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Recent Trends in Global Value Chains

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The last few years have been challenging for globalization. While the world has benefited from the fragmented networks of production-sharing known as global value chains (GVCs), concerns are being raised over their risks. Chapter 1 of the *Global Value Chain Development Report 2019* pointed to a rise in protectionism in general and a brewing trade conflict between the United States (US) and the People's Republic of China (PRC) in particular. More obstacles have since emerged from the sudden and simultaneous closure of borders due to the COVID-19 pandemic that exposed vulnerabilities in some supply chains, rattling policymakers (Chapter 5). Despite these challenges, GVCs—for supporters and detractors alike—remain a reality that cannot be ignored. Indeed, the very vaccines crucial to ending the COVID-19 pandemic rely on multinational partnerships for the over 200 components that go into them (Irwin 2021).

This chapter sets the stage for the rest of the *Global Value Chain Development Report 2021* by examining recent trends in GVCs. Their multidimensional character requires a plurality of approaches, a fact reflected in the review of GVC frameworks by Satoshi Inomata in the *Global Value Chain Development Report 2017* (Inomata 2017). Broadly speaking, GVC research can be approached from a firm and product perspective, using micro datasets and case studies, and from an economy and industry perspective that leans more on national accounts, trade statistics, and intercountry input–output tables. This chapter, serving as a big-picture overview of recent GVC trends, mainly uses the second approach. The literature on this has flourished in recent years, rooted on a trade accounting framework first proposed by Koopman, Wang, and Wei (2014) that carefully and comprehensively decomposes exports into various value-added categories. The following sections marshal various indicators to build a coherent narrative of recent

GVC developments. The dominant theme is that of "slowbalization," a term popularized by *The Economist* (2019) to describe the general slowdown in the pace of globalization seen since around the global financial crisis of 2008–2009. This is in contrast to the era of "hyperglobalization" characterizing the 1990s and the early 2000s (Subramanian and Kessler 2013).

The following section uses a standard set of indicators to provide an overview of globalization trends. Foremost among these is the GVC participation rate, the measure that most clearly shows a slowbalized world. The chapter then discusses the role of multinational corporations (MNCs), arguably the key players of globalization, and details their activities through smile curves and network analysis. The following two sections examine the role of regionalism and whether the push to form regional trade agreements (RTAs) complements or substitutes globalization, and, moving to the national level, explore evidence that supply chains are "reshoring" and what the consequences of this might be. The chapter concludes by looking at GVCs in the postpandemic era.

From Hyperglobalization to Slowbalization

Globalization from the 1990s to 2020 had two broad phases, as noted in the literature. The first phase was a burst of integration from the 1990s to around 2008, written about by Thomas Friedman (2005) and Richard Baldwin (2016), among other authors. This has been called "hyperglobalization" by Subramanian and Kessler (2013). This period saw a steep fall in the cost of information and communication technology (ICT) and the rapid expansion of international production sharing, known as GVCs. In the second phase, trade collapsed in the wake of the global financial crisis and since then the pace of globalization has noticeably slowed (World Bank 2020), ushering in the era of slowbalization.

Antràs (2020a) notes that given the events that drove hyperglobalization—among them, the breakup of the Soviet Union and the PRC's entry into the global trading regime—a subsequent slowdown was only natural. But it is also true that a vocal opposition to globalization has emerged in recent years (Krugman 2019; Autor, Dorn, and Hanson 2013), with protectionist policies appearing in political platforms around the world (de Bolle and Zettelmeyer 2019). This suggests that more than a stagnation, globalization may be in danger of suffering a reversal.

Quantifying these trends helps sharpen the picture. To do this, the trade accounting framework of Koopman, Wang, and Wei (2014)—as extended by Wang, Wei, and Zhu (2018) and Borin and Mancini (2019)—is used to decompose gross exports into meaningful value-added categories (Box 1.1). The magnitudes of some of these categories reveal the GVC participation of a particular entity. This chapter makes use of two approaches. In the trade-based approach of Borin and Mancini (2019), the GVC participation rate is measured as the share of indirect trading in gross exports. The production-based approach

of Wang et al. (2017a), meanwhile, measures the GVC participation rate as the share of the unfinished exports of domestic value added in total value added generated. Both these rates for the world are plotted in Figure 1.1 over 1995–2020.

Box 1.1: The Value-Added Trade Accounting Framework

Data in trade statistics are generally insufficient to study global value chains (GVCs). This is because reported flows are in gross terms, whereas in GVC research, it is important to also look at flows in value-added terms. Koopman, Wang, and Wei (2014) were the first to provide a methodology for comprehensively decomposing bilateral gross exports into more primitive value-added categories using information from intercountry input–output tables.

Decomposition of Home's (*H*) Gross Exports to Partner (*P*)
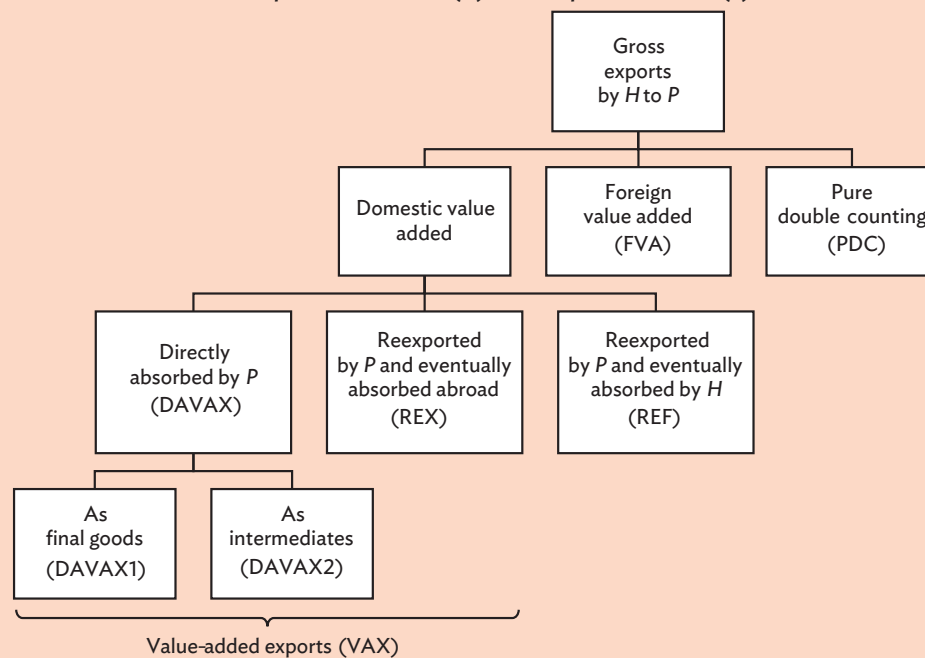
Sources: Authors based on Borin and Mancini (2019) and Koopman, Wang, and Wei (2014).

In the refinement by Borin and Mancini (2019), specifically their source-based approach, gross exports are divided into five main categories, as shown in the figure:
   (i)   Domestic value added (DVA) directly absorbed by imported (DAVAX).
   (ii) DVA sent to importer then reexported to eventually be absorbed abroad (REX).
   (iii) DVA sent to importer then reexported to eventually be returned to and absorbed by exporter (REF).
   (iv) Foreign value added in exports (FVA).
   (v) Pure double counting (PDC).

Pure double counting accounts for cases where value added crosses the same border twice or more, creating duplicate footprints in the data. The first category, DAVAX, can be further split into those absorbed as final goods (DAVAX1) and those received as intermediate goods that are then locally completed and absorbed (DAVAX2).

Of the DVA exported, a portion may be imported back home and consumed. This is called reflection (REF). The rest are value-added exports (VAX)—exports of DVA that are ultimately absorbed abroad. This can be further divided into the portion absorbed by a direct trading partner (DAVAX) and the portion that is reexported before finally being consumed (REX).

Box 1.1: continued

Box 1.1: The Value-Added Trade Accounting Framework

Each of these categories can be disaggregated into sectors using the following two approaches: by exporting sectors—exports are broken down by the sector that actually exports, and by origin sectors—exports are broken down by the sector from where the value added originated.

The GVC participation rate measures the extent to which an entity is participating in GVCs. Two approaches are given in the literature. The trade-based approach of Borin and Mancini (2019), following Hummels, Ishii, and Yi (2001), takes the share of indirect trade—here defined as REX + REF + FVA + PDC—in gross exports. This is the portion of exports whose underlying value added crosses two or more borders before final consumption. Meanwhile, the production-based approach of Wang et al. (2017) takes the share of unfinished exports of domestic value added—here defined as DAVAX2 + REX + REF—in total domestic value added. This is the portion of gross domestic product that goes into exports of intermediates.

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Hummels, D., J. Ishii, and K. M. Yi. 2001. The Nature and Growth of Vertical Specialization in World Trade. *Journal of International Economics.* 54 (1). pp. 75–96.
Koopman, R., Z. Wang, and S. Wei. 2014. Tracing Value-Added and Double Counting in Gross Exports. *American Economic Review.* 104 (2). pp. 459–494.
Wang, Z., S. Wei, X. Yu, and K. Zhu. 2017. Measures of Participation in Global Value Chains and Global Business Cycles. *NBER Working Paper.* No. 23222. Cambridge, MA: National Bureau of Economic Research.

Figure 1.1: Global Value Chain Participation Rates, World, 1995–2020
(%)
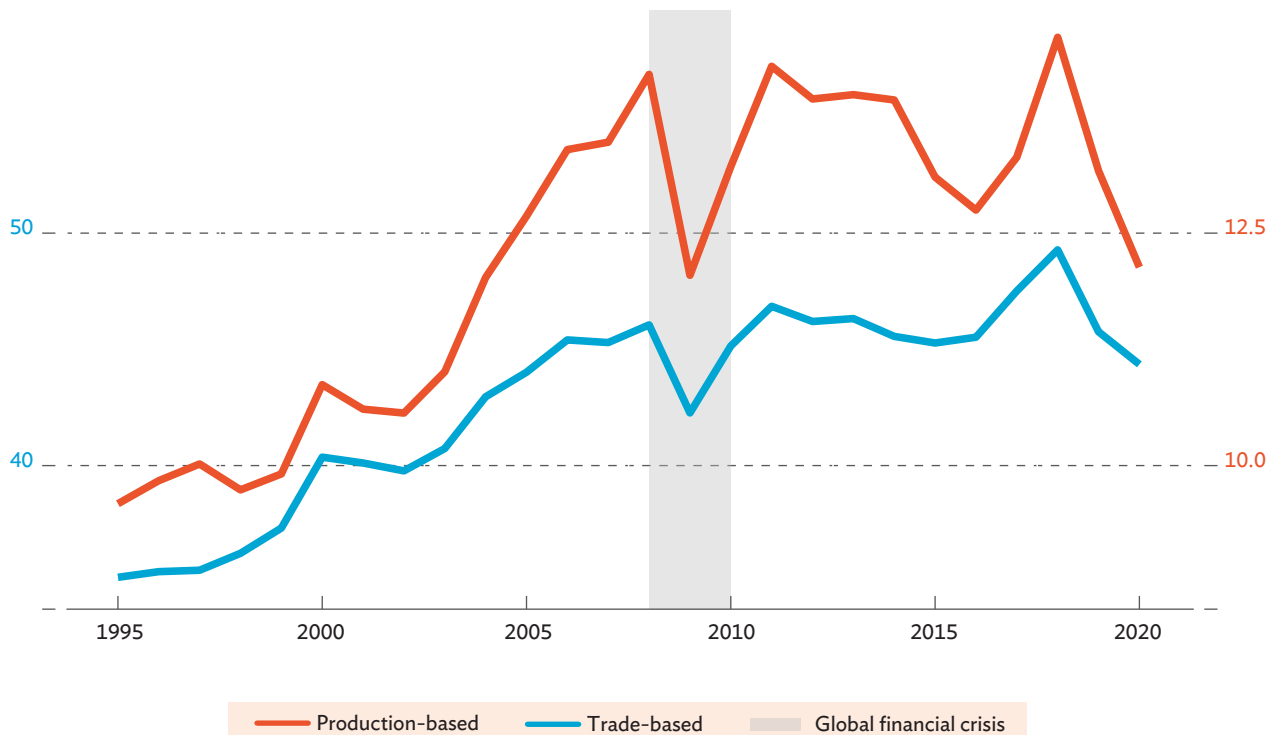
GVC = global value chain.
Notes: Trade-based GVC participation is based on the total GVC participation rate of A. Borin and M. Mancini. 2019. Measuring What Matters in Global Value Chains and Value-Added Trade. *Policy Research Working Paper.* No. 8804. Washington, DC: World Bank. Production-based GVC participation is based on the forward GVC participation rate of Z. Wang, S. Wei, X. Yu, and K. Zhu. 2017. Measures of Participation in Global Value Chains and Global Business Cycles. *NBER Working Paper.* No. 23222. Cambridge, MA: National Bureau of Economic Research.
Sources: 1995–2006: World Input–Output Database, 2013 Release. http://www.wiod.org/release13 (accessed 31 July 2021); 2007–2020: Asian Development Bank. Multiregional Input–Output Database. https://mrio.adbx.online (accessed 31 July 2021); Asian Development Bank estimates.

Two phases of hyperglobalization and slowbalization are discernible. From 1995 to 2008, the rapid expansion in GVCs led to surges in both participation rates, with the trade-based rate rising from 35.2% to 46.1% and the production-based rate rising from 9.6% to 14.2%. After the global financial crisis, a reshoring of supply chains caused a sharp but temporary drop in both rates, which had bounced back by 2010. Since then, they have remained at roughly the same levels. And although the COVID-19 pandemic has been a drag on GVC participation, Figure 1.1 shows that participation rates have been in line with the generally anemic trend seen since 2010. As of 2020, the trade-based participation rate was 44.4% and the production-based rate 12.1%.

While participation rates have stagnated, nominal values continue to grow. Global indirect exports, the numerator of the trade-based GVC participation rate, reached a record high in 2018 of $13.6 trillion by the authors' estimates, although it declined over 2019–2020. Table 1.1 identifies the economies driving indirect trade both by magnitude and growth in 3 benchmark years: 2000, 2010, and 2019.[1]

Unsurprisingly, four of the five largest GVC exporters—France, Germany, the PRC, and the US—are also the world's largest economies. The inclusion of the Netherlands, despite its smaller size, speaks to its outsized role in GVCs. Percentages in parentheses give average compounded growth rates for 2000–2010 and 2010–2019. In line with slowbalization, four of the five economies saw growth rates significantly lower in the second period compared with the first, with the PRC experiencing the most dramatic fall—from growing 20.0% a year to just 4.6%. Consequently, even though the PRC has reliably been the world's largest exporter since 2010, it has not maintained that distinction for indirect exports. The PRC's stagnant performance is also apparent when viewed in terms of participation rates, as discussed later.

These trends may be surprising since the PRC has long been among globalization's central players—and known as the workshop of the world for decades. Three factors appear to have caused this plateau, all of which ultimately stem from the PRC's current stage of development. The first is the country's rising cost of labor. Although a cheap labor force fueled exports and drew in foreign investment during hyperglobalization, wages have since caught up with productivity, with urban wages growing 13.8% a year on average from 1998 to 2010 (Li et al. 2012). The second factor is the overall decline of trade as a share in the PRC's economy. This applies in both the forward sense, in terms of foreign buyers of the PRC's products, and the backward sense, in terms of foreign suppliers of the PRC's inputs. Both increasingly come from domestic sources (Woetzel et al. 2018; *The Economist* 2020). All this is not to say that the PRC will permanently retreat from GVCs. With strong government support for "indigenous innovation" (Liu et al. 2011; Vinig and Bossink 2015; Cheng, Meng, and Gao 2020), it may well reestablish its presence in more complex, high-value segments, such as research and development (R&D) and marketing and sales.

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[1]   The year 2000 is the earliest in the Asian Development Bank's Multiregional Input–Output Database. The turning point for slowbalization was around 2009, but given the anomalous nature of that year, 2010 was chosen instead. The same goes for choosing 2019 over 2020.

Table 1.1: Economies with Major Indirect Exports ($ million)						
	Gross Exports			Indirect Exports		
Economy	2000	2010	2019	2000	2010	2019
World	7,418,146	17,638,600	24,594,288	3,018,079	7,963,467	11,254,582
		(8.7%)	(3.7%)		(9.7%)	(3.8%)
Top 5 by Magnitude, 2019						
Germany	585,655	1,385,309	1,810,593	237,832	631,683	949,316
		(8.6%)	(3.0%)		(9.8%)	(4.5%)
United States	926,628	1,552,490	2,514,751	333,968	559,297	948,578
		(5.2%)	(5.4%)		(5.2%)	(5.9%)
PRC	262,018	1,697,752	2,664,103	80,676	595,559	903,902
		(18.7%)	(5.0%)		(20.0%)	(4.6%)
Netherlands	199,698	481,024	755,817	89,180	269,426	448,621
		(8.8%)	(5.0%)		(11.1%)	(5.7%)
France	356,767	649,302	862,767	144,159	295,172	424,097
		(6.0%)	(3.2%)		(7.2%)	(4.0%)
Top 5 by Growth, 2010–2019						
Cambodia	1,258	4,041	16,549	468	1,538	7,186
		(11.7%)	(15.7%)		(11.9%)	(17.1%)
Lao PDR	452	1,548	6,985	164	566	2,498
		(12.3%)	(16.7%)		(12.4%)	(16.5%)
Viet Nam	17,155	83,474	279,720	6,287	45,482	164,563
		(15.8%)	(13.4%)		(19.8%)	(14.3%)
Nepal	984	1,067	2,666	282	337	1,093
		(0.8%)	(10.2%)		(1.8%)	(13.1%)
Mongolia	441	2,955	8,413	196	1,315	3,433
		(19.0%)	(11.6%)		(19.0%)	(10.7%)

Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Notes:
1. Magnitudes are in millions of current dollars.
2. Numbers in parentheses are compounded average growth rates for 2000–2010 and 2010–2019.
3. Estimates of indirect exports are based on the source-based decomposition methodology of A. Borin and M. Mancini. 2019. Measuring What Matters in Global Value Chains and Value-Added Trade. *Policy Research Working Paper*. No. 8804. Washington, DC: World Bank.
Sources: Asian Development Bank. Multiregional Input–Output Database. https://mrio.adbx.online (accessed 31 July 2021); Asian Development Bank estimates.

Table 1.1 identifies economies with the fastest growing indirect exports, with the top five all achieving yearly double-digit growth from 2000 to 2019. All five are developing Asian economies adjacent to the PRC: Cambodia, the Lao People's Democratic Republic, Mongolia, Nepal, and Viet Nam. The largest by far is Viet Nam, whose indirect exports of over $160 billion in 2019 were 4.3 times larger than that of the Philippines, an economy of roughly the same size and level of development. Indeed, Viet Nam has long been a rising star in GVCs, having become a leading alternative to the PRC for labor-intensive manufacturing (Herr, Schweissheim, and Vu 2016; Hanson 2021; Abiad et al. 2018).

Figure 1.2 charts the two GVC participation rates for each economy in 2000, 2010, and 2019. Immediately noticeable is that for both ratios almost all economies saw participation expand from 2000 (dark blue dots) to 2019 (red dots). This is even true when taking just the 2010–2019 slowbalization period, although here the picture is mixed.

Figure 1.2: Measures of Global Value Chain Participation, 2000, 2010, 2019
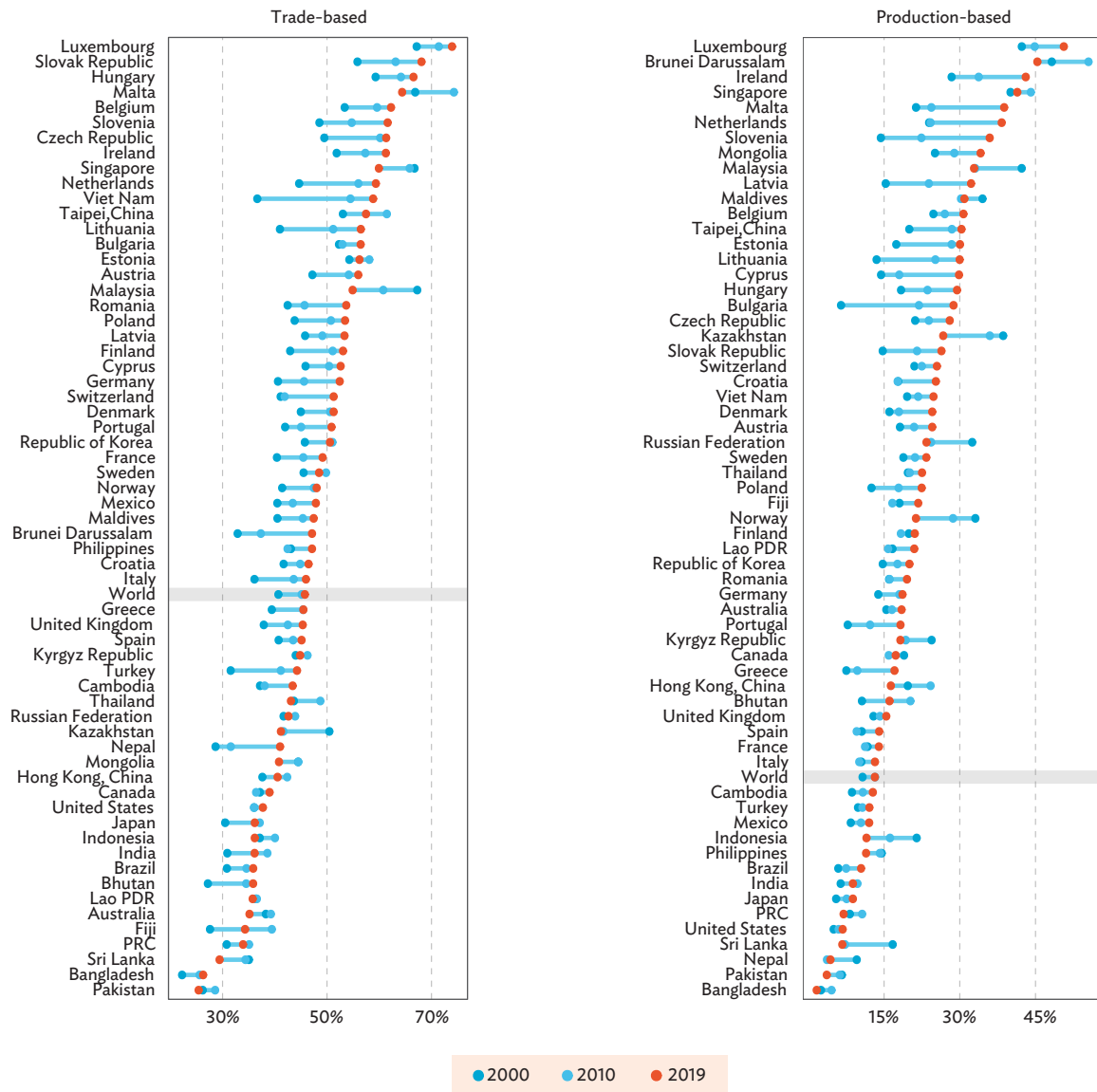
GVC = global value chain, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Notes: The trade-based GVC participation rate is based on the total GVC participation rate of A. Borin and M. Mancini. 2019. Measuring What Matters in Global Value Chains and Value-Added Trade. *Policy Research Working Paper*. No. 8804. Washington, DC: World Bank. The production-based GVC participation rate is based on the forward GVC participation rate of Z. Wang, S. Wei, X. Yu, and K. Zhu. 2017. Measures of Participation in Global Value Chains and Global Business Cycles. *NBER Working Paper*. No. 23222. Cambridge, MA: National Bureau of Economic Research.
Sources: Asian Development Bank. Multiregional Input–Output Database. https://mrio.adbx.online (accessed 31 July 2021); Asian Development Bank estimates.

Highlighting the difference between participation and raw magnitudes is the fact that the PRC and the US, although among the top GVC players, have participation rates that are significantly below the world average. The PRC, in particular, is seeing declining rates: from 35.1% in 2010 to 33.9% in 2019 for the trade-based GVC participation rate and from 10.7% in 2010 to 7.0% in 2019 for the production-based GVC participation rate. European players, however, have been growing more integrated in cross-border supply chains. The trade-based participation rate for Germany, the world's largest indirect trader as of 2019, expanded from 45.6% in 2010 to 52.4% in 2019, although its production-based rate expanded more modestly, from 18.0% to 18.7%.

Cases where the two rates show contrasting pictures illustrate the nuances between what they are measuring. For example, although Indonesia's trade-based participation rate declined modestly over 2000–2019, its production-based participation rate plummeted from 21.5% to 11.5% in the same period. This implies a growing domestic economy and a relatively stagnant GVC sector (ADB 2019). Brunei Darussalam had among the highest participation rates in 2019 measured by the production-based participation rate (2nd out of 62 economies in Figure 1.2), but only middling participation measured by the trade-based participation rate (33rd out of 62). This is because trade is such a huge portion of Brunei Darussalam's economy, which is concentrated in oil, even if much of it is not in GVCs.

A curious case is Bangladesh, which, in spite of stellar 10.5% annual growth in indirect exports over 2010–2019, remains a laggard in GVC participation, appearing near or at the bottom for both rates. One explanation is that its GVC trade is highly concentrated in a particular sector: textiles and garments (Mercer-Blackman, Foronda, and Mariasingham 2017).[2] As Table 1.2 shows, this sector accounts for 79.7% of Bangladesh's gross exports and 7.5% of its gross domestic product (GDP), the highest and second highest, respectively, out of the 62 economies in Figure 1.2. For textiles and garments, Bangladesh's participation is actually above the world average, beating Pakistan and Sri Lanka. This is because of a development strategy that wisely makes use of Bangladesh's abundant pool of cheap, low-skilled labor that allowed it to achieve an average real GDP growth rate of 7.4% over 2015–2019 and to be among the few economies to grow in 2020.[3] It must be said, however, that Bangladesh's textile and garments industry remains confined to relatively low-value-added segments like cutting and sewing, and its cost advantage may have been gained at the expense of labor welfare (Anner 2019; Barrett, Baumann-Pauly, and Gu 2018).

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[2]   The "textiles and textile products" sector comprises C13–C14 in the International Standard Industrial Classification, revision 4 (ISIC 4).

[3]   International Monetary Fund. World Economic Outlook Database. https://www.imf.org/en/Publications/WEO/weo-database/2021/April/download-entire-database (accessed 31 July 2021). However, Bangladesh's 2020 growth partly stems from having a fiscal year that ends in June, thus "splitting" the impact of COVID-19 over 2019/2020 and 2020/2021.

Economy	Share of Exports	Trade-Based Participation Rate	Share of Gross Domestic Product	Production-Based Participation Rate
Table 1.2: Global Value Chain Participation for Selected Economies and Sectors, 2019 (%)				
Textiles and Textile Products				
Bangladesh	79.7	26.5	7.5	2.1
Pakistan	54.7	21.1	3.4	11.4
Cambodia	52.8	44.8	12.0	3.0
Sri Lanka	31.3	18.9	5.1	3.1
Turkey	17.5	39.5	3.7	25.1
World	**3.1**	**35.0**	**0.7**	**17.0**
Electricals and Optical Equipment				
Taipei,China	52.8	60.3	15.8	78.1
Malaysia	33.8	70.2	5.2	78.6
Philippines	31.5	67.7	2.4	55.9
People's Republic of China	29.7	39.7	3.8	16.4
Republic of Korea	28.3	53.4	8.9	58.0
World	**12.2**	**51.3**	**2.2**	**34.7**

GVC = global value chain.

Notes: The trade-based GVC participation rate is based on the total GVC participation rate of A. Borin and M. Mancini. 2019. Measuring What Matters in Global Value Chains and Value-Added Trade. *Policy Research Working Paper.* No. 8804. Washington, DC: World Bank. The production-based GVC participation rate is based on the forward GVC participation rate of Z. Wang, S. Wei, X. Yu, and K. Zhu. 2017. Measures of Participation in Global Value Chains and Global Business Cycles. *NBER Working Paper*. No. 23222. Cambridge, MA: National Bureau of Economic Research.

Sources: Asian Development Bank. Multiregional Input–Output Database. https://mrio.adbx.online (accessed 31 July 2021); Asian Development Bank estimates.

Table 1.2 also looks at another GVC-oriented industry, electrical and optical equipment, along with the industry's export-leading economies.[4] For Malaysia, the Republic of Korea, and Taipei,China, electricals dominate not only their exports but also GDP. GVC participation rates are high for both, cementing their status as major participants in the world electricals value chain. This contrasts starkly with an economy like Mexico. While electricals comprise a sizable portion of Mexico's exports (24%) of which much are in GVCs (77%), the value that the sector generates domestically is largely not oriented toward GVCs.

A benefit of GVCs is the opportunity they give for specialization not just in products but also in tasks. Rather than simply exporting cars or computers, economies can now find niches in particular stages of the car and computer value chain, from R&D to the production of raw materials, and to assembly and then marketing. As noted earlier, Bangladesh specializes in the downstream end of the textile and garments value chain, producing ready-made garments for over 1,000 retailers (Anas 2020). Thus, Bangladesh does not need to acquire the skills of, say, Japanese and Swedish designers to participate

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4   The "electrical and optical equipment" sector comprises C26–C27, C3313–C3315, and C3319 in ISIC 4.

in the value chains of Uniqlo Co. Ltd. and Hennes & Mauritz AB. But this should only be a first stage of development. Over time, Bangladesh should be able to move along the value chain toward more value-adding tasks.

Value chains with more stages lend themselves easier to task specialization (Box 1.2). Using the methodology of Wang et al. (2017b) and Antràs and Chor (2018), the average number of stages in the GVC component of a given sector is estimated for 2000, 2010, and 2019. The results are plotted in Figure 1.3. A general lengthening of GVCs occurred across sectors from 2000 to 2010. On average, the number of stages separating primary inputs and final consumption in GVCs globally was 7.9 in 2000 and 8.5 in 2010. Stagnation followed, consistent with slowbalization, with stages remaining at about 8.5 from 2010 to 2019. Interestingly, the only sector that achieved a significant lengthening was water transport, whose GVC stages went from 7.9 in 2010 to 8.8 in 2019.[5]

Figure 1.3: Global Value Chain Production Lengths by Sector, World, 2000, 2010, 2019
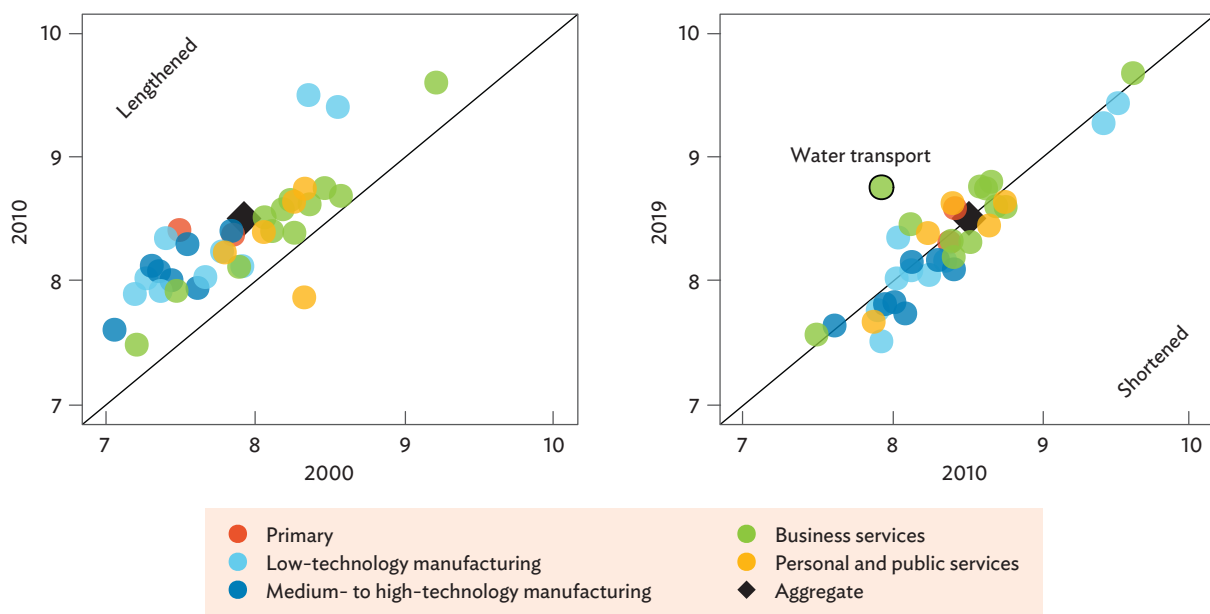
Notes: Global value chain production lengths are the sum of backward and forward lengths, computed following the methodology of Z. Wang, S. Wei, X. Yu, and K. Zhu. 2017. Characterizing Global Value Chains: Production Length and Upstreamness. *NBER Working Paper*. No. 23261. Cambridge, MA: National Bureau of Economic Research.

Sources: Asian Development Bank. Multiregional Input–Output Database. https://mrio.adbx.online (accessed 31 July 2021); Asian Development Bank estimates.

Comparing GVC lengths from the forward and backward perspectives positions an economy along the value chain. If the forward length is longer than the backward length, then an economy is said to be relatively upstream, and vice versa, as the figure in Box 1.2 shows. This can be visualized in a scatterplot following Escaith and Inomata (2013), with backward lengths on the horizontal axis and forward lengths on the vertical axis. The 45-degree line divides observations between upstream and downstream economies.

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5   The "water transport" sector comprises H50 in ISIC 4.

Box 1.2: Positioning Economies in Global Value Chains

With the rise of global value chains (GVCs), patterns of specialization have expanded to cover not only products but also tasks. Indeed, gross trade statistics may lead to the conclusion that an economy has a product specialization when in fact it has a *functional* specialization.

A case in point is developing countries with major electronics exports, such as the Philippines. These economies do not specialize in electronics per se, but in a particular segment in the electronics value chain (Timmer, Miroudot, and de Vries 2019).

To observe functional specialization, some method for positioning a particular economy along GVCs is needed. This assumes that GVCs are essentially sequential in nature, which, while not universally true (Baldwin and Venables 2013), is a convenient assumption to make. Antràs and Chor (2018) review various ways of characterizing an economy's GVC position. The simplest is to take the share of final demand in an economy's total output, termed F/GO, on the reasoning that the larger this ratio is, the closer the economy is to final consumers. That is, it is positioned relatively downstream in GVCs. Alternatively, the share of value added in an economy's total purchases, termed *VA/GO*, measures how close the economy is to primary inputs. More upstream economies have higher *VA/GO* ratios.

The ease of computing *F/GO* and *VA/GO* are matched by their bluntness. A limitation is that they do not account for heterogeneity among intermediate use and purchases. For example, two economies that both sell 40% of their output to final consumers may still end up differing in downstreamness depending on who they sell the remaining 60% to.

A more sophisticated approach, proposed in Antràs and Chor (2013), uses input–output techniques to compute a weighted average of the stages separating an economy and final consumers at one end and primary inputs at the other end, resulting in upstreamness (*U*) and downstreamness (*D*) indices. An economy with an upstreamness index of 2.5, for example, has output that is on average 2.5 stages away from final consumers. Having a high *U* and a low *D* indicates a relatively upstream economy, while the opposite indicates a relatively downstream economy. Having both a high *U* and a high *D* suggests that an economy is positioned deep within long and complex value chains.

Wang et al. (2017) refine this further to extract the GVC segment of a production chain. That is, stages captured in U and D that take place in domestic and traditional trade value chains are excluded. In the figure, since the forward GVC length is noticeably longer than the backward GVC length, this economy is said to be positioned relatively upstream in GVCs.

Global Value Chain Position of an Economy
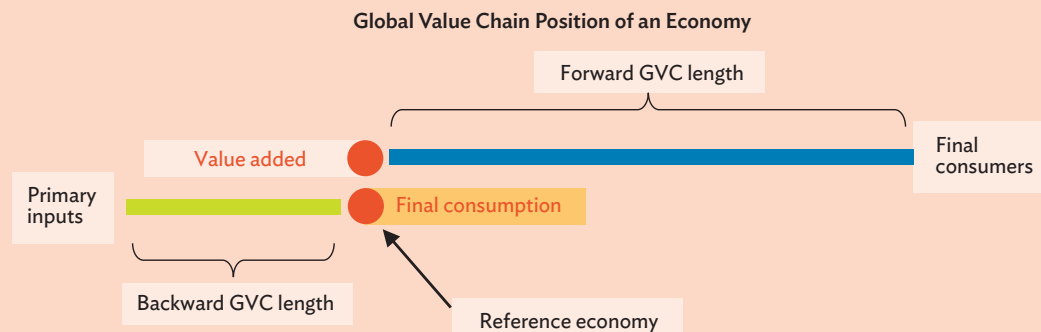
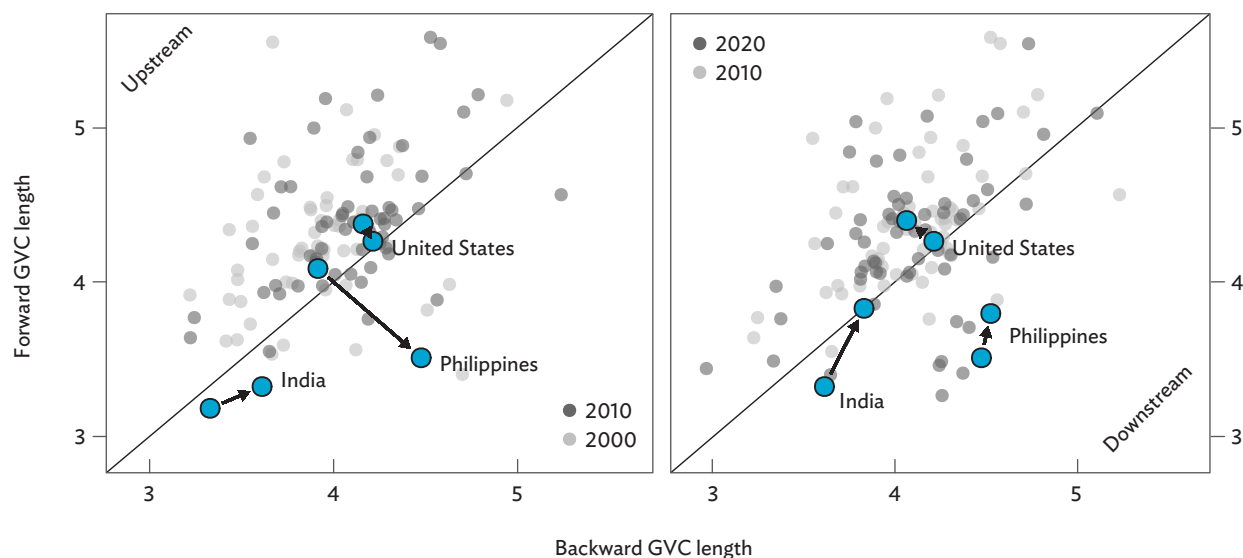GVC = global value chain.

Source: Authors.

All measures discussed here are computed at the sector level. To aggregate at the national level, two approaches are possible. The first is to aggregate the base intercountry input–output tables and apply the formula from there. The second is to take a weighted average of the sector-level measures, the weights being each sector's share in total value added. The authors use the latter approach.

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Timmer, M. P., S. Miroudot, and G. J. de Vries. 2019. Functional Specialisation in Trade. *Journal of Economic Geography*. 19 (1). pp. 1–30.

Wang, Z., S. Wei, X. Yu, and K. Zhu. 2017. Characterizing Global Value Chains: Production Length and Upstreamness. *NBER Working Paper*. No. 23261. Cambridge, MA: National Bureau of Economic Research.

Figure 1.4 constructs such a plot for the "other business activities" sector in the Multiregional Input–Output Database of the Asian Development Bank (ADB). This is a residual category capturing various business-related services in management, law, and information technology, among other areas. Crucially, it contains business process outsourcing (BPO), a sector that several developing countries have started to specialize in—and one which shows the viability of a services-led approach to economic growth. BPO involves a variety of customer-facing or back-office services provided to MNCs. Its most well-known specialists include India and the Philippines, whose skilled workforce, competitively priced labor, and command of English have made them favored destinations for BPO investment (Mitra 2013; Baja, 2011).

Figure 1.4: Global Value Chain Production Length for Other Business Activities, 2000, 2010, 2020

GVC = global value chain.
Notes:
1. GVC production lengths are computed based on the methodology of Z. Wang, S. Wei, X. Yu, and K. Zhu. 2017. Characterizing Global Value Chains: Production Length and Upstreamness. *NBER Working Paper*. No. 23261. Cambridge, MA: National Bureau of Economic Research.
2. "Other business activities" refer to the "renting of machinery & equipment and other business activities" sector in the Asian Development Bank's Multiregional Input–Output Database. This covers J582, J62–J63, M69–M74, N77–N78, and N80–N82 in the International Standard Industrial Classification revision 4.
Sources: Asian Development Bank. Multiregional Input–Output Database. https://mrio.adbx.online (accessed 31 July 2021); Asian Development Bank estimates.

Chapter 4 explores software services in India and BPO in the Philippines in greater detail. Here, some broader observations of their positioning in GVCs are made. Figure 1.4 shows that both countries tend to exhibit shorter forward lengths than the US, the top GVC participant in "other business activities." But although India remained relatively downstream from 2000 to 2010, the Philippines made a marked shift from being relatively upstream to being relatively downstream. This coincided with and was probably caused by the development of its BPO sector. In contrast, most other points in the figure indicate that their business-related services tended to enter in the upstream stages of the value chain.

India shifted to a more middle position from 2010 to 2020, similar to the US though with shorter overall lengths. The Philippines maintained its relative downstreamness, indicating a continued heavy reliance on foreign inputs that keeps it stuck in low value-adding segments of the value chain. Indeed, half of the 1.3 million people employed in the country's BPO sector are classified as low-skilled (Lopez 2020). This possibly points to the limitations of a services-led approach to development, especially when it does not spill over to other more productive industries (Liu et al. 2019).

In summary, the slowbalization era is evident in globally stagnant GVC participation rates and shortening value-chain lengths. The drivers of GVCs in the hyperglobalization era—the PRC and the US, among others—have seen marked declines in the growth of their GVC trade. But several smaller players from the developing world are emerging: Bangladesh in textiles and garments, the Philippines in business services, and Viet Nam in electricals, to name a few. Thus, slowbalization is by no means a universal phenomenon.

The Role of Multinational Corporations

Measuring GVCs in terms of exports, as the previous section does, misses a crucial aspect of GVCs: the role of the firm. Fragmented production is not undertaken by economies or economy sectors but by firms.[6] This point is significant for at least three reasons. First, it highlights the concentrated nature of the participation of firms in GVCs. Globally, firms that both import and export (an indication of a GVC firm) comprise 15% of all firms, but they capture 80% of total trade (World Bank 2020). Second, as Antràs (2020a) argues, GVCs are fundamentally relational. Rather than a global market of impersonal buyers and sellers, production networks are built up by firms that engage in repeated interactions, making them "sticky." And third, MNCs course a significant amount of their sales through local affiliates established through foreign direct investment (FDI). When these are recorded as domestic activities in host economies, GVCs tend to be underestimated.

This section focuses on the third issue. Wang et al. (2021), in an extension of their earlier framework, propose a decomposition of economic activity that distinguishes the activities of MNCs. They do this using the Organisation for Economic Co-operation and Development's Analytical Activities of Multinational Enterprises (AMNE) database, which disaggregates each cell in the intercountry input–output table into domestic- and foreign-owned firms. They classify GVC activities into three types: (i) trade-related GVCs, involving trade in intermediates by domestic firms; (ii) FDI-related GVCs,

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6   An economy sector refers to a unique entity in the Asian Development Bank's Multiregional Input–Output Database defined by a sector and the economy it belongs to. Thus, the electricals sector in Viet Nam is an economy sector. Because the database has information on 63 economies (including the rest of the world), each divided into 35 sectors, there are 63 × 35 = 2,205 economy sectors in the database.

involving the sales of local the affiliates of MNCs; and (iii) trade- and FDI-related GVCs, involving all other trade in intermediates. It is the FDI-related GVCs that are missed in standard decompositions (Box 1.3).

Box 1.3: Accounting for Foreign Direct Investment in Global Value Chains

Frameworks for measuring global value chain (GVC) activities using intercountry input–output tables underestimate because they fail to capture the role of multinational corporations (MNCs) and their foreign affiliates. This is particularly evident in cases where local affiliates of multinational corporations participate in GVCs in a different way compared with purely local firms.

The figure illustrates an accounting framework proposed by Wang et al. (2021) that quantifies the varying degrees of GVC participation by economy sectors, while accounting for the role of affiliates of foreign MNCs in value-added generation.

Accounting Framework Identifying Multinational Corporations
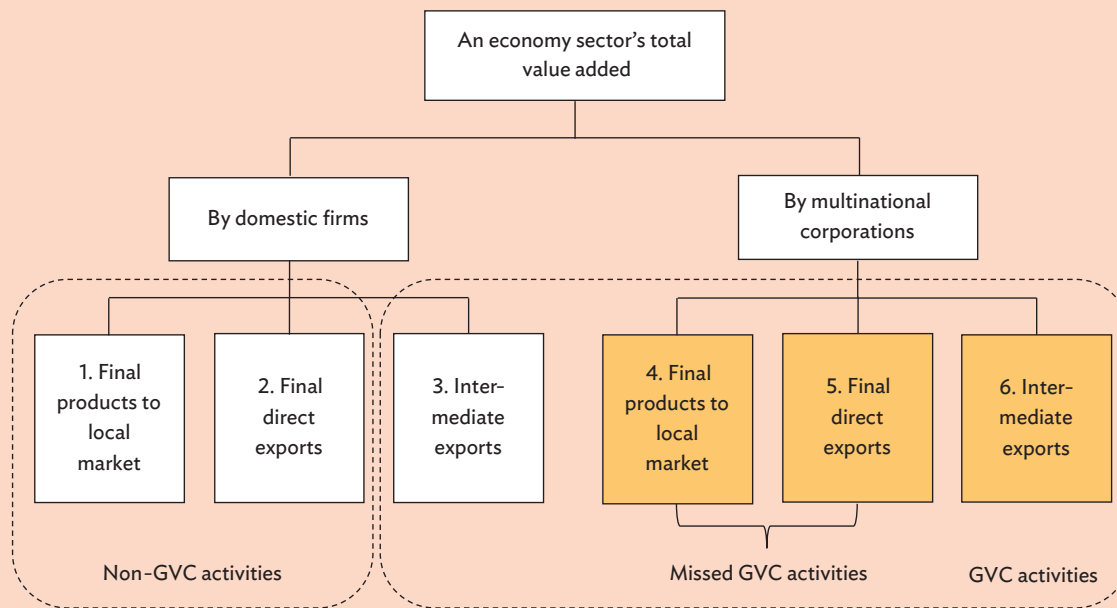
GVC = global value chain.
Note: Value-added components highlighted in yellow refer to GVC activities related to foreign affiliates.
Source: Wang et al. (2021).

This incorporates the value added from MNCs not captured in previous frameworks, including the value added of firms that are ultimately absorbed as final products in local markets, and the value added of MNCs absorbed by third economies as exports of final goods. In earlier frameworks, these two are classified as pure domestic production and traditional trade, respectively, though arguably they may be more properly classified as GVCs.

This framework is operationalized using the Organisation for Economic Co-operation and Development's Analytical Activities of Multinational Enterprises (AMNE) database (Cadestin et al. 2018). Although standard intercountry input–output tables do not provide information on whether firms are domestic- or foreign-owned, the AMNE database breaks down the sectors according to the shares of domestic- or foreign-owned firms, as shown in the following figure.

Box 1.3: continued

Box 1.3: Accounting for Foreign Direct Investment in Global Value Chains

Structure of the Organisation for Economic Co-operation and Development's Analytical Activities of Multinational Enterprises Database

			Intermediate Use						Final Demand			Total Output
			1		2		...	60		1	2	...	60	
			d	f	d	f	...	d	f					
Intermediate inputs	1	d												
		f												
	2	d												
		f												
	⋮	⋮												
	60	d												
		f												
Value added													
Total input													

d = domestic-owned, f = foreign-owned.
Source: Organisation for Economic Co-operation and Development. Activities of Multinational Enterprises Database. https://www.oecd.org/sti/ind/analytical-amne-database.htm (accessed 31 July 2021).

A foreign-affiliate firm is considered foreign-owned when it has at least 50% of foreign ownership. In contrast, domestic-owned firms comprise domestic MNCs and domestic firms that do not have investments abroad. The AMNE database covers 59 economies and an aggregate for the "rest of the world" category. It is divided into 34 sectors based on the International Standard Industrial Classification revision 4 from 2005 to 2016.

References
Cadestin, C., K. de Backer, I. Desnoyers-James, S. Miroudot, D. Rigo, and M. Ye. 2018. Multinational Enterprises and Global Value Chains: The OECD Analytical AMNE Database. *OECD Trade Policy Papers*. No. 211. Paris: Organisation for Economic Co-operation and Development.
Wang, Z., S. J. Wei, X. Yu, and K. Zhu. 2021. Tracing Value Added in the Presence of Multinational Firms: With an Application to High Tech Sectors. Unpublished.

Figure 1.5 shows FDI-related GVCs accounted for 9.3% of global GDP in 2016. This was comparable to the combined shares of types (i) and (iii) for a total GVC participation rate of 20.2%. Thus, without distinguishing foreign-owned firms, the estimated rate is more than halved. This mismeasurement naturally varies depending on the prevalence of MNCs in an economy. In the small, highly open economy of Hong Kong, China, for example, FDI-related GVCs were 40.8% of GDP in 2016 compared with a total GVC participation rate of 54.3%, meaning over three-fourths of GVCs are missed if foreign ownership is not distinguished.

The results of the framework of Wang et al. (2021) are further explored using two analytical tools: the smile curve and network analysis. Because these were discussed extensively in the 2017 and 2019 *Global Value Chain Development Reports*, this analysis mostly focuses on their extension to incorporate MNCs. Smile curve analysis plots the value-added contribution of different entities in an industry across its stages of production,

arranged left to right from the most upstream to the most downstream participants. It is hypothesized that fitting a line through the observations will give an inverted U-shape—in other words, a smile curve (Figure 1.6). This is because the extreme ends of a value chain tend to involve more intangible, knowledge-intensive activities—R&D, design, and brand-building in the upstream stages and after-sales services and marketing in the downstream stages. Those in between involve more labor-intensive activities, such as manufacturing and assembly. This helps to shed light on the "paradoxical pair of concerns" that deal with the distribution of value-added gains between developed and developing economies (Baldwin, Ito, and Sato 2014). That is, advanced economies tend to concentrate in production stages that generate high value added, while developing economies tend to participate in low-end and tangible production activities, and this pattern prompts a concern that the latter could be stuck at the bottom portion of the smile curve.

Figure 1.5: Global Value Chain Participation with Multinational Corporations, World, 2005–2016
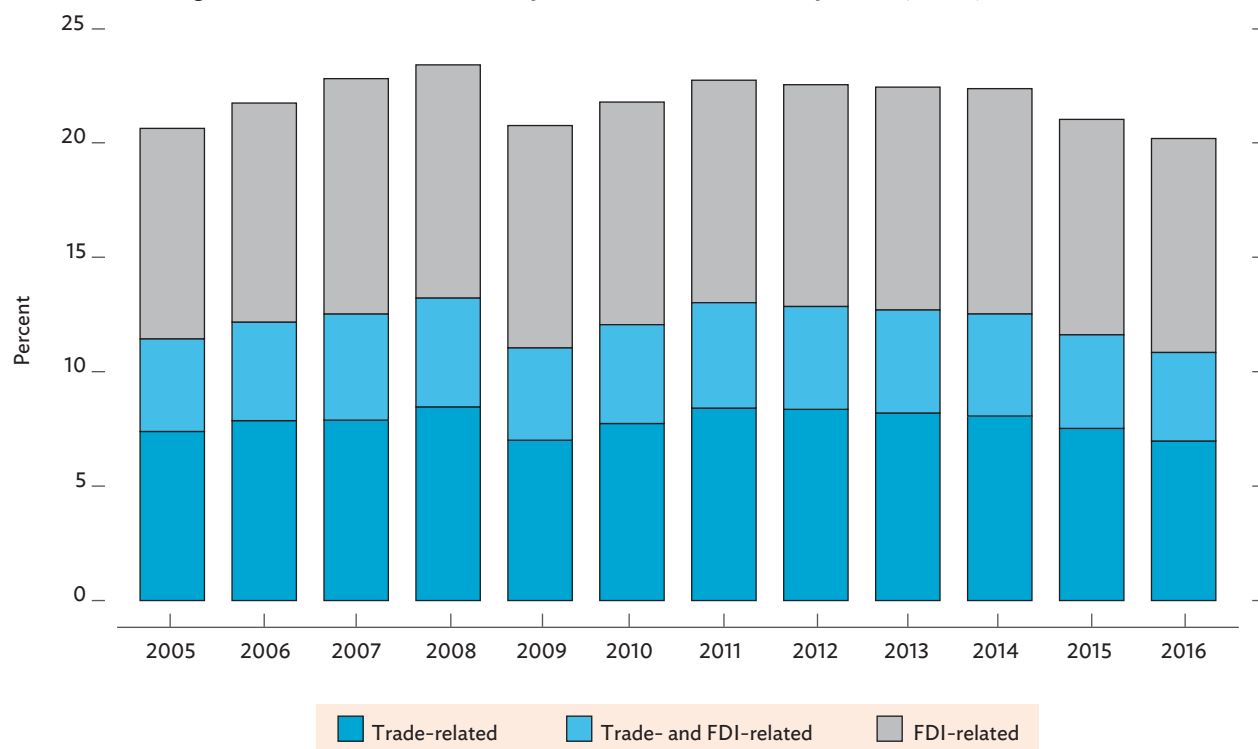

FDI = foreign direct investment.
Note: Decomposition follows the methodology of Wang et al. (2021).
Sources: Organisation for Economic Co-operation and Development. Analytical Activities of Multinational Enterprises Database. https://www.oecd.org/sti/ind/analytical-amne-database.htm (accessed 31 July 2021); Z. Wang, S. J. Wei, X. Yu, and K. Zhu. 2021. *Tracing Value-Added in the Presence of Multinational Firms: With an Application to High Tech Sectors*. Unpublished.

Several studies attempt to identify and measure smile curves. One set of studies use intercountry input–output tables to calculate the two ingredients in plotting smile curves: value-added gains of economy sectors in GVCs (i.e., the trade in value added), and the production stage in which the economy sector mainly operates, as measured
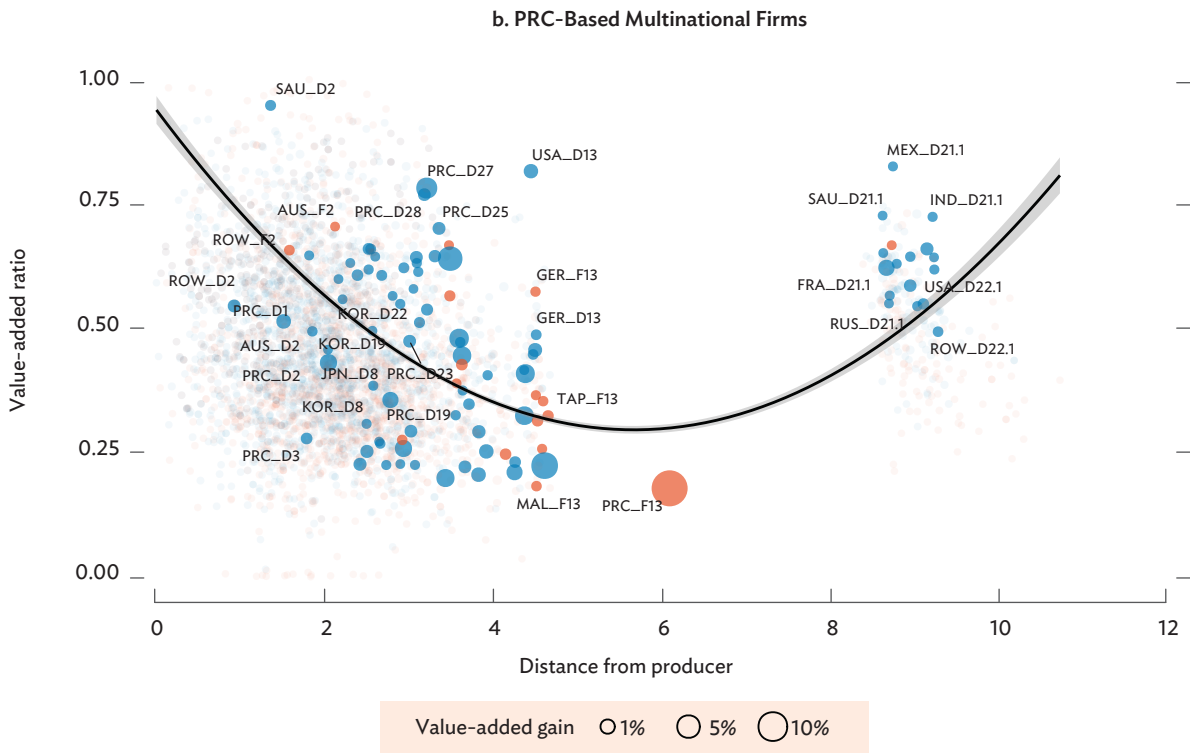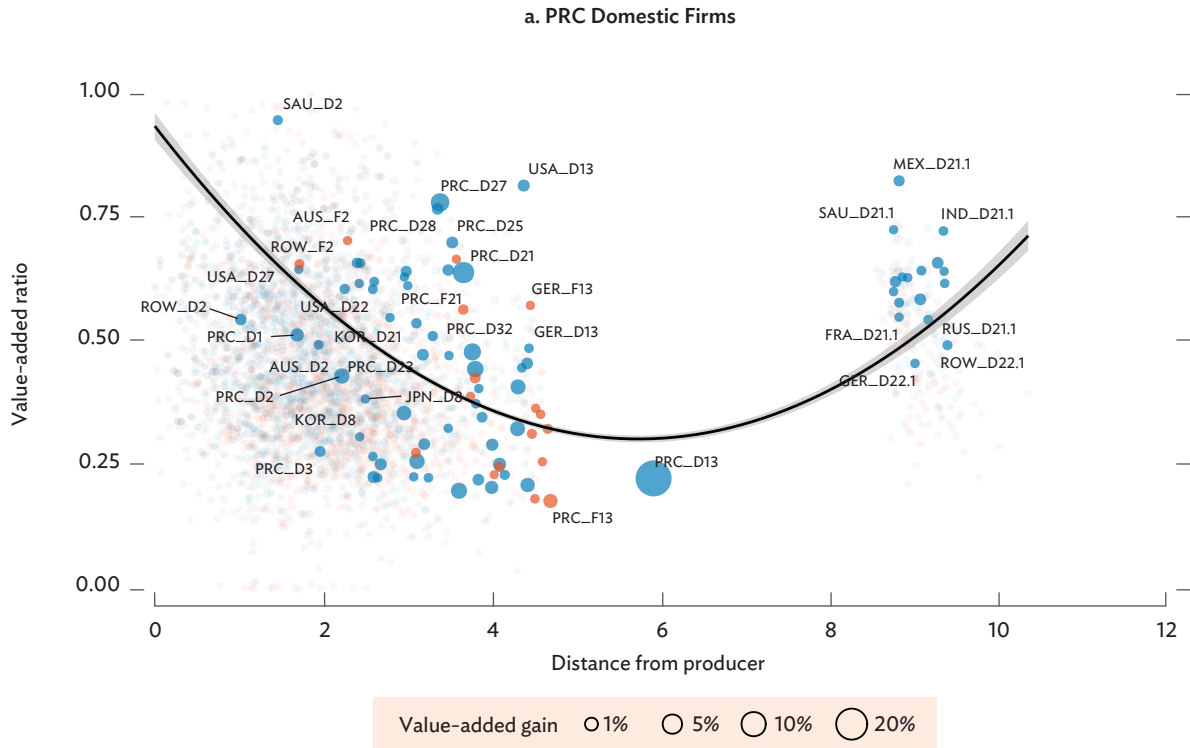
by the average propagation length (Ito and Vézina 2016; Meng, Ye, and Wei 2020). A shortcoming of this approach is that MNCs cannot explicitly be identified. Another set of studies use firm-level data, applying "teardown" analysis to track the value added of individual components to source firms and their economy of origin (Xing 2020 and Chapter 2). The limitation of this approach is that its findings may not be representative of the entire production network since it only focuses on the supply chain of a particular firm producing a particular product. The existence of a smile curve using data that takes into account the role of foreign-owned firms in GVCs had not been probed until Meng and Ye (forthcoming) filled this gap by using the AMNE database to examine the existence of a smile curve in the ICT industry. In particular, PRC and US exports for 2016 are considered, differentiated by domestic firms and MNCs. The four panels of Figure 1.7 show the results.

Figure 1.6: The Hypothesized Smile Curve
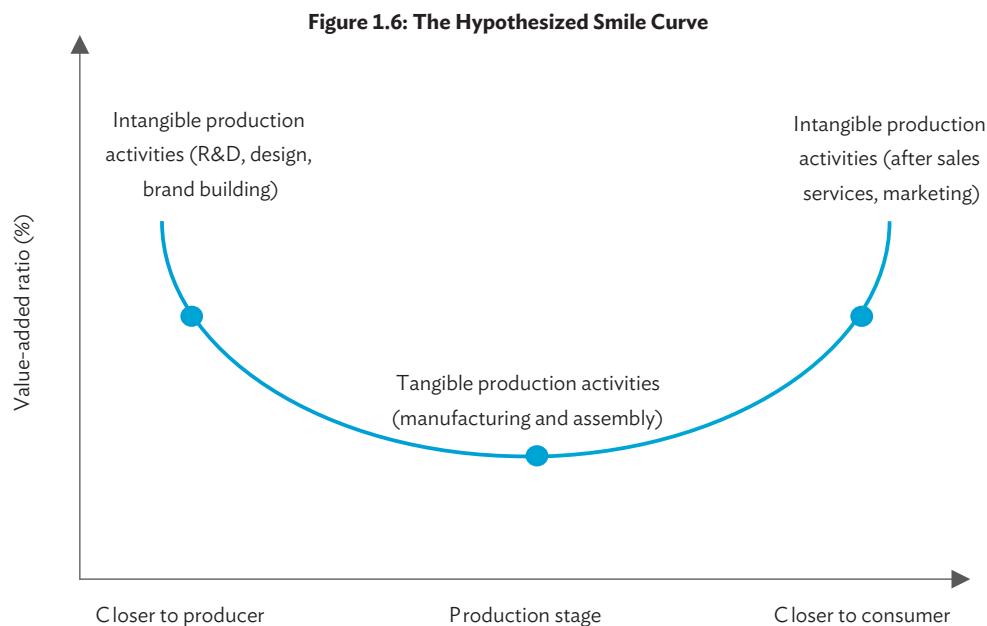
R&D = research and development.
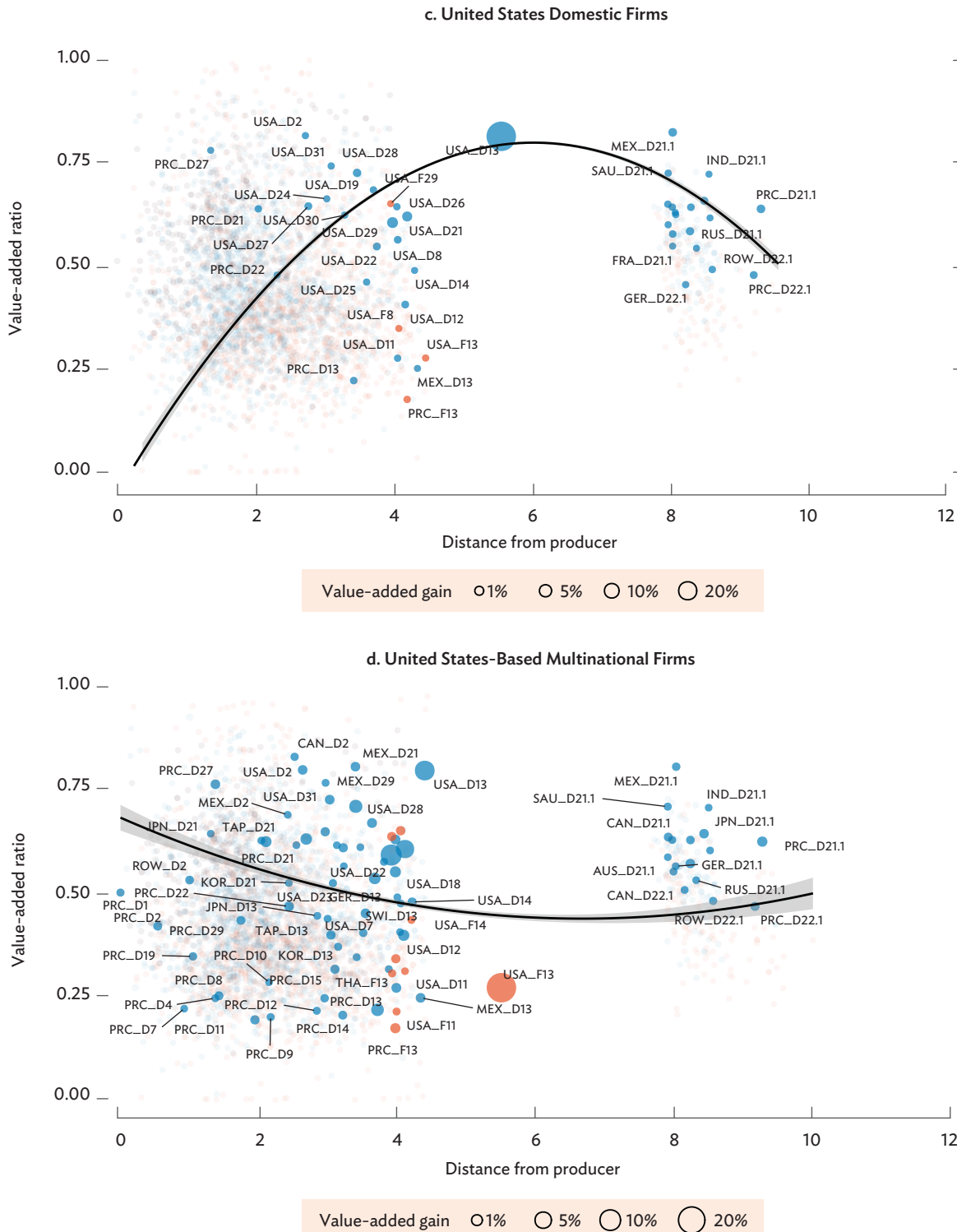Source: Authors.

Panel a shows the value chain for the exports of the PRC's domestic ICT firms appears as a smile curve. These firms are in the middle-bottom of the curve since they mainly export assembly products that are labor-intensive and are highly dependent on intermediate inputs. Despite being generally at the low value-added production stage, these firms also have the largest value-added gains. Other PRC domestic firms, such as wholesale and retail services and transportation services, also participate, mainly at the upstream end of this value chain since they provide the intermediate inputs that are directly or indirectly used by the PRC's domestic ICT firms.

Figure 1.7: Information and Communication Technology Export-Related Value Chain, 2016

a. PRC Domestic Firms

b. PRC-Based Multinational Firms

Figure 1.7: continued

c. United States Domestic Firms

Value-added ratio (y-axis), Distance from producer (x-axis)

Value-added gain ○ 1% ○ 5% ○ 10% ○ 20%

d. United States-Based Multinational Firms

Value-added ratio (y-axis), Distance from producer (x-axis)

Value-added gain ○ 1% ○ 5% ○ 10% ○ 20%

AUS = Australia, BRA = Brazil, CAN = Canada, CHL = Chile, D = domestic-owned, F = foreign-owned, FIN = Finland, FRA = France, GER = Germany, HKG = Hong Kong, China, IND = India, IRE = Ireland, ITA = Italy, JPN = Japan, KOR = Republic of Korea, MAL = Malaysia, MEX = Mexico, PHI = Philippines, PRC = People's Republic of China, ROW = rest of world, RUS = Russian Federation, SAU = Saudi Arabia, SIN = Singapore, SPA = Spain, SWI = Switzerland, TAP = Taipei,China, THA = Thailand, TUR = Turkey, UKG = United Kingdom, USA = United States.

Note: Numbers in the point labels indicate sectors.

Sources: B. Meng and M. Ye. Forthcoming. Smile Curves in Global Value Chains: Foreign- vs. Domestic-owned Firms; the U.S. vs. China. *Structural Change and Economic Dynamics*; Organisation for Economic Co-operation and Development. Analytical Activities of Multinational Enterprises Database. https://www.oecd.org/sti/ind/analytical-amne-database.htm (accessed 31 July 2021).

Strong cross-border intra-linkages can be seen between the PRC's domestic ICT firms and the US, as well as those of other economies in East Asia. Interindustrial linkages can also be seen between the PRC's domestic ICT firms and domestic non-ICT firms and other economies. MNCs, as of 2016, were involved in the value chains of the exports of domestic ICT firms, but this was not as substantial as the contribution by the PRC's domestic ICT firms. At the downstream sections of this value chain, the wholesale and retail trade and transportation services sectors in Japan, Mexico, the US, and some parts of Europe have also benefited from large value added since the PRC's domestic ICT products are mainly exported to these economies.

PRC-based multinational ICT firms are also at the middle-bottom of the value chain, as panel b shows. But the value-added share is relatively smaller, and the position relatively lower compared with the PRC's domestic ICT firms. This is because most PRC-based multinational ICT firms are in the processing trade, which requires greater intermediate imports and is more labor intensive.

Panel c shows the value chains for the exports of US domestic ICT firms do not have a smile curve, but rather an inverted U-shape. This is mainly because US domestic ICT firms have higher value-added shares relative to firms at either ends of this value chain. US domestic ICT firms employ a high-skilled, high-wage workforce and use sophisticated, high-rent capital inputs.

Panel d shows the value chains for the exports of US-based multinational ICT firms have a smile curve. The results are similar to that of PRC-based multinational ICT firms, but the smile curve is flatter, suggesting the value-added ratio across stages of production does not show a large variation. The production of exports by US-based multinational ICT firms also requires large amounts of intermediate inputs, which are sourced out from both domestic and foreign firms at the upstream of the value chain.

Meng and Ye (forthcoming) show some remarkable structural changes in the participation of economy sectors in GVCs by comparing smile curves in 2005 and 2016. For the PRC, the industrial upgrading of domestic manufacturing firms and the increasing role of domestic services in the country's ICT value chain resulted in more PRC domestic manufacturing and services firms being involved in the upstream portion of the chain for exports by the PRC's domestic ICT firms. Significant structural changes also resulted in the replacement of foreign firms as providers of intermediate inputs to PRC-based multinational ICT firms. Rapid technological upgrading in the PRC even enabled domestic manufacturing and services firms to position themselves in the upstream of the value chain for exports by US-based MNCs. Significant technological upgrading in the US also resulted in the transition of US domestic ICT firms to the production of very high value-added products with less reliance on both domestic and foreign intermediate inputs.

Another way the role of MNCs can be explored is through their visualization in network charts. Building on the methodology in Xiao et al. (2020) and using the AMNE database,

Gao, Meng, and Ye (2020) use networks to characterize the patterns of various GVCs distinctly comprised of domestic firms on the one hand and MNCs on the other.[7] Networks are examined for these types of ownership (domestic and foreign) from two perspectives (supply and demand) across two sector groups (manufacturing and services) and for 2 years (2005 and 2016).

In these networks, nodes represent the most central (or significantly connected) economy sectors and are sized according to the share of their total value-added exports (in the supply perspective) or value-added imports (in the demand perspective) to the world total. The connections between nodes represent the direct bilateral flows of value added, whether through exports (in the supply perspective) or imports (in the demand perspective) from source to destination. The nodes are weighted according to the shares of bilateral flows to the economy's total exports or imports, again from the perspective under consideration.
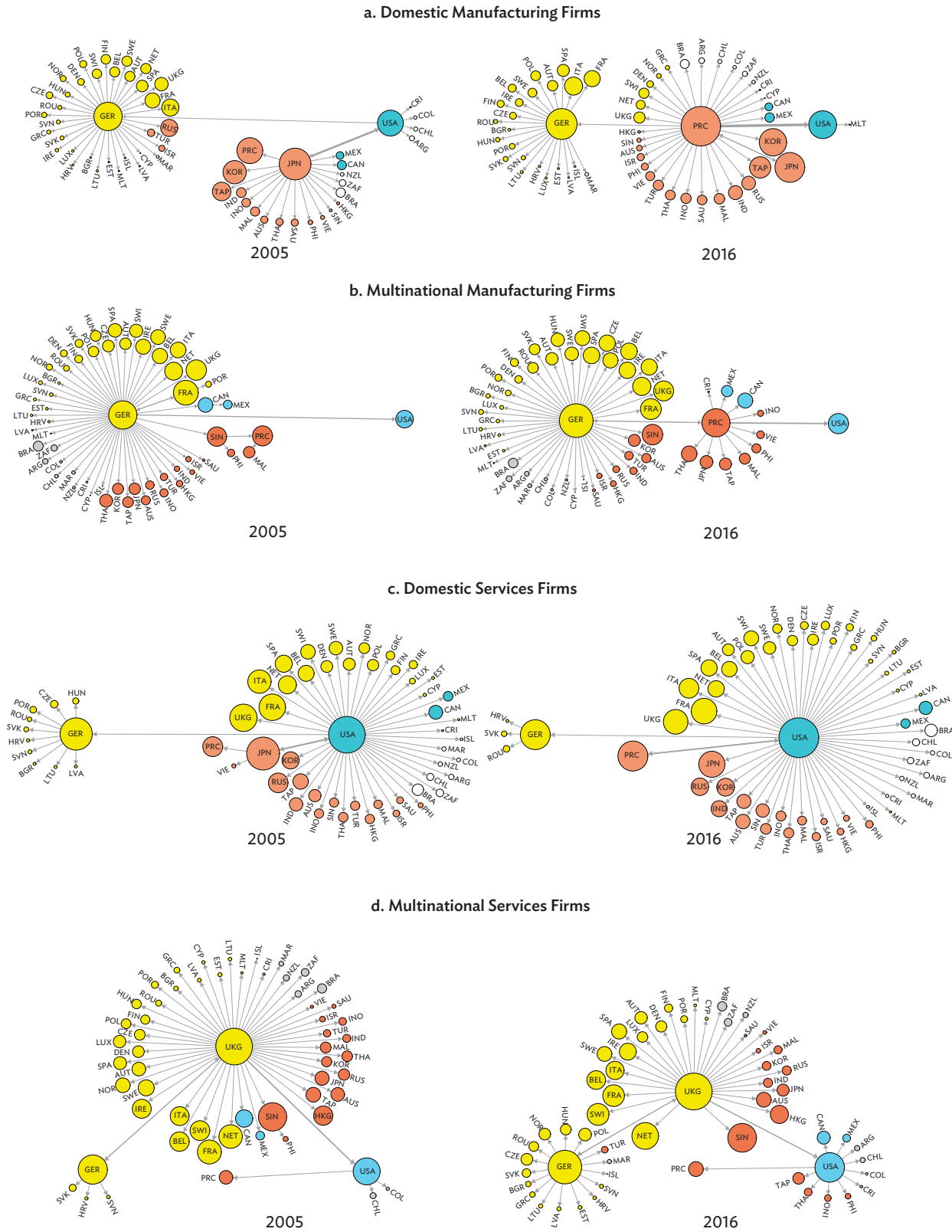
To streamline the networks and derive useful insights, the connections visualized in the network charts are limited to those that constitute the largest (or top 1) bilateral flows of value-added exports for the supply perspective and imports for the demand perspective, as well as all other flows with shares larger than 25%. Because of the nature of GVCs, where value added is ultimately absorbed by a third economy, the connections in the networks do not represent direct links between producing and consuming economy sectors, but instead give a notion of the extent and pattern of interdependence among economies as they are linked by trade in parts and components.

The supply perspective focuses on the role of economies as exporters of value added in manufacturing and services. Economies represented by the largest nodes have the largest shares of value-added exports to the world total and are thus considered supply centers in the value chain network. In 2016, both domestic and multinational manufacturing firms in Germany and the PRC were global supply centers, as shown in panels a and b of Figure 1.8. This is starkly different from the pattern in 2005, where Germany, Japan, and the US were each regional supply centers in the domestic value chain network, and where Germany was the global supply center in a monocentric multinational value chain network.

The increasing centrality of the PRC's position in both domestic and multinational manufacturing networks is notable. Comparing the 2005 and 2016 networks of domestic firms, the PRC has essentially replaced Japan as Asia's supply center and the US as North and South America's. The PRC has also exceeded Germany's value-added share in global manufacturing. In the networks of MNCs, the monocentricity of the structure in 2005 was broken by the emergence of the PRC as a global supply center by 2016 with significant links to primarily economies in East Asia and North and South America. In the same multinational networks, the US remained a relatively independent periphery throughout the period. However, it mainly received supply through Germany in 2005 and through the PRC in 2016.

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7   GVCs here are so-called complex GVCs—that is, those that involve the crossing of at least two borders.

Figure 1.8: Complex Global Value Chain Networks, Supply Perspective, 2005 and 2016

a. Domestic Manufacturing Firms

2005

2016

b. Multinational Manufacturing Firms

2005

2016

c. Domestic Services Firms

2005

2016

d. Multinational Services Firms

2005

2016

Sources: Y. Gao, B. Meng, G. Suder, and J. Ye. 2021. Who Dominates Global Value Chains? Multinationals vs Domestic Firms. *IDE Discussion Paper.* No. 825. Chiba, Japan: Institute of Developing Economies – Japan External Trade Organization; Organisation for Economic Co-operation and Development. Analytical Activities of Multinational Enterprises Database. https://www.oecd.org/sti/ind/analytical-amne-database.htm (accessed 31 July 2021).

In contrast to the regionally clustered networks of domestic manufacturing firms, the corresponding networks in services have become increasingly centered around the US, as seen in panels c and d of Figure 1.9. In 2005, Germany was a small regional center with value-added formation primarily sourced from the US, then distributed to countries in eastern European. In the same year, the PRC was not directly linked to any supply center, but it was indirectly getting value added from the US via Japan. By 2016, the PRC had been able to establish a significant connection to the US, both as a destination and source of its value added.
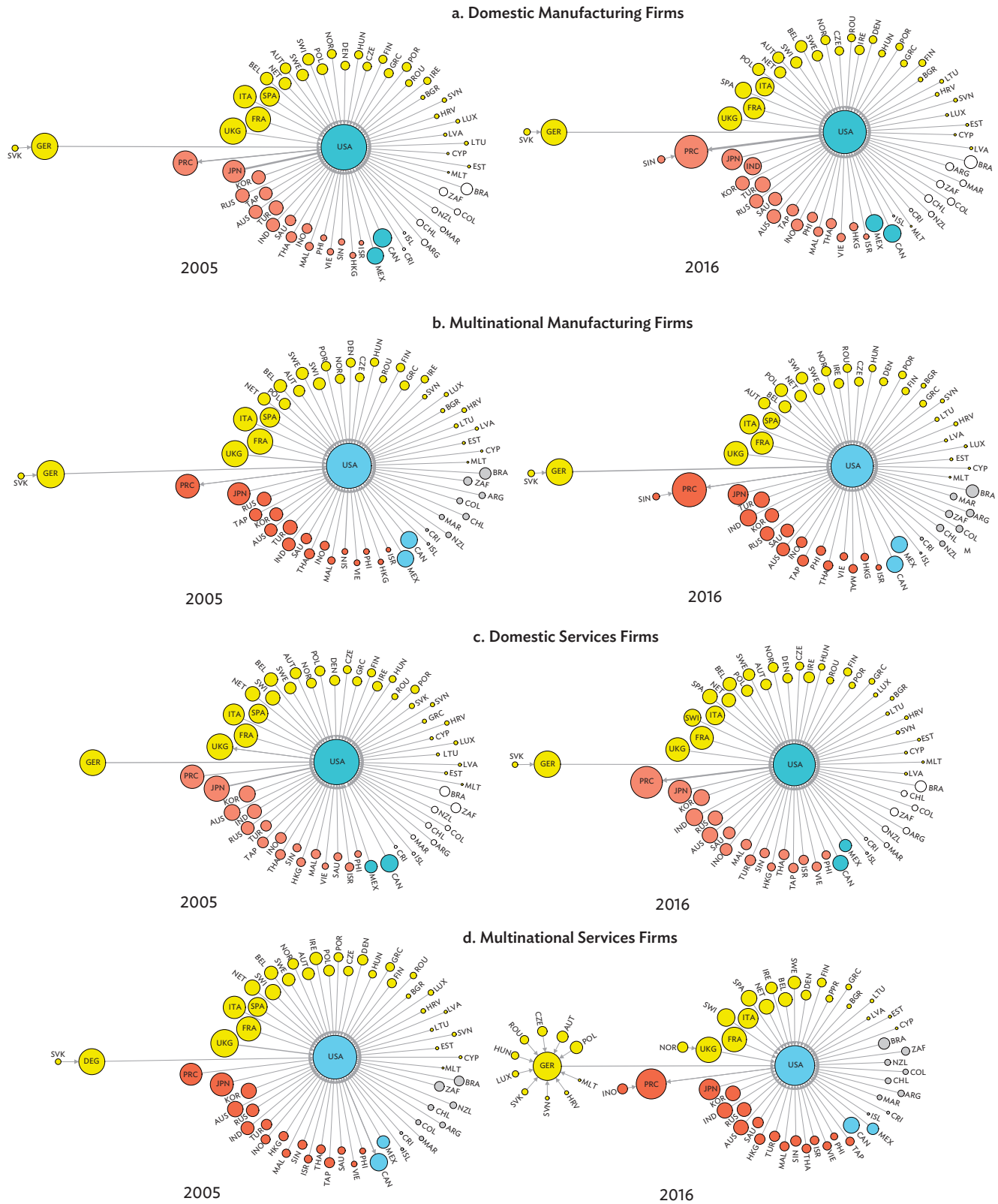
The networks of multinational services firms have become more polycentric. In 2005, the United Kingdom was the largest supply center of multinational value formation in services, with nearly all economies sourcing value added from it, either directly or indirectly. Strongly connected to the United Kingdom were the smaller supply centers of Germany and the US, which had, by 2016, become central in their respective regions. The PRC was peripheral in these networks and only linked to the US, which was its main source of value added.

The demand perspective, shown in Figure 1.9, focuses on the role of economies as importers of value added in manufacturing and services, comparing the situation in 2005 with 2016. Economies represented by the largest nodes have the largest shares of value-added imports to the world total and are therefore considered demand centers in the value-chain network. From the demand perspective, the US has consistently been the global demand center of GVC networks, whether domestic or multinational, or in manufacturing or services. In the networks of manufacturing firms, value-added formation from all economies, regardless of region, were directed to the US in both periods. Value-added formation from the US was directed to domestic firms in the United Kingdom in 2005 and the PRC in 2016—and to MNCs in the PRC in both years. Unlike the manufacturing networks from the supply perspective, these demand-side networks were strongly monocentric, with the role of the PRC and Germany being relatively limited.

The general observation for both domestic and multinational networks for services are the same as for the manufacturing sector—that is, the US was the global demand center toward which value-added formation from all economies was destined, either directly or indirectly. Similarly, the PRC was the only economy that received value added from the US. A slight difference exists in the multinational network of services firms in 2016: more value added passed onto the US via third economies, most notably Germany and the PRC.

Further distinguishing the sources of value-added formation in networks by ownership, whether domestic or foreign, provides different insights compared with those produced from analyzing economy sectors. The networks of domestic manufacturing firms from the supply perspective, for example, show stronger regionalization than networks of MNCs in the same sector. The opposite is true for networks of the services sector from the supply perspective. Here, domestic services firms are more internationally linked than services MNCs. Some small differences exist in the domestic and multinational networks from the demand perspective—the bigger role of German MNCs in the services sector for example.

Figure 1.9: Complex Global Value Chain Networks, Demand Perspective, 2005 and 2016

a. Domestic Manufacturing Firms

2005

2016

b. Multinational Manufacturing Firms

2005

2016

c. Domestic Services Firms

2005

2016

d. Multinational Services Firms

2005

2016

Sources: Y. Gao, B. Meng, G. Suder, and J. Ye. 2021. Who Dominates Global Value Chains? Multinationals vs Domestic Firms. *IDE Discussion Paper*. No. 825. Chiba, Japan: Institute of Developing Economies – Japan External Trade Organization; Organisation for Economic Co-operation and Development. Analytical Activities of Multinational Enterprises Database. https://www.oecd.org/sti/ind/analytical-amne-database.htm (accessed 31 July 2021).

The Turn Toward Regionalism

One trend that has survived slowbalization is the continued formation of new regional trade agreements (RTAs), as shown in Figure 1.10. Based on World Trade Organization data, over 300 RTAs were in force in 2020. The largest RTA is the yet-to-be-ratified Regional Comprehensive Economic Partnership involving 15 economies in Asia and the Pacific (Heijmans and Nguyen 2020). While new RTAs have slowed in recent years, they are still higher than before 1990, the turning point for a sharp rise in these agreements. Moreover, a boost to further RTAs is expected in 2021 as post-Brexit United Kingdom seeks its own trade deals.

Figure 1.10: Regional Trade Agreements, 1949–2020
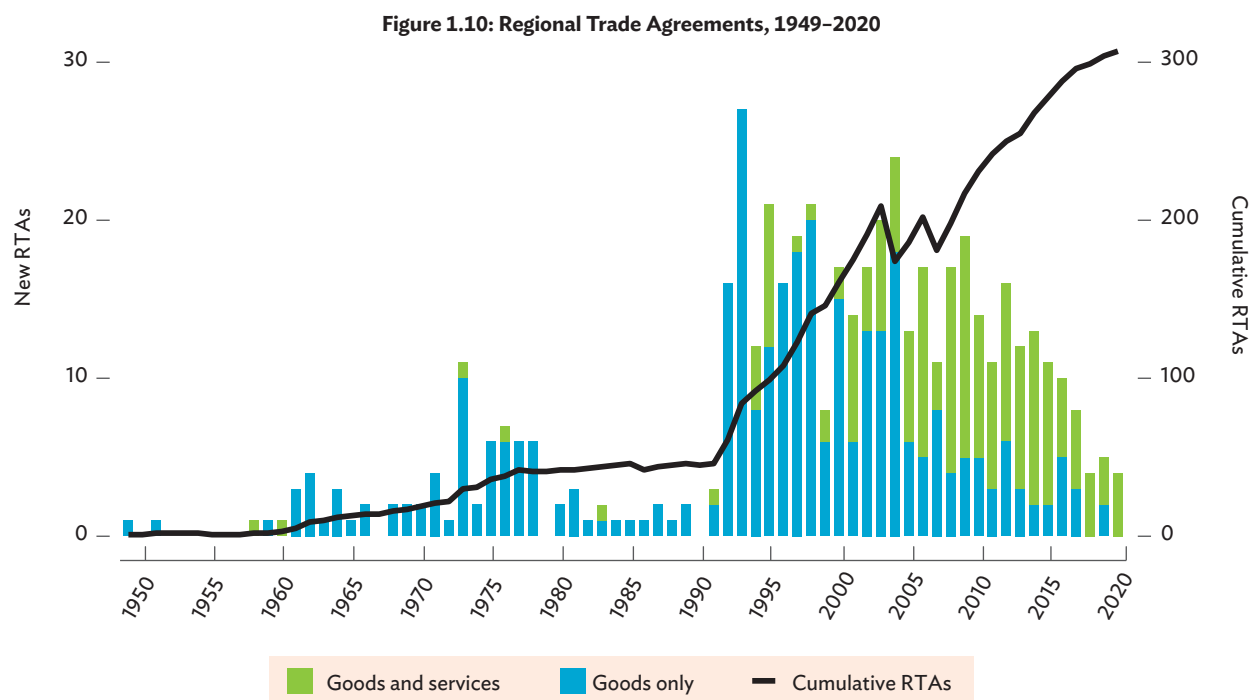
RTA = regional trade agreement.
Notes: An RTA includes at least two economies. Cumulative RTAs are net of retired RTAs, but new RTAs are not. Accessions—economies joining existing RTAs—are excluded.
Source: World Trade Organization. Regional Trade Agreements Database. https://rtais.wto.org/UI/PublicMaintainRTAHome.aspx (accessed 31 July 2021).

An inherent tension between globalism and regionalism has always existed. Globalism operates under the most-favored-nation system that ensures that tariff cuts and other trade concessions are nondiscriminatory. Regionalism seeks to promote trade within a restricted group (Frankel 1997). Membership is generally within close geographic proximity, as in the Regional Comprehensive Economic Partnership, the European Single Market, and the North American Free Trade Agreement. Increasingly, however, membership can also be transcontinental, as in the Comprehensive and Progressive

Agreement for Trans-Pacific Partnership.[8] This section examines the growth of regionalism in recent years, its effects on trade, and its characteristics.

The historical survey in WTO (2011a) lists three waves of regionalism since the Second World War. The first and second, starting in the 1950s and 1980s, were set in motion by Western Europe when it formed the European Economic Community in 1957 and deepened into the European Single Market in 1993. The second wave led to the wider proliferation of RTAs seen in Figure 1.10, a consequence of several factors, including the reversal of the US position against regionalism, import substitution being abandoned by much of the developing world, and the bringing together of Eastern and Western Europe at the end of the Cold War (Frankel 1997). A record 27 RTAs came into force in 1993, all but four of them involved a form of European east–west integration. The world is in its third wave of regionalism, one marked by the growing presence of services in negotiated terms.

Scholars continue to debate whether RTAs encourage multilateralism or undermine it. Skeptics like Bhagwati (2008) argue that RTAs are more trade-diverting than trade-creating, leading to a general reduction in the gains from trade. Optimists note that the first two waves of regionalism gave way to successful multilateral initiatives, with the second in particular culminating in the establishment of the World Trade Organization in 1994. Empirical evidence suggests that although RTAs divert trade, they may also result in lower tariffs on nonmembers since trade with them has become less important. Estevadeordal, Freund, and Ornelas (2008) find this to be the case for Latin American free trade areas (FTAs) over 1990–2001, although a follow-up study by Crivelli (2016) clarifies this only applied to high-tariff economies. In a broader dataset covering the world over 1989–2011, Saggi, Stoyanov, and Yildiz (2018) find that even economies outside FTAs are induced to lower tariffs on FTA members, again because their trade became less important.

Limão (2016) notes that RTAs have proliferated even though tariffs faced by World Trade Organization members under most-favored-nation arrangements have fallen. This is puzzling since it seemingly reduces the potential benefits of an RTA. The decision to join either regional or multilateral initiatives must therefore extend beyond a simple desire for lower tariffs—and, indeed, RTAs in the third wave increasingly cover nontariff issues, such as services, capital flows, intellectual property, and labor and environmental standards (WTO 2011a). One important motivation cited in Limão (2016) is that RTAs provide a form of insurance, which is useful in the event of a global breakdown in trade openness.

Table 1.3 tabulates the regional composition of RTAs. Asia and the Pacific (comprising East Asia, Southeast Asia, Oceania, and the Pacific islands) is the most prolific; its economies having 42 RTAs among themselves and dozens more with all other regions.

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8   This has led some, such as Limão (2016), to favor the term "preferential trading agreements" over RTAs.
     This chapter uses the RTA terminology of the World Trade Organization.

This stems from Asia and the Pacific having numerous trade-oriented economies, from large ones, such as Japan and the PRC, to the smaller emerging economies of Southeast Asia. The three large economies of North America, however, have just one intra-regional RTA, though they have 28 with neighboring South America. Europe, the original forerunner of regional integration, has 31 intra-regional agreements.

Table 1.3: Inter- and Intra-Regional Trade Agreements, 2020								
Regions	Asia and the Pacific	South Asia	Central Asia	Middle East and North Africa	Sub-Saharan Africa	Europe	North America	South America
Asia and the Pacific	**42**							
South Asia	12	**7**						
Central Asia	7	2	**15**					
Middle East and North Africa	3	3	9	**2**				
Sub-Saharan Africa	1	1	2	42	**6**			
Europe	13	1	29	19	7	**31**		
North America	8	2	1	10	1	6	**1**	
South America	26	4	2	4	2	9	28	**26**

Notes:
1. Data as of 31 December 2020.
2. Regional trade agreements involving more than two regions are counted for each region pair. Because of this, the figures do not sum to total agreements.
3. Turkey and the Russian Federation are grouped in Central Asia. South America includes Central America and the Caribbean. Asia and the Pacific includes East Asia, Southeast Asia, Oceania, and the Pacific islands.
Source: World Trade Organization. Regional Trade Agreements Database. https://rtais.wto.org/UI/PublicMaintainRTAHome.aspx (accessed 31 July 2021).

It must be noted that a degree of arbitrariness creeps in when defining geographic regions. This chapter classifies Turkey under Central Asia, but if it were counted under Europe, that region would have 38 intra-regional RTAs rather than 31. Similarly, while it appears that the most integrated regional pair is Central Asia–Europe, counting both the Russian Federation and Turkey under Europe instead of Central Asia decreases the pair's interregional RTAs from 29 to 20. More drastically, the interregional RTAs between North America and South America are halved from 28 to 14 if Mexico is counted under South America instead of North America. With these considerations in mind, the most robustly integrated regional pair is Asia and the Pacific–South America, which shares 26 interregional RTAs.

Although this analysis considers regional integration in terms of breadth, it can also be approached in terms of depth. Frankel (1997) proposes five types of RTAs. With increasing levels of integration, these are preferential trade agreements, free trade areas, customs unions, common markets, and economic unions. Box 1.4 defines the five types, although it bears noting that arrangements with the same label can vary significantly in practice. One free trade area may be more "free" than another. A more quantitative measure for the depth of integration is needed.

Box 1.4: Taxonomy of Regional Trade Agreements

Limão (2016) defines a regional trade agreement (RTA) as an "international treaty with restrictive membership and including any articles that (i) apply only to its members and (ii) aim to secure or increase their respective market access." Scholars call RTAs by different names. Limão (2016) uses "preferential trade agreement," while Baier, Bergstrand, and Clance (2018), among others, use "economic integration agreements."

RTAs can be classified according to how deeply they integrate the economies of their members. Frankel (1997) proposes five levels:
  (i)   **Preferential trade agreement**. Tariffs are partially lowered for members. This may be reciprocal or nonreciprocal. Nonreciprocal arrangements are generally in the form of developed economies granting concessions to developing ones.
  (ii)   **Free trade area**. A reciprocal agreement where all tariffs and nontariff import restrictions are eliminated among members.
  (iii) **Customs union**. This is a free trade area where members apply a common external tariff and adopt a common set of trade barriers to nonmembers.
  (iv)   **Common market**. The free movement of the factors of production (labor and capital) are allowed, apart from goods and services.
  (v)   **Economic union**. The highest stage of integration involving the free movement of goods, labor, and capital, plus a harmonized set of fiscal and monetary policies.

The World Trade Organization's RTA database records the formation (and dissolution) of nonreciprocal preferential trade agreements, free trade areas, customs unions, and common markets, although it does not necessarily use these classifications.

Jeffrey Bergstrand and Scott Baier have constructed a more comprehensive database that codes each RTA into the five types (https://sites.nd.edu/jeffrey-bergstrand). The coverage, however, is only until 2012.

References
Baier, S. L., J. H. Bergstrand, and M. W. Clance. 2018. Heterogeneous Effects of Economic Integration Agreements. *Journal of Development Economics*. 135 (C). pp. 587–608.
Frankel, J. A. 1997. *Regional Trading Blocs in the World Economic System.* Washington, DC: Peterson Institute for International Economics.
Limão, N. 2016. Preferential Trade Agreements. *NBER Working Paper*. No. 22138. Cambridge, MA: National Bureau of Economic Research.

One possible measure would be to calculate the extent a region trades with itself relative to its share in global trade. This is in the same spirit as the index of regional concentration proposed in Frankel (1997), only instead of gross exports, this chapter uses flows of value added. An index closer to 1 means trading patterns within a region more or less replicate global trends. In this case, it would be as if a random selection of economies had been grouped together. An index higher than 1 implies greater integration, with trade more concentrated among the region's members (Box 1.5).

The regional concentration index (RCI) is computed for four well-defined RTAs whose members are (largely) included in ADB's Multiregional Input–Output Database. These are the Association of Southeast Asian Nations plus Japan, the PRC, and the Republic of Korea (ASEAN+3), the Eurasian Economic Union, the European Union plus the United Kingdom (EU28), and the North American Free Trade Agreement (NAFTA). Their indices for 2000 and 2007–2020 are plotted in Figure 1.11.

Three interesting insights emerge. First, the most integrated bloc is generally NAFTA, trading among itself at about 1.5 times the rate that it trades with the world. It is even more integrated than the EU28, whose union is older and institutionally tighter. However, this does not necessarily imply that NAFTA is self-sufficient as it still requires external suppliers to meet its demand.
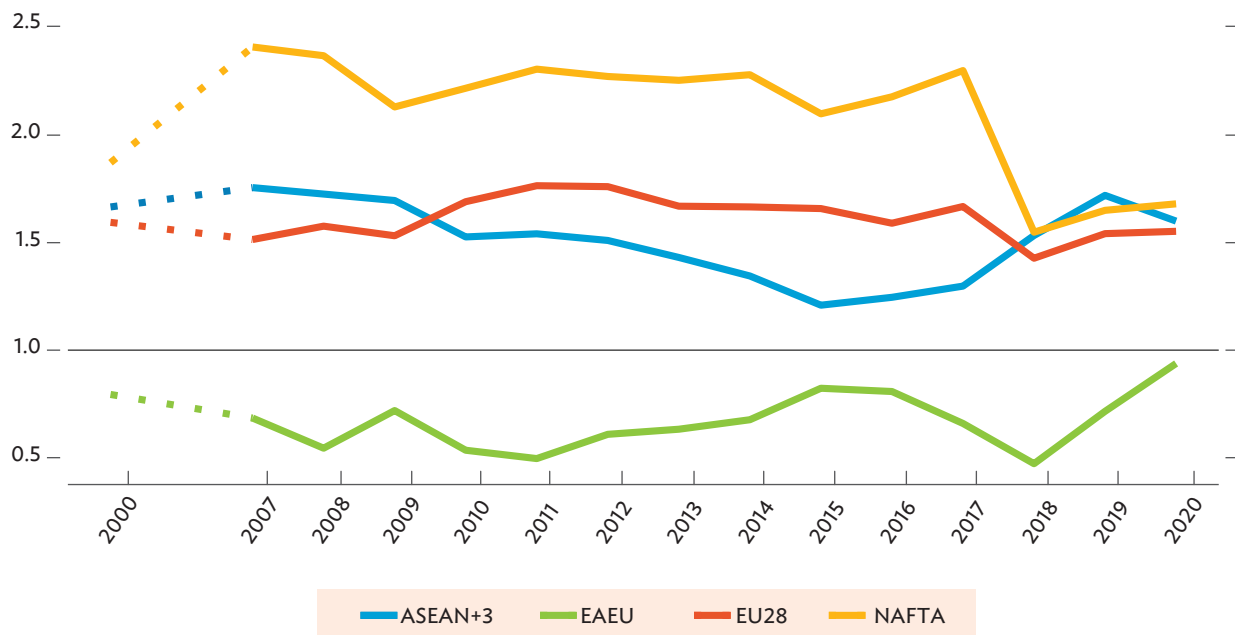
Box 1.5: Regional Concentration Index

Regional integration is commonly measured by the share of a region's total trade occurring within that region. Frankel (1997) criticizes this as being misleading since regions with more members necessarily capture more of each other's trade, thus overstating integration. Frankel (1997) instead proposes a calibrated index that takes the ratio of intra-regional trade to the share of that region in world trade. This is called the regional concentration index. An index closer to 1 means value is flowing into a region at about the same rate as it is outside the region. The higher the index is over 1, the more a region disproportionately relies on producers and consumers within itself, and thus is more integrated.

A value-added-adjusted version of this index is possible. Rather than using gross exports, it uses flows of value added estimated from an intercountry input–output table. Under this approach, a $100 flow from economy A to economy B means that $100 worth of value added generated solely in A was sent to and absorbed solely in B.

References
Frankel, J. A. 1997. *Regional Trading Blocs in the World Economic System.* Washington, DC: Peterson Institute for International Economics.

Figure 1.11: Index of Regional Concentration for Selected Regional Trade Agreements, 2000, 2007–2020

ASEAN = Association of Southeast Asian Nations, EAEU = Eurasian Economic Union, EU = European Union, NAFTA = North American Free Trade Agreement.
Notes: The index of regional concentration is the share of intra-regional value-added trade relative to a region's global share in value-added trade. ASEAN+3 is ASEAN plus Japan, the People's Republic of China, and the Republic of Korea. EU28 is the EU plus the United Kingdom. Because of data constraints, ASEAN+3 does not include Myanmar and the EAEU does not include Armenia and Belarus.
Sources: Asian Development Bank. Multiregional Input–Output Database. https://mrio.adbx.online (accessed 31 July 2021); Asian Development Bank estimates.

Second, although ASEAN+3's RCI has always remained above 1, it spent much of the slowbalization years becoming less integrated. Because several of its members pursued export-led growth, they naturally turned to the high-income markets of the US and Europe rather than maintaining a regional focus. The bloc, however, began regaining its integration by 2017, around the time of the trade conflict between the US and the PRC.

And third, the Eurasian Economic Union's RCI has consistently remained below 1, meaning its members trade more with economies outside the RTA than those within it. This is partly because it only came into being in 2015, but the larger reason is that over a third of its value-added exports are in oil, which cannot of course all be absorbed within the bloc.

Table 1.4 lists indices for sectors at the heart of GVCs. The integration of NAFTA countries is even more pronounced when looking specifically at metals, electricals, and textiles. Indeed, among the more important industries benefiting from NAFTA are automobiles and steel (Wasson, Wingrove, and Martin 2019). The decline in ASEAN+3 integration is steepest in the miscellaneous business activities sector as services-oriented economies like the Philippines take advantage of the BPO boom that caters largely to firms in industrialized economies. In contrast, the EU28's indices for this sector have remained high due probably to the large degree of labor mobility among its members. While indices for the Eurasian Economic Union appear high, especially in the textiles sector, these mostly stem from a low share in world exports (the denominator in the RCI formula) and thus may overstate the level of integration. The importance of these sectors in the bloc's exports still pale in comparison with oil, which has a very low RCI.

The case of the Eurasian Economic Union raises an important point about RTAs: some blocs face a natural limit to their integration. If member economies are not sufficiently diversified, the need to trade outside the bloc exerts a centripetal force on the bloc's trading patterns. One way to visualize this more explicitly is through a skyline chart (WTO 2011b). This shows the share of a bloc's demand satisfied by its own output and the share satisfied by imports from outside the bloc, disaggregated by sectors whose relative importance to the bloc is also visualized (Box 1.6).

Figure 1.12 shows skyline charts for the four RTAs, with 2019 chosen since 2020 was anomalous. Each skyline chart consists of 35 "towers," representing the 35-sector disaggregation of ADB's Multiregional Input–Output Database. Their widths reflect the share of each sector in the RTA's output; their heights measure output induced by demand both within and outside the RTA, expressed as a share of domestic demand. A portion of each tower is shaded red to indicate the reduction in output due to imports. The RTA is said to be self-sufficient in a sector if the tower's blue portion exceeds the 100% line, meaning its own output is enough to satisfy its induced domestic demand.

Panel a shows ASEAN+3, as expected, has a strong export orientation in its manufacturing sectors, particularly textiles and electricals. While it has substantial exports in wholesale trade, it is generally just self-sufficient in services sectors. It is in the primary sectors where the bloc has to rely on external suppliers, particularly in mining and quarrying. Panel b shows that nearly the exact opposite is the case for the Eurasian Economic Union, with its hefty exports in oil—which are part of the mining and quarrying sector in ADB's Multiregional Input–Output Database on which Figure 1.2 is based—but a general reliance on imports for its manufacturing sectors. Transport equipment, in particular, is both highly demanded, but largely supplied by economies outside the union. Other

sectors with substantial exports—coal, refined petroleum, and inland transport (i.e., oil pipelines)[9]—are likely tied to the Eurasian Economic Union's oil industries, further emphasizing the lack of diversification in this bloc.

Table 1.4: Index of Regional Concentration for Regional Trade Agreements and Sectors, 2000, 2010, 2019			
Region	2000	2010	2019
Basic Metals and Fabricated Metal			
ASEAN+3	1.75	1.56	1.71
EAEU	0.78	0.49	0.63
EU28	1.62	1.71	1.59
NAFTA	3.25	3.88	2.55
Electrical and Optical Equipment			
ASEAN+3	0.79	0.88	1.10
EAEU	9.72	8.27	19.28
EU28	2.10	2.32	2.91
NAFTA	1.51	2.57	1.53
Textiles and Textile Products			
ASEAN+3	0.92	0.62	0.80
EAEU	60.00	45.18	66.03
EU28	1.50	2.15	2.30
NAFTA	4.90	7.28	7.71
Renting of Machinery and Equipment and Other Business Activities			
ASEAN+3	3.01	2.21	2.20
EAEU	4.46	1.59	3.15
EU28	1.22	1.15	0.98
NAFTA	1.08	1.17	0.94

ASEAN = Association of Southeast Asian Nations, EAEU = Eurasian Economic Union, EU = European Union, NAFTA = North American Free Trade Agreement.
Notes:
1. The regional concentration index is the share of intra-regional value-added flows relative to a region's global share in value-added flows. Indices greater than 1 are colored blue.
2. ASEAN+3 is ASEAN plus Japan, the People's Republic of China, and the Republic of Korea. EU28 is the EU plus the United Kingdom. Because of data constraints, ASEAN+3 does not include Myanmar and the EAEU does not include Armenia and Belarus.
Sources: Asian Development Bank. Multiregional Input–Output Database. https://mrio.adbx.online (accessed 31 July 2021); Asian Development Bank estimates.

The EU28 relies on its members to satisfy almost all its demand, except, notably, for the mining and quarrying and electricals sectors (panel c). This is in spite of the high level of integration observed in the EU28's metal, electrical, and textile sectors as measured by the RCI. NAFTA remains heavily dependent on external suppliers for most of its manufacturing demand (panel d). The EU28 and NAFTA show that a high level of integration need not

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9   The "coke, refined petroleum and nuclear fuel" sector comprises of C19 in ISIC 4. The "inland transport" sector comprises of H49 in ISIC 4.

imply regional self-sufficiency. Put another way, a bloc that does a lot of business with itself may still be open for business for nonmembers. A larger output share in services is found within NAFTA than all other RTAs, while ASEAN+3 dominates the manufacturing sector.

Box 1.6: Constructing a Regional Skyline Chart

A skyline chart visualizes the industrial structure of an economy and the extent to which it relies on imports (METI 2011; WTO 2011). Each sector is represented by a "tower," as in the figure. The width of the tower measures the share of a sector in the economy's output. The height of the tower measures output induced by demand for that sector, computed using data from an input–output table.

A Tower in a Skyline Chart
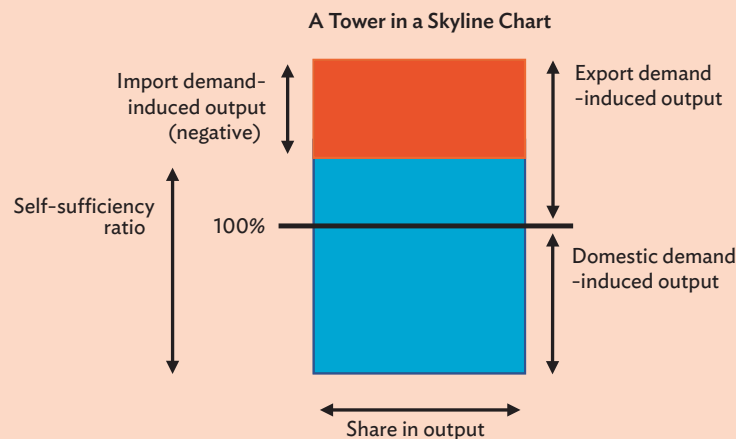
Source: Authors based on WTO (2011).

Output induced by domestic demand is normalized at 100%, with anything above corresponding to output induced by export demand. Part of the tower is shaded red to indicate the reduction in output induced by imports, which, being negative, starts from the top of the tower and extends downward.

If the blue region of the tower is above the 100% line, then the sector it represents is said to be self-sufficient. That is, its own output is enough to satisfy its induced domestic demand. If it is below the 100% line, domestic output is insufficient and the economy has had to import the shortfall in supply. The actual height of the blue region is called the sector's self-sufficiency ratio.

The skyline chart can be constructed at the regional level. In this case, the underlying input–output table is aggregated at the regional level, meaning imports and exports refer to flows going in and out of the region while flows between economies within the region are treated as "domestic" flows. Self-sufficiency then refers to the ability of the region to supply its induced demand without having to import from outside the region.

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WTO (World Trade Organization). 2011. *Trade Patterns and Global Value Chains in East Asia: From Trade in Goods to Trade in Tasks.* Geneva.


All this presents a complex picture of regionalism. The most prolific region in signing RTAs is Asia and the Pacific. But in the case of ASEAN+3, an emphasis on export-led development has meant the regional concentration of the bloc's trading patterns has been declining during the slowbalization era. Moreover, some RTAs, including the Eurasian Economic Union, are not "deep," with members trading less with each other than they do with nonmembers. But even blocs that are highly integrated may still find it necessary to engage in external trade— NAFTA being a good example. Regionalism, then, need not be the antithesis of globalism.

Figure 1.12: Skyline Charts by Bloc, 2019

a. ASEAN+3

b. Eurasian Economic Union

Figure 1.12: continued

c. EU28

d. North American Free Trade Agreement
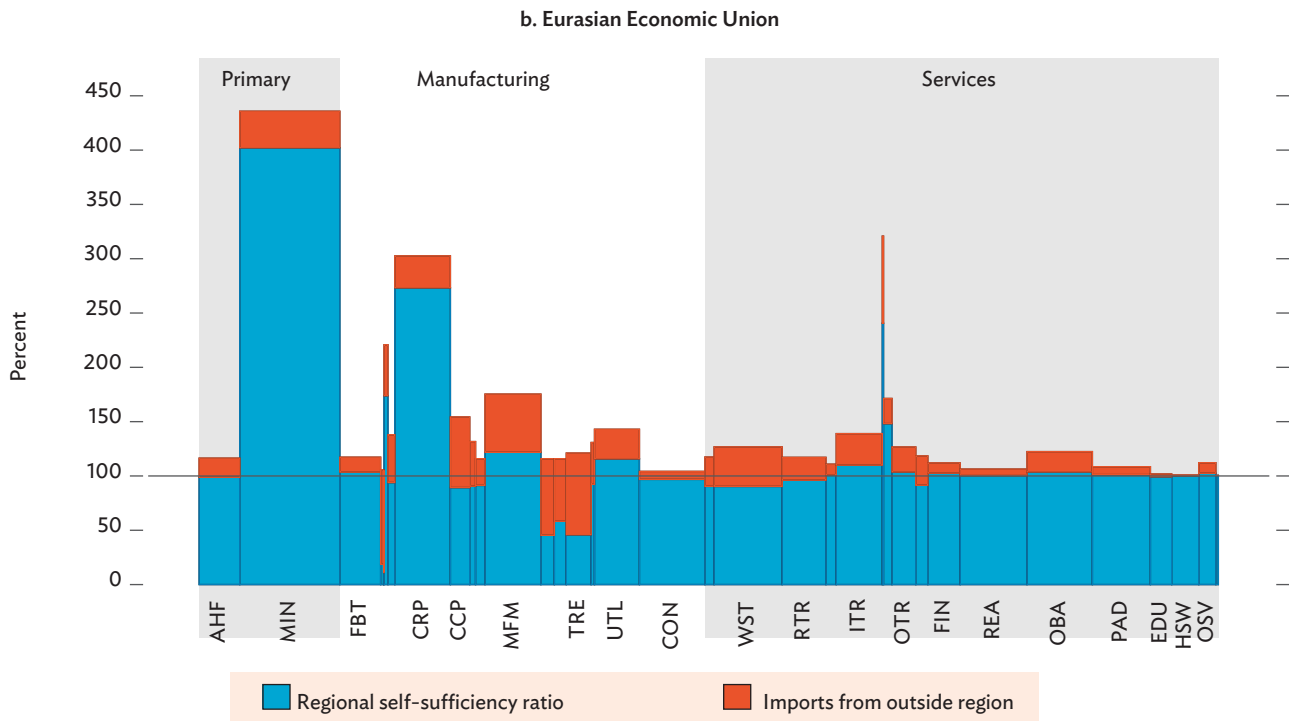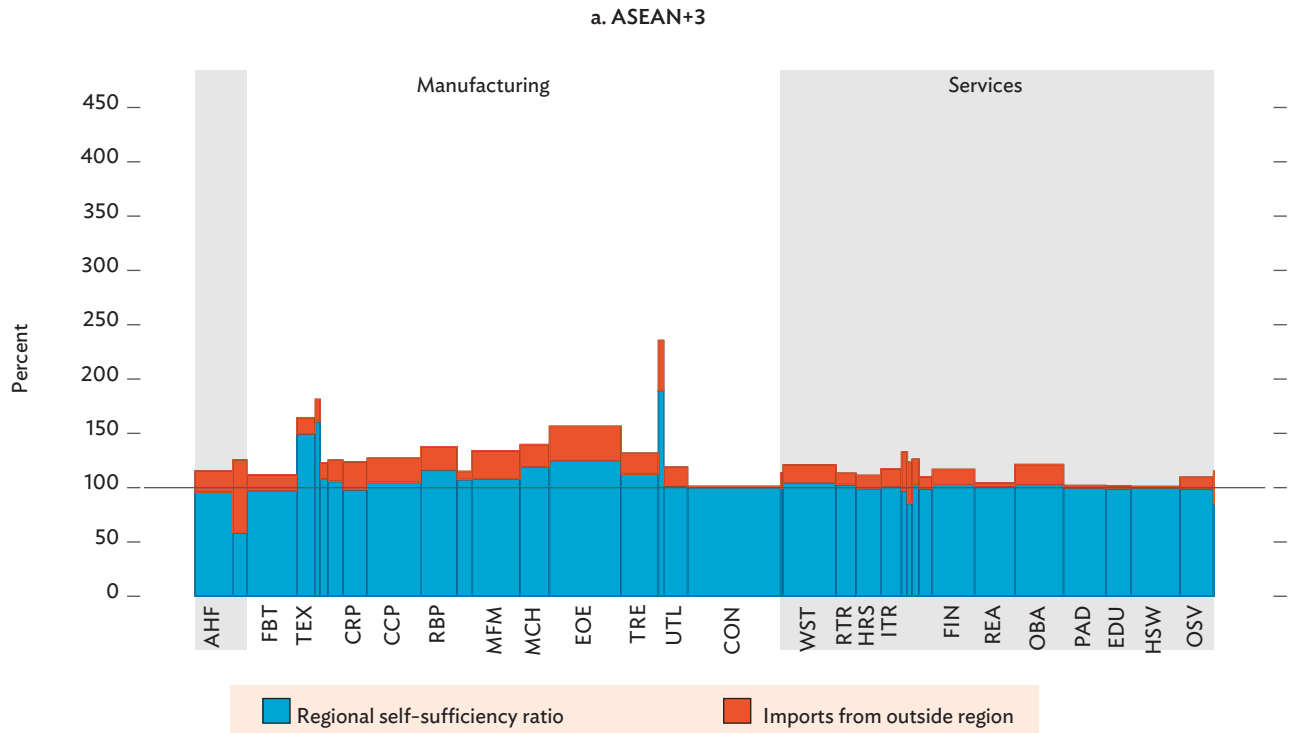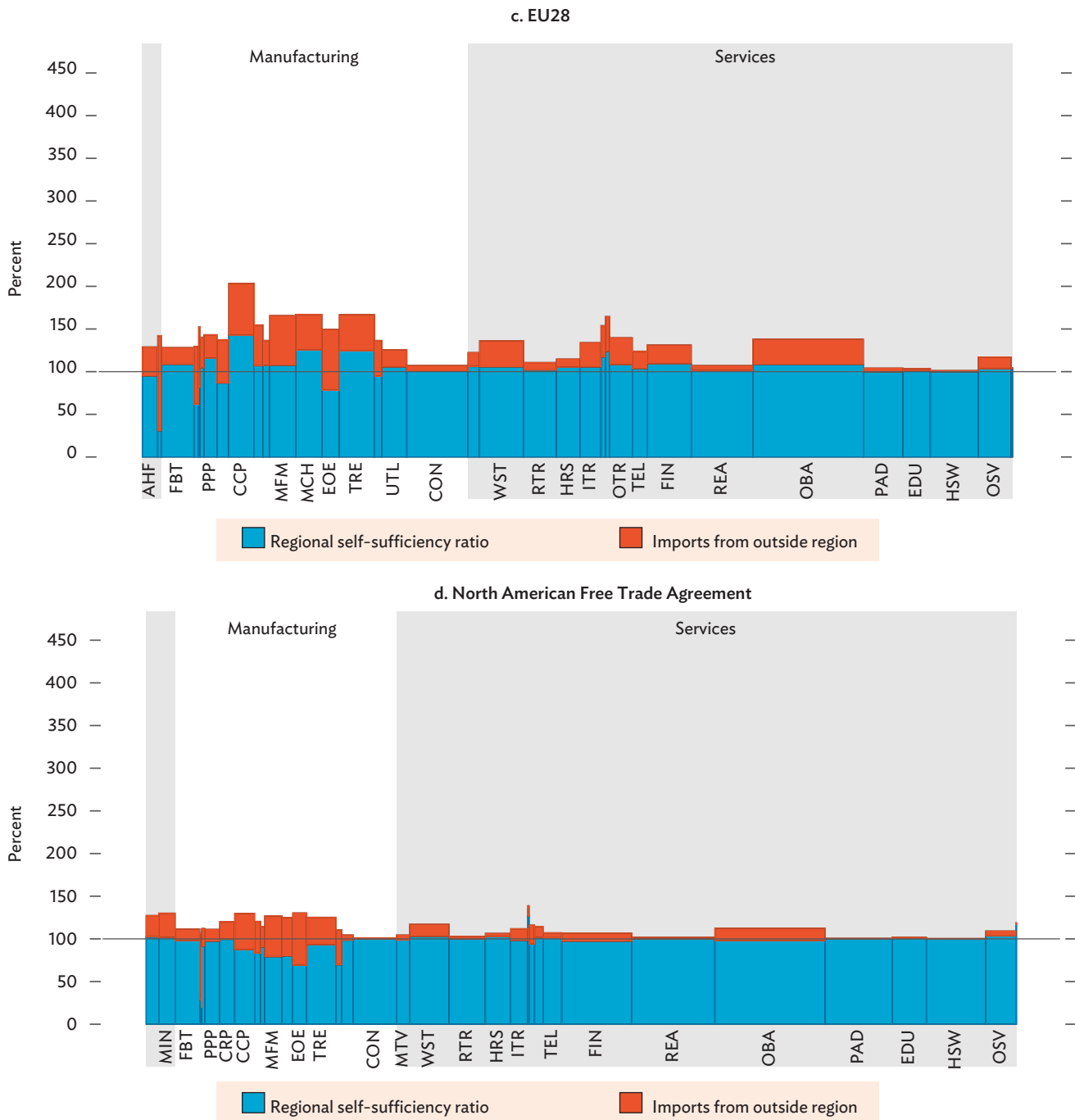
AHF = agriculture, hunting, forestry, and fishing, ASEAN = Association Southeast Asian Nations, ATR = air transport, CCP = chemicals and chemical products, CON = construction, CRP = coke, refined petroleum, and nuclear fuel, EDU = education, EOE = electrical and optical equipment, EU = European Union, FBT = food, beverages, and tobacco, FIN = financial intermediation, HRS = hotels and restaurants, HSW = health and social work, ITR = inland transport, LTH = leather, leather products, and footwear, MCH = machinery, not elsewhere classified, MFG = manufacturing, not elsewhere classified, and recycling, MFM = basic metals and fabricated metal, MIN = mining and quarrying, MTV = sale and repair of motor vehicles and motorcycles, retail sale of fuel, OBA = renting of machinery and equipment and other business activities, ONM = other nonmetallic mineral, OSV = other community, social, and personal services, OTR = other supporting transport activities, PAD = public administration and defense, and compulsory social security, PHE = private households with employed persons, PPP = pulp, paper, printing, and publishing, RBP = rubber and plastics, REA = real estate activities, RTR = retail trade and repair, except of motor vehicles and motorcycles, TEL = post and telecommunications, TEX = textiles and textile products, TRE = transport equipment, UTL = electricity, gas, and water supply, WDC = wood and products of wood and cork, WST = wholesale trade, except of motor vehicles and motorcycles, WTR = water transport.

Note: To avoid overlapping text, some sector labels have been suppressed.

Sources: Asian Development Bank. Multiregional Input–Output Database. https://mrio.adbx.online (accessed 31 July 2021); Asian Development Bank estimates.

Domestic Agglomeration

In a highly integrated global economy, linkages of domestic sectors to global trade have significant implications. Koopman, Wang, and Wei (2008) argue that developing a measure of the domestic content of exports is important for assessing how an economy might be affected by currency appreciations and for gauging the effects of this on trade on wages. Redefining domestic linkages to domestic value added, Banga (2014) argues that maximizing gains from participating in GVCs relies on the ability of domestic sectors to gain value added from these activities. From a policy standpoint, measuring domestic linkages is essential for measuring gains from GVC activities.

Recent studies find that domestic linkages add another layer of complexity to GVCs. Domestic activities are indirectly associated with GVC activities through the production of intermediate goods that are later exported or by using inputs from vertically integrated sectors (Mercer-Blackman, Foronda, and Mariasingham 2017; Tang, Wang, and Wang 2020). Because very few firms directly engage in trade, however, current measures of GVC participation do not capture the contribution of domestic sectors to global trade activities (Bernard et al. 2007). This implies that current indicators underestimate the contribution of domestic sectors in GVC activities.

Another strand highlights the role of domestic linkages in the decline in global trade. Slowbalization highlights how economies are trying to reshore activities once located elsewhere (*The Economist* 2019; Titievskaia et al. 2020). The rise of protectionism and trade conflicts characterize this period. In the context of the COVID-19 pandemic, reshoring rises in importance as a risk management tool. A highly integrated global economy implies that different economies are vulnerable to supply chain risks, which can offset the benefits of fragmenting production processes based on cost-related factors (Giuseppina and Michele 2018). This creates incentives to relocate activities that were once offshored back to the domestic economy.

These incentives provide a rationale for developing a measure of domestic linkages. Several attempts have been made to construct this measure. Jones (2011) and Bartelme and Gorodnichenko (2015) measure domestic linkages by estimating the output multiplier associated with intermediate goods from domestic sectors. Tang, Wang, and Wang (2020) construct a firm-level measure of domestic linkages by estimating the indirect domestic value added of non-exporting firms in the PRC, with the overall goal of defining the contribution of state-owned enterprises to trade. Perhaps the most prominent measure is the Kearney reshoring index, which captures the amount of imported inputs in manufacturing by calculating the year-on-year change in the manufacturing import ratio. This index has been used to characterize reshoring in the US (Kearney 2021).

This section offers an alternative measure by adopting the concept of agglomeration to global trade. This relies on the decision of different firms to "locate" activities domestically. The agglomeration indices look at how much value added is sourced

from and/or absorbed in domestic economy sectors given the production of final goods in other sectors. This improves on existing indices for two reasons. First, it is not limited to capturing activities associated with reshoring. Second, the use of value added accruing to domestic sectors provides a better sense of how much goes to domestic sectors, in contrast to indices based on output multipliers. Box 1.7 explains how the index is constructed.

Box 1.7: Calculating the Agglomeration Index

Let $\mathbf{v}$ be the vector of value-added coefficients and $\mathbf{y}^d$ the vector of domestic final goods sales. And let $\mathbf{A}^d$ be the matrix of domestic technical coefficients and $\mathbf{B}^d \equiv (\mathbf{I}-\mathbf{A}^d)^{-1}$. Then

$$V^D = \widehat{\mathbf{v}}\mathbf{B}^d\mathbf{y}^d$$

is the vector of value added generated in each economy sector that ends up as final goods absorbed domestically, while

$$Y^D = \mathbf{v}\mathbf{B}^d\widehat{\mathbf{y}}^d$$

is the vector of each economy sector's final goods absorbed domestically whose value added also originated domestically. A hat on top of a vector, as in $\widehat{\mathbf{x}}$, denotes its diagonalized version.

Let $\mathbf{va}$ be the vector of value added generated by each economy sector. The forward agglomeration index for economy sector (s, i) is given by

$$AGG^F_{s,i} = \frac{V^D_{(s,i)}/va_{(s,i)}}{\sum_r V^D_{(r,i)}/va_{(r,i)}}.$$

The numerator is the share of value added generated in (s, i) that ends up as final goods absorbed domestically in the total value added generated in (s, i). The denominator is the same share for sector i averaged for all economies in the world. Thus, the forward agglomeration index is the ratio of (s, i)'s V^D share against the world average.

Likewise, let $\mathbf{y}$ be the vector of final good sales by each economy sector. The backward agglomeration index for economy sector (s, i) is given by

$$AGG^B_{s,i} = \frac{Y^D_{(s,i)}/y_{(s,i)}}{\sum_r Y^D_{(r,i)}/y_{(r,i)}}.$$

This is the ratio of (s, i)'s Y^D share in final goods sales against the world average.

Being ratios, agglomeration in either perspective is said to be high if the index is greater than 1; conversely if it is less than 1. An economy sector may be profiled by whether it has high or low forward and backward agglomeration. The four possible types are shown in the "agglomeration map" in the figure.

Agglomeration Map

Reshoring economies	High agglomeration
$AGG^F < 1, AGG^B > 1$	$AGG^F > 1, AGG^B > 1$
Low agglomeration	DVA generating economies
$AGG^F < 1, AGG^B < 1$	$AGG^F > 1, AGG^B < 1$

DVA = domestic value added.
Source: Authors.

A high backward agglomeration signals that domestic value added embodied in final goods and services consumed domestically is high. Intuitively, this implies that domestic production for domestic consumption is higher than the world average. A high forward agglomeration indicates that domestic sectors absorb a significant portion of value added generated by an economy sector. This means that value added that goes to domestic production is higher than the world average. The classification presented in the agglomeration map combines these two effects to determine the form of domestic linkages taking place in an economy sector.

Figure 1.13 shows forward and backward agglomeration indices for all economies in ADB's Multiregional Input–Output Database for 2000, 2010, and 2020. In 2000, only three were classified as reshoring economies: Australia, Nepal, and Pakistan. While the first two shifted to high agglomeration by 2010, another 10 moved into reshoring, bringing the number in that category to 11. These included the US, which shifted to reshoring from high agglomeration. Most other high-agglomeration economies remained so, including Bangladesh, Brazil, India, and Japan. Among major GVC players, the PRC registered modest declines in both agglomeration indices, while Singapore and Viet Nam boosted their forward agglomeration significantly.

Figure 1.13: Agglomeration Across Economies, 2000, 2010, 2020
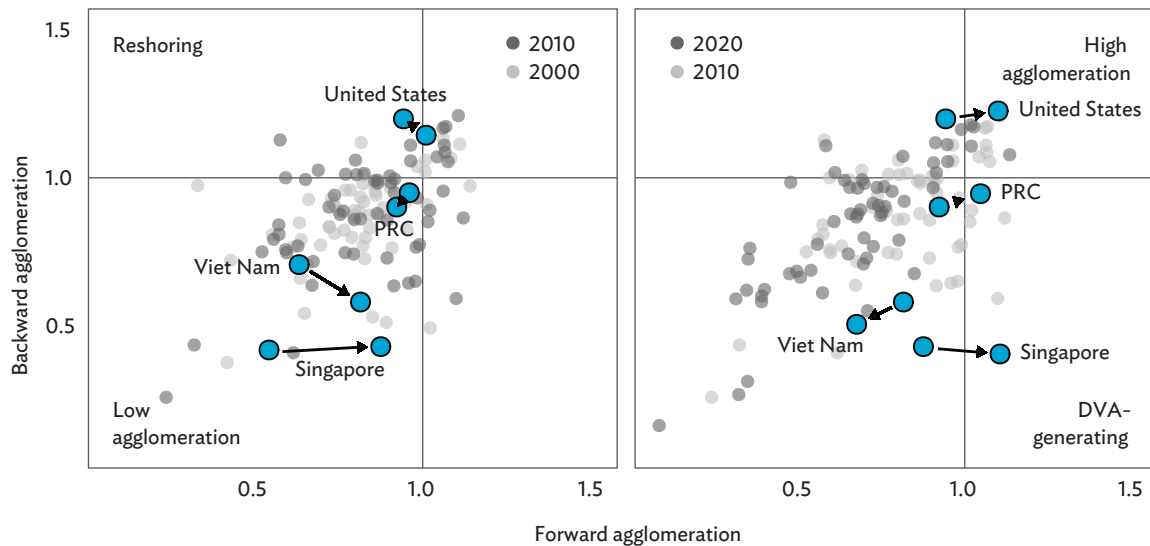
DVA = domestic value added, PRC = People's Republic of China.
Sources: Asian Development Bank. Multiregional Input–Output Database. https://mrio.adbx.online (accessed 31 July 2021);
Asian Development Bank estimates.

From 2010 to 2020, many reshoring economies shifted to low agglomeration. Indonesia and the US were notable exceptions, as they shifted to high agglomeration. The PRC left the low agglomeration category to become domestic value-added generating, indicating higher domestic content in domestic consumption of final goods. Singapore continued its forward agglomeration, while Viet Nam moved toward lower agglomeration on both perspectives.

These developments highlight the changing and complex nature of domestic linkages in different sectors. Economies moving toward the reshoring class provide support to slowbalization, as activities once located elsewhere become concentrated back to the domestic economy. The increases in forward agglomeration in some economies signal the ability of domestic sectors to absorb value added from GVCs, which increase incentives to participate. These two forces indicate that strong domestic linkages do not necessarily imply a decline in overall trade.

Conclusions

This chapter provided a broad view of recent developments in GVCs by combining indicators from the literature with ones developed by the authors of this chapter. Although economic nationalism, the COVID-19 pandemic, and other headwinds reinforce the narrative of slowbalization, a comprehensive and systematic look shows that the picture is more mixed. Even though major players have taken an anti-globalization turn, emerging economies, particularly Bangladesh and Viet Nam, continue to push global integration forward. New accounting frameworks and a novel dataset from the Organisation for Economic Co-operation and Development have shown that MNCs and their affiliates contribute a significant amount of GVC activity that has hitherto been hidden. The turn toward regionalism has generally not dampened the appetite for inter-bloc trade; indeed, some blocs, including NAFTA and the Eurasian Economic Union, simply cannot rely on their members for the totality of their demand. And a new set of domestic agglomeration indices show that reshoring has not become any more pervasive than before. The indicators examined in this chapter point to a globalization that is not uniformly slowing—and in many aspects it has grown in complex and interesting ways.

The COVID-19 pandemic, for which data at the input–output level is still preliminary, will add another layer of complexity to the slowbalization era. Measures taken to combat COVID-19 have sharply exposed vulnerabilities in many supply chains. At the same time, the rapid adoption of digital technologies has made supply chains smarter and more efficient, providing new opportunities for GVC expansion. What happens in the coming years, as Antràs (2020b) emphasizes, will depend on the policies that governments adopt in the postpandemic era. Will these vulnerabilities embolden nationalist sentiments and lead to the reshoring of supply chains? Or will the crucial role played by globalized networks of production in goods as varied as semiconductors and vaccines compel governments to ensure their continued functioning? One can only speculate.

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