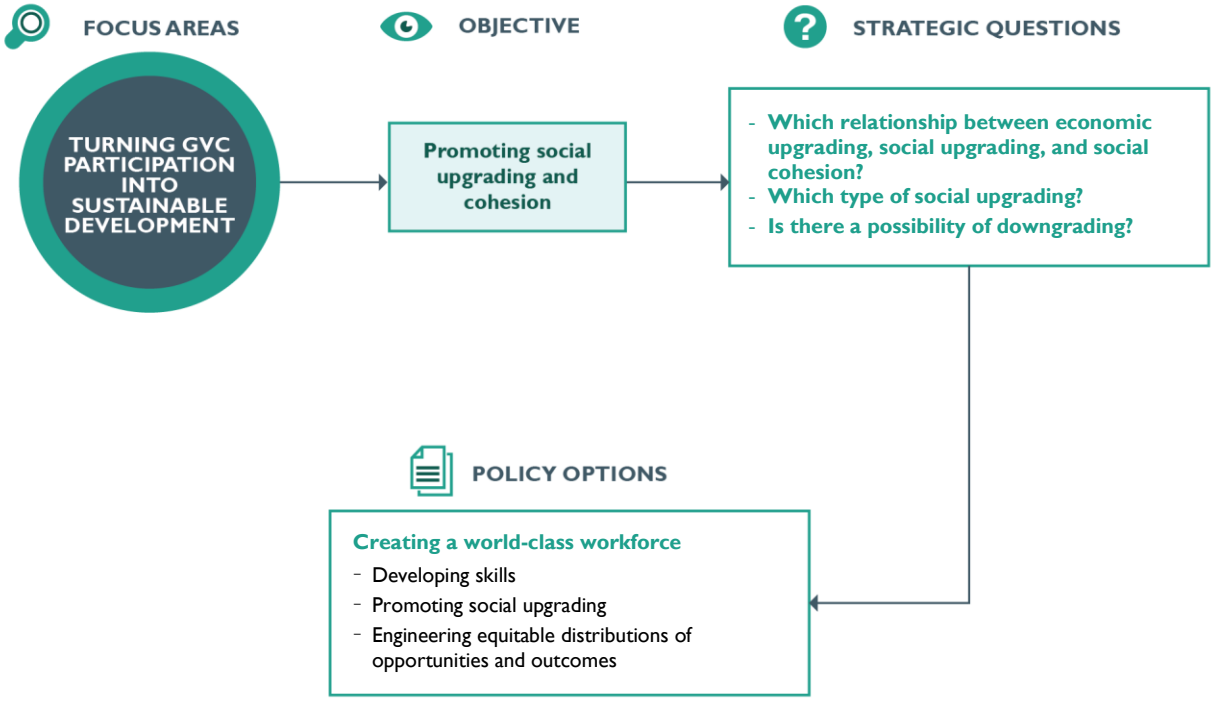
Turkish firms moved into the design segment of the value chain as part of a broader strategy to establish the country as a fashion center. Industry associations and government agencies collaborated to promote Istanbul, targeting it to become the fifth global fashion center by 2023.

Tight relationships of local manufactures with large global retailers such as U.K.-based Marks & Spencer facilitated upgrading into design services. In 2007, Denizli was designing 10 percent of Marks & Spencer's garments made in Turkey. Upgrading into own-design manufacturing required a specialized workforce, which was built up with government support. Organizations such as IKTB worked with the private sector and government agencies to establish fashion design vocational training schools. Istanbul Fashion Academy, established by the EU and IKTIC, trains students.

Upgrading into own branding, the next stage after own design, was supported by the government, which granted incentives for firms willing to upgrade into branding. These incentives include reimbursements up to 60 percent of the cost for a maximum of three years of personnel expenses, machinery, equipment, software, consultancy, and R&D-related material. Leading local firms with own brands and retail outlets abroad include Sarar, Mithat, and Bilsar. Erak clothing, originally a full-package supplier with international brands such as Guess, Espirit, and Calvin Klein is now selling its own brand Mavi Jeans in 4,600 specialty stores in 28 countries worldwide. Developing own branding has required additional efforts to foster workforce development, from bodies such as IKTIB and KOSGEB.

Source: Fernandez-Stark and others (2012)

CHAPTER 9 Turning GVC participation into sustainable development



Promoting social upgrading and cohesion

STRATEGIC QUESTIONS

The issues of social upgrading in themselves are not new and have been discussed in the literature under the role of multinational corporations in development. But linking economic and social upgrading shows that economic upgrading may lead to social downgrading—lower value economic activities and weakened workers' employment, rights, and protection—strongly suggesting a role for policy to counter this possibility.

Which relationship between economic and social upgrading?

It is often implicitly assumed that economic upgrading in global value chains (GVCs) will automatically translate into social upgrading through greater employment opportunities and higher wages. Yet the link between the two is unclear from a theoretical standpoint. If productivity growth is a proxy for economic upgrading and wage growth is a reasonable representation of social upgrading, economic theory can explain of the relationship between the two. Indeed, neoclassical theory implies that, other things equal, social upgrading will result from economic upgrading—but from an institutionalist perspective social upgrading is delinked from technological change and associated also with social institutions, including union density, bargaining rights, minimum wages, and active labor market policies.[199]

Empirical research also shows that economic upgrading *can* translate into social upgrading, but not necessarily. We therefore need to know the circumstances for economic upgrading to lead to its social equivalent. Conversely, we need to understand how to stanch economic and social downgrading. If economic upgrading does not automatically lead to social upgrading, policy has a clear role.[200]

What does economic upgrading through GVCs mean for living standards, including employment, wages, work conditions, economic rights, gender equality, and economic security? Improvements in "the terms, conditions and remuneration of employment and respect for workers' rights, as embodied in the concept of decent work" can be referred to as social upgrading.[201] But while there has been substantial research on economic upgrading in GVCs, there has been little systematic research on what such economic upgrading actually means for employment and living standards, despite growing interest in understanding the social spillovers to the domestic economy of countries already participating in, or thinking about joining, GVCs.

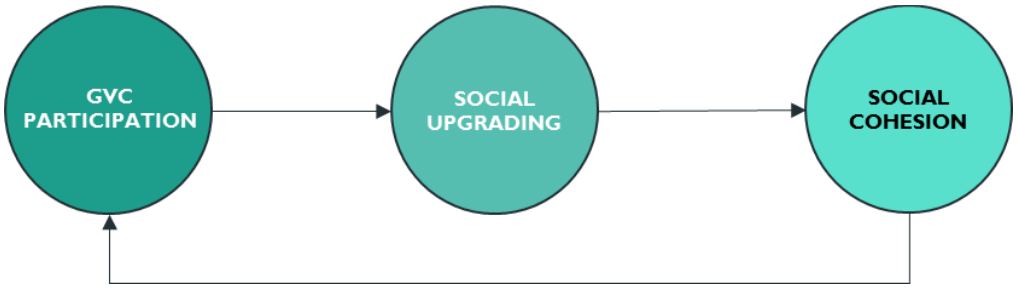
Evidence and intuition suggest that the impact of GVC participation on living standards depends on a multitude of factors. One is where a country, industry, or firm is positioned in the value chain. The impact for countries performing assembly tasks is likely to be different from countries specializing in preproduction stages. The gains may also differ by the type of value chain, because some industries are more labor intensive than others (as, within the same industry, are some product lines). Different GVCs can also involve different combinations of low-skilled labor-intensive and higher-skilled technology-intensive workers. And the spillovers generated by trade flows in GVCs in a particular sector may also differ across countries depending on how integrated the sector is with the rest of the economy of that country.

Multinationals and large global buyers are under increasing pressure to comply with international labor and health, safety, and environmental (HSE) standards, which apply particularly to electronics, apparel, and food GVCs, where final consumers perceive a more direct link between the consumer good and the work conditions. While lead companies are largely able to require the implementation of similar codes of conduct from their first-tier suppliers or contract manufacturers through monitoring or audits, it becomes increasingly difficult to monitor and improve work conditions at lower-tier suppliers. The lead firm's ability to influence them also depends on power relations in a GVC. Increased price pressures from the lead firm create negative incentives for first and lower-tier suppliers to cut labor and other costs by violating international labor standards (failure to pay minimum wages, illegal overtime, or forced and child labor) and other HSE standards (failure to install fire safety features, as the 2013 Rana Plaza disaster in Bangladesh demonstrated, or ventilation systems).[202]

Social upgrading is also linked to a country's social cohesion, which can be understood as working toward the well-being of all the members of a society by creating a sense of belonging and active participation, promoting trust, offering the opportunity of upward social mobility, and fighting inequality and exclusion. Living standards—notably from jobs—are major elements linking social upgrading and cohesion. And while social cohesion can be an end of development outcomes, it is also a means for development, especially as greater social cohesion and political stability make countries more attractive for investment (figure 9.1).[203]

FIGURE 9.1

Social cohesion as an end of and a means for development



Source: Own illustration.

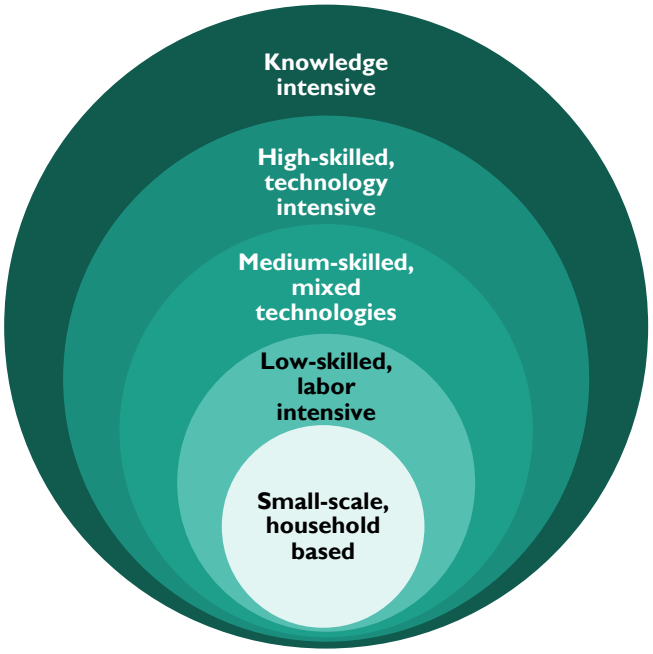
Which type of social upgrading

The literature divides social upgrading into two mutually complementary parts. *Measurable standards* refer to aspects of worker well-being that are more easily observed and quantified. The most basic expressions are employment and wages, but others include physical well-being and working conditions such as health and safety, working hours, and employment security. *Enabling rights* are less easily quantified but include empowerment, nondiscrimination, rights to bargaining, and freedom of association.[204]

Different types of work can be given a different "grade" subjectively, with knowledge-intensive activities valued at the top and household-based, small-scale activities at the bottom (figure 9.2).[205]

FIGURE 9.2

Social "grading" of jobs



Source: Authors, adapted from Barrientos, Gereffi, and Rossi (2011, p.335).

In this framework, three possible "trajectories" of improved measurable standards are possible:[206]

- **Small-scale worker upgrading**. Workers in home-based production can experience improvements in their working conditions. This can, for example, be supported by the establishment of producer organizations and the provision of more secure contracts, better payment, and upgraded personal health and safety equipment.
- **Labor-intensive upgrading.** Less-skilled workers can move to other types of labor-intensive work characterized by better working conditions. An example is the move of female workers in Bangladesh or Sri Lanka from subsistence farming to wage employment in apparel firms (if the latter have buyers' codes of labor practice).
- **Higher-skill upgrading**. Workers can move to more skilled and better paid jobs (in e.g. IT), if they have been trained at their previous workplace in firms with higher labor standards.

Which measures of social upgrading?

The most basic indicator of social upgrading is employment growth. It would also be possible to correlate employment growth with various measures of GVC integration, but we present instead more direct measurements of the link by drawing on various indicators already developed in the literature. These indicators can be applied across countries and industries if they have the data.

It must be stressed that GVC-enhanced employment is a necessary but not sufficient condition for social upgrading, as employment gains can be undermined in other areas. So, the expansion of global production in labor-intensive industries has been an important source of employment generation and other positive impacts through strengthened formal job opportunities. Similarly, migrant workers and women who previously had difficulty accessing this type of wage work have filled many of these jobs.[207] And where this employment generates better rights and protection for workers, it can enhance social upgrading. But this employment is often insecure and unpro-

tected, presenting multiple challenges in ensuring decent work and wages for more vulnerable workers. The downward pricing pressure in many GVCs has simultaneously led to negative social impacts.

With the increasing complexity of trade in GVCs, the relationship between trade and employment becomes more complicated. Rather than exports generating only domestic employment (as would be the case if countries were selling only intermediate or final goods abroad), they may generate employment in other countries from importing (or buying) intermediate goods. The discussion here is framed on this basis.

We first present an indicator that links skills, which can act as a proxy for wages, and GVC participation: the labor content of gross exports. We then present four indicators that link employment and GVC participation within countries and industries: the labor component of domestic value added in exports, jobs sustained by foreign demand, jobs generated by foreign trade in GVSs, and jobs in manufacturing GVCs. As mentioned above, employment can be a deceptive measure of social upgrading since jobs created by GVCs can vary in quality, such as pay, work hours and conditions, and so on.

► **Labor content of gross exports**

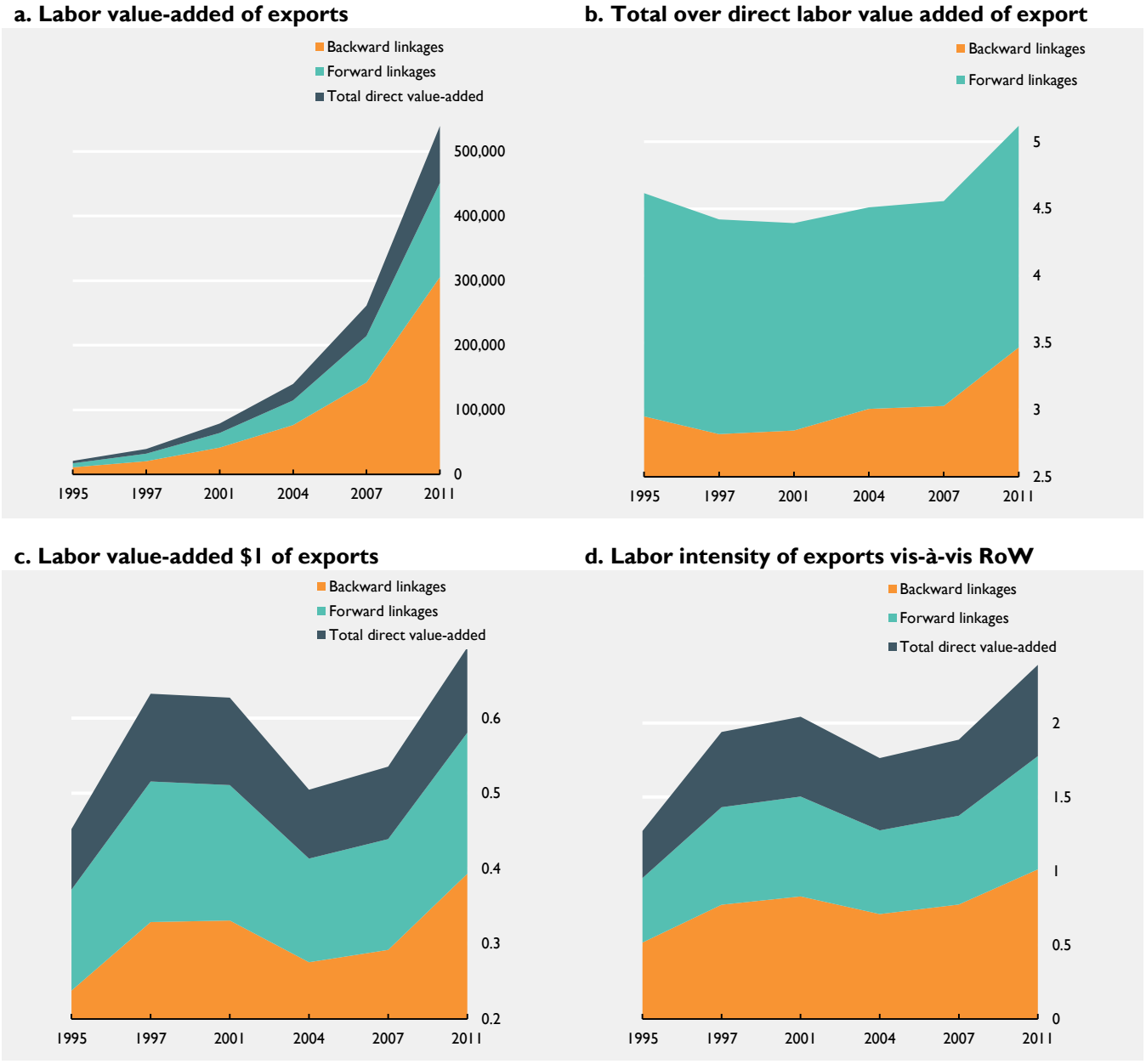
The newly developed World Bank dataset on the labor content of exports—LACEX—can be used to explore the social upgrading linked to the GVC participation.[208] The dataset is computed on the basis of the social accounting matrix data available in GTAP for intermittent years between 1995 and 2011. It includes data for more than 100 countries and 24 sectors.

Two cases illustrate successful GVC insertion in the past two decades: Chinese machinery and equipment, and Indian private services. The former contains nontransport machinery including the electronics sector; the latter contains mainly IT enabled services, including back office and IT services exports.

China's labor value added of the machinery and equipment sector has expanded dramatically over time, particularly its backward linkage component (figure 9.3a). That is confirmed in the ratio of backward to direct labor value added in exports, which has increased rapidly since 1997 (figure 9.3b)—unlike the forward links-direct ratio, which has remained constant. This suggests that China has increased its domestic production in the sectors providing inputs for final exports of machinery. The increase has also translated into an increase in the share of domestic labor value added in exports. The total labor content of machinery exports in terms of backward links has increased from 0.23 in 1995 to almost 0.40 in 2011 (figure 9.3c). In other words each $100 of machinery exports generated $40 of wages in the economy (only $11 of which are due to the direct labor in the final production). This increase has been much milder for direct and forward links. The increase in the labor intensity of machinery exports has also been more marked relative to the rest of the world (figure 9.3d).

FIGURE 9.3

Labor value added in Chinese machinery and equipment exports, 1995-2011

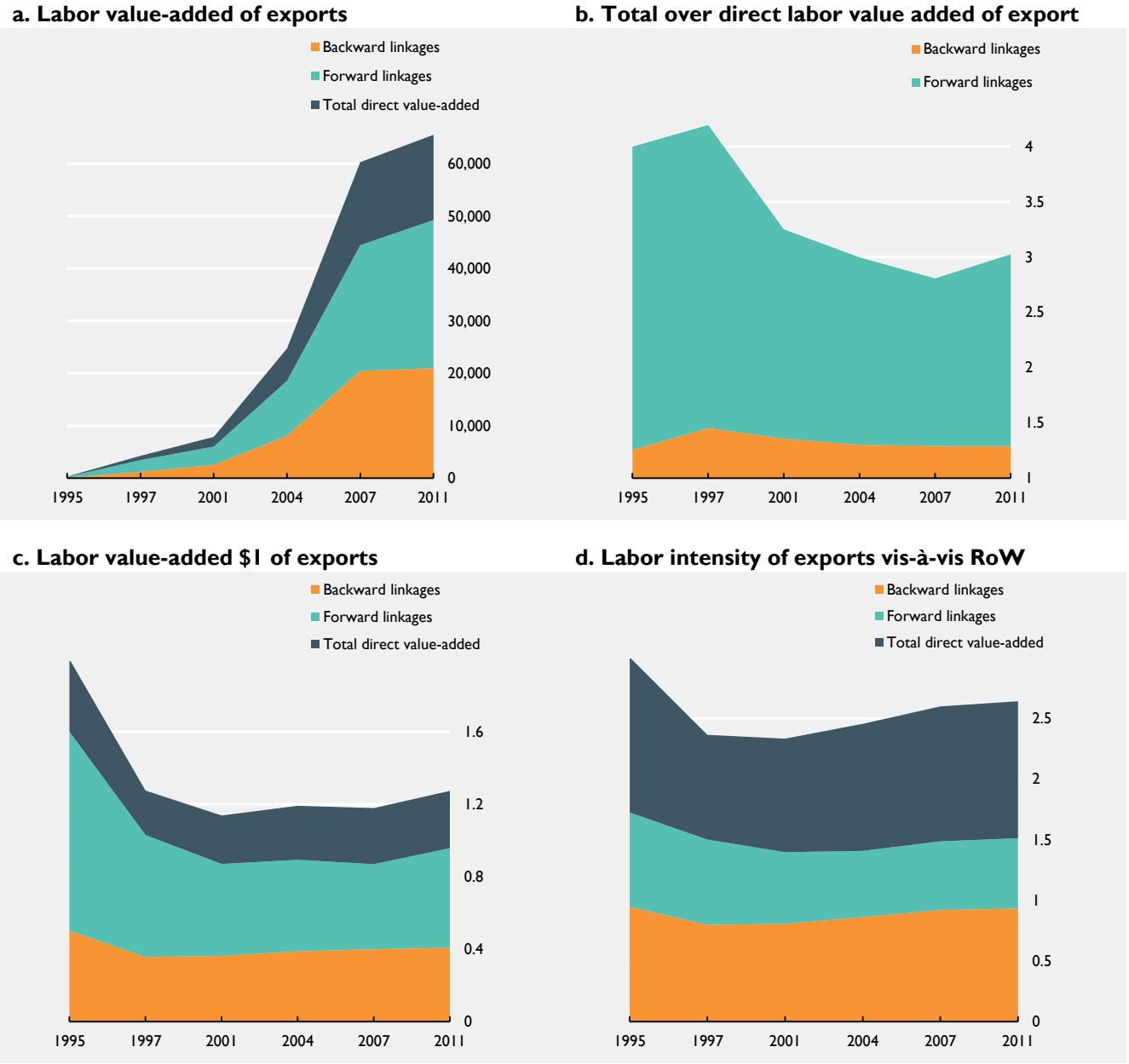


Source: Calì and others (forthcoming).

For India's other private service exports, direct labor value added and total labor value added on the basis of forward links are more relevant than the value added generated through backward links (figure 9.4a). Over time, the direct labor content of exports has grown more rapidly than the labor content of forward links (figure 9.4b). But neither of them has grown relative to the value of exports. In fact, the labor content for each $100 of exports has declined for each of the three measures of labor value added since 1995 (figure 9.4c). In particular the total labor content of exports on the basis of forward links almost halved from 1.1 in 1995 to 0.6 in 2011. But the direct and the total labor content of exports on the basis of backward links have both increased since 1997, also relative to the rest of the world (figure 9.4d).

FIGURE 9.4

Labor value added in Indian other private services exports, 1995-2011



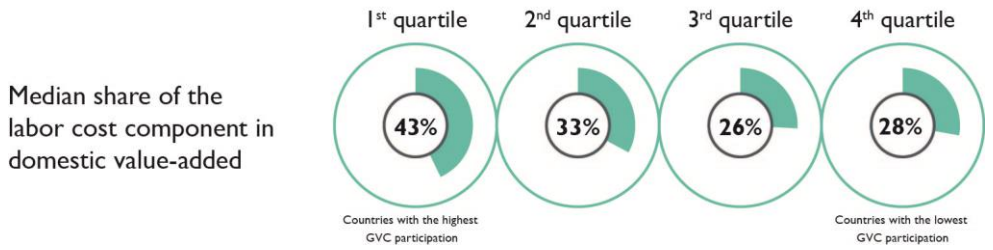
Source: Calì and others (forthcoming).

Labor component of domestic value added in exports

A second indicator that has been developed by UNCTAD (2013) is the labor cost component of domestic value added in exports, which acts as a proxy for the employment generating potential of exports. Using the UNCTAD-Eora GVC Database for 187 countries, countries are ranked according to their 2010 GVC participation rates (figure 9.5). The labor component of domestic value added in exports increases with higher GVC participation: it reaches 43 percent of value added in exports for countries with the highest GVC participation rate compared with 28 percent for countries with the lowest GVC participation rate.

FIGURE 9.5

GVC participation and the labor component of domestic value-added in exports



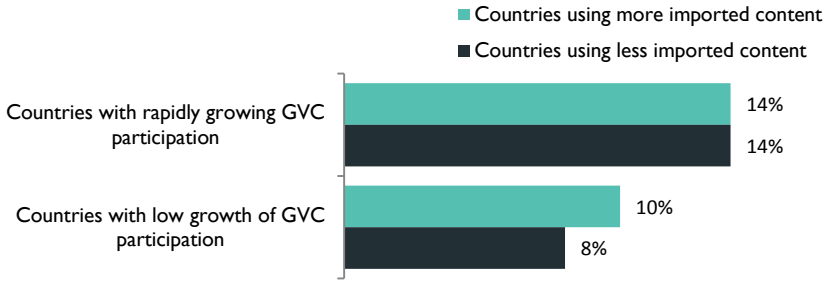
Note: Data for 187 countries ranked according to the 2010 GVC participation rate and grouped in quartiles. Median values of the quartiles are reported.
Source: UNCTAD (2013) using UNCTAD-Eora GVC Database.

In addition, countries with faster growth in GVC participation have faster growth in the labor component of domestic value added in exports (figure 9.6). From 2000 to 2010, the countries that experienced fast growth in GVC participation saw the labor component of exports rise faster (14 percent) than countries with slow growth (9 percent). This relationship holds even when country participation in GVCs depends on higher imported content (or foreign value added), which reduces the share of domestic value added of exports.

FIGURE 9.6

Growth in the labor component of domestic value-added in exports

Level of GVC participation growth and foreign value-added



Note: Data for 187 countries. "Countries with rapidly growing GVC participation" refers to the 50 percent of countries with the highest 2000-2010 GVC participation growth rate. "Countries using more imported content" refers to the 50 percent of countries with the highest foreign value added share in exports in 2010.
Source: UNCTAD (2013) using UNCTAD-Eora GVC Database.

► Jobs sustained by foreign final demand

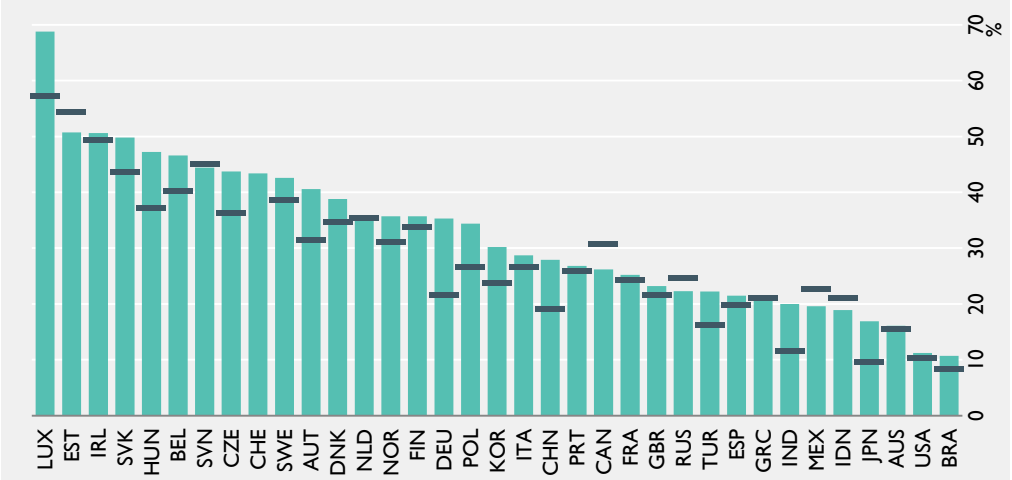
The third indicator, sustained by foreign final demand, is being developed by OECD-WTO as part of the Trade in value added (TiVA) Database for 40 countries. It calculates the number of jobs in the total economy sustained by foreign final demand, which captures the full upstream impact of final demand in foreign markets to domestic employment. Rather than consider the domestic value added in total exports (as was the basis of the previous indicator), which could intermediate in

third countries and exported as final goods, this indicator considers the domestic value added in foreign final demand.

Between 1995 and 2008, a higher share of employment consisted of jobs sustained by foreign final demand (figure 9.7). Yet this percentage varies according to the size and specialization of countries. For example, based on preliminary estimates, the share for Germany almost doubled between 1995 and 2008, with about 10 million jobs sustained by foreign final demand. For China, the number increased by about two-thirds, from 89 million to 146 million. These figures are averages for the whole economy, including service sectors with lower exposure to international trade, but they can also be disaggregated by industry. For example, about one-third of U.S. jobs in electronics and almost 40 percent of Japanese jobs are derived from foreign final demand.

FIGURE 9.7

Jobs in the business sector sustained by foreign final demand, Total employment, 1995-2008



Note: NB: The business sector is defined according to ISIC Rev. 3 Divisions 10 to 74 i.e. total economy excluding Agriculture, forestry and fishing (Divisions 01-05), Public administration (75), Education (80), Health (85) and Other community, social and personal services (90-95).
Source: OECD Science, Technology and Industry Scoreboard 2013. Figure 7.8.1.

► Jobs generated by foreign trade in GVCs

The fourth indicator is the number of jobs generated by a country's trade in GVCs—jobs generated domestically and abroad. The sources of employment creation from international trade can be decomposed into five components: labor content in each of exports, imports, the import content of exports, the export content of imports, and the intermediates contained in imports.[209] The first two components are labor demand from final goods trade, the last three from trade in intermediates, or the result of a country's GVC participation.

A country's participation in GVCs can lead to domestic or foreign labor demand. Due to the import content of exports, a country's exports generate jobs and incomes in foreign countries. Or a country's imports from foreign countries might contain its own exports to those foreign countries as intermediate inputs. Given the export content of imports, a country's imports generate jobs domestically. Given third-party intermediates contained in imports, trade between two countries will in turn create jobs in the third country. So, it is also possible to view the total domestic labor demand for each country as the sum of labor demand by domestic exports and domestic content

of imports. The sum of the remaining components is counted as the total foreign labor demand resulting from each country's trade position.

The jobs generated by each component can be computed for 39 countries over 1995–2009 for various industries. Using the World Input-Output Database (WIOD), the sector-level information has been aggregated to a single employment figure for each country (table 9.1).[210] Large developed countries tend to be most responsible for GVC-based labor demand, with Germany, the United States, China, the Netherlands, and France having the greatest labor demand due to GVC participation. In 2009, most of the countries in the sample demanded more foreign labor than domestic labor through exports, with exceptions including China, India, and Indonesia.

TABLE 9.1

Jobs generated by five components of foreign trade, 2009, Thousands

	Domestic labor		Foreign labor			Differences (domestic - foreign)
	Exports	Export content of imports	Imports	Import content of exports	Third-party imports in imports	
China	140,249.1	3,270.9	17,462.8	4,221.9	2,238.0	119,597.4
India	34,914.8	89.6	8,064.4	1,291.5	496.6	25,151.9
Indonesia	10,236.6	24.0	3,891.8	448.4	289.0	5,631.4
Brazil	7,143.3	21.9	3,210.6	168.8	486.7	3,299.0
Bulgaria	882.3	1.4	465.3	97.9	98.2	222.4
Romania	1,597.0	6.0	1,097.3	186.6	293.7	25.4
Latvia	162.2	0.7	161.0	23.1	51.4	-72.5
Estonia	160.1	0.3	155.0	50.5	39.2	-84.3
Malta	45.1	0.0	119.0	33.9	23.8	-131.5
Cyprus	34.8	0.0	143.4	14.1	35.4	-158.1
Lithuania	250.5	1.0	383.8	102.7	68.5	-303.5
Slovenia	223.8	0.4	345.2	113.5	106.5	-340.9
Mexico	6,054.1	46.7	4,317.6	1,590.4	848.1	-655.2
Portugal	797.8	4.2	1,122.8	218.7	353.3	-892.8
Slovakia	738.4	4.9	977.2	458.0	264.7	-956.6
Poland	3,592.6	26.9	3,149.1	911.0	747.0	-1,187.6
Hungary	1,129.2	5.8	1,349.1	713.2	417.8	-1,345.1
Finland	433.5	2.0	1,644.0	449.7	323.2	-1,981.4
Czech Rep.	1,674.7	15.9	2,176.4	993.2	544.1	-2,023.2
Turkey	2,056.6	6.2	3,146.6	456.5	506.2	-2,046.5
Greece	204.9	0.8	1,807.2	83.4	386.6	-2,071.5
Denmark	529.4	3.4	1,974.9	463.1	542.5	-2,447.7
Taiwan, China	3,119.7	23.2	3,807.2	1,681.9	517.2	-2,863.4
Russia	6,532.3	47.3	8,398.5	225.3	897.5	-2,941.7
Ireland	578.8	2.4	2,278.2	897.9	440.0	-3,034.9
Sweden	828.5	6.7	2,520.9	697.5	694.6	-3,077.8
Austria	942.3	8.9	2,575.1	734.4	739.2	-3,097.4
Belgium	1,325.9	17.3	4,281.9	1,793.5	1,326.9	-6,059.2
Australia	1,081.5	5.4	7,268.1	470.9	563.1	-7,215.2
Spain	2,300.8	30.6	7,774.1	1,050.5	1,385.3	-7,878.4
Italy	3,427.0	45.6	9,109.3	1,437.0	1,891.9	-8,965.6
Canada	2,718.2	34.0	10,140.8	1,489.8	1,421.4	-10,299.8
Korea, Rep. of	3,812.6	35.9	11,020.0	2,521.8	841.1	-10,534.4
France	3,114.5	70.5	11,471.2	1,898.5	2,674.1	-12,858.8
Netherlands	2,397.5	31.2	10,891.6	3,845.3	1,189.4	-13,497.7
England	3,897.1	80.0	15,583.6	1,746.0	2,499.5	-15,852.0
Japan	3,871.4	65.6	20,451.8	1,483.2	1,495.4	-19,493.2
Germany	8,473.3	366.8	22,449.3	5,591.3	4,619.4	-23,819.8
United States	6,851.7	510.9	61,198.0	3,101.0	6,484.2	-63,420.6
Total	**268,383.9**	**4,915.2**	**268,383.9**	**43,755.9**	**38,840.7**	**-77,681.4**

Source: Jiang and Milberg (2013, p. 5) using the WIOD.

► **Jobs in GVC manufacturing**

This fifth indicator for 40 countries between 1995 and 2008 using the WIOD presents a broader picture of the structure of employment in GVCs within a country, and is the most direct measure in the literature of the domestic employment impacts of manufacturing GVC participation (table 9.2).[211] It measures directly and indirectly the number of GVC jobs involved in production of final manufacturing goods (also known as manufactures) as well as their sector of employment in a country.

The first two columns of the table show the share of manufacturing GVC jobs as a share of all workers in 1995 and 2008, the next four indicate the total number of manufacturing GVC workers by sector in 2008, and the last four indicate these changes between 1995 and 2008. Apart from China, Turkey, and the Slovak Republic, the share of manufacturing GVC jobs in overall employment declined, driven by manufacturing GVC job losses in agriculture and manufacturing. In fact, only about half the workers in manufacturing GVCs are employed in manufacturing; the other half are employed in nonmanufacturing industries delivering intermediates.

At the same time, employment in manufacturing GVCs increased in the service sector. For some European countries, such as Germany, Italy, and Spain, GVC job increases in services are higher than job losses in manufacturing and agriculture, but this was not apparent in other countries.

Changes in the skill structure of GVC manufacturing workers and their average wages have been analyzed for 40 countries between 1995 and 2008, including low-, medium-, and high-skilled workers, proxied by educational attainment.[212] There was a strong shift toward specialization in GVC activities performed by high-skilled workers in advanced EU countries. Relative to the overall labor force, the share of high-skilled workers in total GVC employment increased much faster than the shares of medium-skilled workers.

TABLE 9.2

Manufacturing GVC workers, 1995 vs. 2008

	Manufacturing GVC workers as (%) share of all workers in the economy		Manufacturing GVC workers in 2008 (thousands) employed in:				Change in manufacturing GVC workers between 1995 and 2008 (thousands) employed in:			
	1995	2008	Agr.	Mfg.	Serv.	All sectors	Agr.	Mfg.	Serv.	All sectors
United States	16	11.1	1,143	8,837	6,892	16,872	-331	-3,144	-1,138	-4,612
Japan	22.6	19.4	1,298	6,491	4,417	12,207	-794	-2,225	148	-2,871
Germany	26.8	26.4	400	5,481	4,766	10,647	-161	-666	1,388	561
France	22	18.7	303	2,195	2,355	4,853	-96	-423	368	-151
United Kingdom	20.1	12.6	115	1,946	1,931	3,992	-128	-1,148	-347	-1,624
Italy	29.1	25.5	333	3,553	2,559	6,444	-192	-234	517	91
Spain	23.2	17.5	271	1,827	1,494	3,592	-97	185	353	440
Canada	20.8	16	157	1,138	1,482	2,777	-102	-136	193	-45
Australia	18.2	14.5	165	641	855	1,661	-48	3	196	150
Korea, Rep. of	29.7	22.8	655	2,646	2,077	5,378	-468	-735	524	-679
Netherlands	22.8	19	89	643	929	1,661	-42	-87	158	29
China	31.7	33.3	121,342	87,568	49,468	258,378	9,963	20,508	11,965	42,436
Russia	24.7	21.9	4,259	6,749	6,228	17,237	-1,403	-2,120	2,198	-1,325
Brazil	29.6	28.7	8,347	9,490	9,823	27,660	-705	2,450	4,118	5,863
India	27.9	27.3	57,926	41,933	26,483	126,343	2,118	10,896	7,025	20,039
Mexico	30.3	24.4	2,817	6,128	3,205	12,150	-400	1,403	1,121	2,124
Turkey	27.1	30.4	1,778	3,115	1,554	6,446	-341	620	584	863
Indonesia	32.1	25.6	13,921	7,427	5,725	27,073	-1,899	-425	1,380	-944

Source: Timmer, Los, Stehrer, and de Vries (2013, Appendix Table 5) using the WIOD.

► Other measures of social upgrading

Much broader than employment, skills, or wages, the concept of social upgrading captures more generally the gains in living standards and working conditions over time. Other measures include growth in employment; growth in wages; growth in labor share; formal employment; decline in youth unemployment; gender equality of employment and wages; poverty reduction; share of wage employment in non-agricultural employment; improved labor standards, job safety, child labor, forced labor, employment discrimination; regulation of monitoring; improved political rights (Freedom House index); human development indicators; improved standards in plant monitoring (such as M-audit criteria); and number of workers per job.[213] These measures—usually done at different levels of analysis, such as country, sector, GVC, and firm—and are compiled from sector-based case studies.

There are reasons to expect these measures of social upgrading to be particular to trade within GVCs. For example, the employment rate of women has been rising in export-oriented industries, services, and agriculture. Yet the relative dynamism of female employment growth tends to decrease as countries move up the value chain.[214] In addition, if exogenous changes in external demand are perpetuated along value chains, the stability of employment in GVCs may also be lower than non-GVC employment.[215]

Is there a possibility of downgrading?[216]

If there is a possibility of economic upgrading, is there also a possibility of downgrading? If international competitiveness depends in part on production costs, there are two routes to raising it: lowering the payment to factors of production (particularly, labor and capital), or raising productivity. Leaving capital costs aside for the moment, one can simplify the issue as between lowering wages and raising labor productivity—a low road and a high road. While the high road does not guarantee that wage growth (part of social upgrading) will follow, the low road of lowering wages has limits because of considerations of political stability and mere human subsistence.

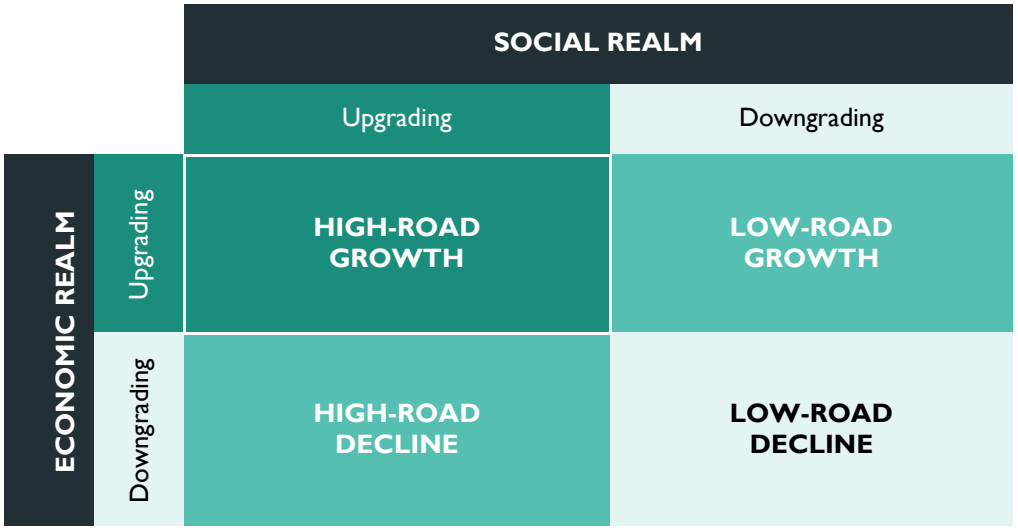
There are competing pressures for both upgrading and downgrading within GVCs as suppliers balance higher quality with lower costs. Economic and social upgrading can be positively correlated when it increases workers' productivity. For example, pay (an indicator of social upgrading) and productivity growth (an indicator of economic upgrading) show an extremely high correlation in a 45-country sample for the apparel and footwear sectors for 1995 to 1999.[217] At the same time, pressure to reduce costs might lead employers to combine economic upgrading with social downgrading, though this challenge is not limited to GVCs: in many labor-intensive industries this puts significant downward pressure on labor costs, including wages and working conditions.

In theory, four combinations of outcomes are possible (figure 9.8). Economic upgrading may be combined with social upgrading or downgrading. If labor productivity growth is driven by employment declines rather than increased value added, economic upgrading in fact leads to social downgrading. Similarly, a decline in relative unit labor costs can be driven by wage declines rather than productivity increases. It is also possible for social upgrading to occur in the absence of economic upgrading and for a country to experience simultaneous economic and social downgrading.

Bernhardt and Milberg (2011), for example, find, to the contrary, that the translation is quite varied across countries and GVCs. Their study proposes a simple method for combining economic and social upgrading. To get an indicator for economic upgrading a weight of 50 percent is assigned to both the percentage change in export market share and the percentage change in export unit value. The indicator for social upgrading is obtained analogously, assigning a weight of 50 percent to both the percentage change in employment and in real wages.

FIGURE 9.8

Upgrading and downgrading

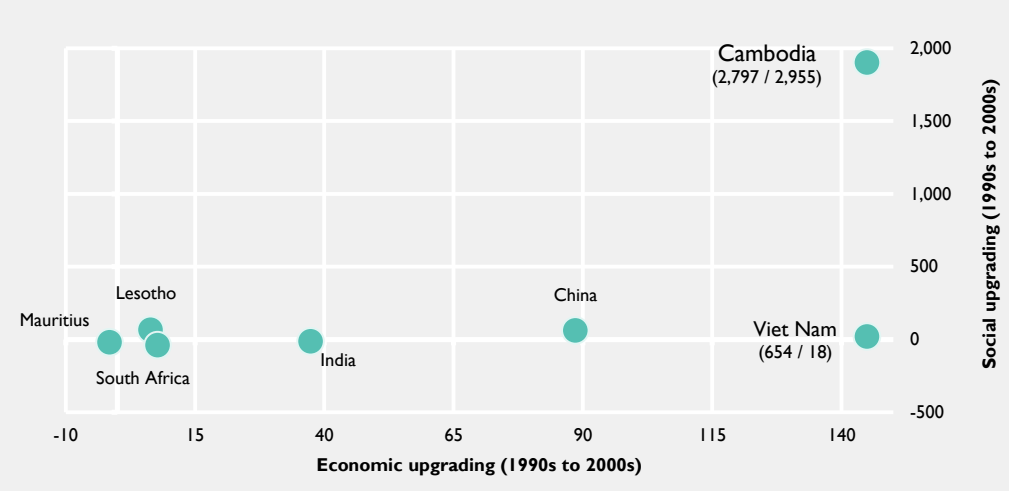


Source: Milberg and Winkler (2011, p. 345).

The development of both realms between the 1990s and 2000s for a number of developing countries in the apparel sector shows many cases of overall upgrading (figure 9.9). Five of the eight countries with data appear in the first quadrant of clear overall upgraders. Among them, Cambodia has been the prime performer with formidable upgrading in both economic and social terms. Other outstanding performers include Vietnam (on the economic front) and Mexico (on the social front). The remaining two upgraders' progress has been less pronounced, particularly China's. Lesotho exhibits social upgrading without economic upgrading. Mauritius is the single case of full-fledged overall downgrading. The remaining two countries, India and South Africa, are intermediate. Both have experienced upgrading in the economic sphere but downgrading in the social sphere. Overall, there seems to have been a positive relationship between economic upgrading.

FIGURE 9.9

Economic and social upgrading and downgrading in apparel, 1990s-2000s



Source: Bernhardt and Milberg (2013, p. 518).

Which links between social upgrading and cohesion?

Social upgrading—here, better living standards in the form of more employment, higher wages, better working conditions and education (including skills development), more economic rights, more gender equality, and more economic security (including health insurance and pensions)—can enhance social cohesion in a country. The following focuses on three types of links: jobs and working conditions, education and skill building, and health insurance and pensions.

► Jobs and work conditions

Jobs are perhaps the most important link between social upgrading and cohesion, since unemployment—especially among the youth—can be related to social unrest, such as the Arab Spring. Jobs can help manage social tensions because they create trust in other people and in institutions—as well as contribute to more civic engagement and thus to social cohesion. In addition, jobs can shape social interactions by providing social identity to workers, by connecting people of different socioeconomic and ethnic backgrounds, by raising awareness for different views, and by influencing people's aspirations. By contrast, networks can have a negative impact on social cohesion by excluding people who are not part of the network.[218]

Working conditions in GVCs also contribute to more social cohesion. Better working conditions or corporate social responsibility (CSR) standards, including economic rights (such as freedom of association) and more security at the workplace (such as increased HSE standards) promote trust and inclusion. Higher labor standards—such as higher minimum wages and more gender equality—can help fight inequality and enhance upward social mobility, fostering social cohesion.

► Education and skill building

This link enables equal opportunities and upward social mobility. It can result from the lead firms' initiative to train their own or their suppliers' workforce, but also from learning on the job. This allows workers in GVCs to build their knowledge and to perform tasks that require more skills and that pay higher wages.

Skill building can also raise aspirations for workers. Some workers in Ghana who had previously worked for a multinational company in the agribusiness sector exhibited some entrepreneurism and started their own business.[219] When workers' education and skill upgrading lead to better living standards, this link can also create higher education ambitions for their offspring.

In addition, training initiatives at the firm can enhance a sense of active engagement and trust in the company, especially if they cover a broader set of skills. But supplier assistance, including training, is associated with formal contracting, because of the risk that informal suppliers side-sell products to other clients. And a large share of contracts, especially in agriculture, is nonformal, limiting skill building through training.[220] Because training measures target only parts of the population, they should not be considered a substitute to addressing the deeper challenges of a country's education system.

► **Health insurance and pensions**

Developing countries have low health insurance and pension coverage rates (less than a quarter on average), especially in Africa and Asia. Coverage is particularly low for low-income workers, often less than 10 percent. Social upgrading in GVCs can lead to more economic security for workers in the form of health insurance and pensions. Access to health insurance and pension programs is usually linked to jobs as these programs are largely financed through payroll taxes (from employers, employees, or both).

On the downside, financing social insurance programs through payroll taxes leaves out informal workers, which in turn discourages employers from creating more formal jobs (if the taxes are fully or partially paid by the employer) or employees to work in the formal sector (if the taxes are fully or partially paid by the employee). But according to recent surveys workers in developing countries highly value access to health insurance and pensions and would be willing to contribute a significant share of their income to social insurance.[221]

Unequal coverage can also discourage workers who enjoy social insurance from moving to other firms without social insurance limiting positive knowledge spillovers through labor mobility. A recent World Bank survey in Sub-Saharan African countries, for example, confirmed that working for multinationals in the mining sector seems to be attractive to local workers, so they tend to stay there rather than move to other firms or start their own businesses. This has a double negative impact: such firms attract and keep the best workers, leading to skills shortages elsewhere in the local labor market; and these benefits inhibit labor turnover and knowledge spillovers.[222]

Equalizing opportunities in access to health insurance and pensions in a country therefore enhances social cohesion by integrating the disadvantaged and by helping people build an encompassing social contract. It also helps reducing inequalities and fosters (generational or intergenerational) social upward mobility, contributing to a sense of well-being.[223]

POLICY OPTIONS

Policy has a role in promoting social upgrading through GVCs. Here we present complementary preconditions and policies for government to maximize the sustainable development impact of GVC activities.[224]

Creating a world-class workforce

► **Developing skills**

Skills development is a key element not only of competitiveness and economic upgrading but also of social upgrading. In other words, economic and social upgrading are linked and dependent on each other. Skill shortages can impede upward social mobility, and low social mobility can impede economic upgrading. In Chile, Costa Rica, Ethiopia, and Rwanda upgrading strategies in GVCs have been most successful when accompanied by complementary workforce development interventions.[225] For workforce development to succeed, it needs to be part of a coherent overall upgrading strategy.[226] Because the policies to upgrade workforce skills were discussed in an earlier *Policy Options* subsection, we touch only briefly on a case study from Europe (box 9.1).

BOX 9.1

Succeeding in new knowledge-intensive, niche sectors

Nordic Europe has produced many global niche players. Its governments recognize the need to encourage more entrepreneurs if they want to provide their people with highly paid jobs. So they encourage universities to commercialize their ideas, generate startups, and invest in promoting entrepreneurship—rather than rely on large local companies to generate business ecosystems on their own.

Three main factors explain the ability of firms in these countries to develop successful ventures in knowledge-intensive niche sectors.[227] First is a commitment to relentless innovation and its application to even the most basic industry. Innovation explains the continuing success of the Lego toy company and the ability of a small country such as Denmark to be the world's eighth-biggest exporter of food products in the world. Second, and related to the first, there is a continuing effort to upgrade processes through capital-intensive inputs, adding value. Third, flat governance structures and a culture promoting trust and cooperation allow for consensus-based decisions and long-term planning, creating a business-friendly environment.

Particularly instructive is how Finland responded to the decline of Nokia, on which it had become overdependent. It fostered multiple startups producing goods and services as diverse as online gaming, automatic recycling systems, do-it yourself family dining services, and devices that improve people's moods by firing bright light into the ear canal. It created an agency that focused on fostering entrepreneurship, Tekes, and endowed it with a large staff and budget. A venture capital fund, Finnvera, found early stage companies and help them get established. And a large network of business accelerators was financed either with fully public money or through public–private partnerships.

Innovation in Finland and in other Nordic companies goes well beyond the generation of high-tech. Bridging the gap between engineering and design, innovation in marketing and financing is equally important. The success of Rovio Entertainment's Angry Birds, for example, comes largely from combining skilled mastery of technology with red-hot business acumen. Indeed, innovative business models explain much of the success of recent Nordic startups.

► Promoting social upgrading

Social upgrading can be supported through labor regulation and monitoring. Host countries need to ensure that GVC partners observe the local and national labor regimes, which should meet core international labor standards (for example, OECD Guidelines for Multinational Enterprises, the ILO Core Labour Standards, and the UN Guiding Principles on Business and Human Rights). Yet adopting such standards does not ensure implementation—let alone enforcement—and governments should also ensure comprehensive and systematic monitoring with assistance from watchdog organizations.

Well-functioning labor markets are also important, as the process of integrating into GVCs necessarily entails a reallocation of resources, including labor, among firms or economic sectors, or between both. Even as employment opportunities and average real wages improve, some workers may lose their jobs or see their wages decline as they switch jobs. To facilitate this adjustment, governments can, first, reduce frictions that increase the costs to workers of moving between jobs and, second, put in place social assistance programs designed to accelerate the transition.[228] Introducing minimum wages can also promote social upgrading and cohesion (box 9.2).

BOX 9.2

Bangladesh's minimum wage in the apparel industry

In 2010, following months of violent protests over labor and safety standards, the government raised the monthly minimum wage in the apparel industry to 3,000 taka (around US$38 today) from 1,662.50 taka. The increase of roughly 80 percent—the first in the industry since 2006—includes an allowance for housing (800 taka) and medical expenses (200 taka).

Following the collapse of Rana Plaza in April 2013, the government of Bangladesh faced even stronger pressure to increase safety and labor standards. As of 2013, Bangladesh had the world's lowest minimum wages, half the level of Cambodia (US$75) and US$100 less than China (see figure). The government decided to lift minimum wages by another 77 percent to 5,300 taka (around US$68).

Source: New York Times (2010), Wall Street Journal (2013), and New York Times (2013).

Some countries (Brazil) improved the living standards of workers and fought income disparities by raising minimum wages in the 2000s. And while they target only the formal sector, outcomes can spill over to the informal sector through labor turnover. But misuse of minimum wages can also lead to negative employment effects, especially if they are raised in economic downturns (Colombia in the late 1990s) or too quickly (Indonesia in the early 1990s). Moreover, the impact on workers is unequal and depends on enforcement and compliance as well as the labor market segmentation between formal and informal workers. So, minimum wages should not be seen as a substitute for an effective social policy to mitigate inequality in outcomes.[229]

A multitude of other factors beyond labor markets and social policies contribute to social upgrading and can be addressed by three sets of initiatives.[230]

Nonstate initiatives. Social upgrading can be promoted through private governance in the form of corporate policies exceeding minimum standards, negotiated arrangements between the corporate sector and labor representatives, and civil society and consumer campaigns. It can be promoted through voluntary or semivoluntary agreements by firms to pay living wages and provide other benefits, as well as social institutions that provide services to unemployed workers and working poor. Such initiatives include standards adopted by industry groups; activities of business associations and chambers of commerce; framework agreements that establish norms of trust and conduct; efforts by development associations to attract certain forms of foreign investment or to cooperate with greenfield startups; direct changes in the production process or in the structure of buyer-driven supply chains and production networks; and CSR initiatives by leading brands.

Government initiatives. Governments in developing countries can address social upgrading by strengthening public institutions for labor regulation (such as labor inspectorates or health and safety inspectorates); developing governance capacities, including social safety nets and other income transfer mechanisms; enforcing labor laws including working time or child labor laws (as in Brazil, Chile, Costa Rica, Dominican Republic); increasing minimum wages (as in Bangladesh's apparel industry in 2010); and regulating overtime and other contract conditions including insurance and pension requirements.

International initiatives. These have been fostered at various levels:

- Multilaterally, the Policy and Performance Standards of the International Finance Corporation have included reference to the ILO's core standards and other labor standards.
- Coordinated or collaborative multistakeholder approaches include the ILO/IFC Better Work Programme, Ethical Trade Initiative, Social Accountability International, and United Nations Special Representative Ruggie's Guiding Principles on Business and Human Rights.
- As part of its regional trade agreements, the EU grants bilateral trade concessions to countries that implement the ILO's core labor standards and other basic rights.
- While regional free trade agreements such as NAFTA and the CAFTA include side agreements on labor, their coverage is more limited and they do not explicitly refer to ILO standards.[231]

Policies to support social and economic upgrading should be individually tailored to the country's specific situation and consistent with its overall development strategy. To support local firms in complying with these frameworks they generally require a well-functioning labor market and a strong social governance framework with regulation and capacity-building.

► **Engineering equitable distribution of opportunities and outcomes**

For social upgrading to translate into social cohesion through better living standards, it is important for a country to ensure equality of opportunity and outcomes. The relative poor in a society can be supported financially (through income support or progressive taxes) and by providing services.[232] Of particular relevance to GVCs is the minimum wage, discussed above.

Promoting equality of opportunities targets excluded groups of the society—such as women, informal workers, rural inhabitants or minorities—by reducing inequalities and discrimination. Relevant policies for GVCs include granting equal access to jobs, education, health insurance and pensions. In practice, policies that engineer equality of opportunities and outcomes can be complementary.[233] Income-based scholarships, for example, are cash transfers (promoting equality of outcomes) which are conditioned on education for students (promoting equality of opportunity in the future).

Most states have the three policy options.

Facilitating access to information. Equality of opportunity requires including groups of the society that face obstacles seizing opportunities because they lack information about opportunities or their roles, rights, and entitlements. Equality of access to jobs is the most important opportunity for GVCs. Access to widely advertised information about job vacancies and practical advice how to get these jobs is a precondition. A common program is job search assistance, which makes job matching more effective by providing information on job vacancies and job seekers. Assistance can also include job placement and counselling support.

But workers also need to be informed about their rights and entitlements. Farmers, the self-employed, or informal workers are often unaware of their rights in relation to land owners, traders, or employers. Cooperatives, associations of informal workers, and trade unions can be an effective channel of information and voice.[234] This need extends to formal workers and requires that freedom of association and collective bargaining rights be implemented in the first place. Policy makers also need to raise awareness of social assistance and other social entitlement programs, especially pensions and health insurance.

Skill development includes clearly communicating to workers about their specific role in the value chain. Female workers in Chinese factories were often unable to explain what exactly they were doing.[235] But understanding one's role and contribution to the overall good promotes a sense of social identity and belonging, contributing to social cohesion. In addition, workers and firms need to be given access to information about accredited training programs. Training is provided by private firms, donor programs (such as USAID), the public sector and in some cases private trainers. In Burundi and Rwanda, private trainers in the informal sector provide fee-based training.[236]

Managing information is particularly important for social insurance as many developing countries lack instruments for identifying people. Technological advances such as biometric technology can help overcome such challenges and reduce costs, leakages, and corruption. But information management systems also need to track people's medical or work history to better align benefits with contributions.[237]

Removing discriminatory social institutions and establishing rights. Facilitating access to jobs for excluded or disadvantaged groups of society, especially women and minorities, helps economies tap a large productive potential and tightens social cohesion. Antidiscrimination laws and mandatory or voluntary affirmative action programs are a prerequisite for greater equality of opportunities.[238]

Guaranteeing women their property and inheritance rights makes them feel more secure and equal and can enable them to take advantage of formal job opportunities instead of being confined to lower-paid informal jobs. Discriminatory barriers include formal social institutions, and such informal ones as norms, values, and traditions. These are reflected in gender-related stereotyping that discourage women (and men) from choosing untraditional professions.[239]

Establishing the rights for freedom of association (say, in organizations or trade unions) and collective bargaining enhances social cohesion thanks to the possibility for social dialogue that can address tensions before they lead to conflict. In an attempt to maintain social cohesion during the labor market transition, China has had collective bargaining mechanisms since the mid-1990s, leading to the 2008 Labor Contract Law, which regulates governance of collective contracts. This was accompanied by the establishment of coordination bodies at province, city, and prefecture levels.[240]

While trade unions provide voice to employed workers, they do not cover self-employed or informal workers, who still make up a large share of the workforce in developing countries. The demand for alternative institutions of collective representation resulted in the emergence of associations of self-employed workers to demand better working conditions, including the protection of rights. Anecdotal evidence shows that in some cases this includes filing claims at court, as with street vendors in Lima, Peru, and in Durban, South Africa.[241]

Reforming social insurance. One right is granting universal access to social insurance. Wider coverage of health insurance and pensions can be facilitated by reforming a country's social insurance systems. To enable knowledge spillovers through the labor mobility effect, it is important to ensure portable health and pension benefits across jobs. In Indonesia some provinces extend non-contributory social health protection to uninsured groups. Since funds are pooled at the province level (or even district level, as in South Sumatra), the portability of health benefits is limited.[242] In addition, minimum social insurance—notably pensions—can help alleviate economic insecurity. in a simulation model. In 18 Latin American countries, universal minimum pensions would substantially reduce poverty among the elderly in most countries.[243]

This challenge is substantial when social insurance systems differentiate formal and informal jobs, especially if financing for formal workers is contribution-based and that for informal workers tax-based. Tax-based social assistance programs for informal workers de facto "subsidize" informal work by taxing formal workers twice. The portability of social benefits across firms therefore requires more innovative instruments targeting informal workers, who often have the means to contribute to social insurance systems, as well as a country's capacity to manage such worker transitions.[244]

One non-tax-based possibility to include informal workers could be to offer "unbundled individualized instruments" such as individual retirement savings accounts, which would allow informal workers or workers who switch between formal and informal jobs to contribute. Subsidized contributions by the state could complement this. Pension reforms along these lines have been related to fairly high contribution rates of informal workers in Mexico. Similar approaches are plausible in health insurance.[245] Social insurance reforms targeting informal workers not only increase overall coverage rates but also facilitate knowledge spillovers through labor turnover in a country.[246]

Such policies can be combined with more traditional social assistance targeting other uninsured parts of the population (such as the unemployed and the old). Progress has been substantial in offering universal entitlement in health, often by creating a parallel system to cover the uninsured. Thailand's health insurance coverage, for example, reached 98 percent in 2007 even though universal coverage was introduced only in 2001. Before the health reform, only employees in the public sector or firms with more than 20 employees were covered. Social pensions also help narrow the coverage gap, though transfers tend to be small (such as USD2.3 per month in Bangladesh). Nevertheless, social pensions have coverage rates of around 90 percent in Lesotho or Kyrgyzstan.[247]

Notes

[1] The phenomenon has been called vertical specialization by Balassa (1967) and Findlay (1978), slicing up of the value chain by Krugman (1995), and many other names by other economists, including international fragmentation of production (Arndt and Kierzkowski 2001), transnational production (Feenstra 1998), and global production networks (Ernst and Kim 2002; Henderson and others 2002). Vertical specialization identifies a production structure where tasks and business functions are spread over several companies that are globally or regionally dispersed. "Tasks," rather than sectors, define the specialization of countries in the value chains, as indicated by Grossman and Rossi-Hansberg (2008).
[2] ACET 2014.
[3] Baldwin 2012.
[4] Gereffi and others 2001; Gereffi, Humphrey, and Sturgeon 2005.
[5] Grossman and Rossi Hansberg 2012.
[6] UNCTAD 2013.
[7] Henderson, Dicken, Hess, Coe, and Yeung 2002.
[8] Buciuni, Coro, and Micelli 2013; Pisano and Shih 2009.
[9] Breznitz and Murphree 2011.
[10] WEF 2013.
[11] Hummels 2007.
[12] Christ and Ferrantino 2011.
[13] Rodrik 2000.
[14] Antràs and Yeaple 2014. Antràs (2013) lists a range of reasons for incomplete contracting in international settings, including: the limited amount of repeated interactions; lack of collective punishment mechanisms associated with international transactions; and natural difficulties in contract disputes involving international transactions, such as determining which country's laws are applicable to the specific contract. Finally, even when it is clear which laws are relevant to the contract in question, local courts may be reluctant to enforce a contract involving residents of foreign countries.
[15] The extent of vertical competition varies depending on the power relations within the specific value chain (see, for example, Milberg 2004). Interestingly, both horizontal and vertical competition are driven by similar forces: the interplay between traditional cost advantages, institutional factors, and proximity to the final consumer, which together determine what tasks are more profitable in given locations (Cattaneo and others 2013).
[16] Daihatsu licenses the Terios SUV technology (an older technology phased out in the Japanese domestic market) to FAW (Paultan.org). The latter engages in the manufacture and sale of passenger cars and related accessories. FAW offers its products under three different brand names: Benteng, Mazda6/Atenza, and Hongqi. Some of the Benteng cars are produced using old models of the Mazda Sedan, and others using the second generation Volkswagen Jetta. Meanwhile, the company also produces the Mazda6/Atenza for both the Chinese and Japanese markets. The production and commercialization of this model is outsourced by Mazda Japan, a competitor of Daihatsu. The advantage for Mazda is that it can focus on models that are more strategic from a corporate point of view, such as Premacy and Familia. Finally, FAW has its own brand: the Hongqi luxury car (FAW corporate Web site http://www.faw.com/). Hongqi cars have been manufactured since 1958, with the original models reserved for the high-ranking party elite. They remained in production until 1981 (The Economist, "The Home Team," November 13, 2008, www.economist.com). The current Hongqi fleet includes the H7, which is an executive car based on the Toyota Crown platform. This intricate system of collaboration and business relationships is an excellent example of the degree of vertical competition in the automotive sector.
[17] Manyka and others 2014.
[18] UNCTAD 2013.
[19] Saez and others 2014.
[20] Hoekman 2014.
[21] The extent of vertical competition varies depending on the power relations within the specific value chain (see, for example, Milberg 2004). Interestingly, both horizontal and vertical competition are driven by similar forces: the interplay between traditional cost advantages, institutional factors, and proximity to the final consumer, which together determine what tasks are more profitable in given locations (Cattaneo and others 2013).
[22] Importing to export on the sales and sourcing sides is related to the bilateral concepts of backward and forward vertical specialization introduced by Lopez-Gonzales and Holmes (2011), where backward refers to sourcing and forward to sales. This usage contradicts the standard usage of backward and forward links from economic geography where backward links refer to sales and forward links refer to sourcing (Ottaviano and Puga 2003).
[23] Porter 1985.
[24] Frederick and Gereffi 2010.
[25] Buciuni, Coro, and Micelli 2013.
[26] Horstmann and Markusen 1992; Helpman 1984; Brainard 1993.
[27] Milberg and Winkler 2013.
[28] Cattaneo and others 2013.
[29] Becattini 1990; Porter 1990.
[30] Farole and Winkler 2014.
[31] Cattaneo and others 2013.
[32] China has been effective in attracting FDI even with restrictions on joint ventures. However, this is largely due to China-specific conditions: a large domestic market and a large pool of low-cost but well-trained workers. Countries that do not have specific factors to attract investors, or to use as leverage, will have less space for maneuvering when dictating joint venture conditions with foreign investors.

[33] Understanding the spillover potential of different FDI at the microlevel is likely to become an important policy priority in the coming years. And this is not only the case for small and lower income countries that rely increasingly on FDI and have a limited pool of resources to devote to attracting foreign investors, but also for large countries. Another important priority in designing FDI-related policy should be ensuring that the incentives used to attract foreign investors do not create a bias against local integration. Moreover, policymakers need to leverage investment incentives to actively promote spillovers, including local supplier development, provision of technical assistance, training of workers, joint research, and more. The spotlight should be on value addition rather than in-country ownership. Instead of rigid local content requirements, the focus should be on collaborative development of flexible localization plans where investors come up with their own proposals on how they will deliver spillovers to the local economy. It is also important to incentivize foreign investors to collaborate with local universities, research institutes, and training institutes (Farole and Winkler 2014).
[34] The discussion on mechanisms triggered by GVC participation partially evolves from the taxonomy introduced by Farole, Staritz, and Winkler (2014).
[35] In the short run, average productivity may decrease and local firms may lose market shares due to intensified competition.
[36] WEF 2013.
[37] Cattaneo and others 2013.
[38] Humphrey and Schmitz 2002.
[39] Cattaneo and others 2013.
[40] OECD 2011 and World Bank 2013.
[41] Farole and Winkler 2014a.
[42] Farole and Winkler 2014a. Knowledge spillovers can diffuse from foreign firms to local producers within the same industry (intra-industry or horizontal spillovers) or to another industry (interindustry or vertical spillovers). In the latter case, they can affect local input or services suppliers in upstream sectors (backward spillovers) and local customers in downstream sectors (forward spillovers).
[43] Dimelis and Louri 2002; Taaki 2005.
[44] Crespo and Fontoura 2007, Toth and Semjen 1999.
[45] Farole and Winkler 2014a.
[46] The value added generated by the lead firm comes from preproduction activities such as design and postproduction activities including marketing and retailing.
[47] UNCTAD 2011.
[48] The indicators in Part 1 (the World Bank's Trade in Value Added Database and the OECD-WTO's TiVA Database) publish statistics on a country's RCA based on the domestic value added embodied in a country's gross exports for manufacturing goods. For countries for which trade in value-added data are unavailable, or for customized aggregations of products and sectors (e.g. a specific cluster of activities spanning different broad sectors, such as the auto cluster or the textile cluster), one can construct RCA indexes based on intermediates, parts, and components, identifiable using the informed classifications discussed in Part 1 and its Annexes 1–4.
[49] This box draws on ongoing research at the World Bank, by Jean Francois Arvis, Daria Taglioni, and Gianluca Santoni.
[50] The network representation is built upon the 2007 Commodity-by-Commodity Direct Requirements table from the U.S. Bureau of Economic Analysis (note that BEA provides only the total requirement table, we derive the direct requirement as $DR = (TOT\text{-}I)xTOT^{-1}$, following Acemoglu and others 2012). The data are in the form of square matrices where the typical (i,j) entry gives the input share of (row) commodity i used in the production of commodity j. Taking column sums gives the total share of intermediate inputs in each commodity.
[51] Sector 33451A from the IO tables groups the following NAICS (2007) codes: 334518 Watch, Clock, and Part Manufacturing, 334519 Other Measuring and Controlling Device Manufacturing. While sector 33411A corresponds to 334413 Semiconductor and Related Device Manufacturing and 334419 Other Electronic Component Manufacturing.
[52] 33441A corresponds to the following NAICS (2007) codes: 334411 Electronic Computer Manufacturing; 334412 Bare Printed Circuit Board Manufacturing, 334414 Electronic Capacitor Manufacturing, 334415 Electronic Resistor Manufacturing, 334416 Electronic Coil, Transformer, and Other Inductor Manufacturing, 334417 Electronic Connector Manufacturing, 334419 Other Electronic Component Manufacturing. 3529A0 corresponds to 32592 Explosives Manufacturing, 32599 All Other Chemical Product Manufacturing.
[53] Downstream industries are those that use 334112 as input in the production and for which computer storage devices represent at least 1 percent of the total input requirements for their production. These are sector 334510 (Electromedical and Electrotherapeutic Apparatus), sector 334111 (Electronic Computer Manufacturing with SBA Small Business Standard, which includes manufacturing and/or assembling electronic computers, such as mainframes, personal computers, workstations, laptops, and computer servers), sector 33411A (Other Computer Manufacturing), sector 334511 (Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing), and sector 33451A (Other Measuring and Controlling Device Manufacturing).
[54] A separate project of the World Bank Group, Trade and Competitiveness Global Practice is creating a framework for such detailed analysis and identification of tasks.
[55] Porter 1980, 1985, 1990, 1998.
[56] USAID 2006; Duch 2000, 2004.
[57] Based on the above concepts, a separate World Bank Group project is producing a framework for systematically applying strategic analysis and cluster change management tools for identifying GVC tasks in World Bank client countries.

[58] Gereffi and others 2001. For the goods sectors, the value added of a task can be determined as the difference between the costs of inputs and outputs. If reliable information on the value added of tasks is unavailable, which is often the case in services sectors, the skill-intensity of a performed task—i.e. the employee's educational level or work experience—can serve as a good proxy for its value added (Gereffi and Fernandez-Stark 2010). Take the example of offshore services GVC. Call centers or routine business process outsourcing tasks can be performed by workers with a high school diploma. Meanwhile, market research generally requires workers with a minimum of a bachelor's degree, and the highest value-added tasks are often carried out by workers with masters or PhDs. This classification helps policymakers identify tasks which may be entered based on the skill levels of their workers (Gereffi and Fernandez-Stark 2010).
[59] MacDonald 2006.
[60] Ferrantino and Taglioni 2014.
[61] Milberg and Winkler 2010.
[62] Alessandria and others 2010 and 2013.
[63] Frederick and Gereffi 2010.
[64] Kolasa, Rubaszeck, and Taglioni 2010.
[65] *Financial Times*, March 9, 2014.
[66] *New York Times* 2011 and Escaith and Gonguet 2011.
[67] IMF 2011; Cattaneo and others 2013.
[68] Chongvilaivan 2012.
[69] Ye and Abe 2012.
[70] This section draws on Cattaneo and others (2013), box 2.
[71] Antras and Helpman 2004.
[72] Gereffi, Humphrey, and Sturgeon 2005.
[73] Frederick and Gereffi 2009; Gereffi and others 2005.
[74] Gereffi 1994.
[75] This section draws on Milberg and Winkler (2013).
[76] Gereffi 1994, p. 97.
[77] Nolan and others 2002.
[78] This section draws on Milberg and Winkler (2013).
[79] Milberg and Winkler 2013.
[80] Engman, Onodera, and Pinali 2007; Aggarwal 2005.
[81] Engman and others 2007, pp. 34-35
[82] Kusago and Tzannatos 1998.
[83] Engman and others 2007, p. 39.
[84] Engman and others 2007
[85] Farole and Akinci 2011.
[86] Farole and Winkler 2014c.
[87] Farole and Winkler 2014.
[88] Farole and Winkler 2014.
[89] Becattini 1990; Porter 1990.
[90] Walmart 2014.
[91] www.standardsmap.org.
[92] www.directinfo.ma.
[93] Beltramello and others 2011.
[94] Pietrobelli 2008.
[95] Beltramello and others 2011.
[96] OECD 2012c.
[97] WEF 2013.
[98] OECD-WTO 2013a.
[99] WEF 2013.
[100] Hummels 2007.
[101] Christ and Ferrantino 2011.
[102] Arvis, Raballand and Marteau 2010; Christ and Ferrantino 2011.
[103] This section draws on Cattaneo and others (2013).
[104] OECD 2012a.
[105] McLinden 2013.
[106] Shepherd and Saslavsky 2012.
[107] This section draws on Cattaneo and others (2013).
[108] Rodrik 2000.
[109] Antras 2013.
[110] Antras and Yeaple 2013.
[111] UNCTAD 2012.
[112] World Bank 2014.
[113] OECD-WTO 2013a.
[114] OECD 2013a.
[115] The discussion on mechanisms triggered by GVC participation partially evolves from the taxonomy introduced by Farole, Staritz, and Winkler (2014).

[116] In the short run, average productivity may decrease and local firms may lose market shares due to intensified competition.
[117] WEF 2013.
[118] Humphrey 2004; Humphrey and Schmitz 2002.
[119] Humphrey 2004; Humphrey and Schmitz 2002.
[120] Humphrey 2004; Humphrey and Schmitz 2002.
[121] Humphrey 2004; Humphrey and Schmitz 2002.
[122] Humphrey and Schmitz 2002.
[123] Milberg and Winkler 2011, p. 349.
[124] This section draws on Farole, Staritz, and Winkler (2014).
[125] Taaki 2005.
[126] Crespo and Fontoura 2007.
[127] Abraham, Konings, and Slootmaekers 2010.
[128] Javorcik and Spatareanu 2008.
[129] Paus and Gallagher 2008.
[130] Javorcik and Spatareanu 2011.
[131] Lin, Liub, and Zhanga 2009.
[132] Paus and Gallagher 2008.
[133] Staritz and Morris 2013.
[134] Zhang and others 2010.
[135] Javorcik and Spatareanu 2011.
[136] Crespo and Fontoura 2007.
[137] Wang, Deng, Kafouros, and Chen 2012
[138] Gorodnichenko, Svejnar, and Terrell 2007.
[139] This section draws on Farole, Staritz, and Winkler (2014).
[140] Javorcik and Spatareanu 2005.
[141] Hale and Long 2011.
[142] Gorodnichenko and others 2007; Javorcik 2004b.
[143] Havranek and Irsova 2011.
[144] Javorcik 2004a.
[145] Alfaro and others 2010.
[146] Harrison, Love, and McMillan 2004.
[147] Agarwal, Milner, and Riaño 2011.
[148] Crespo and Fontoura 2007.
[149] Meyer and Sinani 2009.
[150] Havranek and Irsova 2011.
[151] Havranek and Irsova 2011.
[152] Du, Harrison, and Jefferson 2011.
[153] Harding and Javorcik 2012.
[154] Du and others 2011.
[155] Abraham and others 2010.
[156] Gorodnichenko and others 2007.
[157] Meyer and Sinani 2009.
[158] Farole and Winkler 2014b.
[159] This section draws on Farole, Staritz, and Winkler (2014).
[160] Kokko, Tansini, and Zejan 1996; Grünfeld 2006. The technology gap is usually measured as a domestic firm's productivity level relative to a benchmark productivity level within the same sector—often of the leading firms or of foreign firms.
[161] Smeet 2008; Jordaan 2011.
[162] Winkler 2014; Blalock and Gertler 2009.
[163] Girma and Görg 2007.
[164] Barrios and others 2004.
[165] Keller and Yeaple 2003; Barrios and others 2004; Karpaty and Lundberg 2004.
[166] Kinoshita 2001; Kanturia 2000, 2001, 2002; Damijan and others 2003; Blalock and Gertler 2009; Farole and Winkler 2014b.
[167] Blalock and Gertler 2009.
[168] Girma and Wakelin 2007.
[169] Farole and Winkler 2014b.
[170] Sinani and Meyer 2004, Winkler 2014.
[171] Jordaan (2011) for Mexico and Farole and Winkler (2014b) for their 78 developing countries.
[172] Crespo and Fontoura 2007.
[173] Barrios and others 2006; Farole and Winkler 2014b.
[174] Girma and Wakelin 2007; Winkler 2014.
[175] Crespo and Fontoura 2007.
[176] Temenggung 2007; Suyantu and Salim 2010.
[177] Buckley, Wang, and Clegg 2007; Keller and Yeaple 2009.
[178] Sinani and Meyer 2004.
[179] Du and others 2011.
[180] Barrios and Strobl 2002; Farole and Winkler 2014b.

[181] Morris, Kaplinsky, and Kaplan 2012.
[182] This section draws on Farole and Winkler (2014c).
[183] This section draws on Farole and Winkler (2014c).
[184] The following three sections draw on Cattaneo and others (2013).
[185] World Bank 2010.
[186] Govindarajan and Trimble 2012.
[187] Kaplinsky, Terheggen, and Tijaja 2010; Gereffi, Fernandez-Stark, and Psilos 2011, p. 243.
[188] OECD-WTO 2013a.
[189] Lee, Gereffi and Beauvais 2012.
[190] Brenton, Edwards-Jones, and Friis 2009.
[191] Lee, Gereffi, and Beauvais 2012; Cadot, Malouche and Saez 2012.
[192] Frederick and Gereffi 2010; Lanz, Miroudot and Nordås 2012.
[193] This section largely draws on Cattaneo and others (2013).
[194] Saez and Goswami 2010.
[195] Humphrey and Schmitz 2002.
[196] World Bank 2014.
[197] World Bank 2014.
[198] Gereffi, Fernandez-Stark, and Psilos 2011.
[199] Milberg and Winkler 2013.
[200] Milberg and Winkler 2013.
[201] Barrientosand others 2011, p. 301.
[202] UNCTAD 2013.
[203] OECD 2011.
[204] Barrientos, Gereffi, and Rossi 2010; Rossi 2013.
[205] Barrientos, Gereffi and Rossi 2011.
[206] Barrientos, Gereffi and Rossi 2011.
[207] Barrientos, Gereffi, and Rossi 2010.
[208] Calì and others forthcoming.
[209] Jiang and Milberg 2013.
[210] Jiang and Milberg 2013.
[211] Timmer, Los, Stehrer, and de Vries 2013.
[212] Timmer, Los, Stehrer, and de Vries 2013.
[213] Milberg and Winkler 2011.
[214] UNCTAD 2013.
[215] OECD, WTO, and UNCTAD 2013.
[216] This section draws on Milberg and Winkler (2013).
[217] Flanagan 2005.
[218] World Bank 2013a.
[219] Kaiser Associates Partners 2014a.
[220] Kaiser Associates Partners 2014a.
[221] World Bank 2013a.
[222] Kaiser Associates Partners 2014b.
[223] OECD 2011; World Bank 2013a.
[224] See figure 2.10A.1 for the strategic questions and policy options for this focus area.
[225] World Bank 2014.
[226] World Bank 2014.
[227] The Economist 2013.
[228] Hollweg and others 2014.
[229] OECD 2011.
[230] Barrientos and others 2011.
[231] Barrientos and others 2011.
[232] Shared prosperity refers to expanding a country's income and sharing it such that the bottom 40 percent of the income distribution increase their welfare as quickly as possible (World Bank 2013b).
[233] OECD 2011.
[234] World Bank 2013a.
[235] Chang 2012.
[236] World Bank 2014.
[237] World Bank 2013a.
[238] World Bank 2013a.
[239] OECD 2011.
[240] OECD 2011; World Bank 2013a.
[241] World Bank 2013a.
[242] ILO 2014.
[243] Dethier, Pestieau, and Ali 2010.
[244] OECD 2011.
[245] OECD 2011.

[246] For a collection of studies describing strategies to promote universal health coverage and their impacts in 22 countries, see the World Bank (2013c) Universal Health Coverage Study Series.
[247] OECD 2011.

TRADE AND DEVELOPMENT SERIES

Economic, technological, and political shifts as well as changing business strategies have driven firms to unbundle production processes and disperse them across countries. Thanks to these changes, developing countries can now increase their participation in global value chains (GVCs) and thus become more competitive in agriculture, manufacturing and services. This is a paradigm shift from the 20th century when countries had to build the entire supply chain domestically to become competitive internationally. For policymakers, the focus is on boosting domestic value added and improving access to resources and technology while advancing development goals.

Making Global Value Chains Work for Development provides a strategic framework, analytical tools, and policy options to address this challenge. The book conceptualizes GVCs and makes it easier for policymakers and practitioners to discuss them and their implications for development. It shows why GVCs require fresh thinking; it serves as a repository of analytical tools; and it proposes a strategic framework to guide policymakers in identifying the key objectives of GVC participation and in selecting suitable economic strategies to achieve them. This preview edition of the upcoming book contains draft versions of the overview and chapters 1, 7, 8, and 9.

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