CHAPTER 6

Services trade and global value chains

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In Moliere's *The Bourgeois Gentleman,* M. Jourdain discovers that he has "been speaking prose all my life, and didn't even know it!" We suspect that many of us have been working on global value chains (GVCs) without quite knowing it. A value chain comprises "the full range of activities that are required to bring a product from its conception, through its design, its sourced raw materials and intermediate inputs, its marketing, its distribution and its support to the final consumer."[1] A GVC emerges when these activities are undertaken by entities based in or from different countries. Several studies of international trade in services inputs and of foreign direct investment in business services are thus potentially relevant to an examination of GVCs.

Two questions arise. What makes a value chain a GVC? And why do services merit special consideration in a discussion of GVCs?

The first question has sometimes been reformulated as "How many 'borders' does a value chain have to cross to qualify as a GVC?" (perhaps analogously to a recent Nobel laureate's question, "How many roads must a man walk down, before you call him a man?"). In the GVC case, some analysts have suggested a fairly precise answer. For example, the widely used GVC participation index proposed in Koopman and others (2010) is determined by the foreign value added embodied in the gross exports of a given country and the domestic value added embodied in the gross exports of third countries. This definition would set a GVC—such as importing to export—apart from value chains that involve a single international transaction, an import or export of intermediate goods. It may well be true that multiple international transactions along a value chain have economic implications that are qualitatively distinct from (the sum of) a series of single international transactions, even though this has not yet been established empirically. However, it may also be true that the implications of even single international transactions along a value chain are economically important and policy relevant. So this chapter adopts a broader view of GVCs that also includes single international transactions, consistent with the approach in chapter 2, covering both simple GVCs, with one border crossing, and complex GVCs, with two or more border crossings (Wang, Wei, and Zhu 2017).[2]

The second question can be reformulated as two questions: Should services be examined separately from goods in a discussion of GVCs? And should they be treated as a single broad category, the same way goods are? Our answer to both questions: In some respects no, in others yes.

In some ways, services play a role similar to that of goods in GVCs, whether they are meant for final consumption or as inputs in the production of goods or other services. In fact, the most detailed analysis of the role of services in value chains—drawing on the new world input-output tables and value-added trade databases—relates only to situations in which services are traded

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in a manner akin to how goods are traded. However, services deserve special attention for four reasons, relating to how they are transacted, how they affect downstream sectors, how they are regulated, and how international cooperation can contribute to integrating national markets.

First, the notion of GVCs involving services needs to encompass a broader range of transactions. GVCs need to encompass not only transactions crossing borders, but also transactions within countries between national and foreign entities. While there is good reason to take a similar broad view of GVCs involving only goods, the case is overwhelming for services because focusing only on cross-border trade would ignore the large share of international transactions in services that takes place through consumers traveling to other countries (consumption abroad, or mode 2 in World Trade Organization [WTO] parlance); commercial presence (through foreign investment, or mode 3 in the WTO); and the presence of natural persons (temporary immigrants, or mode 4 in the WTO).[3] Even though the ability to measure the role in GVCs of international services transactions through commercial presence is limited, ways have been found to estimate their economic impact.[4]

Second, the argument that services can have a substantial economic impact because they are vital inputs into producing downstream goods and services may not seem a sufficient reason for separate consideration. After all, goods such as computers are also vital inputs. But two features of services seem to merit special focus. One is that the very existence of GVCs is due to improvements in such services as transport, communication, and computing (or information and communication technology services) that have made it possible to fragment and coordinate production globally. Another is the growing evidence that when GVCs include finance, communications, transport, and professional and other business services in favorable price–quality bundles and diverse varieties, firms perform better. These services enable firms to invest in new business opportunities and better production technology, to exploit economies of scale by concentrating production in fewer locations, to efficiently manage inventories, and to make coordinated decisions with their suppliers and customers. The result can be increased total factor productivity and shifts in the pattern of comparative advantage.

Third, services also differ at least qualitatively from goods in the nature of the policies that both inhibit or encourage the emergence of services-related GVCs. Border measures such as tariffs are much less relevant for services trade than for goods trade, and behind-the-border regulatory measures are much more relevant. Some examples: Cross-border trade in international transport services is impeded by the exclusion of third-country providers and by quantitative restrictions in bilateral agreements. Trade through commercial presence in banking and communication services must confront restrictions on foreign ownership and regulatory requirements that can be discretionary and discriminatory. The presence of foreign professionals is prevented by restrictive visa and work permit rules as well as by a refusal to recognize their qualifications and licenses. And trade in all data-intensive services is threatened by diverging national privacy laws.[5]

Fourth, services markets have seen considerable unilateral liberalization that has facilitated the emergence of GVCs with services as both inputs and outputs. Unfortunately, international cooperation has striven to replicate mostly the goods model of "reciprocal market opening," which has so far delivered little incremental liberalization. Because the impediments are different for services-related GVCs, international cooperation needs to take a different form. In particular, much more could be achieved through a greater emphasis on regulatory cooperation.

The first section below sets the stage by describing the role of services in GVCs, and the second presents the methods and datasets currently used to measure this role. The third examines the patterns that emerge, showing the absolute and growing importance of services in GVCs and suggests possible reasons. The fourth discusses the implications of services' presence in GVCs, particularly for total factor productivity and patterns of comparative advantage. The fifth presents policy implications of the evidence on the impediments to services being part of GVCs, and the sixth argues that these impediments are most effectively addressed through new forms of regulatory cooperation.

The role of services in global value chains

In some ways services play a role analogous to that of goods. But their roles are also different, in that services facilitate the emergence of GVCs in a way that goods do not. Services can be seen as elements in GVCs that are different from the typical cross-border or arm's length trade usually analyzed in the case of goods.[6]

Services global value chains

The emergence of GVCs has increased the opportunities for international specialization not only in final goods and their parts, but also in services and services tasks. In many instances, services represent the end stage of a GVC, with services firms choosing to source their inputs internationally. For example, financial services providers have outsourced and offshored their back-office data-management and analytical tasks, architects their basic design tasks, and doctors the reading of radiological images. In each case, direct interaction with the client is by locally based services providers. It has been suggested that in fragmented production processes of services, value is sometimes created differently from how it is created in goods value chains. Instead of following a linear value chain, in which products move sequentially from upstream to downstream, adding value at each stage (a "snake" formation in the terminology of Baldwin and Venables 2013), value creation in services value chains may occur as a network of activities, such as platform-based communication or transportation networks (a "spider" formation in Baldwin and Venables). In such cases, multiple parts come together to add value simultaneously in forming a final product or component —or through alternative models, such as facilitated user networks (which create value by linking customers, as in insurance or banking services) and solution shops (which create value by solving customer problems; Miroudot 2016).

Services as links in global value chains

One reason to consider some services in GVCs separately from goods is their role in enabling GVCs to emerge. The international fragmentation of production was driven partly by changes in transport, logistics, and information and communication technology services. In particular, lower costs and improvements in these services made it possible for firms to manage production processes that are geographically split (Jones and Kierzkowski 2001a, 2001b). Even though the anecdotal evidence itself is compelling, a serious gap in the literature is not having rigorous empirical evidence on how improved access to these connecting services across space and time has facilitated the emergence of GVCs.

Services as outsourced inputs in global value chains

Besides their role as links between different stages of value chains, services often are important inputs in the production process of manufacturing goods and services. For example, a value chain may start with research, design, and engineering activities that are clearly services inputs when they are outsourced. At the other end of the value chain are other services such as marketing and distribution that are also important stages in ensuring that a product reaches the consumer. Therefore, services are not only support functions that enable GVCs, but they are also crucial inputs in key stages of production.

Yet being vital inputs into goods and services production by itself does not constitute sufficient reason to consider services separately from goods in analyzing GVCs. After all, goods are also vital inputs. The fact that access to some services of sufficiently high quality, low price, and diversity may matter for firm performance is an empirical question akin to the role of information and communication technology goods in determining performance. But the fact that access to services inputs comes through foreign direct investment and the movement of people more often than it does for goods inputs warrants considering services separately and through a broader view of GVCs. The relative importance of digital delivery in services also requires modifying the traditional customs-mediated and customs-measured role of international transactions within GVCs.

Services as in-house inputs in global value chains

Another feature of services as inputs arises in a notion of GVCs that goes beyond arm's length market-based transactions to functions within the firm. It is common for firms to develop their own support services in house, such as research and development activities or information technology capacity. This means that services are produced not only by services firms, but also by manufacturing firms (Kelle 2013), which often export a variety of headquarters services to their affiliates. Some analysts argue that this "servicification" inside firms may need to be considered for a full assessment of the impact of services on trade and value creation (Miroudot 2016). But as noted below, this deconstruction of activities within firms, when taken to the limit, may blur the distinction between goods and services because all tasks could be considered services.

How services participation in global value chains is measured

For a long time, measuring trade in services took a back seat because data on trade in goods was more extensive and readily available. More recently, measuring trade in services has received impetus from the new prominence in international policy and negotiating agendas given to liberalizing trade in services, the increased importance of services in GVCs, and the availability of multicountry input-output tables.

Statistics on trade in value added cover services as links, outsourced inputs, or final products in global value chains

As long as services are final products or inputs supplied by other firms in the production process, input-output tables can help identify their contribution to value added in output or exports (Francois and Woerz 2008; Nordås 2008).

The starting point for analyzing the contribution of services to GVCs is the decomposition of value added in exports by its origin. Following seminal work by Hummels, Ishii, and Yi (2001), an expanding literature has proposed alternative decompositions of trade in value added and measures of participation in GVCs (Koopman, Wang, and Wei 2014; Foster-McGregor and Stehrer 2013; Los, Timmer, and de Vries 2016). As in Miroudot (2016), the analysis here relies on the calculations published by the Organisation for Co-operation and Development (OECD)–WTO Trade in Value-Added database, which features several indicators that account for services value added in trade (OECD 2013).

The main indicator is the total value added (*VA*) of the services sector embodied in gross exports of industry *i* and country *c* as a percentage of total gross exports of *i* of country *c*, ($SERV\ VA_{c,i}$). It is calculated as:

$$SERV\ VA_{c,i} = \sum_{j \in S} V_{c,j}(B_{c,c})_{ji} EXGR_{c,i}/EXGR_{c,i} + \sum_{p} \sum_{j \in S} V_{p,j}(B_{p,c})_{ji} EXGR_{c,p,i}/EXGR_{c,i} \quad (1)$$

where $V_{p,j}$ is the value-added share of services industry *j* in country *p*; *B* is the global Leontief inverse of the intercountry input-output matrix, $B = (I - A)^{-1}$, and therefore its *ji*-th element $(B_{p,c})_{ji}$ represents the total requirements of *j* from *p* to produce a unit of *i* in country *c*; $EXGR_{c,p,i}$ is gross exports from country *c* to country *p* for any given industry *i*; and $EXGR_{c,i}$ is total gross exports for country *c* and industry *i*. The first term then represents all direct and embodied domestic services value added in the exports of product *i* from country *c*, and the second term represents all foreign domestic services value added embodied in the exports of product *i* from country *c*.

The services content of gross exports can then be decomposed into a domestic and a foreign part, and the domestic part can be further decomposed into the direct domestic services industry value added content of gross exports (the value added from the exporting services sectors), the indirect domestic services content of gross exports (the domestic services value added embodied in other exporting industries), and the re-imported domestic services value-added content of gross exports

(domestic services value added in imported intermediate inputs used in exports; figure 6.1).[7] This decomposition can also be analyzed by services type. A similar approach can be used in measuring the services value added embodied in foreign final demand.

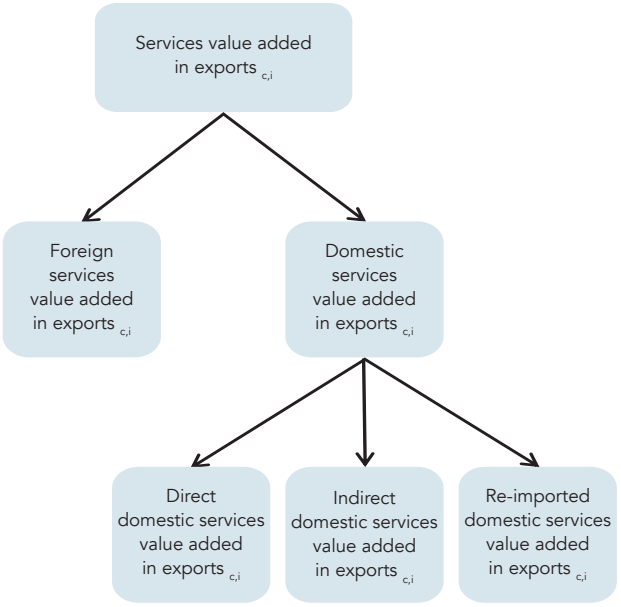
Value-added trade statistics based on multicountry input-output tables are a starting point for understanding the importance of services inputs in GVCs, but these statistics cannot fully capture all services that are relevant to fragmented production processes. In particular, services traded through WTO mode 3 will not be accurately identified as foreign services in traditional value-added measures.

Existing statistics on trade in value added do not fully capture services traded though commercial presence

Since the supply of services through commercial presence abroad is an important way of conducting international transactions in services (mode 3–commercial presence), the distinction between foreign- and domestic-owned firms is particularly relevant for services. Accurately assessing the contribution of services to GVCs requires that the ownership status of the firm that originates the value added affect whether that contribution is classified as domestic or foreign, as this is bound to inform services trade policy.[8]

A GVC accounting framework that allows for this sort of distinction between firms can be similar to the global supply-use/input-output tables commonly used now, such as OECD Inter-Country Input-Output Tables, but it would also need to identify foreign or domestic ownership for each commodity/industry. While such a framework is not currently available, initiatives in this direction are under way by the U.S. Bureau of Economic Analysis (BEA) and the OECD (Fetzer and Strassner 2015; OECD 2015). In both cases the proposed approach is to link existing supply-use tables to ownership and trade data—such as OECD Inter-Country Input-Output Tables to the Activity of Multinational Enterprises Database, or BEA input-output accounts to BEA surveys and U.S. Internal Revenue Service Statistics of Income data.

FIGURE 6.1 Deconstructing services value added in gross exports



Source: Authors' construction.

Services as in-house inputs in global value chains

When services inputs are supplied in-house, value-added analysis does not capture their contribution to GVCs. Additional information is needed to identify these services activities within each production process.

One way to address this issue is to consider business functions, in order to distinguish between the primary or core activity of the firm and support functions such as research and development, sales, marketing, or information technology services. But statistics on business functions have only recently started to be collected in some national surveys (Sturgeon and others 2013).[9] Alternatively, labor force surveys can be used to identify business functions by matching occupation classifications to business functions (Timmer, Stehrer, and de Vries 2015). Each industry is assigned one business function to describe its core activity, which usually covers occupations directly related to the production process. All other business functions are classified as support activities (or secondary business functions) and can be regarded as services activities if they would be classified as services if outsourced. This approach may supplement the usual trade in value added analysis, providing a sense of the role of in-house services in GVCs.[10]

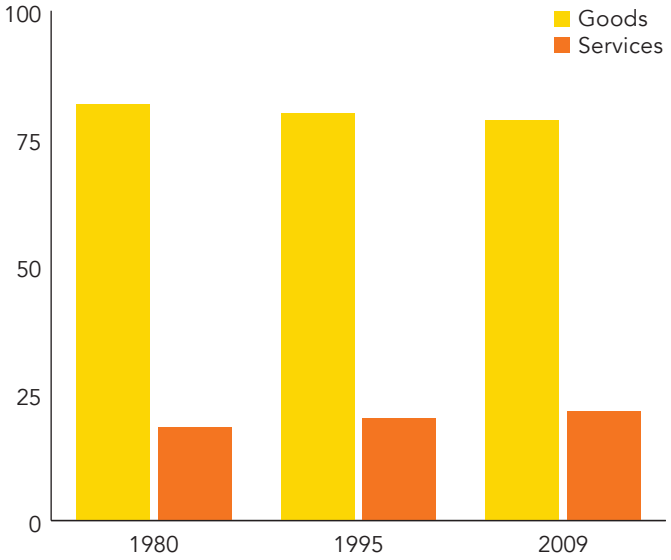
While it is theoretically possible to determine a single core function per industry, it can be difficult in practice to establish what is not a support function. Even if it were feasible to distinguish between tasks that would be services if they had taken place at arm's length (such as bookkeeping) and other tasks that are intrinsically manufacturing or agricultural in nature (such as wood processing), such distinctions slide on a slippery slope and raise the question: What is not a service? Ultimately, almost any task can be conceived of as an arm's length service. For example, one could either directly employ a worker in the horticultural sector or buy "fruit-picking" services from an individual or a firm. So this deconstruction of the firm into constituent tasks could reduce each firm into a bundle of services.

The emerging patterns of services in global value chains

This section presents some stylized facts about the increasing role of services in GVCs—first in aggregate and then across countries and industries. It then discusses why this might be happening. The evidence is obtained by computing the value-added measures described in the previous section using the OECD Trade in Value-Added database. Some results are also presented to illustrate the potential relevance of in-house services in GVCs.

FIGURE 6.2 Gross exports of goods and services as a percentage of total world gross exports, 1980, 1995, and 2009

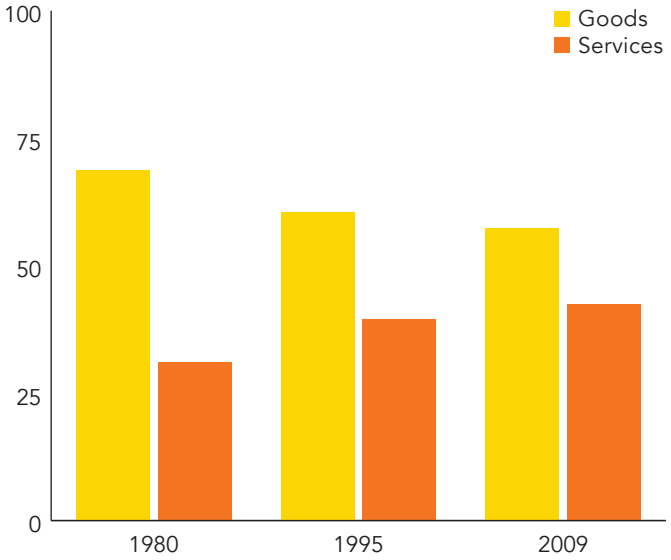
Percent



Source: Authors' calculations based on Johnson and Noguera 2016.

FIGURE 6.3 Value-added exports of goods and services as a percentage of total world value-added exports, 1980, 1995, and 2009

Percent



Source: Authors' calculations based on Johnson and Noguera 2016.

The patterns of services in GVCs

The share of services in value-added trade is large and increasing

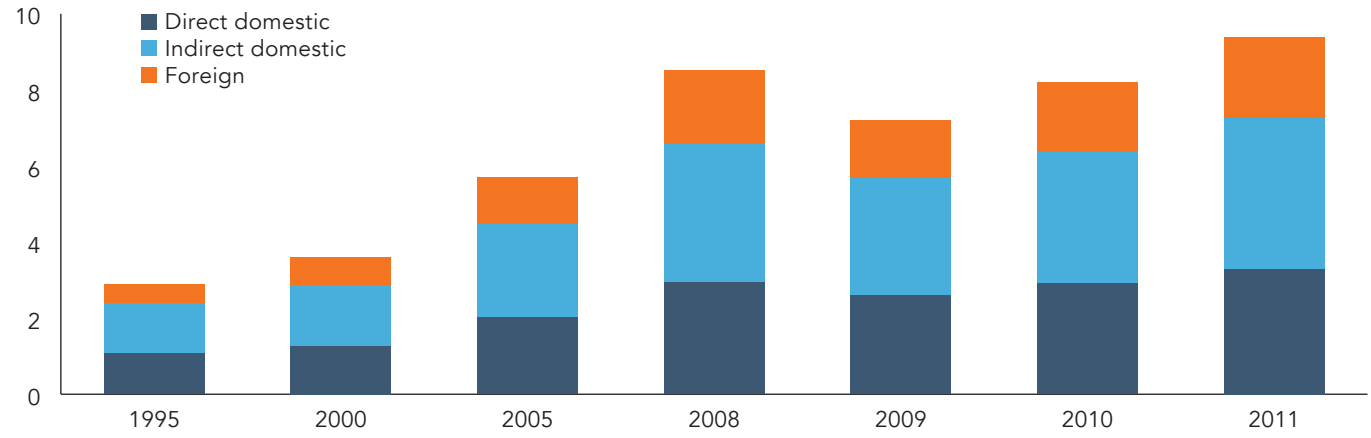
Multiple studies have found that the share of services in trade in value added is both large (significantly larger than the share of services in gross trade) and increasing (OECD, WTO, and World Bank Group 2014). While services as a share of total world gross exports have remained around 20% since 1980, in value-added terms they have increased from below 30% to more than 40% (compare figures 6.2 and 6.3). For Asia, this pattern holds by country as well, with no major differences between developed or developing, high-technology or low-technology, or high-wage or low-wage countries (Baldwin, Forslid, and Ito 2015).

The increasing share of services in value-added trade was driven by services embodied in exports

Now take a closer look at the recent evolution of services value added in exports, decomposed into direct and indirect domestic value added and foreign value added (figure 6.4). While direct exported value added shows a notable increase from 1995–2011,

FIGURE 6.4 Share of direct, indirect, and foreign services value added in world gross exports, 1995–2011

$ (billions)



Source: Miroudot 2016 based on Organisation for Economic Co-operation and Development–World Trade Organization Trade in Value-Added database.

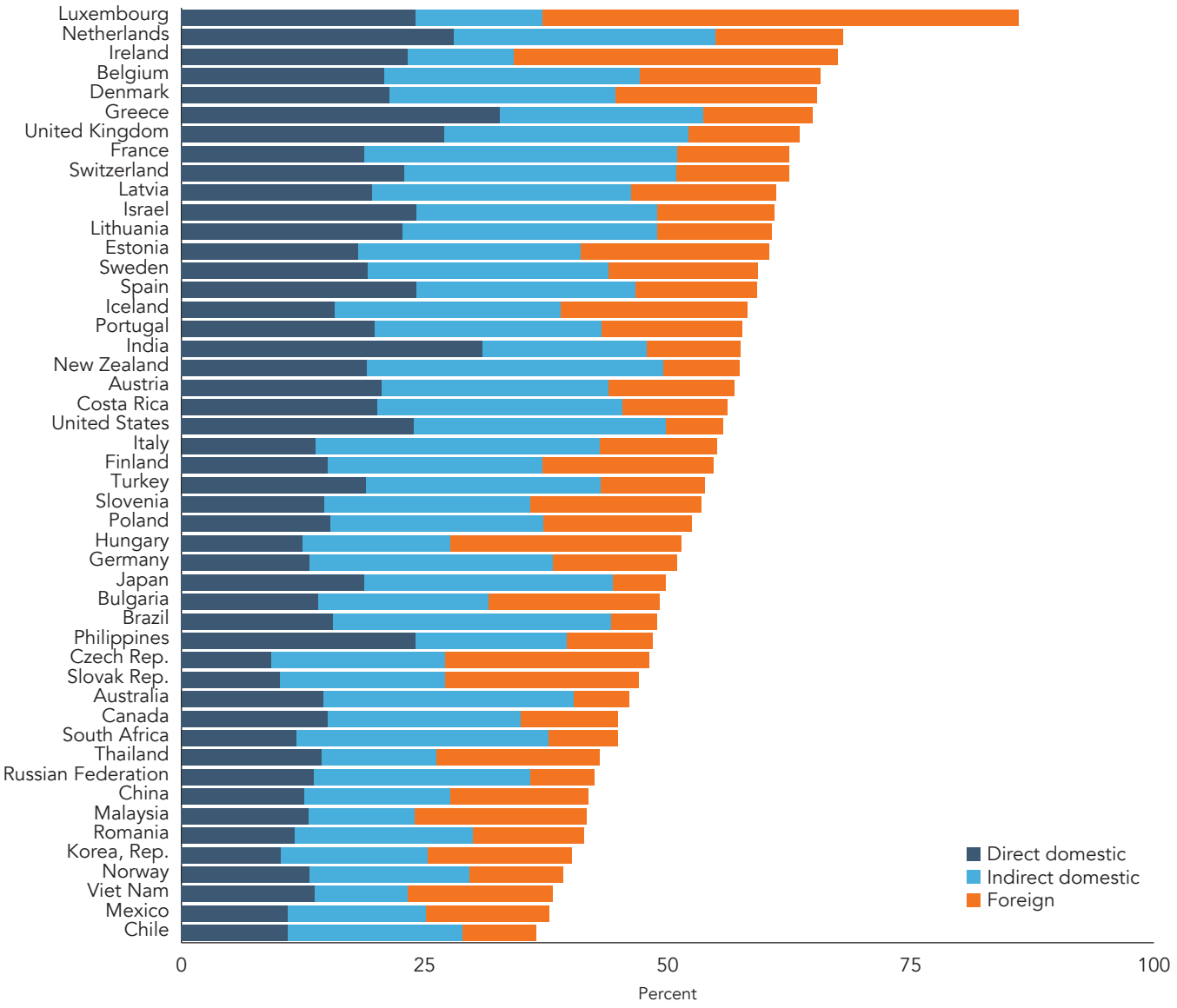
more than 65% of the growth of services value added in exports was due to an increase in services embodied in other exports. Both domestic and foreign embodied services grew, but the foreign services value-added component grew the most.

Figures 6.2–6.4 suggest that an increasing part of manufacturing exports corresponds to services value added and that a growing share of these "additional" services is being sourced abroad. However, since these measures are based on cross-border trade, value added from foreign services traded through commercial presence is counted in the "domestic" category, as previously mentioned. The apparent shift toward foreign services in the decomposition of services value added probably understates what actually happened.

The share of services value added in exports varies significantly across countries

Decomposition of services value added in exports by country in 2011 supports the general observations that the share of services value added is high and that embodied services explain a large share of the total for all countries (figure 6.5). However, countries differ in their share of services value added in exports, ranging from 35% in Chile to close to 90% in Luxembourg. These differences reflect some specialization patterns: countries on the bottom of the figure specialize in exports of commodities (Chile, Norway) or manufactured goods (Republic of Korea, Mexico), while economies on the top are services exporters. Countries specialized in services also

FIGURE 6.5 Direct and indirect domestic services value added and foreign services value added in gross exports, by country, 2011



Source: Miroudot 2016 based on Organisation for Economic Co-operation and Development–World Trade Organization Trade in Value-Added database.

have more indirect (domestic and foreign) services value added in exports because services are mainly produced with other services.

The share of services value added in exports also varies across industries

The share of services value added in exports ranges from 11% in mining to 38% in chemicals and motor vehicles (figure 6.6). Caution in interpreting these results is advised, since value-added measures are based on input-output tables defined by arm's length transactions and thus exclude services provided in-house. Mining exports are in many cases driven by large state-owned enterprises that are likely to provide most services in-house (Miroudot 2016). For example, in Australia, where that is not the case, the share of services value added in exports is 24%.

The decomposition of services value added by type of services seems similar across manufacturing industries (see figure 6.6). Distribution represents about a third of services value added in exports, as do business services, which includes telecommunications services, computer services, professional services, research and development services, consulting, advertising and marketing services, technical testing services, and environmental services. The last third is split among transport, finance, and other services (a category covering construction, hotels and restaurants, government services, health and education, entertainment, and audio-visual services).

Why is the share of services in value-added exports increasing?

Figures 6.2–6.4 reveal an increasing share of services in value added exports, suggesting that the increase may be explained in part by an increase in services value added embodied in exported manufactures.

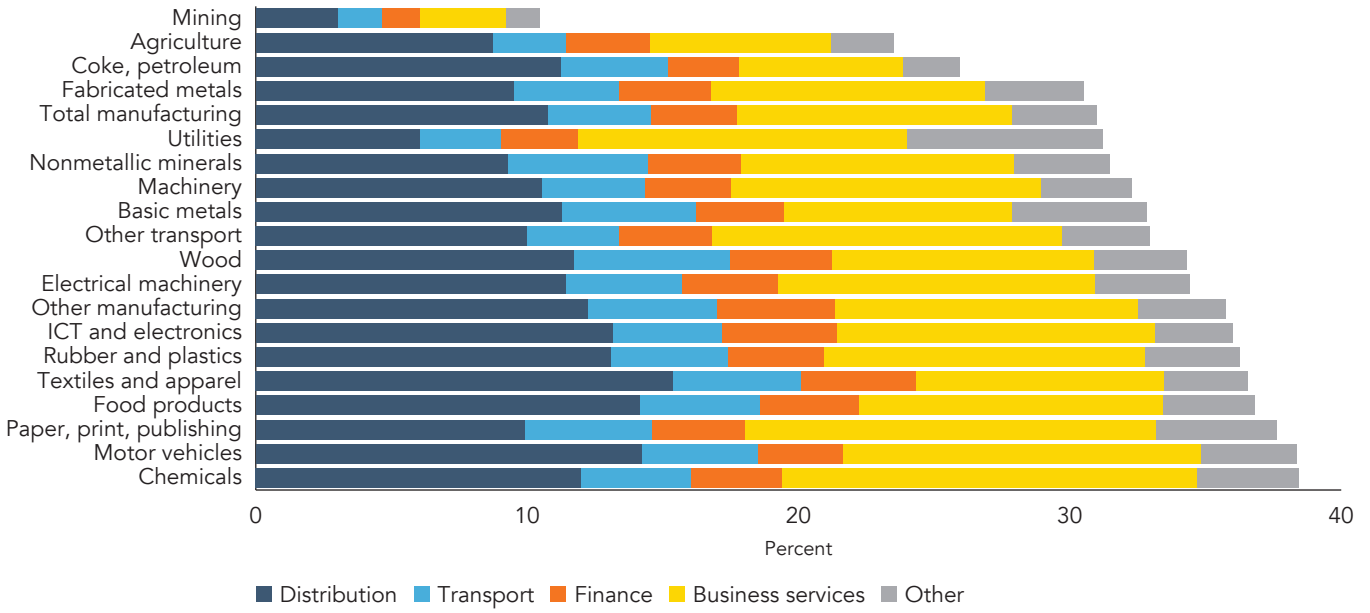
The growing importance of services in the economy has been a matter of discussion for a long time. Bhagwati (1984) set out the main reasons: "splintering" (outsourcing services formerly provided in-house by manufacturing firms), the high-income elasticity of the demand for services, and relative price shifts due to the lower growth of productivity in services than in goods. Splintering was seen as the spontaneous result of the specialization opportunities arising from growth and technical change.

More recently, the increasing importance of services within manufactured goods—servicification, as it has been called—has been extensively documented, in line with the evidence in figures 6.2–6.4.[11] While it has not yet been possible to empirically establish the cause of servicification, Baldwin, Forslid, and Ito (2015) explore its potential sources in a way that echoes Bhagwati (1984). These include reclassification, task-composition shifts in connecting services and final goods, and task–relative price shifts.

Reclassification. Over the past decades, many of the services traditionally sourced in-house by manufacturing firms, and thus classified as manufacturing, began to be sourced at arm's length and classified accordingly as services. The servicification that arises from this reclassification can happen even if there is no change in products, production process, or relative price of inputs. This argument corresponds to Bhagwati's "splintering" reason.

Task-composition shift: connecting services. The emergence of GVCs requires connections among geographically separate

FIGURE 6.6 Decomposition of services value added in world gross exports, by manufacturing industry, 2011



Source: Miroudot 2016 based on Organisation for Economic Co-operation and Development–World Trade Organization Trade in Value-Added database.

production units, which typically involve services links. These links (including telecommunications, transportation, and mailing) contribute to the value added embodied in the final good. So outsourcing and offshoring tend to increase the share of services in a final good's value added.

Task-composition shift: changes in final goods. The second task-composition shift arises from changes in the nature of the final manufactured goods. For example, today's cars contain software, which comes from the services sector. Similarly, many other manufactured goods have become more intensive in services. This argument resembles the argument that the income elasticity of demand for services is high, but in this case technological progress is enhancing the services content and the quality of manufactured goods.

Task–relative price shift. For a variety of reasons, including the need for coordination and face-to-face interaction, offshoring tasks tends to be easier for intermediate goods than for intermediate services. Since the decision to offshore a task is typically driven by cost-reduction motives, there is a natural tendency for offshoring to reduce the relative price of the offshored tasks. If most of the offshored tasks are typically performed by the manufacturing sector, then offshoring would—in a mechanical way—raise services value added in final manufactured goods. This argument is a variant of the differential productivity growth reason but is being driven by differences between goods and services in cost-reducing opportunities through offshoring.

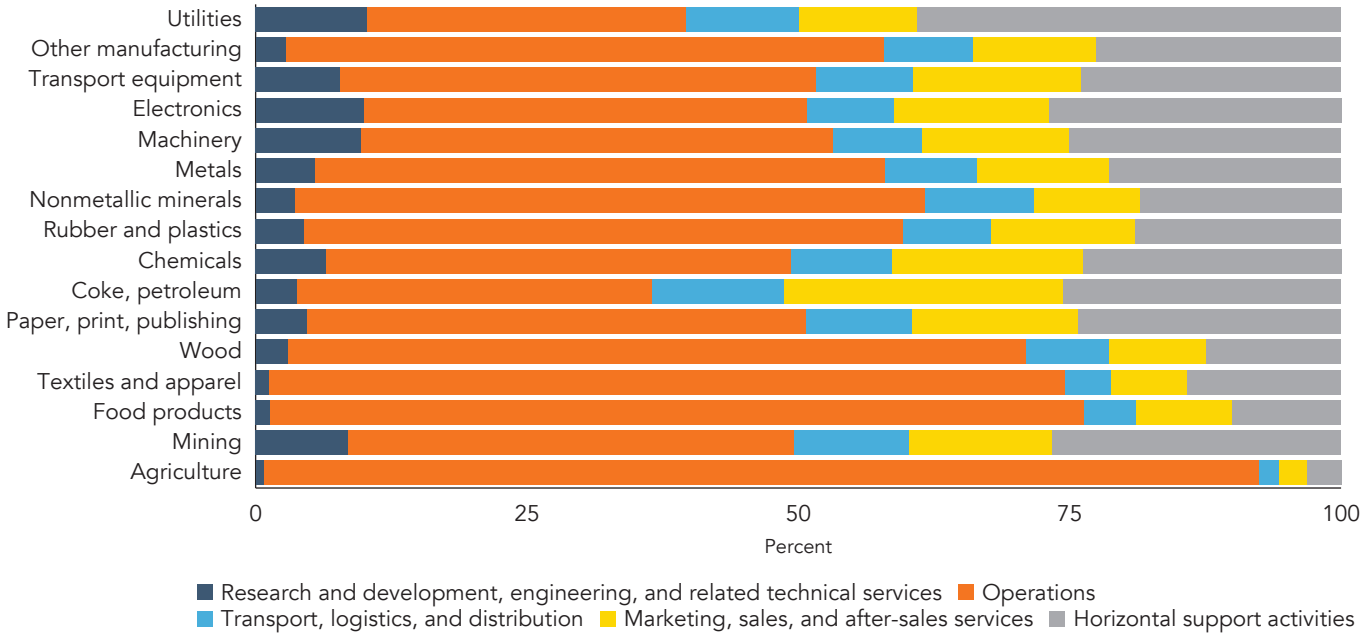
The limits of value-added analysis: In-house services play a large role in manufacturing

As mentioned earlier, services enter GVCs not only as outsourced inputs or final products, but also as inputs frequently provided in-house, which traditional value-added measures do not capture. Illustrating how relevant this omission can be, Miroudot (2016) matched occupation classifications and business functions for 37 countries over 1995–2013. This decomposition of jobs embodied in manufacturing according to business function by industry reveals considerable variation across industries, with employment in core activities (operations) at more than 90% in agriculture, but at only about 33% in coke and petroleum (figure 6.7). This variability carries over to differences across countries as well. On average, the core activities of manufacturing firms account for only 50% of employment, meaning that half the employees of manufacturing firms perform services activities. This suggests that the services value added embodied in manufacturing, and thus the contribution of services to GVCs, could be much higher than that captured by traditional value-added measures.

The implications of services in global value chains

As seen, services constitute the vital connecting links of value chains as well as a range of inputs sourced either at arm's length or in-house. These value chains are "global" not just when transactions cross international boundaries, but also when consumers

FIGURE 6.7 Decomposition of jobs embodied in gross manufacturing exports, by business function by industry, 2011



Source: Miroudot 2016.

or providers do so, especially by establishing a commercial presence abroad.

Growth theories have emphasized that trade in intermediate goods and services generally improves the allocation of capital and labor across sectors and countries (Jones 2011). The literature helps draw out the implications of services in GVCs for two key aspects of economic performance: the growth of productivity and the evolution of comparative advantage.

The literature uses a framework based on Rajan and Zingales (1998) and first applied to services broadly in Arnold, Javorcik, and Mattoo (2011) in a study of the Czech Republic. The typical study examines whether increased access to specific foreign services enhances performance in downstream sectors whose production is relatively intensive in those services. The usual specification takes the following form:

$$Y_{i,t} = \alpha + \beta \times \textit{services linkage}_{j,t-1} + X_{j,t-1} \times \pi + \delta_i + \gamma_t + \varepsilon_{i,t}$$

and

$$\textit{services linkage}_{j,t} = \sum_k a_{j,k} \times \textit{access}_{k,t}$$

where *i* is the firm, *j* is the sector, and **X** is a matrix of sector-level control variables; $Y_{i,t}$ is the outcome of interest (productivity, comparative advantage); and *services linkage*, the key explanatory variable, is the interaction between a measure of a specific sector's dependence on services inputs and a measure of services access (which could be related, for example, to services policy reforms or foreign direct investment inflows).[12] The hypothesis is that sectors using specific services more intensively benefit more from the reform of those services. This general framework becomes clearer in the examples discussed below.

For productivity

India offers a powerful example of the benefits of greater participation in manufacturing value chains by foreign services firms. Conventional explanations of the modest resurgence of Indian manufacturing since the early 1990s have focused on policy reforms in manufacturing industries. But a key factor lies outside manufacturing and in the services sector. Reforms in the 1990s visibly transformed services sectors, with greater openness and improved regulation leading to dramatic growth in domestic and foreign investment. Indian manufacturing firms were no longer at the mercy of inefficient public monopolies but could now source services from a wide range of domestic and foreign providers operating in an increasingly competitive environment. As a result, they had access to better, newer, more reliable, and more diverse business services.

These improvements enhanced firms' ability to invest in new business opportunities and better production technology, to exploit economies of scale by concentrating production in fewer locations, to efficiently manage inventories, and to coordinate decisions with suppliers and customers.

To analyze the link between services reforms and manufacturing productivity in India, Arnold and others (2016) collected detailed information on the pace of reform across Indian services sectors, with a focus on entry and operational restrictions. To make this information amenable to econometric analysis, the authors aggregated it into time-varying reform indexes. They then related the total factor productivity of about 4,000 manufacturing firms to the state of liberalization in services sectors, taking into account other aspects of openness, such as tariffs on output and intermediate inputs as well as foreign direct investment in final and intermediate goods sectors.

The results suggest that pro-competitive reforms in banking, transport, insurance, and telecommunications boosted the productivity of both foreign and locally owned manufacturing firms. A one-standard-deviation increase in the aggregated index of services liberalization resulted in a productivity increase of 11.7% for domestic firms and 13.2% for foreign enterprises. The largest additional effect was for transport reforms, followed by telecommunications and banking reforms.

Several other studies show that access to low-cost and high-quality (domestic or foreign) producer services can promote productivity and economic growth (Hoekman and Mattoo 2008). Using firm-level data for the Czech Republic for 1998–2003, Arnold, Javorcik, and Mattoo (2011) found a positive effect on the productivity of domestic firms in downstream manufacturing as a result of services sector reforms leading to greater foreign direct investment. Using the annual manufacturing survey of Chilean firms, Fernandes and Paunov (2012) found a positive effect of substantial foreign direct investment inflows in producer services sectors on the total factor productivity of Chilean manufacturing firms. Their findings also suggest that services foreign direct investment fosters innovation in manufacturing and offers opportunities for laggard firms to catch up with industry leaders.[13] These benefits arise not just from foreign investment but also from cross-border trade in services. For example, Amiti and Wei (2009a) found that services offshoring by high-income countries tends to raise the productivity of their manufacturing sector.[14]

To investigate whether regulations in domestic services markets have an effect on industries that rely on GVC linkages in services to generate value added, Van der Marel and Sáez (2016) differed from the earlier studies by looking at all downstream sectors rather than just manufacturing. They examined the impact on domestic value added rather than on productivity and on the link to upstream services sectors through backward foreign and domestic linkages. Their key interactive variables were a product of the foreign and domestic backward linkages of services for each downstream sector with services-specific regulatory policies. Both entry restrictions and policies affecting the operations of firms matter, but the strength of their impact depends on the type of backward linkages that are more important for the industry in question. Industries that rely more on backward foreign linkages of services are adversely affected by entry barrier regulations, while those that rely more on backward domestic linkages of services are more sensitive to behind-the-border regulations.

For comparative advantage

Since a large part of goods trade includes trade in embodied services, the development of the domestic services sector and

access to imported services inputs can be expected to influence comparative advantage in manufacturing trade. The impact of services development on manufacturing trade is not straightforward. Since services are used as inputs in the production of manufactured goods, their development can increase manufacturing production. But since services and manufacturing compete for resources, the development of services can be at the expense of manufacturing. For example, the development of the services sector has drawn resources away from manufacturing not just in industrial countries such as the United Kingdom and the United States, but also in developing countries such as India (see, for example, Kochar and others 2006).

Some early studies examined the link between services as inputs in manufacturing and the pattern of manufacturing exports using single national input-output tables. For example, Francois and Woerz (2008) found significant and strong positive effects of increased business services openness (greater imports) on some industries. Their reliance on national data means that inputs cannot be broken down according to their origins, and services inputs are mismeasured due to two-way trade in intermediate products. More recently, Stehrer, Foster, and de Vries (2012), Timmer and others (2013), and Liu and others (2017) used the newly constructed international input-output tables to more precisely measure the embodied services and indirect trade through other sectors.

Liu and others (2017) focused on two key services sectors: financial services and business services. Well-functioning financial sectors are critical in mobilizing resources, stimulating investment, and helping firms (and households) manage risk. Business services cover a variety of critical activities, from software consulting and data processing to management consultancy, engineering, and research and development. Intensive use of these modern services can help manufacturing firms increase productivity, reduce the cost of doing business, expand their input choices, differentiate their products from those of competitors, and strengthen their after-sale customer services. But these are the services that most strongly provoke deindustrialization concerns, such as financial services in industrial countries such as the United Kingdom and the United States and business services in developing countries such as India and the Philippines.

Liu and others (2017) quantified the indirect role of services in international trade in goods and construct new measures of revealed comparative advantage based on domestic value added in gross exports. Embodied services in manufacturing sectors were computed using a method developed by Koopman, Wang, and Wei (2014) and Wang, Wei, and Zhu (2013) that generalizes the vertical specialization measures proposed by Hummels, Ishii, and Yi (2001). Revealed comparative advantage is calculated based on domestic value added in gross exports, as in Koopman, Wang, and Wei (2014) and Wang, Wei, and Zhu (2013), who improved on the traditional (Balassa 1965) measure of revealed comparative advantage by taking into account both domestic production sharing and international production sharing.[15]

In Liu and others' econometric analysis of the impact of services development on revealed comparative advantage in manufacturing sectors, the key explanatory variable is the interaction between a measure of the development of financial (or business) services and the financial (or business) services intensity of each manufacturing sector. Domestic services development has a mixed effect on the revealed comparative advantage of manufacturing exports: services development reduces the revealed comparative advantage of manufacturing exports in manufacturing sectors with low embodied services but increases it in sectors with a high degree of embodied services (figure 6.8).

Liu and others also considered the role of services imports in overcoming the limitations of domestic services markets. In countries with less developed services, manufacturing exports benefit more from access to foreign services inputs. Such a bypass effect is also discussed in a theoretical model by Ju and Wei (2010), which derives the conditions for financial globalization to serve as a substitute for reforms of domestic financial systems. These results suggest that lower services trade barriers can help developing countries bypass inefficient domestic services provision and promote their manufacturing exports through intersectoral linkages.

Direct and indirect value-added exports of services

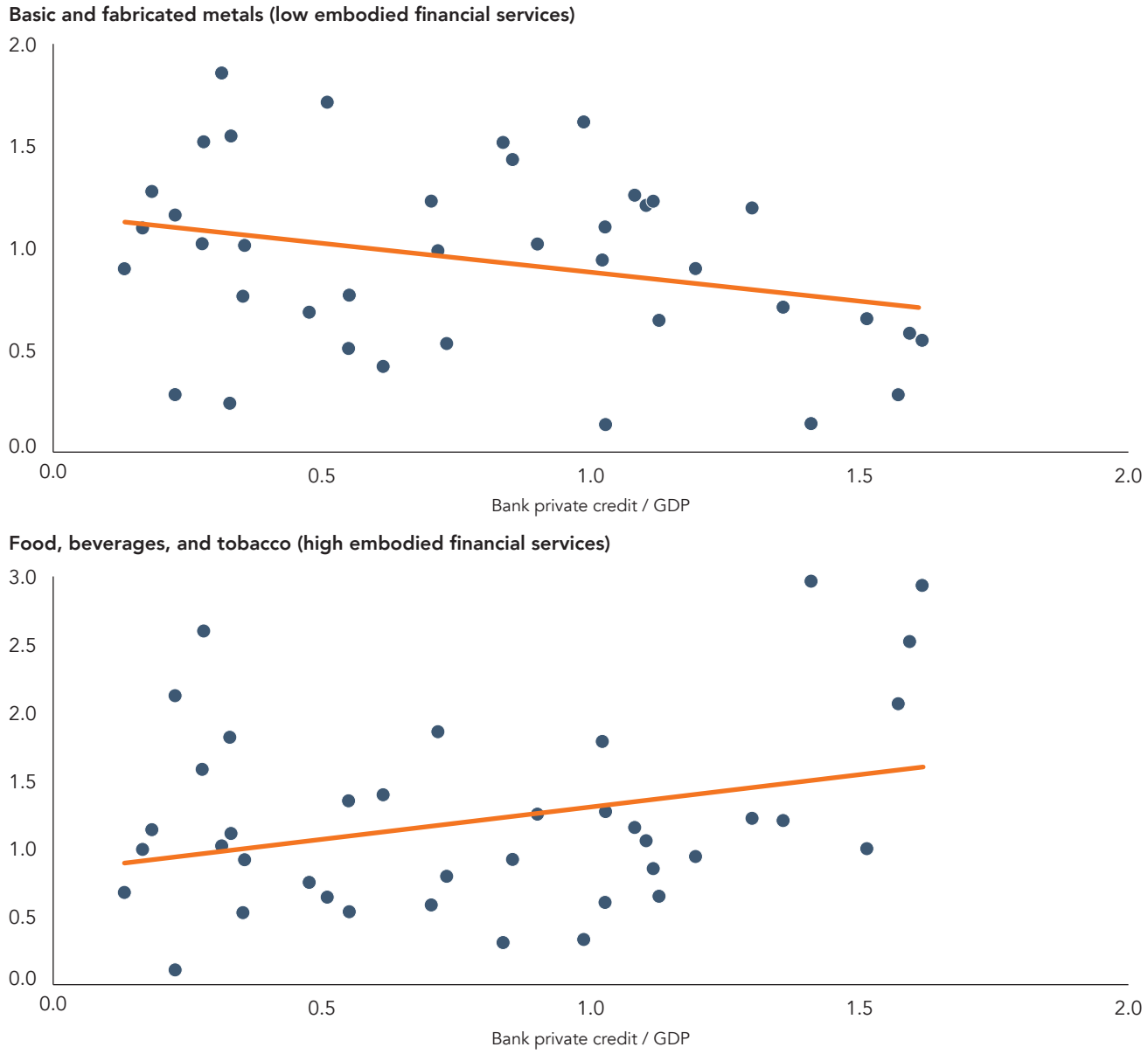
The patterns of direct and indirect domestic value-added exports of services for financial and business services reveal how goods and services value chains and comparative advantage evolve (figures 6.9 and 6.10). The horizontal axis measures direct value-added exports of services and the vertical axis measures indirect domestic value-added exports of services (the value-added exports of services embodied in exports of goods). Lines representing the median shares divide the countries into groups occupying four quadrants.

For financial services, figure 6.9 shows:

- In the bottom left quadrant are Greece, the Russian Federation, and Turkey. The low competitiveness of financial services in these countries is reflected in the low share of direct exports and the low level of embodied exports—which could reflect the low financial services intensity of goods production, the reliance primarily on imported financial services, or both.
- In the top left quadrant are China, India, and the Republic of Korea, which are not yet sufficiently competitive to export financial services directly but which do export a significant share indirectly. That goods sectors in these countries rely significantly on domestically produced financial services could be because financial services in these countries have reached an intermediate level of development at which they can compete in the domestic market but not yet internationally. It could also be that restrictions on cross-border imports in these countries oblige goods producers to use domestically produced services.
- In the top right quadrant are Austria, Belgium, and the Netherlands, whose more developed financial services sector exports both directly and indirectly.
- In the bottom right quadrant are such "mature deindustrializers" as the United Kingdom and the United States, where the

FIGURE 6.8 Financial development and revealed comparative advantage, by degree of embodied services, 2005

Revealed comparative advantage based on domestic value added in gross exports



Source: Liu and others 2017.

Note: The figures show a negative association between the manufacturing revealed comparative advantage and a measure of financial development for a sector with low embodied financial services, but a positive association for a sector with high embodied financial services. Includes data for all Organisation for Economic Co-operation and Development members except Chile, Iceland, Israel, New Zealand, Norway, and Switzerland as well as data for Brazil, Bulgaria, China, Cyprus, India, Indonesia, Lithuania, Malta, Romania, Russian Federation, Chinese Taipei, and rest of the world.

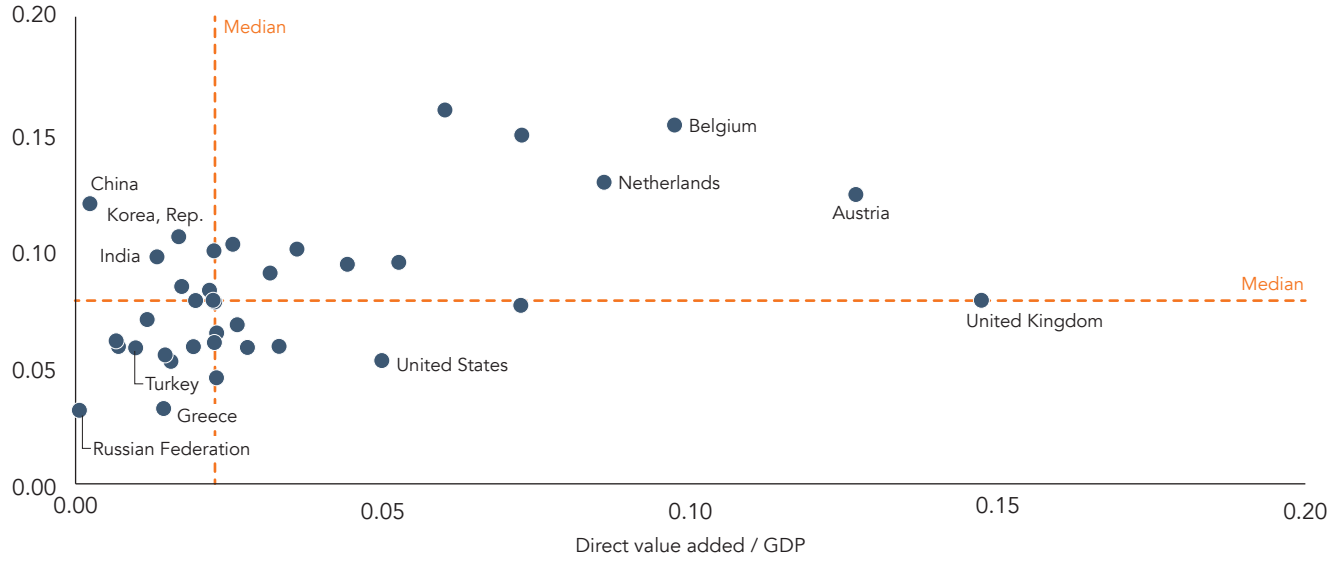
domestic tangible industries have shrunk in importance and financial services are mostly exported directly.

For business services, figure 6.10 shows two interesting differences:

- Given the greater cross-border tradability or openness to trade of business services, there is less scope for an intermediate stage (for countries to populate the top left quadrant). When a country is not competitive in producing these services, it neither exports them, nor do its goods sectors import them. When a country is competitive, it exports both directly and indirectly.
- In the bottom right quadrant, India offers an example of "premature deindustrialization," where direct exports of business services are high but indirect exports are low, perhaps because of the relative weakness of goods sectors.

FIGURE 6.9 Direct and indirect value added exports of financial services as shares of GDP, 1995–2009

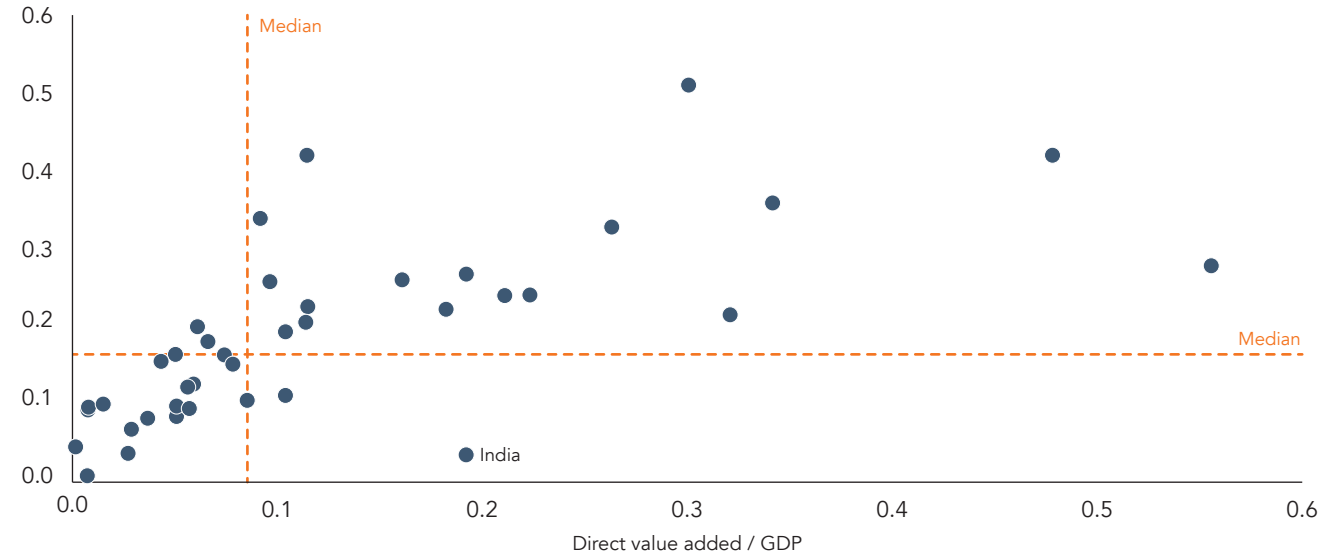
Indirect value added / GDP



Source: Author's calculations based on Organisation for Economic Co-operation and Development–World Trade Organization Trade in Value-Added database.
Note: Includes data for all Organisation for Economic Co-operation and Development members except Chile, Iceland, Israel, Ireland, Luxembourg, New Zealand, Norway, and Switzerland as well as data for Brazil, Bulgaria, China, Cyprus, India, Indonesia, Lithuania, Malta, Romania, and Russian Federation.

FIGURE 6.10 Direct and indirect value-added exports of business services as shares of GDP, 1995–2009

Indirect value added / GDP



Source: Author's calculations based on Organisation for Economic Co-operation and Development–World Trade Organization Trade in Value-Added database.
Note: Includes data for all Organisation for Economic Co-operation and Development members except Chile, Iceland, Israel, New Zealand, Norway, and Switzerland as well as data for Brazil, Bulgaria, China, Cyprus, India, Indonesia, Lithuania, Malta, Romania, and Russian Federation.

Policy implications

Two types of policy issues inhibit an enhanced role for services in goods value chains and the emergence of services value chains: explicit restrictions on foreign services and services suppliers, and regulatory divergence across jurisdictions. Explicit restrictions on linking services, such as telecommunications, inhibit the emergence of all GVCs. Restrictions in other services—such as finance, business, education, and health services—either block the emergence of GVCs involving services or increase the associated transaction costs. Regulatory divergence reduces the intercompatibility of goods and services and services components that is needed to enable fragmenting production across jurisdictions. This divergence is one reason that GVCs have been slow to emerge in sectors such as education and health. Regulatory cooperation is necessary not just to address regulatory divergence, but also to facilitate the removal of explicit restrictions.

National policy barriers to international trade in services

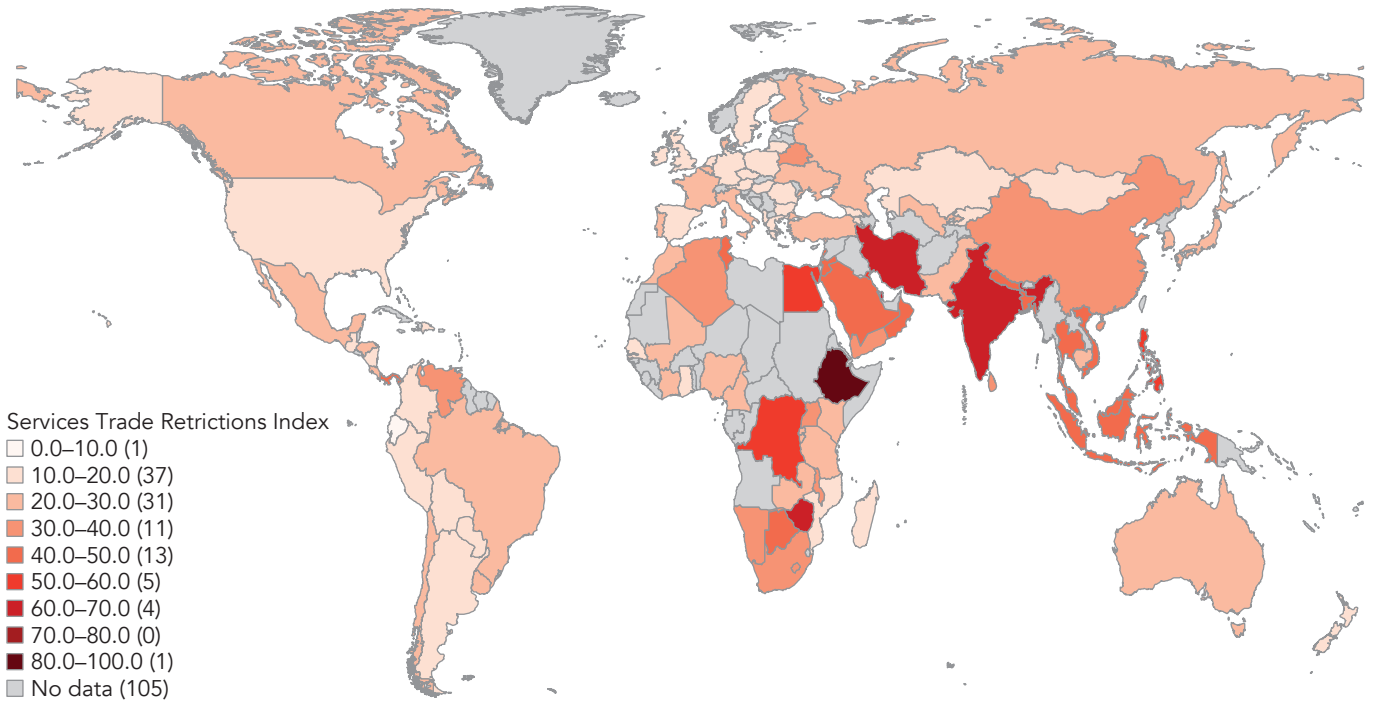
Unlike the rich information on policies affecting trade in goods, information remains limited on policies affecting trade in services.[16] The World Bank Services Trade Restrictions Database reveals interesting policy patterns. Although public monopolies are now rare, and few services markets are completely closed, numerous second-generation restrictions remain on entry, ownership, and operations. Even where there is little explicit discrimination against foreign providers, market access is often unpredictable because the allocation of new licenses remains opaque and highly discretionary in many countries. Regulatory discretion is accentuated by a lack of accountability in a number of countries where regulators are not required to provide reasons for rejecting a license application or where foreign providers do not have the right to appeal regulatory decisions.

Across regions some of the fastest growing countries in Asia and the oil-rich Gulf states have restrictive policies on services, while some of the poorest countries are remarkably open—as measured by the Services Trade Restrictions Index, which takes values from 0 for completely open regimes to 100 for completely closed (map 6.1).[17] Across sectors, professional services and transportation are among the most protected industries in both industrial and developing countries, while retail, telecommunications, and even finance tend to be more open (figure 6.11).[18]

International cooperation and services in global value chains

Much of the openness in services markets and the emergence of services-related GVCs has come from unilateral liberalization. Services trade negotiations have generated an abundance of rules and commitments that have enhanced the transparency

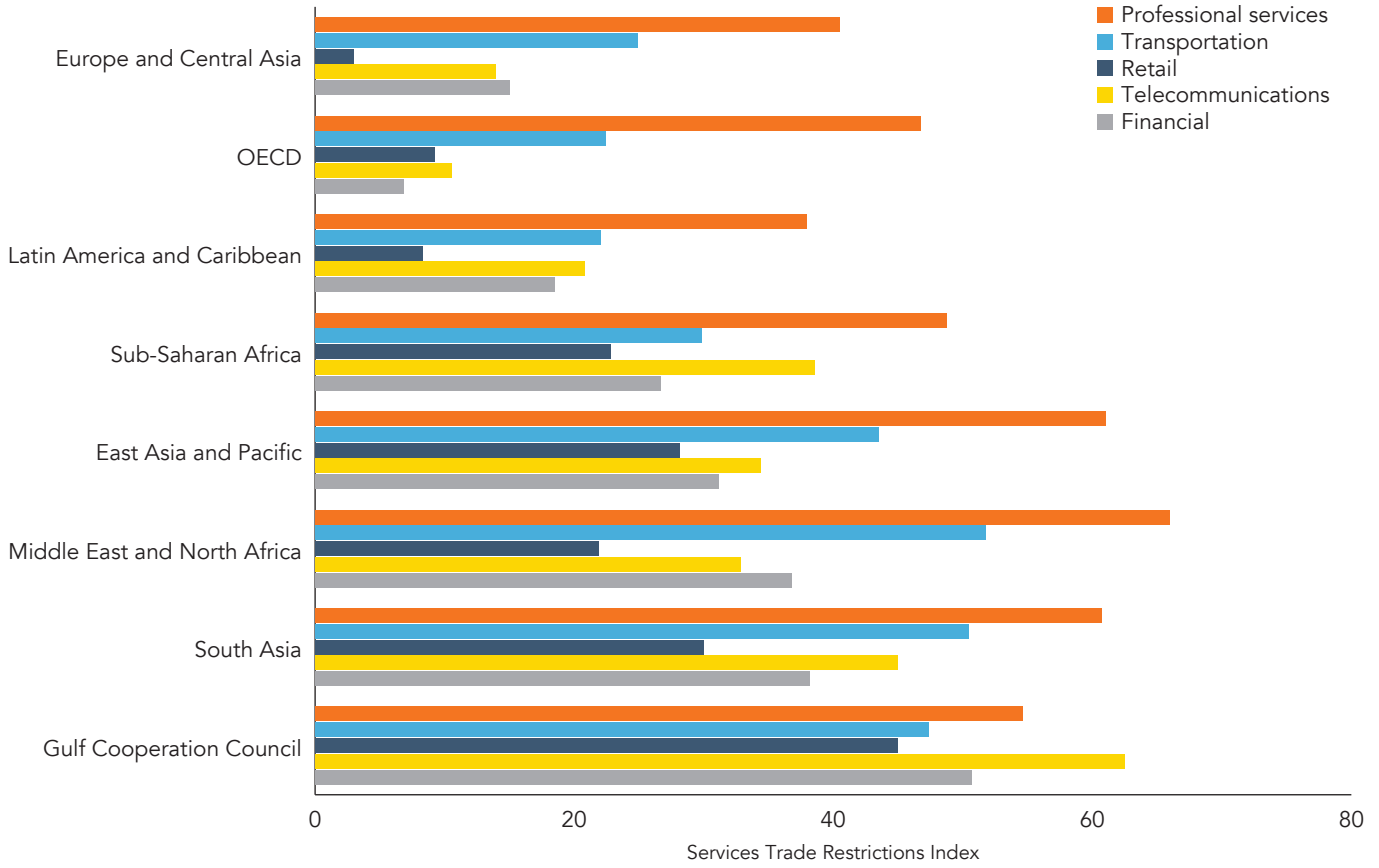
MAP 6.1 Restrictiveness of services trade policy, 2008–10



Source: Borchert, Gootiiz, and Mattoo 2014.

Note: This map compares the restrictiveness of services trade policy across countries based on the World Bank Services Trade Restrictions Index, which ranges from 0 (completely open) to 100 (completely closed), The World Bank Services Trade Restrictions Database covers 103 countries (79 developing) and financial, basic telecommunications, transport, distribution, and selected professional services. Data were collected between 2008 and 2010.

FIGURE 6.11 Services trade restrictiveness by services sector and region



Source: Borchert, Gootiiz, and Mattoo 2014.

Note: This figure compares the restrictiveness of services trade policy across countries based on the World Bank Services Trade Restrictions Index, which ranges from 0 (completely open) to 100 (completely closed). Data were collected between 2008 and 2010.

and security of market access but have not produced much additional liberalization. One reason is a form of "negotiating tunnel vision," which has led to a focus on reciprocal market opening rather than on creating the regulatory preconditions for liberalization. More could be achieved if negotiations offered regulators the opportunity not just to tie their hands (through agreed-on commitments) but also to secure assistance to deal with problems they cannot solve on their own.[19]

One obvious reason for international cooperation is that poorer developing countries do not always have regulatory institutions equipped to deal with international competition. These countries would participate meaningfully in negotiations that offered an opportunity not merely to make binding commitments but also to mobilize assistance for national regulatory reform. Market-opening negotiations now take their course in the WTO or in regional fora with only ad hoc links to international assistance for regulatory reform, including that from institutions such as the International Monetary Fund and the World Bank. It would help establish a credible mechanism for regulatory assistance to support liberalization commitments by developing countries. Then, developing country policymakers would be reassured that any regulatory inadequacies that could undermine the benefits of liberalization would be diagnosed and remedied before any market-opening commitments take effect.

A second obvious reason for cooperation is that regulatory divergence segments markets. Firms must fulfill the regulations of each market separately—such as financial and accounting standards—which reduces the scope for exploiting economies of scale and the intensity of competition in each segment. Regulatory convergence through harmonization or mutual recognition of regulations—or a combination of the two, as has tended to happen in the European Union—creates an integrated market for competition, economies of scale, and GVCs to flourish.

A less obvious case for regulatory cooperation is that even countries with sound national regulatory institutions can find it difficult to address market failures related to services trade that originate outside their jurisdiction. A country will be reluctant to open its financial markets unless it is confident that it can prevent market instability and protect its consumers from unsound foreign financial institutions, to let its citizens' data flow to other

jurisdictions unless it is reasonably certain that that data will be kept secure, or to open its transport and Internet-based services markets unless it is convinced that the gains from liberalization will not be appropriated by international oligopolies. In some cases, such as the supply of services through locally incorporated subsidiaries, the importing country can, at least in principle, deal unilaterally with market failure because the provider is in its jurisdiction. But doing so requires adequate regulatory capacity and could increase the costs of trade by fragmenting markets (say, by requiring local capital adequacy or local servers). In other cases, such as cross-border banking, transport, or data-processing services, addressing market failure efficiently requires the cooperation of the regulator in the exporting country.

A solution to these problems is the assumption of obligations not just by importing countries, but also by exporting countries when negative externalities are transmitted through exports of services. Regional and multilateral negotiations are now structured in a way that requires importing countries alone to make binding commitments to market opening, regardless of the conditions in, or cooperative efforts by, source countries. Instead, market access commitments by importing countries could be made transparently and predictably conditional on the fulfillment of specific conditions by exporting countries. These exporter commitments need not be in the context of trade agreements but could be secured in other existing or new fora for international regulatory cooperation. Then, regulators in importing countries would be reassured that exporting countries will cooperate to protect their consumers' privacy, financial security, and well-being from the consequences of international market failures.

An example of exporting country regulatory commitments: data flows

International data flows provide an example of how such exporting country commitments work. By allowing communication and coordination of production across countries, such commitments have probably been the most important reason for the emergence of GVCs. Governments are taking different approaches to regulating personal data collected by private enterprises. The European Union has the world's most comprehensive legal data protection regime, the Data Privacy Directive adopted in 1995, which it plans to develop further.[20]

The Data Privacy Directive makes it illegal to transfer personal data outside the European Union unless the European Commission has found that the country receiving the personal data provides adequate protection. In the absence of an adequacy decision, data can be transferred to a third country under so-called derogations, the main ones being consent of the data subject, when the transfer is necessary for the performance of a contract between the data subject and the controller or is necessary on important public interest grounds. The directive also allows for a cross-border transfer pursuant to a contract between the controller and the processor that guarantees the same protection of the personal data as under the directive. A global conglomerate can transfer data among its units where it has implemented binding corporate rules that also ensure data protection consistent with the directive.

The U.S.-EU Safe Harbor Framework, recently supplanted by the so called Privacy Shield Agreement, was developed in response to the absence of a finding that the United States provides adequate data protection.[21] The European Commission recognized the Safe Harbor Framework Privacy Principles as providing adequate protection for personal data transfers from the European Union to approximately 3,000 companies in the United States that have signed up to the principles.[22] A key difference between the Safe Harbor Framework and the EU Data Privacy Directive adequacy standards is that the Safe Harbor Framework recognizes the self-regulatory approach with U.S. government enforcement as an effective means of guaranteeing that personal data from the European Union will be accorded privacy protection consistent with the data privacy principles agreed under the Safe Harbor Framework. Under the Safe Harbor Framework, U.S. organizations can either join a self-regulatory privacy program that adheres to the safe harbor principles or self-certify (most common) to the U.S. Department of Commerce that they are complying with the principles. The U.S. Department of Commerce reviews every self-certification and annual recertification submission it receives from companies. The U.S. Federal Trade Commission enforces the Safe Harbor Framework against companies that self-certify as being in compliance.[23]

The exporting country commitments embodied in the Safe Harbor Framework have played a crucial role in allowing data flows between the European Union and the United States even though some concerns were expressed about its operation and effectiveness. Some of these have been addressed in the recent Privacy Shield Agreement, but some shortcomings remain (Hufbauer and Jung 2016). A major remaining problem that can affect the emergence of GVCs is that the agreement applies only to EU–U.S. data transfers and so is not useful for companies that want to transfer data globally—that is, to establish a globally accessible database or a global human resources information system. In sum, the Safe Harbor Framework is an example of remarkably effective, yet imperfect, dynamic regulatory cooperation.

Conclusions

This chapter has illustrated the role of services in GVCs, drawing on selected evidence. For many purposes, services can be treated analogously to goods in both the measurement and the analysis of GVCs. And that is what existing trade in value added databases and the literature that relies on them have tended to do. Even though the share of services in trade in value added varies across countries and industries, it is generally high (and rising) and considerably larger than the share of services in gross trade. While directly exported value added has increased in recent years, close to two-thirds of the growth of services value added in exports is due to an increase in services embodied in exports of other sectors—particularly foreign services, revealing the growing importance of GVCs.

The reasons for these developments are variants of the older arguments for why the share of services in GDP tends to grow: the splintering or outsourcing of services activities from manufacturing firms; the growing importance in a GVC world of connecting services such as telecommunications and transport; the growing services component in sophisticated manufacturing goods, such as software in cars; and the increase in the prices of services tasks relative to manufacturing tasks because manufacturing tasks are easier to offshore to lower cost locations. However, there is little empirical evidence for these arguments, and understanding the reason for these developments should be an area for future research.

For services GVCs there are good reasons to look beyond the traditional arm's length cross-border trade data, which ignore the large share of international transactions in services that take place through commercial presence for foreign direct investment. Initiatives to remedy the commercial presence gap are being taken by the U.S. Bureau of Economic Analysis and the OECD.

Some evidence shows that the emergence of GVCs through foreign direct investment in services can affect downstream sectors. Improved access to finance, communications, transport, and other services, either through general reform or through reform of foreign direct investment, enhances manufacturing firms' productivity and other aspects of the performance of downstream firms. The development of domestic services sectors and access to foreign services can also shift the pattern of comparative advantage. Preliminary evidence suggests that trade in value added data could help in understanding dynamic structural change and deindustrialization—areas that merit more analysis.

Some have called for developing a notion of GVCs that goes beyond arm's length market-based transactions to functions within the firm. It may be feasible to distinguish between tasks that would have been services if they had taken place at arm's length (such as bookkeeping) and other tasks that are intrinsically agricultural or manufacturing in nature (such as wood processing). But such distinctions slide on a slippery slope: ultimately, almost any task can potentially be conceived of as an arm's length service. A horticultural laborer can be hired as a worker in a horticultural firm, or the laborer's "fruit-picking" services can be purchased from an individual or a firm. This kind of deconstruction of a firm into its constituent tasks could reduce each firm to a bundle of services regardless of what it ultimately produces.

Perhaps what really matters is not what a person makes but what the person does. For a long time, notions of economic performance have been closely tied to economic sectors—manufacturing, agriculture, and services. In a world of fragmented production these distinctions are hard to sustain and may not be economically meaningful. Instead, the focus could be on the implications of performing certain tasks. Do product design and marketing offer greater scope for innovation and learning-by-doing and thus for productivity growth than product assembly? Such task-based analysis—perhaps initially focusing on occupational structures—could be more help than the traditional sector-based analysis in comprehending the implications for individuals and countries of the new international division of labor.

Finally, some policies both inhibit and encourage the emergence of services-related GVCs. Even though most services markets are much more open today, thanks to unilateral liberalization, services reforms remain incomplete, and barriers to domestic and foreign competition persist. Most of the policy barriers to competition and to foreign direct investment are not in goods but in services. For example, countries in Southeast Asia that have reaped huge benefits from the liberalization of trade and investment in goods continue to maintain restrictions on foreign presence in services. Trade in transport services, in particular, remains impeded in both industrial and developing countries by the exclusion of third-country providers and by quantitative restrictions in bilateral agreements.

International cooperation in services has attempted to replicate the goods model of reciprocal market opening, but so far that approach has delivered little incremental liberalization. Much more could be achieved through a greater emphasis on regulatory cooperation. First, and most obviously, greater regulatory convergence—as in prudential regulation-intensive financial, health, education, and professional services—is needed to create more-integrated markets in which competition, economies of scale, and GVCs can develop. Second, credible regulatory commitments by exporting countries to safeguard the interests of consumers in importing countries—as for deposit protection when capital flows internationally or privacy when data flow internationally—could also induce greater liberalization of explicit barriers to international transactions by providing importing countries with the regulatory reassurance they need.

Notes

1. https://globalvaluechains.org/concept-tools.
2. A definition that does not include single international transactions also creates a slight awkwardness in the treatment of transactions located at the beginning or at the end of linear value chains. Even if they do not qualify as part of GVCs, the hypothesis must be that the history and the future matter. That is, a final import that involves border crossings at early stages of the value chain and an initial export that will cross other borders at later stages of the value chain should have different implications from those that do not.
3. For example, mode 3 trade exports represented on average 67% of total U.S. exports of services between 2009 and 2014 according to data from the Bureau of Economic Analysis.
4. Mode 2 trade is captured in the balance of payments statistics category "travel" but with limited disaggregation into sectors. Sales of services by foreign natural persons too are also largely covered in balance of payments statistics but are not identified separately from cross-border trade. Data on mode 3 trade in services are not part of balance of payments statistics but are collected separately by some countries, such as the United States and the European Union. Efforts to improve the measurement of mode 3 trade are discussed later in the chapter.
5. Restrictive policies of this sort are inherently difficult to identify and measure. Two initiatives provide evidence on these restrictions: one in the OECD and another in a collaborative project between the World Bank and the WTO. Some evidence regarding these measures is presented later in the chapter.
6. This is not an exhaustive list of how services participate in GVCs. Other relevant aspects, such as bundling goods and services and services as value-creating activities, are discussed in detail in Miroudot (2016).
7. See OECD (2013) for details on the algebraic definitions of these components.
8. More generally, firm ownership, whether domestic or foreign, has been found to be a relevant dimension of firm heterogeneity, with foreign-owned firms often associated with greater exports, higher productivity, more-intensive use of imported intermediates, and different patterns of value added (Fetzer and Strassner 2015). This in itself makes firm ownership a relevant dimension to understand participation in GVCs and the effects it may have in an economy.
9. Examples include the 2010 National Organizations Survey in the United States (Brown, Sturgeon, and Lane 2014) and two Eurostat surveys on the international sourcing of business functions by enterprises (Nielsen 2008).
10. Statistics on business functions based on labor force surveys should be interpreted carefully since comparability across countries may be affected by statistical conventions in the construction of input-output tables. For example, data collected at the enterprise level and the establishment level could yield different information for identical processes on what is provided in-house and what is outsourced.
11. For example, Lodefalk (2013) showed that services embedded in Swedish manufactured goods account for a major and increasing share of Sweden's services exports. Similar evidence is presented for other European countries in Boddin and Henze (2014), Crozet and Milet (2014), Kelle (2013), and Kelle and Kleinert (2010). Baldwin, Ito, and Sato (2014) showed that since the 1990s the share of value added in manufactured products in Asia has shifted decisively away from manufacturing and toward services.
12. The *services linkage* variable can be interpreted as a weighted average across sectors of the access measure of interest, with the weights indicating the sensitivity of sector *j* to input *k* (weight $\alpha_{j,k}$ can, for example, be the share of *k* in total inputs of *j*).
13. Similar results have been found for Sub-Saharan Africa (Arnold, Mattoo, and Narciso 2008) and Indonesia (Duggan, Rahardja, and Varela 2013).
14. While services offshoring has both positive and negative effects on domestic employment, Amiti and Wei (2009b) showed, at least for the United States, that it tends to enhance domestic employment on average.
15. Revealed comparative advantage based on gross exports (used as a dependent variable) can cause an endogeneity problem because the embodied services (used as explanatory variables) are part of gross manufacturing exports. Liu and others (2017) avoided this problem because manufacturing revealed comparative advantage is based on the value added created by the factors employed in manufacturing sectors, excluding the embodied services in gross exports contributed by the factors employed in services sectors.
16. Two major initiatives to address this gap in information are in the OECD and in a collaborative project between the World Bank and the WTO. This section describes information on trade policies for services contained in the earlier World Bank Services Trade Restrictions Database. This database covers 103 countries, five major services sectors—financial services, basic telecommunications, transport, distribution, and selected professional services—and the relevant modes of services delivery. This information, collected in 2008–10, has been subsequently updated only for some countries. Even though there is evidence of few major policy changes in the last few years, the data presented here are best seen as indicating broad patterns rather than the precise current situation in specific countries.
17. The analysis assesses policy regimes in their entirety and assigns them to one of the following five principal categories: completely open (that is, no restrictions at all), completely closed (that is, no entry allowed at all), virtually open but with minor restrictions, virtually closed but with limited opportunities to enter and operate, and a residual "intermediate" category of regimes that allow entry and operations but impose restrictions that are neither trivial nor stringent. It is convenient to assign a value to each of these five categories of regimes on a scale of decreasing openness from 0 to 1 with intervals of 0.25.
18. There is some evidence of recent reform in services sectors. For example, a lifting of foreign equity caps, partly or fully, is observed in Indonesia (air transport, architecture, engineering, telecommunications, distribution services, audiovisual services, and logistics), China (distribution services and maritime transport), and India (air transport, insurance, and broadcasting). Mexico has opened the telecommunications sector and introduced procompetitive reforms.
19. The capture of regulatory barriers by established services providers may also partly explain the limited progress on this front.
20. As a directive, implementation of the Data Privacy Directive is left to EU member states, which vary widely in their enforcement. The European Commission is seeking to update it as a regulation.

21. According to a 1999 opinion from the Article 29 Working Party, the U.S. approach was seen as not providing adequate protection in all cases for personal data transferred from the European Union.
22. The Safe Harbor Framework consists of seven principles that reflect the key elements of the EU Data Protection Directive. The main ones are commitments to give European data subjects notice that a U.S. entity is processing their data; to limit onward transfers of data to countries that also subscribe to the Safe Harbor principles or are subject of an adequacy finding; to take reasonable steps to protect personal data from loss or misuse; to process personal data only for the expressed purposes the organization intends to use it; to give European data subjects access to their personal information and the ability to correct, amend, or delete inaccurate information; and to commit to enforce the principles and give European data subjects access to affordable enforcement mechanisms.
23. To date, the U.S. Federal Trade Commission has brought 10 Safe Harbor–related enforcement actions. The agency acts on referrals from EU data protection authorities and from third-party private dispute resolution providers, as well as on its own.

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