6 | Special Theme: What Drives Foreign Direct Investment in Asia and the Pacific?

Special Theme: What Drives Foreign Direct Investment in Asia and the Pacific?

Introduction

Foreign direct investment can help achieve inclusive economic growth and regional integration.

Foreign direct investment (FDI) worldwide has grown markedly since the 1970s, reaching $1.76 trillion in 2015. Developing Asia is now the largest recipient and accounts for almost one-third of total FDI inflows (UNCTAD 2016). FDI helps inclusive economic growth and integration. It contributes directly to economic growth through physical and human capital accumulation, as well as enhancing total factor productivity through technological and knowledge spillovers—thereby facilitating economic development for capital-starved and technologically backwards developing countries.[47] Moreover, FDI potentially facilitates regional integration by allowing economies to link to global and regional value chains—an export-oriented development strategy that many in Asia have followed successfully. In the process, recipient economies achieve industrial and export upgradation.[48] Finally, FDI can foster inclusiveness through job creation, increased wages, gender empowerment, and improvements in working conditions.[49]

As the main organizers of trade and FDI, multinational corporations enter a foreign market either through building new assets (greenfield FDI) or acquiring existing ones (merger and acquisitions), either to serve the domestic market (horizontal FDI) or to serve the international market (vertical or export platform FDI).

Multinationals' central role in trade and FDI has been one of the main features of economic globalization over the past few decades. Multinationals are motivated by two main, and possibly overlapping, market considerations. They can set up affiliates in a foreign country to serve the domestic market as a substitute for exports (horizontal or market-seeking FDI), replicating the production process in another country to avoid trade costs. Alternatively, a multinational relocates parts of its production process in search of lower production costs for re-exporting intermediate and/or final goods either to their home country (vertical FDI) or a third country (export-platform FDI). The offshored production process may be kept within the firm or outsourced, which results in increasingly complex international production networks.[50] Because vertical and export-platform FDI underpins the emergence of an extensive network of global value chains (GVCs), in which intermediate goods cross borders multiple times during the production process before final assembly (GVC–trade), this kind of efficiency-seeking FDI is referred to as GVC–FDI throughout the remainder of this chapter.

---

[47] Excellent surveys of the literature can be found in Moran (2001), Navaretti and Venables (2005), Caves (2007), Dunning and Lundan (2008), or Moran (2011).

[48] See, for example, Antras and Foley (2009), Harding and Javorcik (2011), and Athukorala (2013), among others.

[49] Several studies point out that multinational corporations provide higher wages, exercise greater corporate social responsibility, and are more gender sensitive in providing employment opportunities. See, for example, Aitken et al. (1996), Morrisey and Te Velde (2003), Lipsey and Sjoholm (2004), Harrison and Scorce (2005), among others.

---

[50] It is no longer whether to integrate an input used for production of a final good at headquarters, but about how to integrate and where to locate a multidimensional global value chain with final goods directed to global markets.

The decision over whether a multinational invests in greenfield FDI or uses the merger and acquisition (M&A) route depends not only on traditional considerations of comparative advantage and integration, but also to a great extent on the investment policy regime and domestic regulations of the host economy. In developing Asia, for example, domestic regulations in many economies—including the People's Republic of China (PRC), India, and the Philippines—limit foreign ownership in various industries to joint ventures, therefore erecting high barriers for greenfield FDI. At the same time, restrictions on foreign investors are generally relaxed in special economic zones (SEZs) designed in part to encourage greenfield investments.

The benefits of FDI are not automatic: they depend on the type of FDI and the absorptive capacity of the recipient economy—and policy makers may wish to attract the type of FDI most suited to their overall development strategy.

What drives the location decision of a multinational, in terms of motivation and the mode of entry? What factors determine the sectoral and industry composition of the FDI? And given the recent phenomena of emerging economies becoming important sources of FDI outflows, do the pull factors for emerging economy multinationals differ from those of multinationals based in advanced economies? These are important questions. because empirical evidence on the impact of aggregate FDI on the recipient economy is mixed.

The extent of any benefit depends on the "type" of FDI and the country context. While contributions of FDI to the host economy are generally recognized as positive and well documented in various studies, not all FDIs bring the same benefits, especially if the host economy lacks proper absorptive capacity and institutional quality. As an example, many studies point out that in order to benefit from FDI extractive industries, particularly natural resources, it is important to supplement the policy regime with an institutional framework that minimizes the potential for rent-seeking and corruption typically inherent in natural resource exploitation.[51] In the Asian context, this is particularly relevant for

resource-rich economies, including those in Central Asia: projects dealing with extraction, and to a lesser extent processing of natural resources, account for more than 50% of total foreign investments in the region (ADBI 2014). Other than vulnerability to volatility in global commodity markets, the positive impacts of these investments have been confined by sector, geography, and political considerations.

Thus, policy makers may wish to attract the type of FDI most suited to the overall development strategy and that matches the stage of development and absorptive capacity of the host economy. For instance, considering the mode of entry, countries lacking the absorptive capacity to take advantage from M&As tend to benefit more from greenfield investments.[52] Labor-abundant economies which may be following an export-oriented development strategy would benefit more from GVC–FDI.

Sectoral composition matters too. FDI literature has traditionally attributed greater technological spillovers to FDI that flows into manufacturing, due to the presence of more extensive vertical linkages.[53] However, given the increasing tradability of services in an age of e-commerce, and its importance as an input to production, developing economies also want to attract services FDI. Services account for more than 60% of global FDI stock (UNCTAD 2016). Finally, economies with poor institutional quality and business environment may find it easier to attract multinationals from other emerging countries with a smaller cultural, institutional, and structural distance.[54]

What are the drivers—comparative advantage, institutions, integration, and policy—of different types of FDI?

The focus of the research in this chapter is to provide an understanding of the country-specific and bilateral policy drivers that help to attract not only aggregate FDI, but differentiating FDI by both the market-serving motivation of the multinational and mode of entry—as has not

---

[51]   See, for example, Coolidge and Rose-Ackerman (1997), Alfaro (2003).

[52]   See, for example, Wang and Wong (2009) and Harms and Méon (2014).
[53]   See, for example, Alfaro et al. (2003) Aykut and Sayek (2007), and Golub (2009)
[54]   See, for example, Alesynska and Havrylchyk (20011), Lipsey and Sjoholm (2011), and Darby et al. (2013).

been done in previous literature. The analysis is done by sector and provides some insight into the relatively recent phenomenon of the internationalization of emerging country multinationals. Furthermore, it is not clear from either theory or empirical evidence whether the market-serving motivation of a multinational and its mode of entry are linked. While encouragement of one particular mode of entry over another can be directly affected through changes in domestic regulations and investment policy, the policy influence over domestic market-seeking or efficiency-seeking FDI is more limited. For instance, in a developing Asian economy seeking to attract GVC–FDI—so it can link a given sector to a regional value chain—it is unclear whether greenfield investments or M&As would be more helpful. This chapter seeks to fill this gap.

The drivers of the FDI considered in the analysis can be grouped broadly into factors capturing comparative advantage (for example, per capita GDP, market size, capital–labor ratio, share of skilled workforce); institutions (quality of governance, financial development); policy (FDI incentives and restrictions, more general policy regimes); and integration (logistics and infrastructure, trade and investment agreements).

In addition to investigating a broad set of determinants, this chapter focuses more specifically on international investment policies as important drivers of FDI. International investment agreements (IIAs) and regional trade agreements have proliferated in recent decades. Despite the increasing use of IIAs by developed and developing economies alike, there is no consensus in the empirical literature about their impact on FDI. The lack of empirical evidence can be attributed to existing studies not accounting for the wide heterogeneity in the design of IIAs in relation to their underlying provisions and the interrelationships between these provisions. This chapter attempts to cover this ground, adopting a granular approach by unbundling IIAs into their various provisions to investigate the impact, not only on aggregate FDI, but on FDI when differentiating by mode of entry.

The next section highlights recent trends in Asia's FDI and presents some stylized facts, both in aggregate as well as by motivation and mode of entry. The third section examines the determinants of FDI distinguished by market-serving motivation of the multinational and

explores the link between GVC–FDI, GVC–trade, and the fragmentation of production. The fourth examines the drivers of FDI by the multinational's mode of entry. The fifth presents an analysis of the relation between the motivation and mode of entry, and provides policy prescriptions for economies eyeing GVC–FDI. The sixth section distills relevant policy implications from the empirical analysis, and summarises the key findings. The special section of this chapter investigates the role of IIAs and includes a trend analysis, empirical analysis, and policy implications.

Trends and Patterns of FDI in Asia and the Pacific

Aggregate FDI

After having fallen since 2012, global FDI inflows surged to nearly $1.8 trillion in 2015, the highest since the global financial crisis.

Since 2012, global GDP growth has fallen below its long-term average. This global anemic growth has pushed FDI into the limelight, reinforcing its role as an integral catalyst for development. Global FDI inflows in 2015 increased 38% from $1.3 trillion in 2014 (Figure 6.1). That jump is considerable when set against a backdrop of 3

Figure 6.1: Total FDI Inflows ($ billion)
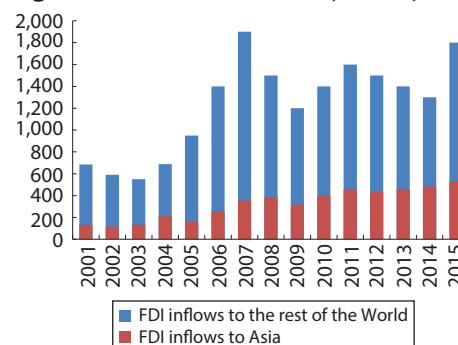
FDI = foreign direct investment.
Sources: ADB calculations using data from Association of Southeast Asian Nations Secretariat; CEIC; Eurostat. Balance of Payments. http://ec.europa.eu/eurostat/web/balance-of-payments/data/database (accessed August 2016); and United Nations Conference on Trade and Development. Bilateral FDI Statistics. http://unctad.org/en/Pages/DIAE/FDI%20Statistics/FDI-Statistics-Bilateral.aspx (accessed August 2016).

Table 6.1: Top Asian FDI Recipients from the World
($ billion)

Source	2010	2015	Growth (%)	Change
Hong Kong, China	72.3	174.9	141.8	102.6
People's Republic of China	114.7	135.6	18.2	20.9
Singapore	55.1	65.3	18.5	10.2
India	27.4	44.2	61.2	16.8
Australia	36.4	22.3	-38.9	–14.2
Indonesia	13.8	15.5	12.6	1.7
Viet Nam	8.0	11.8	47.5	3.8
Malaysia	9.1	11.1	22.8	2.1
Thailand	14.6	10.8	-25.6	–3.7
Philippines	1.3	5.2	303.2	3.9

Sources: ADB calculations using data from Association of Southeast Asian Nations Secretariat; CEIC; Eurostat. Balance of Payments. http://ec.europa.eu/eurostat/web/balance-of-payments/data/database (accessed August 2016); and United Nations Conference on Trade and Development. Bilateral FDI Statistics. http://unctad.org/en/Pages/DIAE/FDI%20Statistics/FDI-Statistics-Bilateral.aspx (accessed August 2016).

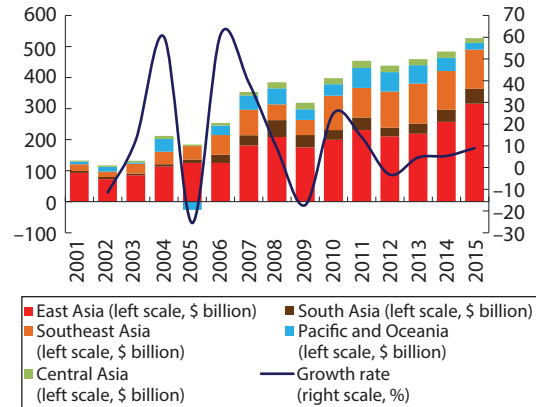**Figure 6.2: Global FDI Inflows to Asia by Subregion**

FDI = foreign direct investment.
Sources: ADB calculations using data from Association of Southeast Asian Nations Secretariat; CEIC; Eurostat. Balance of Payments. http://ec.europa.eu/eurostat/web/balance-of-payments/data/database (accessed August 2016); and United Nations Conference on Trade and Development. Bilateral FDI Statistics. http://unctad.org/en/Pages/DIAE/FDI%20Statistics/FDI-Statistics-Bilateral.aspx (accessed August 2016).

consecutive years of negative growth after 2012, falling commodity prices, and rising geopolitical uncertainty.

The surge was driven largely by a buoyant market for M&As, which topped $272 billion, nearly 1.6 times the value in 2014. Most flows originated from the United States (US); the United Kingdom (UK); the Netherlands; Luxembourg; and Hong Kong, China. The Asia and the Pacific region remained the prime recipient, attracting $527 billion in FDI, a 9% increase from $484 billion in 2014. With almost a third of global FDI flowing into the region, Hong Kong, China received $175 billion and replaced the PRC, which received $136 billion, as the largest host economy, with Singapore and India following (Table 6.1). Large FDI volumes into Hong Kong, China underscore its importance as a hub for financial investment (Nylander 2015). This also explains the large FDI flows between the PRC and Hong Kong, China.
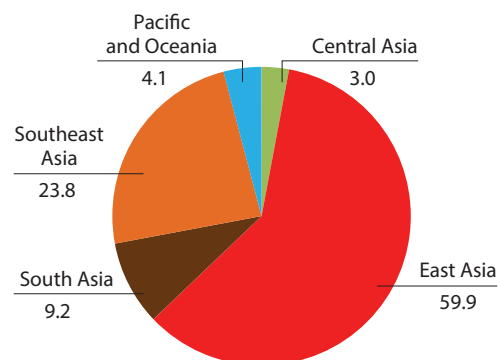
East Asia accounts for the largest share of Asia-bound global FDI (60%); Central Asia draws the least (3%).

By subregion, East Asia continues to be the primary destination, accounting for 60% of all Asia-bound global FDI and driven primarily by the PRC and Hong Kong, China (Figures 6.2 and 6.3). The subregion received

Figure 6.3: Global FDI Inflows to Asia by Subregion, 2015 (%)

FDI = foreign direct investment.
Sources: ADB calculations using data from Association of Southeast Asian Nations Secretariat; CEIC; Eurostat. Balance of Payments. http://ec.europa.eu/eurostat/web/balance-of-payments/data/database (accessed August 2016); and United Nations Conference on Trade and Development. Bilateral FDI Statistics. http://unctad.org/en/Pages/DIAE/FDI%20Statistics/FDI-Statistics-Bilateral.aspx (accessed August 2016).

$59 billion more in 2015 compared with 2014, part of which was due to the merger and restructuring of Li Ka-shing's Cheung Kong Holdings and subsidiary Hutchison Whampoa (UNCTAD 2016). Southeast Asia and South Asia also posted a slight increase, with 24% and 9%, respectively, of the total inflows to the region. Within

these two subregions Singapore ($65.3 billion) and India ($44 billion) dominate. About half of FDI to Singapore, an established center for multinational investments, went to financial services. An improved business climate in India lifted FDI—flows from North America and Pacific and Oceania regions doubled, while flows from Southeast Asia rose 85%. There remains ample room to improve intraregional ties for both Central Asia and the Pacific subregions. Sharing best practices to accelerate financial development and enhance the FDI environment in these economies could help attract more FDI. In 2015, the FDI shares of Central Asia (3%) and the Pacific and Oceania subregions (4.1%) remained small. FDI to Central Asia contracted 23% to $15.6 billion, from $20.3 billion in 2014. Higher investment flows ($174 million) into the Pacific countries were overshadowed by FDI flows to Oceania—lower by $20.8 billion. Total inflows into the 14-member Pacific subregion are less than 1% of world inflows into Asia and the Pacific in 2015, while Oceania's share fell to 4.0% from 8.0% in 2014.

In 2015, intraregional FDI inflows in Asia grew 8.6% to $277 billion from $255 billion in 2014.

Within the region, outflows rose 9% to $22 billion, with East Asia accounting for $20 billion (Figure 6.4). Most of the intraregional outflows from East Asia are sourced
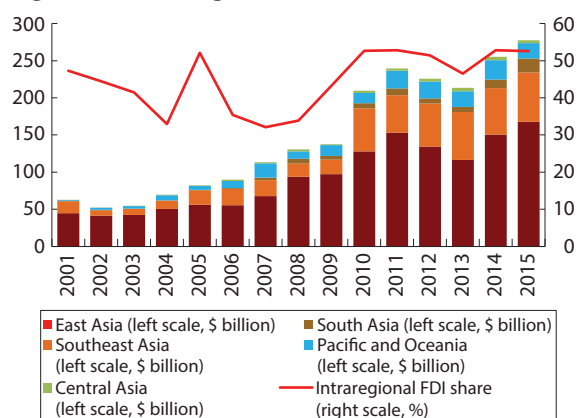
Table 6.2: Top Asian Sources of FDI ($ billion)

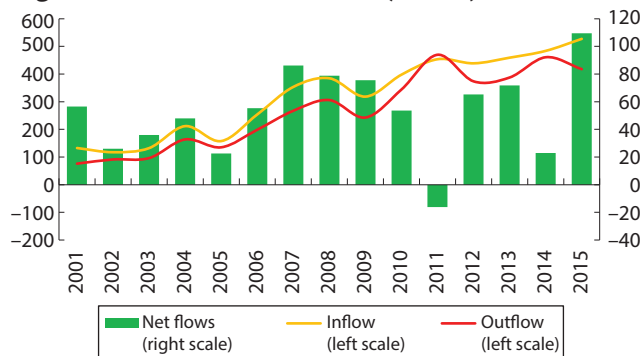| Source	2010	2015	Growth (%)	Change
Japan	56.3	128.7	128.7	72.4
PRC	68.8	127.6	85.4	58.7
Hong Kong, China	88.0	55.1	−37.4	−32.9
Singapore	35.4	35.5	0.2	0.1
Republic of Korea	28.3	27.6	−2.3	−0.6
Taipei,China	11.6	14.8	27.6	3.2
Malaysia	13.4	9.9	−26.1	−3.5
Thailand	8.2	7.8	−4.7	−0.4
India	15.9	7.5	−53.0	−8.4
Indonesia	2.7	6.2	134.6	3.6

FDI = foreign direct investment, PRC = People's Republic of China.
Source: ADB calculations using data from United Nations Conference on Trade and Development. Bilateral FDI Statistics. http://unctad.org/en/Pages/DIAE/FDI%20Statistics/FDI-Statistics-Bilateral.aspx (accessed August 2016)

from Hong Kong, China; the PRC; and Japan (Table 6.2). The pattern of intraregional FDI inflows as a share of total flows suggests that Asia is becoming marginally more integrated with Asia than with non-Asian regions. Asia's intraregional FDI share rose from 36% in 2006–2009 to an average share of 52% since 2010. Intraregional FDI inflows are also primarily driven and dominated by East Asia and, to a lesser extent, Southeast Asia. These two regions accounted for 60% and 24%, respectively, of intraregional FDI inflows in 2015. For Central and South Asia subregions, intraregional FDI ties remain weak. In 2015, the two subregions received 12% of global FDI inflows to Asia; but its intraregional share was only 8%. The Pacific and Oceania region, which drew an average 11% of global inflows in 2011–2015, accounted for a 4% intraregional share.

Outward FDI from the Asia and Pacific region dropped 9% in 2015 after rising to a high level in 2014.

The drop in FDI flows tracked a $20 billion decline in investments from Oceania and a $12 billion fall in investments from Southeast Asia, due to a slowdown in aggregate demand, falling commodity prices, depreciating national currencies, and geopolitical concerns (Figure 6.5). In 2015, total FDI outflows from Asia amounted to $417.7 billion, 15% of global outflows. Despite the sharp fall, Asia remains the second largest source of global investments after the European Union

Figure 6.4: Intraregional FDI Inflows—Asia

FDI = foreign direct investment.
Sources: ADB calculations using data from Association of Southeast Asian Nations Secretariat; CEIC; Eurostat. Balance of Payments. http://ec.europa.eu/eurostat/web/balance-of-payments/data/database (accessed August 2016); and United Nations Conference on Trade and Development. Bilateral FDI Statistics. http://unctad.org/en/Pages/DIAE/FDI%20Statistics/FDI-Statistics-Bilateral.aspx (accessed August 2016).

Figure 6.5: Total FDI flows—Asia ($ billion)

FDI = foreign direct investment.
Sources: ADB calculations using data from Association of Southeast Asian Nations Secretariat; CEIC; Eurostat. Balance of Payments. http://ec.europa.eu/eurostat/web/balance-of-payments/data/database (accessed August 2016); and United Nations Conference on Trade and Development. Bilateral FDI Statistics. http://unctad.org/en/Pages/DIAE/FDI%20Statistics/FDI-Statistics-Bilateral.aspx (accessed August 2016).

Table 6.3: Major Destinations of FDI Flows from Emerging Asian Investors, 2015

Source	Major Destinations	$ million	% of Total Investor's Outbound FDI
PRC	Luxembourg	5,943	8.3
	Nigeria	4,860	6.8
	Netherlands	2,640	3.7
	Asia	50,625	70.8
Malaysia	United States	1,062	14.6
	Turkey	429	5.9
	France	164	2.3
	Asia	5,503	75.8
India	Netherlands	575	13.3
	United States	435	10.1
	United Kingdom	409	9.5
	Asia	1,669	38.6

PRC = People's Republic of China, FDI = foreign direct investment.
Sources: ADB calculations using data from Association of Southeast Asian Nations Secretariat; CEIC; Eurostat. Balance of Payments. http://ec.europa.eu/eurostat/web/balance-of-payments/data/database (accessed August 2016); and United Nations Conference on Trade and Development. Bilateral FDI Statistics. http://unctad.org/en/Pages/DIAE/FDI%20Statistics/FDI-Statistics-Bilateral.aspx (accessed August 2016).

(EU)—also with a 15% share. East Asian economies such as the PRC, Japan and the Republic of Korea were among the top 10 Asian sources of global FDI (Table 6.2). In Southeast Asia, Singapore and Malaysia also figured in the list, as well as Australia.

Emerging Asian economies such as the PRC, India, and Malaysia mainly invest in Asia (Table 6.3). Despite the slowdown in its economy, the PRC's investments abroad continued and stood at $71.5 billion in 2015—making it the second largest investor from Asia and the sixth largest globally. In contrast, FDI outflows from India fell to $4.3 billion in 2015, just half of the $8.6 billion outflow in 2014. The destination of India's overseas investments changed perceptibly in the past 6 years. In 2010, at least 50% of outflows were destined for Asia, with the EU and the US at less than 5% each. By 2015, the EU and the US shares of total FDI from India were 29% and 10%, respectively. Outward FDI from Malaysia has been slowing since 2012. In 2015, investment outflows from Malaysia were $7.3 billion, 40% below 2014, and 48% lower than the 2012 peak of $14.2 billion. Most of Malaysia's overseas investments have been to North America, with Asia's share falling from 42% to 20% in 2012–2014, but this trend reversed in 2015, when Malaysia's investments to Asia rose to $5.5 billion in 2015, from $2.3 billion the previous year.

Patterns in global value chains and foreign direct investment

Japan is the dominant source of GVC–FDI in Asia, while the PRC is the most popular host.

Multinationals play an especially critical role in investment flows. Not only are they the main organizers and coordinators of GVCs, but they also serve foreign markets by relocating the production process as an alternative to trade. The great trade expansion in developing Asia—before being disrupted by the global financial crisis—was propelled in large part by the regional and global value chains spawned by Japanese multinationals across developing Asia. Using data on global ultimate headquarters (GUH) of multinationals and their overseas subsidiaries and/or affiliates that both import and export (Box 6.1), the PRC is the largest host for multinationals engaged in GVC–FDI, whereas Japan is the dominant source (Table 6.4). The PRC hosts the most GVC–FDI, not only for multinationals from Organisation for Economic Co-operation and Development (OECD) economies such as Japan, the US, and Germany, but also

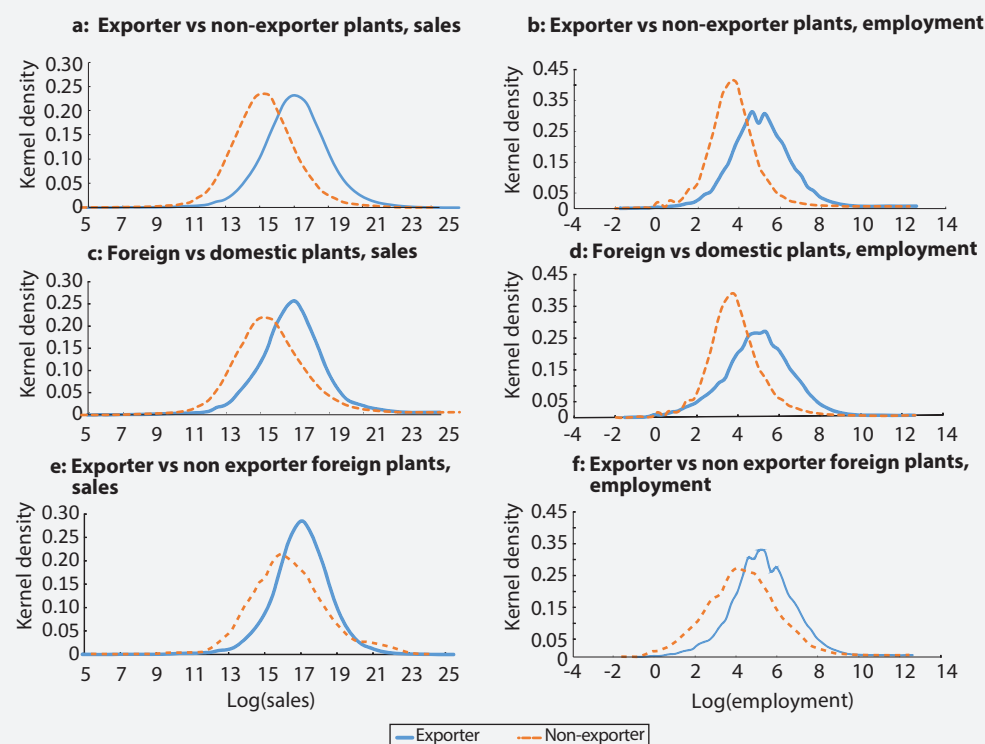## Box 6.1: Identifying Global Value Chain–FDI in the Data

The main challenge in analyzing the global value chain FDI (GVC–FDI) is the dearth of data linking the parent or headquarters of the multinational with its affiliates or subcontractors. Moreover, information on the destination of sales of an affiliate is required to distinguish between GVC–FDI and horizontal (market-seeking) FDI. The data used are from the Worldbase registry compiled by Dun and Bradstreet, which provides detailed information on the global ultimate headquarters (GUH) of multinationals and affiliated subsidiaries, together with their industry codes (at the 4-digit level of the Standard Industrial Classification). Data also link subsidiaries that belong to the same GUH within and across borders. Crucially, the data record whether a plant is engaged in international trade activities or not, allowing the distinction to be made between plants that are exclusively dedicated to servicing host markets and those that produce for the international market. GUHs owning overseas subsidiaries that trade (through both imports and exports) can be identified as being engaged in GVC–FDI.

Data are from 2015, and the country coverage for host economies (identified as the location of the subsidiary/affiliate) includes 27 Asian economies. For origin economies (identified as the location of the GUH parent), the data includes 36 economies from the Organisation for Economic Co-operation and Development (OECD) and selected emerging economies. Those from Asia include Australia; the People's Republic of China; Hong Kong, China; India; Indonesia; Japan; the Republic of Korea; Malaysia; New Zealand; Singapore; Taipei,China; and Thailand. All manufacturing industries, mining, and business services— services integral to the performance of GVCs—are covered.

The data supports three stylized facts that are well known in the literature about multinational production (box figure): (i) exporters are larger than firms that serve domestic markets in line with models of trade involving heterogeneous firms (Melitz et al. 2003); (ii) foreign plants are larger than domestic plants, as has been documented extensively using industrial census data from the United States (US) and Europe (Helpman, Melitz, and Yeaple 2004); and (iii) foreign affiliates that export are larger than foreign affiliates that do not export. The third fact has not been confirmed before, except for multinationals based in the US, and this analysis is one of the first attempts to do so across a large cross-section of economies.

Exporters and Foreign Affiliates in Worldbase

a: Exporter vs non-exporter plants, sales

b: Exporter vs non-exporter plants, employment

c: Foreign vs domestic plants, sales

d: Foreign vs domestic plants, employment

e: Exporter vs non exporter foreign plants, sales

f: Exporter vs non exporter foreign plants, employment

Source: ADB calculations using data from Dun & Bradstreet. D&B Worldbase.

Table 6.4: GVC–FDI—Most Common Bilateral Pairs

Destination	Origin	Number of Affiliates that Import and Export	% of Affiliates that Import and Export
PRC	Japan	2,260	81
PRC	Hong Kong, China	1,314	76
PRC	United States	646	74
PRC	Germany	625	76
PRC	Taipei,China	401	79
PRC	Republic of Korea	358	86
PRC	Singapore	337	71
Viet Nam	Japan	306	72
Thailand	Japan	258	64
Indonesia	Japan	214	53
Taipei,China	Japan	212	74
PRC	France	177	77
Malaysia	Japan	175	78
Philippines	Japan	171	69
Singapore	Japan	164	54

FDI = foreign direct investment, GVC = global value chain, PRC = People's Republic of China.
Note: GVC–FDI refers to foreign affiliates engaged in both exports and imports.
Source: ADB calculations using data from Dun & Bradstreet. D&B Worldbase.

Table 6.5: Number of Trade-Oriented Firms as Share of Total Foreign Firms—Selected Asian Economies

	Exporters	Importers	Exporters and Importers
Australia	0.225	0.216	0.151
PRC	0.815	0.878	0.789
Hong Kong, China	0.480	0.292	0.237
India	0.469	0.392	0.350
Indonesia	0.521	0.524	0.415
Japan	0.202	0.310	0.183
Republic of Korea	0.438	0.447	0.356
Malaysia	0.711	0.694	0.648
New Zealand	0.000	0.200	0.000
Singapore	0.518	0.446	0.403
Taipei,China	0.766	0.835	0.740
Thailand	0.722	0.784	0.661

PRC = People's Republic of China.
Source: ADB calculations using data from Dun & Bradstreet. D&B Worldbase.

from Hong Kong, China; Singapore; and Taipei,China. Almost 80% of foreign-owned plants in the PRC are engaged in exporting and importing, followed by 74% in Taipei,China; Viet Nam (70%); Thailand (66%); and Malaysia (65%) (Table 6.5).

Comparison of FDI flows from Japanese multinationals with those of the PRC and India digs deeper into the destinations of FDI (overall and GVC) in Asia from OECD versus other emerging Asian economies. For overall FDI, Japan's main destination in Asia is the PRC, a large and relatively cheap market (Figure 6.6a). Less developed economies, such as Indonesia, Thailand, and Viet Nam, are the next most popular Asian destinations for Japanese multinationals. The PRC concentrates almost 30% of its foreign affiliates in Australia—the richest economy in the area (Figure 6.6c). That Hong Kong, China is the second most popular destination for PRC multinationals is not surprising: United Nations Conference on Trade and Development (UNCTAD) points to a high flow of back-and-forth FDI between the PRC and Hong Kong, China. The less developed economies in Asia account for more than 15% of outward FDI from the PRC. Indian multinationals choose Singapore, an economy

specializing in services, as their most popular destination, followed by Australia and the Philippines (Figure 6.6d).

The distribution of affiliates engaged in GVC–FDI is much the same across these source countries: the favorite location for Japanese affiliates engaged in international trade remains the PRC, and Singapore tops Indian choices. However, Viet Nam is the favorite economy for the PRC multinationals to locate GVC–FDI, rather than Australia or Hong Kong, China. Almost 76% of the PRC-owned affiliates in Viet Nam are engaged in trade-oriented activities. This indicates that the PRC multinationals may be using Viet Nam as a production base to take advantage of its lower production costs.

Manufacturing attracts multinationals most engaged in GVCs in Asia, and business services draws in the least.

By sector, manufacturing attracts multinationals most engaged in GVCs in Asia, and business services draws in the least: almost 70% of affiliates belonging to foreign manufacturer parents are engaged in international trade, but only 14% of foreign-owned affiliates in business services import or export. Industries that attract the most GVC–FDI in Asia are motor vehicle components, electronics, machinery, and chemicals (Table 6.6).

Figure 6.6: GVC–FDI to Asia—Selected Source Economies

a: Japan

b: US

c: PRC
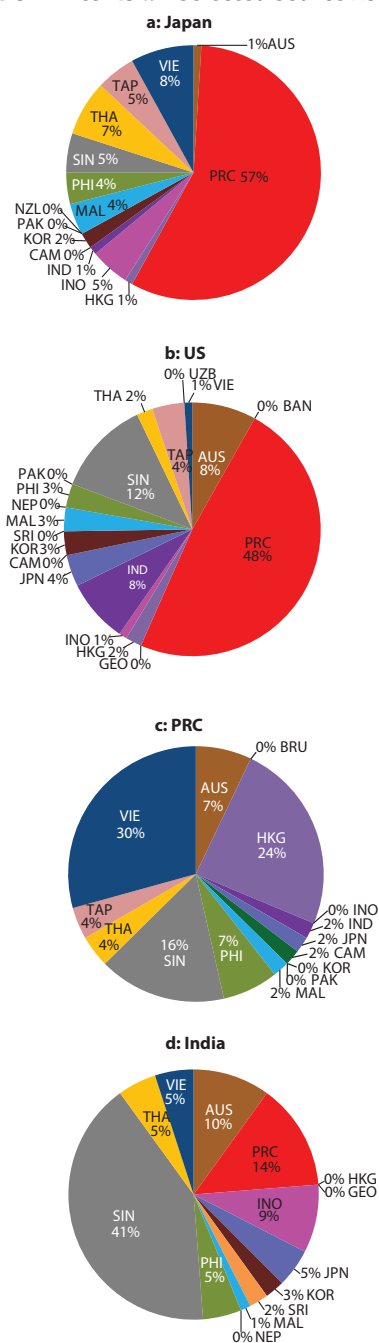
d: India

AUS = Australia; BAN = Bangladesh; BRU = Brunei Darussalam;
CAM = Cambodia; GEO = Georgia; HKG = Hong Kong, China; IND = India;
INO = Indonesia; JPN = Japan; KOR = Republic of Korea; MAL = Malaysia;
NEP = Nepal; PAK = Pakistan; PHI = Philippines; PRC = People's Republic of
China; SIN = Singapore; SRI = Sri Lanka; TAP = Taipei,China; THA = Thailand;
US = United States; UZB = Uzbekistan; VIE = Viet Nam; GVC = global value chain;
FDI = foreign direct investment.
Notes: Number of affiliates, in each country, as a share of the total number of
affiliates belonging to global ultimate headquarters from each of the selected
countries.
Source: ADB calculations using data from Dun & Bradstreet. D&B Worldbase.

Table 6.6: Most Common Industries

Affiliate Industry	Number of Affiliates that Import and Export
Motor vehicle brake system	1,925
Other electronic component	1,358
Plastics pipe and pipe fitting	980
Pharmaceutical preparation	859
Paint and coating	710
Semiconductor and related device	694
Custom computer programming services	542
Telemarketing bureaus	532
Farm machinery and equipment	490
Ethyl alcohol	477
Plastics material and resin	465
All other petroleum and coal products	434
All other miscellaneous general purpose machinery	433
Other engine equipment	395
Computer systems design services	391

Source: ADB calculations using data from Dun & Bradstreet. D&B Worldbase.

Interestingly, a business services industry—telemarketing bureaus—shows up in eighth place.

A breakdown of outward and inward FDI and GVC–FDI from selected economies by sector (Tables 6.7, 6.8, 6.9, 6.10) shows 16% of all the PRC-owned affiliates in other countries are engaged in mining, second only to South Africa. The share of foreign-owned affiliates in manufacturing is highest for developing Asian economies including Taipei,China; Hong Kong, China; and the Republic of Korea, followed by Japan. Indian multinationals own the largest share of affiliates in business services (56%), even higher than US multinationals (39%), which have traditionally been dominant in this sector. For inward FDI, Australia (8%) plays host to the biggest share of foreign-owned affiliates in mining, while the PRC attracts the greatest share of foreign-owned affiliates in manufacturing (93%), followed by Viet Nam (92%). Hong Kong, China and Singapore

Table 6.7: Selected Source Economies— Outward FDI, by Sector

| | Share of Foreign Plants | | | |
	Mining	Manufacturing	Business Services	Other
PRC	0.163	0.465	0.298	0.074
India	0.036	0.378	0.562	0.024
Thailand	0.029	0.619	0.105	0.248
Malaysia	0.041	0.589	0.342	0.027
Indonesia	0.100	0.500	0.400	0.000
Japan	0.012	0.885	0.096	0.007
Republic of Korea	0.010	0.913	0.069	0.008
Hong Kong, China	0.007	0.919	0.070	0.003
Taipei,China	0.003	0.935	0.054	0.008
Singapore	0.018	0.783	0.174	0.025
Australia	0.058	0.527	0.397	0.018
United States	0.016	0.590	0.388	0.006
Brazil	0.094	0.406	N/A	0.500
South Africa	0.167	0.444	0.333	0.056

FDI = foreign direct investment, PRC = People's Republic of China.
Notes: Each row shows the fraction of affiliates from economy n abroad in each sector. Each row should sum up to one.
Source: ADB calculations using data from Dun & Bradstreet. D&B Worldbase.

Table 6.8: Selected Source Economies—Outward GVC–FDI, by Sector

| | Share of Foreign Plants | | | |
	Mining	Manufacturing	Business Services	Other
PRC	0.022	0.800	0.178	0.000
India	0.013	0.625	0.363	0.000
Thailand	0.000	0.974	0.026	0.000
Malaysia	0.000	0.909	0.091	0.000
Indonesia[a]	0.500	0.500	0.000	0.000
Hong Kong, China	0.001	0.984	0.014	0.001
Taipei,China	0.002	0.988	0.004	0.006
Singapore	0.004	0.956	0.040	0.000
Australia	0.000	0.865	0.124	0.011
Republic of Korea	0.007	0.972	0.021	0.000
Japan	0.009	0.969	0.022	0.000
United States	0.015	0.856	0.125	0.004
Brazil	0.167	0.667	0.000	0.167
South Africa	0.000	0.833	0.167	0.000

FDI = foreign direct investment, GVC = global value chain, PRC = People's Republic of China.
[a]The data on Indonesia only includes two affiliates.
Notes: Each row shows the fraction of affiliates from economy n abroad in each sector. Each row should sum up to one.
Source: ADB calculations using data from Dun & Bradstreet. D&B Worldbase.

Table 6.9: Selected Host Economies—Inward FDI, by Sector

| | Share of Foreign Plants | | | |
	Mining	Manufacturing	Business Services	Other
PRC	0.006	0.924	0.069	0.001
India	0.012	0.587	0.399	0.002
Viet Nam	0.010	0.921	0.069	0.000
Malaysia	0.027	0.821	0.139	0.013
Singapore	0.022	0.460	0.494	0.025
Taipei,China	0.030	0.835	0.134	0.000
Hong Kong, China	0.007	0.172	0.817	0.004
Indonesia	0.044	0.831	0.091	0.034
Thailand	0.024	0.916	0.060	0.000
Republic of Korea	0.020	0.815	0.158	0.007
Japan	0.012	0.551	0.437	0.000
Australia	0.076	0.474	0.377	0.073

FDI = foreign direct investment, PRC = People's Republic of China.
Notes: Each row shows the fraction of trade-oriented affiliates from economy n abroad in each sector.
Source: ADB calculations using data from Dun & Bradstreet. D&B Worldbase.

Table 6.10: Selected Host Economies—Inward GVC–FDI, by Sector

| | Share of Foreign Plants | | | |
	Mining	Manufacturing	Business Services	Other
PRC	0.005	0.980	0.014	0.001
Indonesia	0.005	0.796	0.200	0.000
Viet Nam	0.005	0.989	0.006	0.000
Malaysia	0.020	0.955	0.022	0.002
Indonesia	0.023	0.971	0.005	0.000
Hong Kong, China	0.008	0.311	0.674	0.008
Taipei,China	0.027	0.918	0.055	0.000
Singapore	0.019	0.682	0.276	0.022
Republic of Korea	0.035	0.930	0.030	0.005
Thailand	0.031	0.958	0.010	0.000
Japan	0.014	0.784	0.201	0.000
Australia	0.053	0.828	0.114	0.005

FDI = foreign direct investment, GVC = global value chain, PRC = People's Republic of China.
Notes: Each row shows the fraction of trade-oriented affiliates from economy n abroad in each sector.
Source: ADB calculations using data from Dun & Bradstreet. D&B Worldbase.

Table 6.11: Number of FDI Firms by Origin of Global Ultimate Headquarters

	Asia	Outside Asia	Selected Emerging Asia Economies	Rest of the World	PRC	India
All plants	203,132	26,998	86,094	144,036	31,297	52,008
Foreign plants (share of total)	0.05	0.37	0.01	0.14	0.007	0.005
Fraction that exports	0.73	0.52	0.43	0.63	0.35	0.48
Fraction that imports	0.76	0.53	0.37	0.66	0.27	0.37
Fraction that imports and exports	0.67	0.45	0.29	0.58	0.21	0.32

FDI = foreign direct investment, PRC = People's Republic of China.
Note: The selected emerging Asian economies in this list include the PRC, India, Indonesia, Malaysia, and Thailand.
Source: ADB calculations using data from Dun & Bradstreet. D&B Worldbase.

host the greatest share of FDI in business services—82% and 50% of all foreign-owned affiliates, respectively.

Affiliates belonging to Asian multinationals are more extensively engaged in GVCs in Asia than non-Asian owned: this is driven primarily by affiliates owned by Japan and the Republic of Korea.

Finally, some interesting patterns relate to intra-Asian GVC–FDI and to the activities of multinationals from some selected emerging Asian economies, especially the PRC and India (Table 6.11).[55] Subsidiaries belonging to Asian GUHs are more extensively engaged in GVCs than non-Asian (67% versus 45%). However, Asian multinationals' higher participation in GVC–FDI is driven by affiliates of multinationals owned by Japan and the Republic of Korea. Considering the subset of other emerging Asian economies, only 29% of subsidiaries owned by these multinationals are engaged in GVC activities. Also, despite the increasing internalization of multinationals from the PRC, the fraction of PRC-owned affiliates engaged in GVC–FDI remains substantially smaller than India (21% versus 32%).

Trends in greenfield investment and merger and acquisitions

Information on FDI's mode of entry is obtained by tracing the investment activity of firms and, unlike standard balance of payments data, traces the global ultimate ownership of the investment.

Multinationals decide either to take over production facilities and assets through M&A or to build new ones through greenfield investments. The main data challenge in measuring the size of specific investment projects by these different modes of entry is that the nominal value is often not reported due for reasons of confidentiality, especially in the case of M&As. Therefore, most analyses of FDI by mode of entry in the literature rely on a single input at the extensive margin: the number of investment projects.

Information on FDI mode of entry is obtained by tracing the investment activity of firms. Unlike standard balance of payments data, this dataset provides information on the global ultimate ownership of the investment, and is therefore not distorted by phenomena such as "round-tripping" and "transshipping".[56] Data is aggregated at the sectoral and bilateral level, covers 2003–2005 and

---

[55] The list of selected emerging Asian economies comprises the PRC, India, Indonesia, Malaysia, and Thailand.

[56] The International Monetary Fund (2004) defines round-tripping as "the channeling by direct investors of local funds to special purpose entities abroad and the subsequent return of the funds to the local economy in the form of direct investment." Transshipping takes place when funds channeled to special purpose entities in offshore financial centers are not routed back to the originating economy but to other economies instead.

comes from two sources. The fDi Markets database maintained by The Financial Times provides information on greenfield investments, while M&A deals are reported by the Zephyr database, maintained by Bureau Van Dijk.[57] Both sources estimate the nominal value of investments where they are not actually reported due to confidentiality reasons. Therefore information provided based on the number of projects is considered more reliable, and is the one reported mostly in this chapter.

Traditionally, economies in Asia and the Pacific region have received more greenfield investments, but the number of M&As have been steadily increasing.

After the global financial crisis, M&As steadily increased and the number of deals exceeded the number of greenfield projects for the first time in 2015 (Figure 6.7). This trend has been driven mainly by M&As from the rest of the world (ROW) to Asia. The number of greenfield projects has remained stagnant after a sharp fall at the beginning of the global financial crisis in 2007. However, in nominal terms greenfield investments remain significantly higher (Figure 6.8). The largest recipient economy for both greenfield FDI and M&As is the PRC (Table 6.12). Emerging Asian economies tend to receive more greenfield investments, while the richer economies in the region including Japan, Australia, and New Zealand rank higher in M&As.

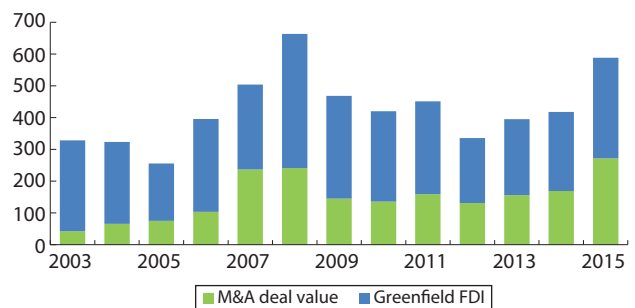**Figure 6.7: Number of FDI Projects** (thousands)
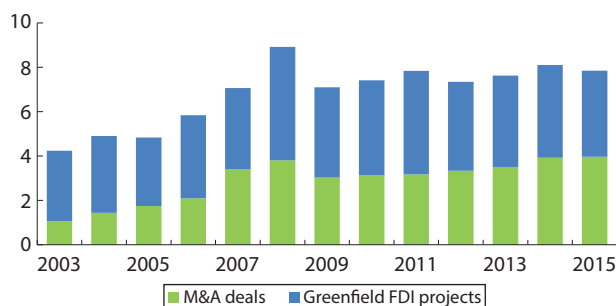
FDI = foreign direct investment, M&A = merger and acquisition.
Note: Asia refers to the 48 regional members of ADB.
Sources: ADB calculations using data from Financial Times. fDi Markets; and Bureau van Dijk. Zephyr M&A Database.

---

[57]   In instances where Zephyr does not provide information on the global ultimate ownership of the investment, the information is traced and matched from the Orbis company database.

Figure 6.8: Value of FDI in Asia ($ billion)

FDI = foreign direct investment, M&A = merger and acquisition.
Notes: The nominal value for many deals is not available due to confidentiality, especially for M&A. Asia refers to the 48 regional members of the Asian Development Bank.
Sources: ADB calculations using data from Financial Times. fDi Markets; and Bureau van Dijk. Zephyr M&A Database.

Greenfield FDI is more common in manufacturing, with M&As in services.

By sector, greenfield FDI is the more common mode of entry in manufacturing and M&As in services (Figures 6.9a, 6.9b). In fact, most of the increase in the number of M&As since the global financial crisis has been driven by services, particularly for intra-Asian investments (Figures 6.10a, 6.10b). The number of investments in services exceeded manufacturing after 2011. In this period, business services were the top recipient industry for investments within the region. On the other hand, both greenfield FDI and M&As in manufacturing declined in 2011–2015, mainly driven by a fall in investment from outside Asia in the years after the global financial crisis. A similar trend is observed for natural resources, where investments from within and outside Asia decreased both at extensive and intensive margins, and for both modes of entry. This is consistent with the commodity price shock that followed the crisis and dampened investment demand.

The number of outward Asian M&As has been increasing.

Even though balance of payments data shows an increasing trend in Asian outward FDI, the number of Asian investments shows a more mixed picture, particularly for greenfield FDI (Figures 6.11a, 6.11b). The number of Asian M&As, however, has been clearly increasing, both within and outside Asia, despite a slight drop in 2015. Almost 50% of Asian investment projects

Table 6.12: Top 10 Recipients of FDI in Asia (number of projects)

| Rank	Greenfield FDI			Merger and Acquisitions		
	Host Economy	2003–2015	2011–2015	Host Economy	2003–2015	2011–2015
1	PRC	15,371	5,166	PRC	8,468	3,176
2	India	9,109	3,514	Australia	6,997	3,376
3	Singapore	3,797	1,909	India	5,832	2,988
4	Australia	3,155	1,642	Japan	3,546	1,729
5	Viet Nam	2,594	960	Republic of Korea	2,248	1,210
6	Hong Kong, China	2,169	910	Hong Kong, China	2,176	957
7	Thailand	2,141	733	Singapore	1,947	979
8	Malaysia	1,997	843	Indonesia	1,190	842
9	Japan	1,910	773	Malaysia	1,090	606
10	Indonesia	1,555	858	New Zealand	1,020	534

FDI = foreign direct investment, PRC = People's Republic of China.
Sources: ADB calculations using data from Financial Times. fDi Markets; and Bureau van Dijk. Zephyr M&A Database.

Figure 6.9: Number of FDI Projects by Sector (thousand)
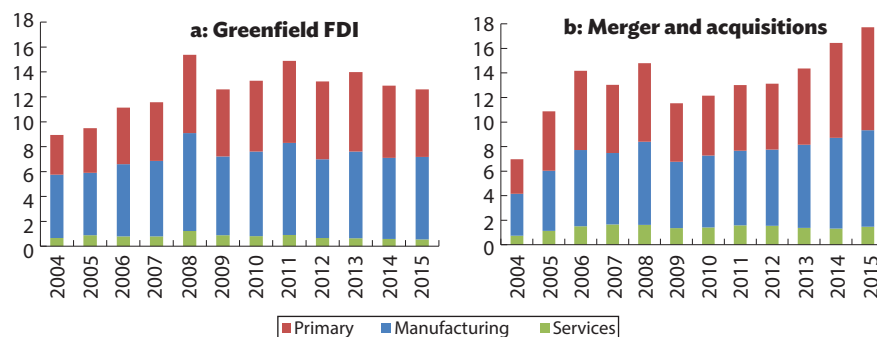
FDI = foreign direct investment.
Sources: ADB calculations using data from Financial Times. fDi Markets; and Bureau van Dijk. Zephyr M&A Database.

Figure 6.10: Intra-Asia FDI Projects, by Sector (number of projects)
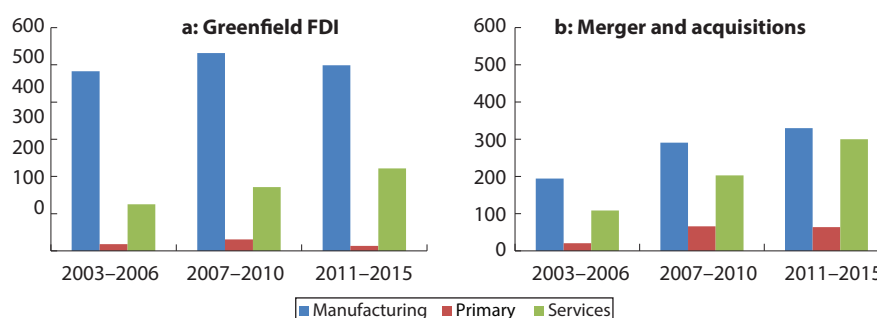
FDI = foreign direct investment.
Notes: Asia refers to the 48 regional members of ADB. The trend is reported at the extensive margin—number of projects and deals. The nominal value for many deals is not available due to of confidentiality, especially for merger and acquisitions. The number of projects and deals is averaged for 2003-2006, 2007-2010, and 2011-2015 for the purpose of comparison across the three periods.
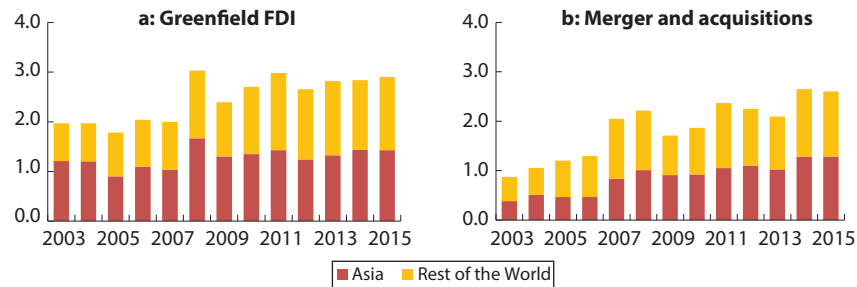Sources: ADB calculations using data from Financial Times. fDi Markets; and Bureau van Dijk. Zephyr M&A Database.

Figure 6.11: Asia Outward FDI, by Destination (number of projects, thousand)

FDI = foreign direct investment.
Notes: The trend is reported at the extensive margin i.e. number of projects and deals. Asia refers to the 48 regional members of Asian Development Bank.
Sources: ADB calculations using data from Financial Times. fDi Markets; and Bureau van Dijk. Zephyr M&A Database.

Table 6.13: Top 10 Asian Sources of FDI in the World (number of projects)

Rank	Greenfield			Cross-border M&A		
	Source Economies	**2003–2015**	**2011–2015**	**Source Economies**	**2003–2015**	**2011–2015**
1	Japan	11,777	4,867	Japan	6,036	2,982
2	PRC	3,752	2,144	Australia	3,444	1,499
3	India	3,603	1,591	Singapore	3,393	1,998
4	Australia	2,228	1,050	Hong Kong, China	2,295	1,059
5	Republic of Korea	2,695	1,021	Taipei,China	1,965	1,022
6	Singapore	1,666	787	PRC	1,964	1,089
7	Taipei,China	1,810	726	India	1,577	581
8	Hong Kong, China	1,526	662	Malaysia	1,285	609
9	Malaysia	973	329	Republic of Korea	824	406
10	Thailand	537	292	New Zealand	490	209

PRC = People's Republic of China, FDI = foreign direct investment, M&A = merger and acquisition.
Sources: ADB calculations using data from Financial Times. fDi Markets; and Bureau van Dijk. Zephyr M&A Database.

(aggregating both greenfield FDI and M&As) have been directed within Asia since 2011 (Figure 6.12), followed by the EU (20%) and North America (16%). Table 6.13 shows that the largest Asian investing economy is Japan for both modes of entry. The PRC and India are the next largest source economies for greenfield FDI, while Australia and Singapore are the largest sources for M&As.

Figure 6.12: Asia Outward FDI, by Destination Region, 2011–2015 (% of total FDI projects)
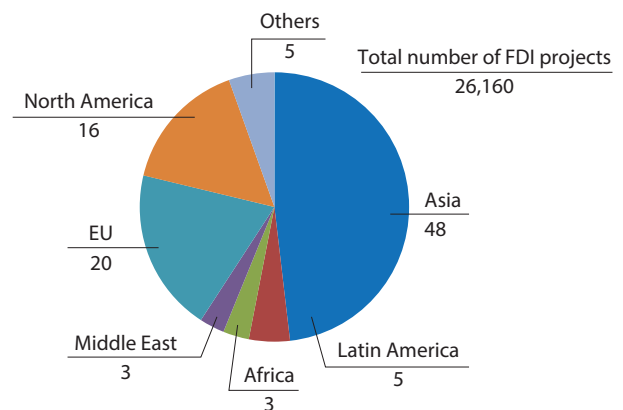
EU = European Union, FDI = foreign direct investment.
Notes: The trend is reported at the extensive margin i.e. number of projects and deals. Total FDI projects is the sum of greenfield FDI projects and merger and acquisitions. Asia refers to the 48 regional members of the Asian Development Bank. Other regional groupings follow ADB classification.
Sources: ADB calculations using data from Financial Times. fDi Markets; and Bureau van Dijk. Zephyr M&A Database.

Asia's Investment Patterns in the Age of Global Value Chains

Participating in GVCs matters for growth in GDP growth and increased international trade—so understanding what drives GVC–FDI is important.

Understanding the factors that lead multinationals to set up operations in a certain location and engage in trade-oriented activities is important for many reasons. Economies with the fastest growing GVC participation have seen GDP per capita growth rates two percentage points above the global average from 1990–2010 (UNCTAD 2013). Within the Asian sample, economies with GDP per capita growth above the median had higher GVC participation, both in trade and FDI, than those with growth rates below the median (Table 6.14).

GVCs are also an important channel through which shocks are transmitted across economies. The increasing interdependence of economies through supplier linkages has created more synchronized business cycles. GVCs also impact the political economy of trade policy by creating different incentives for lobbying by producers at different stages in the production process, as well as clear differential effects on policy within an industry. Two producers at different stages of the production

Table 6.14: Participation in the GVC and GDP per Capita Growth

	Low (%)	High (%)	Observations
GVC–Trade	2.1	3.3	8
GVC–FDI	2.8	3.6	27
FDI Intensity	2.5	3.4	12

FDI = foreign direct investment, GVC = global value chain.
Notes: The numbers in first two columns refer to average growth rate of real GDP per capita for 2000-2010. Low (High) FDI intensity refers to countries with sales of foreign plants (as a share of total sales), below (above) the median share across countries. Low (High) GVC-FDI refers to countries with a fraction of trade-oriented foreign plants that export below (above) the median share across countries. Low (high) GVC-trade refers to countries with DVA shares above (below) the median across countries.
Sources: ADB calculations using data from ADB Multiregional Input-Output Tables and methodology by Wang, Wei, and Zhu (2014); Dun & Bradstreet. D&B Worldbase.

process (for example, input production and assembly) often conflict over which goods should be protected from imports.

Finally, GVC expansion drove the largest growth in world trade relative to GDP, starting from the middle of 1980s until the global financial crisis. However, just as GVC–trade was the driving force during rapid trade expansion, the collapse of trade in intermediate goods was one reason for the global trade growth slowdown that followed the financial crisis. Demand shocks hurt trade in intermediate goods harder than trade in final goods (the so-called "bullwhip effect"), as multinationals postpone investment decisions and draw down inventories in times of uncertainty.

Participation in GVCs has enabled export-led growth and industrial upgradation in many developing Asian economies (Box 6.2). Until the global financial crisis, integration with international production networks among developing Asian economies increased, especially those in East Asia and Southeast Asia. This happened for three main reasons: (i) they eased restrictions to let foreign firms in; (ii) communication technologies became far more sophisticated and widespread; and (iii) trade costs—both shipping costs and trade barriers—decreased dramatically.

This section describes an investigation into the factors that influence a multinational's decision to concentrate on the domestic market instead of trade-oriented activities. The traditional determinants of that decision—within an economy and industry—can be grouped broadly into comparative advantage, integration, institutions, and responses to policy. The analysis also includes indicators of production fragmentation (input–output links) and measures of engagement in GVC–trade to investigate how linkages within the domestic economy and international production networks affect GVC–FDI.

A descriptive analysis below explores the relationship between host economy characteristics and GVC–FDI. A more formal regression analysis then examines the country and industry determinants of GVC–FDI. The main analysis relating to an economy's characteristics employs both data for firms and a standard gravity model framework for bilateral pairs. In the case of an economy's characteristics, the GVC–FDI is proxied by a

Box 6.2: GVC–Trade in Asia

Features of participation in value chains in Asia can be highlighted through an accounting framework developed by Wang, Wei, and Zhu (2014). The framework decomposes gross export into four value added components based on where the value added is absorbed: domestic value added that is ultimately absorbed abroad (DVA); foreign value added used in the production for exports (FVA); returned domestic value, or the portion of domestic value added that is initially exported and returned home embedded in imports (RDV); and pure double counted terms due to the back and forth nature of intermediate goods trade (PDC). The export value added decompositions are carried out using the ADB Multiregional Input-Output Tables, which are a substantial extension of country and time coverage in the World Input-Output Database (WIOD).

Measures of DVA and RDV, as a share of gross exports, are available for 35 industries, including services, and 46 economies. A lower DVA share and higher RDV share reflects increased engagement in global value chains (GVCs) in the "Factory Asia" context, where most developing countries remain a hub for final assembly of products destined for markets throughout the world.

Box table 1 indicates that, based on the DVA share, the ADB Asian members on average show lower engagement with GVCs than both the global average and that of non-Asian ADB members. However, two of the largest developing Asian economies, the People's Republic of China and India, not only increased participation in international production networks between 2000 and 2014, they moved into higher value added activities. This is particularly true for India, which has seen an increase in the share of RDV in its value added exports alongside a simultaneous increase in DVA.

The link between the level of engagement in GVCs and how upstream an economy's export components are can also

be investigated. Export "upstreamness" is a measure of the position an economy occupies in the production process, with natural resource extraction being the most upstream (and final assembly of export products most downstream). The degree of engagement in GVCs is proxied through the DVA share in exports: the lower the DVA share, the greater the GVC participation. The measure adopted here aggregates a measure of export upstreamness in each industry using the export shares as weights, and is constructed by Antras et al. (2012). In the sample of Asian economies, the measure ranges from 1.3 (for the ready-made garment center Bangladesh) to 3.36 for Kazakhstan (a prominent producer of minerals) with higher values indicating the more upstream one is in the production process.

1: Summary Statistics—GVC–Trade

	All	Asia	Others	PRC	India
Domestic Value Added					
2000	0.771	0.804	0.754	0.860	0.860
2015	0.782	0.810	0.768	0.851	0.876
Foreign Value Added					
2000	0.166	0.142	0.181	0.102	0.103
2015	0.164	0.143	0.177	0.109	0.095
Returned Domestic Value Added					
2000	0.0043	0.0031	0.0015	0.0050	0.0013
2015	0.0037	0.0030	0.0018	0.0073	0.0027

GVC = global value chain, PRC = People's Republic of China.
Note: Domestic value added, foreign value added, and returned domestic value of exports are expressed as shares of gross exports, an average across sectors and bilateral-pairs.
Sources: ADB calculations using data from ADB Multiregional Input-Output Tables and methodology by Wang, Wei, and Zhu (2014).

binary variable that takes a value of 1 when the foreign-owned affiliate both imports and exports, and a value of 0 otherwise. The gravity model measures GVC–FDI by the fraction of foreign-owned affiliates that both import and export. All empirical specifications are estimated using the ordinary least squares (OLS) methodology and a host of an economy's and industry fixed effects are controlled for depending on the level of aggregation at which the estimation is carried out.[58]

---

[58]   While estimating the specification with country-level determinants.

Box 6.2 continued

Regression analysis using ordinary least squares (OLS) methodology finds that export upstreamness is negatively correlated with GVC–trade in the global sample, with the relationship even more pronounced for Asian economies (box table 2). This holds across all sectors. The estimated coefficient of export upstreamness is significant at the 1% level in all alternative specifications. The capital–labor ratio is negatively associated with GVC–trade in manufacturing and positively related in mining, even more so in Asian economies. Both these relations reaffirm the Factory Asia phenomenon—on average Asian economies linked to international production networks are more labor abundant, specializing in more downstream parts of production such as final assembly.

2: Determinants of GVC-Trade—Country Characteristics

Dependent variable: DVA as share of gross exports	(1)	(2)	(3)	(4)	(5)	(6)
Log(real GDP per capita)	0.023*** (0.008)	0.019* (0.009)	0.135*** (0.011)	−0.069*** (0.018)	−0.101*** (0.024)	0.138+ (0.072)
Log(real GDP)	0.031*** (0.001)	0.038*** (0.001)	0.013*** (0.002)	0.063*** (0.001)	0.089*** (0.002)	0.011*** (0.004)
Log(capital–labor ratio)	0.014** (0.006)	0.027*** (0.007)	−0.099*** (0.009)	0.019* (0.010)	0.033** (0.014)	−0.146*** (0.046)
Years of schooling	−0.013*** (0.001)	−0.015*** (0.001)	−0.021*** (0.001)	0.001 (0.002)	0.007*** (0.003)	−0.017* (0.009)
Rule of law	−0.021*** (0.004)	−0.019*** (0.005)	−0.048*** (0.005)	0.043*** (0.004)	0.045*** (0.005)	−0.019* (0.010)
Export upstreamness	0.052*** (0.005)	0.081*** (0.007)	0.099*** (0.008)	0.164*** (0.005)	0.242*** (0.008)	0.216*** (0.008)
Private credit	−0.011** (0.005)	−0.014** (0.007)	0.020*** (0.006)			
Number of observations	183,068	79,597	5,362	42,195	20,539	1,249
R–squared	0.670	0.577	0.420	0.690	0.675	0.647
Sample industries	all	mfg	mining	all	mfg	mining
Sample countries	all	all	all	Asia	Asia	Asia

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
DVA = domestic value added, GDP = gross domestic product, GVC = global value chain, mfg = manufacturing.
Notes: Observations are at the bilateral economy–sector level for different years. Controls refer to the exporter economy. All specifications with importer and industry–year fixed effects. Robust standard errors, clustered by importer–exporter, in parentheses.
Sources: ADB calculations using data from ADB Multiregional Input-Output Tables and methodology by Wang, Wei, and Zhu (2014); Antras et al. (2012); Barro and Lee (2013); Beck, et al. (2009); Penn World Tables (8.0 and 8.1). http://cid.econ.ucdavis.edu/pwt.html (accessed July 2016); and World Bank. Worldwide Governance Indicators. http://data.worldbank.org/data-catalog/worldwide-governance-indicators (accessed July 2016).

Value-chain investments and an economy's characteristics

Overall, GVC–FDI in Asia is concentrated in economies with exports more downstream— sectors closer to final assembly—with weak rule of law, lower costs to export and import, lower capital–labor ratios, and lower incomes.

The relationship between selected host economy characteristics and GVC–FDI is investigated overall and across sectors. Table 6.15 shows the share of foreign-owned affiliates that are trade-oriented (have exports and imports) as a proportion of all foreign-owned affiliates. The shares are shown separately for two groups of economies: those with a value of a given characteristic below the median or above the median, across economies. The table reveals that overall, GVC–FDI is concentrated where there are more downstream exports, weak rule of law, lower costs to export and import, lower capital–labor ratios, and lower incomes. This pattern repeats by sector—with business services being the least pronounced. The last three variables in the

Table 6.15: GVC–FDI and Economy Characteristics

Economy Charateristic	All Sectors		Mining		Manufacturing		Business Services	
	Below	**Above**	**Below**	**Above**	**Below**	**Above**	**Below**	**Above**
Export upstreamness	0.71	0.39	0.67	0.30	0.75	0.42	0.47	0.33
Rule of Law	0.69	0.24	0.57	0.19	0.70	0.24	0.58	0.25
Cost to export (and import)	0.64	0.27	0.54	0.20	0.68	0.31	0.46	0.24
Capital-labor ratio (K/L)	0.61	0.32	0.37	0.34	0.66	0.32	0.43	0.31
Real GDP per capita (rgdpl)	0.66	0.30	0.55	0.23	0.68	0.33	0.51	0.28
FVA share	0.16	0.64	0.15	0.54	0.16	0.68	0.16	0.48
KLd/KLo	0.64	0.29	0.44	0.23	0.67	0.30	0.46	0.29
rgdpld/rgdplo	0.63	0.32	0.48	0.22	0.67	0.35	0.44	0.30

FDI = foreign direct investment, FVA = foreign value added, GDP = gross domestic product, GVC = global value chain.
Notes: Below (above) refers to group of economies with the value of the given economy's characteristic variable below (above) the median across all economies in the sample. The numbers shown in the columns refer to the average fraction of foreign affiliates that export and import in each group of economies, for all and each sector separately. The variables *KLd/KLo* and *rgdpld/rgdplo* refers to the capital-labor ratio and real GDP per capita, respectively, between the destination and origin economy. The variable FVA share is the bilateral foreign value added in exports from the host to source economy, as a share of gross bilateral exports.
Sources: ADB calculations using data from Antras, et al. (2012); Dun & Bradstreet. D&B Worldbase; Penn World Tables (8.0 and 8.1). http://cid.econ.ucdavis.edu/pwt.html (accessed July 2016); Wang, et al. (2014); World Bank. World Development Indicators. http://data.worldbank.org/data-catalog/world-development-indicators (accessed July 2016); and World Bank. Worldwide Governance Indicators. http://data.worldbank.org/data-catalog/worldwide-governance-indicators (accessed July 2016).

table are bilateral variables: an economy will have much more GVC–FDI if the foreign value added in their exports to the source economy—in which the parent company is located—is high, and their capital–labor ratios and real GDP per capita are lower than in the source economy.

Table 6.16 is an exhaustive list of averaged characteristics for two groups of foreign-owned affiliates: those engaged in international trade and those that exclusively serve local markets. Characteristics can be grouped into variables related to an economy's integration, comparative advantage, institutional environment (governance), and policy (business environment). In addition, given the interest in exploring the link between GVC–FDI and GVC–trade, characteristics are considered as relating to engagement and position in the value chain.

Several differences are striking. First, foreign-owned affiliates engaged in international trade are located in economies with substantially lower costs to export and import, as measured by a range of metrics from the World Bank's World Development Indicators and Ease of Doing Business indicators. Tariffs, at least in aggregate, do not seem to play a major role in attracting GVC–FDI.

Second, on comparative advantage, plants engaged in international trade are located in relatively poorer economies with abundant unskilled labor. This is in line with the findings of the literature on horizontal versus vertical FDI. Moreover, these host economies are at a substantially lower development stage, and have less capital than the economies where the multinational is headquartered. Figure 6.13a shows in more detail the relationship between the difference in real GDP per capita between host and source economy and the fraction of foreign affiliates engaged in international trade. On average, a source economy with double the income of the host economy has a 17% larger fraction of GVC–FDI as a share of the total number of affiliates from the same source that exports and imports. Additionally, Figure 6.13b shows that the distance between host and source markets, decrease the amount of GVC–FDI—economies twice as far apart have 12% fewer affiliates engaged in GVC–FDI. This has important implications on the role greater integration and trade facilitation measures play in promoting GVC–FDI, and enabling economies to link to international production networks.

Broadly, the region's economies have worked to lower trade barriers and facilitate trade—as reflected by generally improving scores of the ease of "trading across borders" component of Ease of Doing Business indicators (World Bank 2016). In Central Asia for example, Azerbaijan introduced an electronic system

Table 6.16: GVC–FDI and Average Country Characteristics

	Imports and Exports	Only Domestic Sale
Integration variables		
Trade restrictiveness index	0.05	0.05
Burden of custom process	4.43	4.77
Cost to export ($ per container)	577	752
Cost to import ($ per container)	622	804
Number of documents to export	6.74	5.24
Number of documents to import	5.35	5.83
Logistics performance index	3.48	3.57
Quality of port infrastructure	4.55	4.93
Applied tariff rate	3.53	2.48
RTAs	0.34	0.36
BITs	0.55	0.38
BITs, investor–state dispute mechanism	1.9	1.7
DTTs	0.91	0.78
Comparative advantage variables		
Real GDP per capita (rgdpl)	13,006	24,227
Capital–labor ratio	76,379	156,101
Average years schooling	7.61	8.73
Log rgdpl, host relative to source	−1.32	−0.75
Log capital–labor ratio, host relative to source	−1.51	−0.78
Institutional variables		
Rule of law	−0.09	0.68
Regulatory quality	0.05	0.76
Government effectiveness	0.27	0.87
Control of corruption	−0.05	0.69
Political stability	−0.29	0.23
Voice and accountability	−0.95	0.12
Policy Variables		
Days required to enforce a contract	390	353
Nuber of processes to register a business start-up	6.6	4.45
Cost of business start-up procedure (% of GNI)	8.6	4.7
Days to get electricity	57.9	58.9
Days required to register property	27.1	16.4
Days required to start business	17.1	8.2
Time spent dealing with regulations	0.9	0.9
Hours required to prepare and pay taxes	304	168
Private credit (% of GDP)	0.46	0.91
GVC–trade variables		
DVA share	0.72	0.79
FVA share	0.21	0.16
Export upstreamness (overall)	1.97	2.2

BIT = bilateral investment agreement, DTT = double taxation treaty, DVA = domestic value added, GDP = gross domestic product, GNI = gross national income, GVC = global value chain, RTA = regional trade agreement.
Notes: "Time spent dealing with regulations" is the time spent dealing with government regulations measured in percentage of senior management time. DVA share and FVA shares refer to the domestic and foreign value added, respectively, as a share of gross exports, at the bilateral level.
Source: ADB calculations using data from ADB Multi-Regional Input-Output Tables and methodology by Wang, Wei, and Zhu (2014); ADB. Asia Regional Integration Center FTA Database. https://aric.adb.org/fta (accessed September 2016); Antras, et al. (2012); Barro and Lee (2013); Beck, et al. (2009); Chaisse and Bellak (2015); Kee, et al. (2009); Dun & Bradstreet. D&B Worldbase; Penn World Tables (8.0 and 8.1). http://www.wiod.org/database/seas13 (accessed July 2016); World Bank. Ease of Doing Business Indicators http://www.doingbusiness.org/rankings (accessed July 2016); World Bank. World Development Indicators. http://data.worldbank.org/data-catalog/world-development-indicators (accessed July 2016); and World Bank. Worldwide Governance Indicators. http:// data.worldbank.org/data-catalog/worldwide-governance-indicators (accessed July 2016).

Figure 6.13: Comparative Advantage, Geography, and GVC–FDI
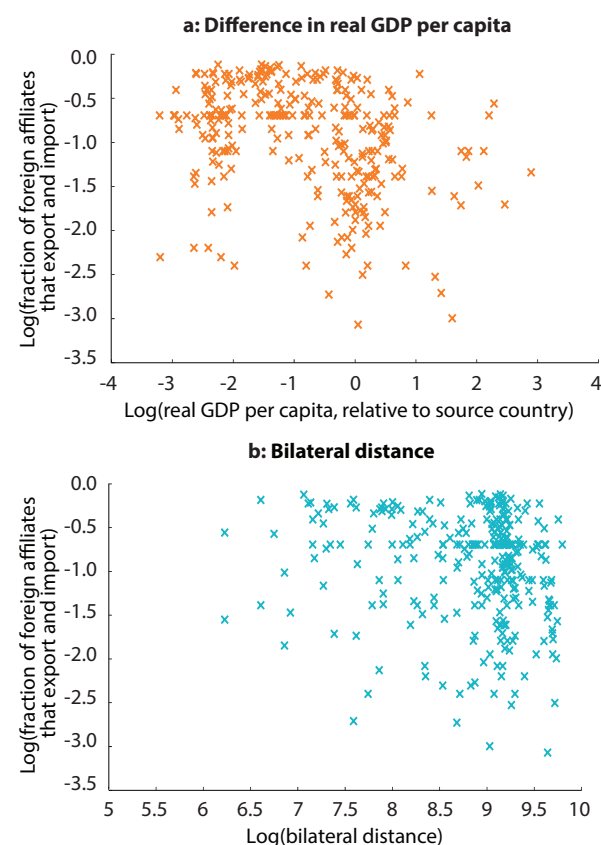
a: Difference in real GDP per capita

b: Bilateral distance

FDI = foreign direct investment, GDP = gross domestic product, GVC = global value chain.
Notes: The y-axis variable i is the number of affiliates in "country" c belonging to parents in n that export, as a share of total affiliates in country c belonging to parents in n. The x-axis variable is the log(real GDP per capita) and log(bilateral distance) for panels a and b, respectively, of the host relative to the source economy. In all cases origin and destination countries are different (c ≠ n). The OLS coefficient for a fitted line is –0.17 (standard error: 0.03) for the top chart and –0.12 (standard error: 0.05) for the bottom panel chart.
Sources: ADB calculations using data from ADB Multiregional Input-Output Tables; and methodology by Wang, Wei, and Zhu (2014); Institute for Research on the International Economy. http://www.cepii.fr/ CEPII/en/cepii/cepii.asp (accessed July 2016); Penn World Tables 8.1. http://cid.econ.ucdavis.edu/pwt.html (accessed July 2016); and World Bank. World Development Indicators. http://data.worldbank.org/data-catalog/world-development-indicators (accessed July 2016).

for submitting export and import declarations, while Georgia improved its electronic document processing. Kazakhstan reduced documentary requirements for customs clearance. The Kyrgyz Republic's accession to the Eurasian Economic Union must have contributed to reducing the time and cost of regional trade. In South Asia, India simplified border and documentary procedures and launched its ICEGATE portal. Nepal implemented an electronic data interchange system,

while Pakistan enhanced its electronic customs platform. Similarly, in Southeast Asia, Viet Nam implemented an electronic customs clearance system.

Third, the institutional variables capturing governance of the host economy are on average, lower where foreign affiliates that trade are located. The relationship with variables on "doing business" is similar. This is intuitive, as firms care more about the "rule of law" when their activities are directly linked to the domestic market. If their main activity is to export, the institutional environment may matter less—particularly as affiliates may be "shielded" from the regulatory and business

environment of the host economy through special legislation and SEZs. On the flip side, multinationals may wish to avoid stringent domestic regulations, creating a "race to the bottom" among economies competing to attract GVC–FDI. Greater regional cooperation in harmonizing the tax and regulatory environment, for example, would help.

SEZs have been widely used in developing Asia as valuable tool of trade and investment policy. They have enabled many of the region's economies integrate with GVCs, especially in labor-intensive manufacturing (Box 6.3). Even with a relatively low number of observations, more

---

Box 6.3: Special Economic Zones as Instruments for Attracting FDI—Case Study from Thailand

Foreign direct investment (FDI) has been a catalyst of Thailand's industrial development since the 1980s. FDI brings in capital and jobs, but also new technology, along with managerial and organizational know-how. These flow into domestic industries through backward and forward linkages. The strategy succeeded in positioning Thailand as a regional FDI host, with low production costs and a rich source of relatively skilled workers.

However, Thailand's competitiveness in attracting FDI has deteriorated markedly since the 2008/09 global financial crisis. Several factors account for the decline—most notably escalating labor costs, political uncertainty, and the rise of the People's Republic of China (PRC) and India as competing FDI destinations. Thailand's share of inward FDI in gross fixed capital formation in Asia was 11.0% in 2015, noticeably lower than its 13.7% average during 2005–2007 (box table). The economic downturn of major investors such as the European Union, Japan, and the United States also contributed to the slowdown. These challenges have pressured the country to revive its FDI competitiveness. In 2015, Thailand planned to develop 10 special economic zones (SEZs) in Tak, Sa Kaeo, Trat, Mukdahan, Songkhla, Chiang Rai, Kanchanaburi, Narathiwat, Nakhon Phanom, and Nong Khai. The SEZs are located at border areas and offer investors generous financial incentives, comprehensive trade facilitation measures, and government efforts to ramp up physical and institutional infrastructure.

The SEZs provide firms with incentives that include a reduction in the corporate tax rate for up to 8 years (with the possibility of extension), machinery and raw material import duty exemptions, export duty exemptions, double deductions from the costs of transportation, electricity, and water supply for 10 years, and

Inward FDI (% of gross fixed capital formation)

Economy	2005–2007 (Pre-GFC annual average)	2013	2014	2015
Thailand	13.7	15.6	3.5	11.0
Indonesia	6.1	6.4	7.5	5.4
Malaysia	16.4	14.1	12.4	14.3
Southeast Asia	21.1	18.6	18.1	18.6
Developing Asia	11.0	6.2	6.3	7.4
Developing Economies	11.8	7.6	7.6	8.7
World	11.6	7.8	6.7	9.9

FDI = foreign direct investment, GFC = global financial crisis.
Source: UNCTAD (2016).

other non-tax incentives such as exclusive rights to employ foreign workers from neighboring countries, low interest rate loans, and rights to rent land. The ability to employ foreign labor is a key incentive for firms to set up plants within these border SEZs.

The Thailand case shows clearly how the provision of adequate infrastructure and related services is a prerequisite to attracting FDI into the SEZs. Investors can benefit from the cost-effective and reliable industrial facilities in the zones. The government supports firms by improving infrastructure and has set aside over $200 million to improve physical transportation infrastructure, check points, and other public utilities. For example, the second Thailand-Myanmar Friendship Bridge, scheduled to be completed in 2017, will help reduce traffic congestion and

Box 6.3 continued

speed up border-crossing at the Tak SEZ. The transportation budget for building roads, bridges, railways, ports, and airports has reached $137 million, while budgeted expenditures for improving customs checkpoints is about $53 million. The SEZs also use the one-stop service center approach to work permits, investment applications, and other issuance procedures in each SEZ. Permits for foreign workers can be granted within 1 working day and investment application approvals must be made before a maximum 40 working days.

The SEZs' strategic border locations allow firms to leverage complementary features of neighboring economies. Specifically, border SEZs allow firms to combine sources of comparative advantage present on both sides of the border, such as low-cost labor from Myanmar and the quality facilities in Thailand. In addition to labor inputs, firms can use the abundant agricultural and fishery products in Myanmar and process these using Thailand's more efficient factories and improved transportation facilities. The ongoing agenda of cross-border collaboration to reduce cross-border trade costs and improve transportation will also help firms benefit from the complementarities in these locations.

Thailand's SEZs also heighten the overall attractiveness of Association of Southeast Asian Nations (ASEAN) as an inclusive production hub. Thailand's SEZs could complement production chains and enhance regional integration, given that current SEZs in Cambodia, the Lao People's Democratic Republic, and Myanmar face constraints—a lack of skilled labor, unreliable and costly logistics and utilities, and weak institutional transparency.

The availability of relatively skilled labor and facilities also make the entire region more viable for manufacturing. Most investors in these neighboring SEZs are from the PRC, Thailand, and Viet Nam.

While these SEZs hold great potential to rejuvenate FDI inflows to Thailand, their optimal economic gains can be limited due to a lack of training, preferential policies given to large firms, and land grabbing issues. Many large investments are from high value-added sectors, which require high-quality labor. The government could partner with the private sector to coordinate training and match fields in technical vocational education and training with accurate market information. Certain rules for operating in the SEZs are restrictive, such as Board of Investment applications that require detailed tax documents and strict business plans, and timelines that tend to favor large over smaller enterprises. Small and medium-size enterprises, both foreign and local, require more flexibility, especially given their importance in amplifying economic gains through backward and forward linkages.

When the location for an SEZ is announced, land speculation leads to price escalation, which can weaken its attractiveness. The Industrial Estate Authority of Thailand, for instance, could play a bigger role in limiting these effects, by providing knowledge and tools in price control and land allocation. With the right policy tools, the SEZs could successfully revive FDI inflows to Thailand and to the ASEAN more generally, most importantly supporting strong business development at home and within the region.

SEZs are associated with more GVC–FDI (Table 6.17). In contrast, bilateral regional trade agreements do not seem to play a major role in attracting GVC–FDI. But bilateral investment treaties (BITs)—particularly with dispute settlement provisions—and double taxation treaties (DTT) do attract more.

Finally, trade-oriented foreign affiliates are mostly located in economies where exports are concentrated in more downstream activities with less domestic and more foreign value added.

Figure 6.14 explore in more detail the relationship between GVC–trade and GVC–FDI. GVC–trade

Table 6.17: Special Economic Zones and GVC–FDI

	Number of SEZ	SEZ per km²	GVC–FDI (%)
Bangladesh	8	0.00006	10
Cambodia	14	0.00008	41
India	199	0.00007	47
Kazakhstan	10	0.000004	100
PRC	1,475	0.00016	82
Philippines	312	0.001041	66
Sri Lanka	12	0.00019	36

PRC = People's Republic of China, FDI = foreign direct investment, GVC = global value chain, km² = square kilometer, SEZ = special economic zones.
Notes: The number of SEZs is for 2014. GVC–FDI refers to the fraction of foreign affiliates in the economy that exports.
Sources: ADB calculations using data from Dun & Bradstreet. D&B Worldbase; and ADB (2015).

is measured in four ways: (i) bilateral DVA share; (ii) bilateral FVA share; (iii) differences in export upstreamness between host and source economies; and (iv) differences in the average DVA share (with all trading partners) between host and source economies.

Figures 6.14a and 6.14b show two sides of the same coin. The DVA content of exports in the host economy is negatively correlated with the fraction of trade-oriented foreign plants at the bilateral level, whereas the opposite is true for FVA. When an economy is part of a twice as fragmented a GVC, manifested in a lower DVA (and higher FVA), it attracts three times larger share of affiliates engaged in GVC–FDI; if FVA shares are considered instead, the magnitude of the effect is 55% higher.

Moreover, Figure 6.14c shows that the less upstream exports of the host are to the affiliates' source economy, the greater the GVC–FDI activity of those affiliates in the host economy. Conversely, those with a small share of GVC–FDI have exports in more upstream sectors than the source economy. The effects are large—increasing the difference in export upstreamness from the median to the 99th percentile implies a 30% increase in the fraction of trade-oriented foreign affiliates. Finally, if one looks at the differences in DVA shares between exports of the host relative to the source economy of the affiliates, the results are similar—the lower the share of domestic value added embedded in exports of the affiliates in the host economy, the higher the fraction of affiliates engaged in GVC–FDI. All this evidence is extremely suggestive of trade-oriented affiliates of multinationals being part of the GVC.

Figure 6.14: GVC–Trade and GVC–FDI, Bilateral Level
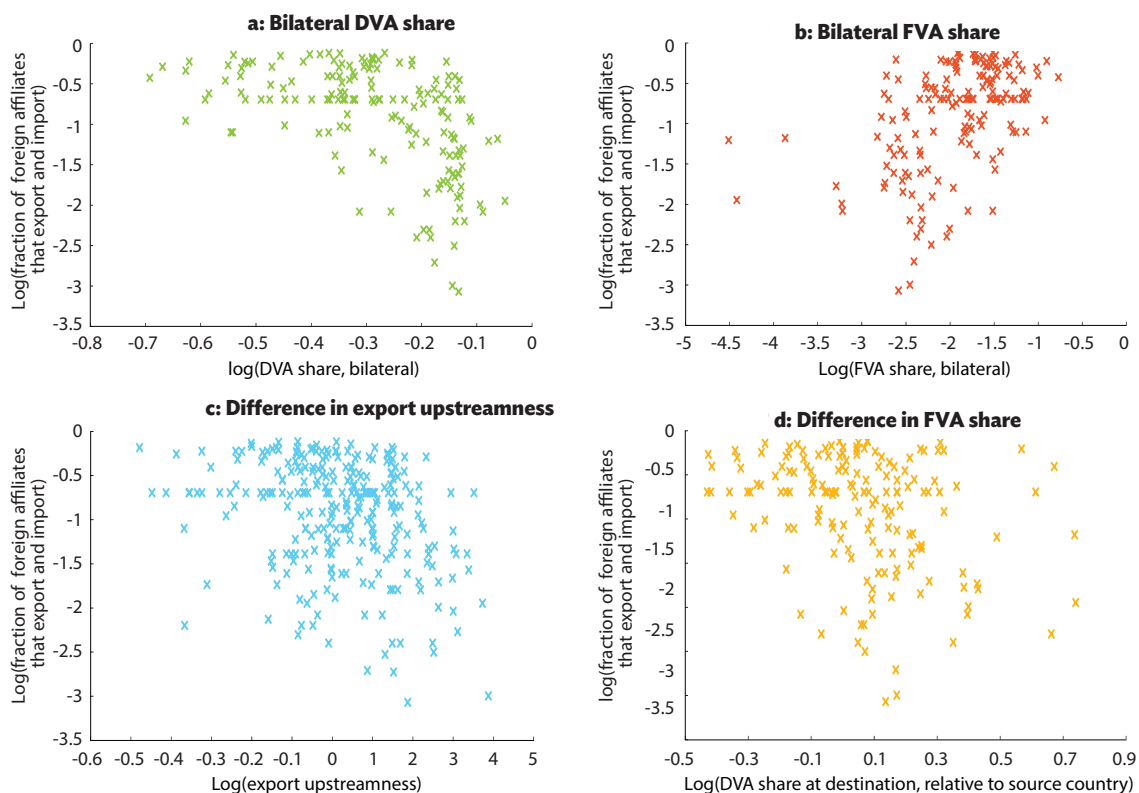
DVA = domestic value added, FDI = foreign direct investment, FVA = foreign value added, GDP = gross domestic product, GVC = global value chain, OLS = ordinary least square, .

Notes: The y-axis variable i is the number of affiliates in "country" c belonging to parents in n that export, as a share of total affiliates in country c belonging to parents in n. The x-axis variable is the domestic value added (DVA)—foreign value added (FVA)—of exports from c to n, as a share of gross exports from c to n in Figure 6.14a (Figure 6.14b, resp.), the ratio of export upstreamness of host to source country in Figure 6.14c, and the ratio of DVA shares of host relative to source country in Figure 6.14d. In all cases origin and destination countries are different. The OLS coefficient for a fitted line is -0.17 (standard error 0.03) for the left panel chart and -0.12 (standard error 0.05) for the right panel chart. In all cases origin and destination countries are different (c ≠ n). The OLS coefficient for a fitted line is -0.17 (standard error 0.03) for the left panel chart and -0.12 (standard error 0.05) for the right panel chart.

Sources: ADB calculations using data from ADB Multiregional Input-Output Tables and methodology by Wang, Wei, and Zhu (2014); Antras et al. (2012); Dun & Bradstreet. D&B Worldbase; and World Bank. World Development Indicators. http://data.worldbank.org/data-catalog/world-development-indicators (accessed July 2016).

Regression analysis by economy and industry characteristics

Regression analysis of the determinants of GVC–FDI by Asian economy starts by using a dummy variable that indicates whether exports and imports are present (1) or not (0). Most establishments have both sides of international trade flows; only a few observations export or import only. This regression (Table 6.18) captures domestic versus trade-oriented activities at the affiliate level and informs the salient features on the literature on horizontal versus vertical FDI.

Controls in this regression include variables for affiliates, different economies, and bilateral pairs, while industry factors are absorbed by industry effects. Among the economy's variables included are those related to integration, institutional, and comparative advantage, and variables related to GVC–trade—the level of upstreamness of exports, and the share of domestic value added in exports.

The results indicate that foreign-owned affiliates engaged in international trade activities are consistently larger than those devoted exclusively to serve their market of operations: a plant with 10% more sales than

Table 6.18: Determinants of GVC–FDI—Economy Characteristics

Dependent Variable: D(exports>0 and imports >0)	(1)	(2)	(3)	(4)	(5)
Log(affiliate) sales	0.038***	0.036***	0.037***	0.044***	0.038***
Log(real GDP)	−0.030***	−0.092***	0.013***	−0.059***	0.032***
Log(real GDP per capita)	0.714***	0.095	0.671***	0.940***	0.150**
Log(KL)	−0.495***	−0.173*	−0.777***	−1.056***	−0.525***
Log(years of schooling)	−0.010*	−0.029***	0.021***	0.053***	0.118***
Rule of law	−0.296***				
Private credit		0.227***			
TRI			−3.446***		
Export upstreamness				−0.548***	
× KL				0.009*	
Exporter DVA share					−1.034***
D(Asian GUH)	0.118	−0.009	0.032	−0.190**	0.124
× Rule of law	0.012				
× Log(real GDP per capita)	−0.012				
× Private credit		0.003			
× TRI			−0.097		
× Export upstreamness				0.108***	
× Exporter DVA share					−0.151
Number of observations	17,126	8,581	15,458	12,256	14,344
R-squared	0.351	0.283	0.355	0.200	0.375
Sample	foreign	foreign	foreign	foreign	foreign

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
DVA = domestic value added, FDI = foreign direct investment, GDP = gross domestic product, GUH = global ultimate headquarters, GVC = global value chain, KL = capital-labor ratio, TRI = trade restrictiveness index.
Notes: The dependent variable is a dummy variable equal to 1 if the plant reports export and import activity. The economy-level variables are for the economy where the plant is located. The variable "private credit" refers to private credit as share of GDP. The variable "export upstreamness" refers to the level of export upstreamness of the host economy. DVA is calculated as a share of gross exports of the destination economy, at the economy level, an average across years, for all sectors. The dummy D(Asian GUH) equal to 1 if the plant belongs to a GUH in Asia. *KL* indicates the log(capital intensity), with respect to labor, of the industry of the affiliate. Domestic plants which are also GUHs are excluded. All specifications with affiliate industry fixed effects.
Sources: ADB calculations using data from ADB Multiregional Input-Output Tables and methodology by Wang, Wei, and Zhu (2014); Antras, et al. (2012); Barro and Lee (2013); Beck et al. (2009); Dun & Bradstreet. D&B Worldbase; Kee, et al. (2009); Penn World Tables (8.0 and 8.1). http://cid.econ.ucdavis.edu/pwt.html (accessed July 2016); World Bank. World Development Indicators. http://data.worldbank.org/data-catalog/world-developmentindicators (accessed July 2016); and World Bank. Worldwide Governance Indicators. http://data.worldbank.org/data-catalog/ worldwide-governance-indicators (accessed July 2016).

another is 30% more likely to be engaged in international trade activities.

A higher capital–labor ratio at host economy is associated with less trade-engaged plants. This suggests that in Asia, GVC–FDI seeks labor-abundant economies. The quality of institutions, captured by the rule of law index, is an important factor in creating plants oriented to serving the domestic market. The availability of private credit in an economy also seems to matter in attracting GVC–FDI. As expected, the degree of trade restrictiveness deters the creation of trade-oriented plants.

Turning to the factors related to GVC trade, the estimates suggest that economies with exports in more upstream sectors are less likely to have trade-oriented plants. For instance, when export upstreamness goes from the 50th percentile to the 95th percentile (this is like giving Japan the levels of export upstreamness of a commodity dependent economy such as Australia), the probability of observing a trade-oriented foreign plant decreases by more than 35%. Similarly, the DVA share of an economy's exports is associated negatively with the presence of GVC–FDI: an increase in the DVA bilateral share from the median (0.74) to the 95th percentile (0.88)—this is like increasing the DVA share in bilateral exports from India to the PRC to the DVA the share in bilateral exports from India to Japan—is associated with a decrease in GVC–FDI of 16%.

The last rows of Table 6.18 explore more systematically the differences in the impact of an economy's variables covering the origin of the affiliates' GUHs. Once the host-market characteristics are controlled in the analysis, the coefficient on the dummy indicating Asian and non-Asian affiliates is either negative or insignificant. That contrasts with the descriptive analysis showing that Asian multinationals are more likely to engage in GVC–FDI. The result, most likely, points to a selection effect: Asian GUHs choose to locate their affiliates in markets that are friendlier to trade; once those characteristics are controlled, there is nothing advantageous about being an affiliate of an Asian corporation in terms of engagement in GVC–FDI.

The variable that presents a significant difference between Asian-owned affiliates and other affiliates is the level of export upstreamness of a receiving economy: the negative effect on GVC–FDI is significantly dampened for affiliates of Asian GUHs. That is, an economy with exports in more upstream sectors is not as likely to attract GVC–FDI, but this is less pronounced for affiliates belonging to an Asia GUH. Moreover, Asian-owned multinationals are also less likely to be attracted by differences in factor endowments while engaging in GVC–FDI (Table 6.18). These two facts suggest that Asian multinationals tend not to use other Asian economies as hubs for final assembly.

The investigation now turns to a standard relationship in the trade and multinational literature: the gravity equation. This equation states that the flow of FDI (or goods) between two economies should be inversely proportional to bilateral resistance factors, such as geographical distance. Following state-of-the-art procedures in estimating the gravity model, the host and source economy factors are subsumed in two sets of an economy's fixed effects.

The regressions are meant to establish "gravity" facts for Asian economies, using direct measures of bilateral affiliates' activity, such as sales, and measures of bilateral GVC–FDI (Table 6.19). Specifications in all columns of the table are aggregated at the bilateral level; for example, the dependent variable in columns 1–3 is sales of affiliates in economy n belonging to GUHs in economy i. Moreover, the standard gravity specification is augmented by a variable related to GVC–trade: the bilateral DVA, embedded in gross exports from the host to the source economy of foreign affiliates (columns 3 and 6 in Table 6.19).

The effects of distance are negative and with a coefficient closer to 1, as found in the literature. However, the effect of distance loses significance in the case of GVC–FDI (columns 4–6 in Table 6.19), most likely because distance refers to proximity between the economy of the affiliate and the economy of its GUH, but exports (imports) can be to (from) any other economy. Sharing a language has a positive effect on the bilateral activity of affiliates of multinationals, as well as belonging to the same regional trade agreement, and having signed a DTT. The presence of a regional trade agreement or DTT between economies does not affect the fraction of

Table 6.19: Determinants of Bilateral FDI and GVC–FDI—Gravity Model

	Affiliate Sales			Fraction of Affiliates with Exports and Imports		
	(1)	(2)	(3)	(4)	(5)	(6)
Log(distance)	−1.360**	−1.360**	−1.093*	0.069	0.069	0.131
	(0.284)	(0.284)	(0.461)	(0.085)	(0.085)	(0.173)
D(shared language)	0.801**	0.801**	1.209*	0.071	0.071	0.039
	(0.296)	(0.296)	(0.548)	(0.099)	(0.099)	(0.162)
D(shared colonial past)	0.349	0.349	−0.211	−0.047	−0.047	−0.096
	(0.400)	(0.400)	(0.510)	(0.113)	(0.113)	(0.147)
D(RTA)	1.724**	1.724**	1.347**	0.013	0.013	−0.005
	(0.276)	(0.276)	(0.452)	(0.108)	(0.108)	(0.168)
D(DTT)	0.621*	0.621*	0.389	0.115	0.115	0.009
	(0.282)	(0.282)	(0.403)	(0.092)	(0.092)	(0.123)
D(BIT)	−0.296	−0.296	0.527	−0.228**	−0.228**	−0.301*
	(0.246)	(0.246)	(0.350)	(0.078)	(0.078)	(0.119)
Log($rgdpld/rgdplo$)	−7.398**			−0.675**		
	(1.633)			(0.068)		
KLd/KLo		−7.237**			−0.667**	
		(1.597)			(0.067)	
Log(DVA share)			3.347			−0.415
			(2.428)			(0.679)
Number of observations	409	409	205	331	331	1821
R-squared	0.735	0.735	0.753	0.592	0.592	0.634

** = significant at 5%, * = significant at 10%.

BIT = bilateral investment treaty, DVA = domestic value added, FDI = foreign direct investment, GVC = global value chain, RTA = regional trade agreement.

Notes: The dependent variable is a measure of the activity of affiliate of multinational firms, affiliate sales, as well as the number of foreign affiliates that export and import, as a share of the total number of foreign affiliates, from source economy i in host economy n. The variables KL_d/KL_o and $rgdpl_d/rgdpl_o$ refer respectively to the ratio of capital-labor ratio and real GDP per capita between the host and source country. The variable (log) DVA share refers to the DVA share in exports from the host economy of the affiliate to the source country, an average across years, for all sectors. All specifications with source and host fixed effects. Robust standard errors are in parentheses.

Sources: ADB calculations using data from ADB Multiregional Input-Output Tables and methodology by Wang, Wei, and Zhu (2014); ADB. Asia Regional Integration Center FTA Database. https://aric.adb.org/fta (accessed September 2016); Dun & Bradstreet. D&B Worldbase; Institute for Research on the International Economy. http://www.cepii.fr/CEPII/en/cepii/cepii.asp (accessed July 2016); Penn World Tables 8.0 http://cid.econ.ucdavis.edu/pwt.html (accessed July 2016); United Nations Conference on Trade and Development. Investment Policy Hub. http://investmentpolicyhub. unctad.org/IIA (accessed August 2016); World Bank. World Development Indicators. http://data.worldbank.org/data-catalog/ world-development-indicators (accessed July 2016); and World Bank. Worldwide Governance Indicators. http://data.worldbank.org/ data-catalog/worldwide-governance-indicators (accessed July 2016).

affiliates that are trade-oriented, and the presence of a BIT between two economies discourages trade-related affiliates' activities, favoring horizontal FDI instead.[59]

Income differences between source and host economies significantly encourage multinational activity when the host is the poorer economy and, as shown above, also encourage the trade-related activities of affiliates. Similarly, bilateral GVC–FDI increases with the labor abundance of the host economy relative to the source economy.

Industry factors affecting GVC–FDI are shown in Table 6.20. In these regressions, economy-level factors are subsumed in fixed effects. Similar to the economy-level analysis, GVC–FDI is attracted by less capital

[59]   This does not contradict findings in the descriptive analysis that show trade-oriented affiliates are located in economes that, on average, signed more BITs; the regression results, apart from including several other controls and being at the country-pair level, are about the intensive margin of GVC–FDI—i.e., BITs affect the fraction of trade-engaged affiliates.

Table 6.20: Determinants of GVC–FDI—Industry Variables

Dependent Variable: D(export>0 and import>0)	(1)	(2)	(3)
Log(affiliate sales)	0.049*** (0.003)	0.050*** (0.003)	0.050*** (0.003)
Log(KL)	–0.177** (0.083)	–0.056** (0.022)	–0.047** (0.022)
× Export upstreamness	0.060* (0.035)		
Log(SL)	–0.009 (0.024)	–0.008 (0.025)	–0.020 (0.026)
R&D	0.351 (0.330)	0.335 (0.351)	0.483 (0.344)
$D(dr_{ap} > 0 \,\&\, dr_{pa} > 0)$	0.026* (0.015)		
Average dr_{ap}		0.343 (0.340)	
Average dr_{pa}			0.807 (0.645)
D(Asian GUH)	–0.484*** (0.120)	–0.472*** (0.117)	–0.444*** (0.125)
× Log(KL)	0.055** (0.023)	0.053** (0.022)	0.047** (0.023)
× Average dr_{ap}		–0.224 (0.368)	
× Average dr_{pa}			–0.047 (0.755)
Number of observations	6,393	6,393	6,393
R-squared	0.220	0.219	0.220
Sample	foreign	foreign	foreign

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
FDI = foreign direct investment, GUH = global ultimate headquarters, GVC = global value chain, KL = capital–labor ratio, R&D = research and development, SL = skill intensity.
Notes: Estimated by ordinary least squares. The dependent variable is a dummy variable equal to 1 if the establishment reports export and import activity. The variable "KL" refers to the log of capital intensity of the industry, relative to labor, while *SL* refers to the log of skill intensity of the industry, relative to (unskilled) labor. The dummy $D(dr_{ap} > 0 \,\&\, dr_{pa} > 0)$ is equal to one when both direct requirement coefficients (i.e. when the affiliate is upstream and downstream of the parent) are higher than zero. Average dr_{ap} (dr_{pa}) refers to the average direct requirement coefficient of the industry of the affiliate, with respect to downstream (upstream) industries. The dummy D(Asian GUH) is 1 if the plant has an Asian GUH and includes only plants that are not GUH and in the manufacturing sector. All specifications with source and host fixed effects. Standard errors, clustered at the parent level, are in parentheses.
Sources: ADB calculations using data from ADB Multiregional Input-Output Tables and methodology by Wang, Wei, and Zhu (2014); Antras, et al. (2012); Bureau of Economic Analysis; Dun & Bradstreet. D&B Worldbase; National Bureau of Economic Research; Penn World Tables 8.0 http://cid.econ.ucdavis.edu/pwt.html (accessed July 2016).

intensive industries. Neither the skill-intensity of an industry nor the intensity of research and development seem to affect GVC–FDI. Meanwhile, industry input–output links between the affiliate and the parent are somewhat positively related to GVC–FDI. Distinguishing between Asian and non-Asian GUH does not affect the impact of input–output links on GVC–FDI, but there is a difference in the impact of capital intensity. Like the previous set of results on the impact of the characteristics of an economy, Asian GUHs are less attracted to labor-intensive industries. The coefficient on the dummy indicating the Asian origin of the GUH is significantly negative: while the descriptive analysis suggests otherwise, once the industry characteristics of the affiliate are controlled for in the analysis, being Asian decreases the likelihood that the affiliate is engaged in GVC–FDI. As in the previous set of regression results, the explanation can be based on selection: Asian multinationals choose to open affiliates in industries for which it is easier to engage in GVC–FDI; once the industry features are controlled, affiliates of Asian GUHs are more likely to be horizontal (which may be due to a better knowledge of the local Asian markets).

In sum, the regression anaysis indicates that GVC–FDI in Asia is concentrated in relatively larger plants compared with horizontal FDI. This is in line with the finding in the trade literature about exporters and importers. Relatively poorer, smaller, and labor-abundant economies are favored as hosts for foreign affiliates engaged in international trade. Those with less impediments to international trade are naturally more attractive locations for GVC–FDI, while economies with exports concentrated in more downstream sectors are also more attractive, particularly so for affiliates of non-Asian multinationals.

The rule of law does not seem to be a particularly important factor for attracting proportionally more plants engaged in GVC–FDI; the fact that trade-oriented plants are "shielded" from the institutional environment of the host economy—through special legislation and instruments such as SEZs—may be a key reason as discussed earlier. Still, good governance indicators are vital to attracting affiliates oriented to serve the host market of operations (horizontal FDI).

Industries and economies with a larger share of vertically linked domestic plants attract greater FDI in general, and GVC–FDI in particular.

Finally, we also find that the extent of production fragmentation among domestic manufacturing industries, as measured by the strength of input–output linkages between the industry of operation of the parents and affiliates, leads to greater GVC–FDI (Box 6.4). This analysis included both foreign-owned and domestically owned affiliates, and found in particular that industries and economies with a larger share of vertically linked domestic plants have a larger share of both foreign-owned affiliates and trade-oriented foreign-owned affiliates.

Box 6.4: Product Fragmentation and GVC–FDI: Regression Results

The relationship between engagement in global value chain–foreign direct investment (GVC–FDI) and the degree of production fragmentation within a corporation can be measured by the industry input–output links between the parent and the affiliate. The novel feature in this analysis is that the data allow to go a step beyond previous analysis, associating the production fragmentation observed between the parent and its affiliate directly with the trade activities of the affiliate. Analysis is restricted to manufacturing plants belonging to parents also operating in manufacturing. Plants with global ultimate headquarters (GUHs) in the same and different economy are included, but (domestic) plants that operate as their own GUH are excluded.

This part of the study provides a deeper exploration of an important characteristic of industries and industry-pairs—the strength of their links with other industries. The presence of stronger input-output links between two industries can allow more scope for production fragmentation and therefore offers greater potential to be part of the GVC.

The analysis presented in the box table below shows that first, domestic and foreign corporations concentrate activities in industries that are strongly related by input-output relationships; second, plants are larger when operating in industries that are important providers (recipients) of inputs to (outputs) from the industry of the headquarters, regardless of whether domestic and foreign; and third, at the industry-economy level, having more plants with strong input-output links with their parent (both domestic and foreign) is related to the presence of more plants engaged in international trade; and finally, industry and economies with a larger share of domestic plants with strong input-output links with their headquarters have a larger share of foreign plants (both trade and host-market oriented).

All in all, these results suggest that the larger the scope of industries (and economies) for production fragmentation, the larger their plants will be, and the more they are oriented toward international trade. The results also suggest that stronger GVCs among domestic firms in the host industry attracts more FDI, regardless whether it is horizontal or GVC–FDI.

Product Fragmentation and GVC–FDI: Regression Results

	Log(affiliate sales) (1)		Number of Affiliates that import and export (2)	Log (share of foreign affiliates) (3)	Log(share of trade-oriented foreign affiliates) (4)
dr_{ap}	0.221*** (0.087)				
dr_{pa}		0.286*** (0.098)			
Number of affiliates with $dr_{ap}>0$ & $dr_{pa}>0$			0.547*** (0.057)		
Log(share of domestic affiliates with $dr_{ap}>0$ & $dr_{pa}>0$)				0.279*** (0.066)	0.065* (0.057)
Number of observations	6787	6787	8741	451	407
R-squared	0.039	0.056	0.634	0.866	0.588
Sample	Foreign	Foreign	Foreign		

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
FDI = foreign direct investment, GVC = global value chain.
Notes: In columns (1) the dependent variable is at the firm level. In column (2), the dependent variable is the number of plants in operation in industry k_a and "country" c_a belonging to parents in industry k_p and country c_p. In column (3) and (4), the dependent variable refers to the share of affiliates operating in industry k and economy n. Average dr_{ap} (dr_{pa}) refers to the average direct requirement coefficient of the industry of the affiliate, with respect to downstream (upstream) industries. Only affiliate-parents in the manufacturing sector and only plants that are not their own parent companies are included. All specifications with source and host fixed effects. Estimated by ordinary least squares. Standard errors, clustered at the parent level, in parentheses.
Sources: ADB calculations using data from ADB Multiregional Input-Output Tables and methodology by Wang, Wei, and Zhu (2014); Bureau of Economic Analysis; Dun & Bradstreet. D&B Worldbase.

FDI Drivers by Mode of Entry

The two FDI modes of entry may have different welfare effects in host economies because of their distinctive characteristics.

The question is then to understand how policy and institutional factors affect the mode of entry so that policy makers can properly design frameworks to attract the type of FDI that is more appropriate to their economy, and particularly orient multinationals to choose one mode of entry over the other (Byun et al. 2012).[60] Moreover, it is particularly interesting from a policy perspective to investigate how these factors impact the multinationals' decision to invest through a certain entry mode depending on the sector, as well as how they depend on the developmental distance between the source and host.

In this discussion, institutional quality is measured through the Worldwide Governance Indicators, and the policy environment through World Bank's Ease of Doing Business indicators (see Annex 6a for the list of economies with available data). For integration, a separate regression analysis tests for the impact of regional trade agreements and bilateral investment treaties.

Governance is the most important factor for attracting FDI, particularly M&As, and especially when the source is a high-income economy.

The analysis based on gravity modelling (Annex 6b) offers some new findings. Firstly, the quality of local governance exerts a highly significant positive effect on FDI, irrespective of mode (greenfield versus M&A) and regardless of the relative income of source or host economy. The effect on M&As is more pronounced

---

[60] Wang and Wong (2009) find that greenfield FDI promotes economic growth while M&As promote growth only when the host country has adequate human capital. Harms and Méon (2011) also find that while greenfield investment substantially enhances growth, M&As have no effect, at best. But Ashraf et al. (2015) find that greenfield FDI has no statistically significant effect on total factor productivity (TFP), while M&As have a positive effect on TFP in the sample of both developed and developing host economies of FDI.

than that of greenfield, which is not surprising given that M&As are the more common mode of entry for market-seeking multinationals as discussed in the next section. The impact is especially pronounced for multinationals from high income economies investing in developing economies (Table 6.21).

Exploring in further detail, multinationals from high-income economies are demonstrably more responsive to the quality of governance in developing economies than multinationals from emerging economies. This is in line with similar findings in the literature, based on individual or comparative studies, that multinationals from emerging economies are less constrained by poor institutional environments. The empirical analysis in this chapter is the first to confirm this in a cross-economy context. However, this distinction between high-income and emerging-economy sources does not hold for Asian host economies, indicating that governance matters in the Asian context regardless of the developmental distance with the source economy. Based on this analysis, an example would be that if governance in the Philippines improved to the level of Malaysia, all else being equal, it would have received 80% more greenfield FDI and 120% more M&As from high-income economies over 2003–2015.

When governance is disaggregated into various dimensions (sub-indicators), it is found across all sub-indicators that governance is less of a factor in attracting multinationals from emerging economies. The most critical governance sub-indicators for FDI attraction from high-income economies to developing ones are "regulatory quality" and "government effectiveness" for both greenfield investments and M&As, and especially for Asian hosts (Table 6.22).

Trends in FDI and governance indicators may bear this out. Among the five Asian subregions, economies in East Asia on average rank the highest in WGI's measures of "government effectiveness" and "regulatory quality", the two governance subcomponents that the regression analysis found most important for FDI attraction. Economies in Southeast Asia, on average, also perform well in terms of scores for "government effectiveness" and "regulatory quality". In addition, since 1998 both the subregions have improved significantly in most of the six governance dimensions, especially the two

Table 6.21: The effect of Governance and Business Environment on FDI

	Greenfield investment						Cross-border M&A					
	High-income Economies (Source)			Emerging Economies (Source)			High-income Economies (Source)			Emerging Economies (Source)		
	Host			Host			Host			Host		
	High-income (1)	Developing (2)	Asia (3)	High-income (4)	Developing (5)	Asia (6)	High-income (7)	Developing (8)	Asia (9)	High-income (10)	Developing (11)	Asia (12)
Overall Ease of Doing Business Index - host (expected sign = plus)	0.005	0.022***	0.044***	-0.002	-0.001	-0.004	0.001	0.009	-0.000	-0.008	-0.023	-0.028
	(0.011)	(0.007)	(0.012)	(0.014)	(0.010)	(0.010)	(0.011)	(0.006)	(0.015)	(0.013)	(0.016)	(0.018)
Overall World Governance Index - host (expected sign = plus)	0.026***	0.043***	0.033***	0.031*	0.021***	0.035***	0.051***	0.074***	0.071***	0.053***	0.049***	0.082***
	(0.010)	(0.005)	(0.010)	(0.018)	(0.007)	(0.009)	(0.012)	(0.008)	(0.009)	(0.013)	(0.010)	(0.017)
RTA between source and host (= 1 if yes)	0.393**	0.081	0.347***	-0.193	0.676***	0.956***	0.746***	-0.322**	0.317	0.244	0.619***	0.365
	(0.157)	(0.110)	(0.119)	(0.275)	(0.143)	(0.166)	(0.161)	(0.131)	(0.202)	(0.209)	(0.175)	(0.283)
BIT between source and host (= 1 if yes)	0.319**	-0.118	0.051	0.012	0.797***	0.814***	-0.341**	-0.292**	-0.152	0.057	1.132***	0.706**
	(0.160)	(0.103)	(0.148)	(0.245)	(0.163)	(0.178)	(0.165)	(0.123)	(0.199)	(0.189)	(0.188)	(0.275)
log(Population-host)	0.758***	0.924***	0.693***	0.804***	0.467***	0.317***	0.760***	1.020***	0.809***	0.692***	0.516***	0.314***
	(0.048)	(0.021)	(0.031)	(0.078)	(0.033)	(0.038)	(0.042)	(0.040)	(0.058)	(0.061)	(0.044)	(0.059)
log(PCGDP-host)	0.248	0.413***	-0.062	0.646***	0.313***	0.002	-0.052	0.459***	0.275*	0.307	0.324***	0.237
	(0.178)	(0.061)	(0.087)	(0.195)	(0.085)	(0.104)	(0.192)	(0.085)	(0.151)	(0.193)	(0.110)	(0.197)
Growth Rate-host	0.087***	0.021*	0.236***	0.125***	0.005	0.083***	-0.077***	-0.048**	0.109***	0.002	-0.114***	0.088**
	(0.020)	(0.011)	(0.026)	(0.026)	(0.020)	(0.025)	(0.027)	(0.019)	(0.033)	(0.043)	(0.037)	(0.044)
Inflation Rate-host	0.167***	-0.024**	-0.037*	0.224***	0.002	-0.016	0.143***	-0.010	0.033	0.162***	-0.006	0.063*
	(0.027)	(0.009)	(0.022)	(0.033)	(0.010)	(0.024)	(0.039)	(0.011)	(0.022)	(0.045)	(0.013)	(0.034)
log(Distance between source and host)	0.094	-0.651***	0.177	-0.566**	-0.471***	-0.299**	0.066	-1.177***	0.085	-0.493***	-0.633***	-0.311**
	(0.118)	(0.078)	(0.147)	(0.247)	(0.102)	(0.145)	(0.124)	(0.091)	(0.191)	(0.150)	(0.100)	(0.153)
Common language (=1 if yes)	0.754***	0.609***	0.705***	0.565**	0.927***	0.601***	0.749***	0.972***	0.365*	1.529***	1.081***	0.768**
	(0.200)	(0.115)	(0.154)	(0.255)	(0.183)	(0.165)	(0.201)	(0.171)	(0.211)	(0.298)	(0.213)	(0.299)
Contiguity (=1 if yes)	0.474*	-0.250	1.342***	0.500	0.655***	0.578***	0.301	-1.182***	2.556***	0.440	0.979***	0.859**
	(0.244)	(0.180)	(0.414)	(0.350)	(0.158)	(0.185)	(0.222)	(0.371)	(0.521)	(0.290)	(0.211)	(0.337)
Constant	-14.535***	-13.506***	-18.538***	-17.457***	-7.450***	-6.173***	-17.414***	-17.460***	-21.755***	-14.333***	-8.206***	-10.351***
	(1.762)	(0.661)	(1.722)	(2.412)	(1.256)	(1.512)	(2.045)	(1.106)	(2.503)	(2.439)	(1.470)	(2.297)
Number of observation	3096	6792	1992	1290	2830	830	3096	6792	1880	1290	2830	830
R-squared	0.641	0.841	0.892	0.610	0.543	0.628	0.696	0.798	0.868	0.636	0.527	0.687

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.

BIT = bilateral investment treaty, FDI = foreign direct investment, M&A = merger and acquisition, PCGDP = GDP per capita, RTA = regional trade agreement.

Notes: Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML) estimator. Source country-period fixed effects and period fixed effects are included but not shown for brevity. Standard errors are in parenthesis are based on clustering by country-pair.

Sources: ADB calculations using data from Bureau van Dijk. Zephyr M&A Database; Financial Times. fDi Markets; Institute for Research on the International Economy. http://www.cepii.fr/CEPII/en/cepii/cepii.asp (accessed July 2016); World Bank. Ease of Doing Business Indicators http://www.doingbusiness.org/rankings (accessed July 2016); World Bank. World Development Indicators. http://data.worldbank.org/data-catalog/world-developmentindicators (accessed July 2016); and World Bank. Worldwide Governance Indicators. http://data.worldbank.org/data-catalog/worldwide-governance-indicators (accessed July 2016).

subcomponents most important for attracting FDI. In contrast, most economies in Central Asia and Pacific lag significantly behind the rest of developing Asia across most dimensions of governance, including "government effectiveness" and "regulatory quality". Given these empirical results, which show the importance of governance, for any reforms aimed at attracting FDI as a development strategy these economies would need to work toward improving governance.

Comparison across sectors shows that, irrespective of entry mode, multinationals from high-income economies and emerging economies are less responsive to local governance quality when they invest in natural resources than when they invest in services or manufacturing. This too is in line with expectations, given the extractive nature of investments in natural resources (Table 6.23).

Table 6.22: Effects of "Sub-indicators of Governance" on FDI

	Source	Host	(1) Average WGI	(2) Voice and Accountability	(3) Political Stability	(4) Government Effectiveness	(5) Regulatory Quality	(6) Rule of Law	(7) Control Corruption
Greenfield investment	High-income	High-income	0.032*** (0.006)	0.002 (0.005)	0.013*** (0.005)	0.031*** (0.005)	0.042*** (0.007)	0.032*** (0.007)	0.026*** (0.004)
		Developing	0.048*** (0.004)	0.017*** (0.003)	0.025*** (0.004)	0.039*** (0.004)	0.046*** (0.004)	0.030*** (0.003)	0.027*** (0.004)
	Emerging	High-income	0.028** (0.012)	-0.007 (0.007)	0.014* (0.008)	0.029*** (0.007)	0.039*** (0.013)	0.032** (0.015)	0.032*** (0.007)
		Developing	0.020*** (0.006)	0.011*** (0.004)	0.015*** (0.005)	0.005 (0.006)	0.020*** (0.005)	0.004 (0.005)	0.008* (0.005)
Cross- border M&A	High-income	High-income	0.050*** (0.007)	0.043*** (0.006)	-0.002 (0.005)	0.037*** (0.006)	0.060*** (0.008)	0.045*** (0.007)	0.037*** (0.006)
		Developing	0.074*** (0.007)	0.036*** (0.005)	0.035*** (0.004)	0.051*** (0.007)	0.068*** (0.007)	0.047*** (0.006)	0.041*** (0.007)
	Emerging	High-income	0.046*** (0.011)	0.026*** (0.007)	-0.004 (0.007)	0.035*** (0.008)	0.061*** (0.012)	0.047*** (0.011)	0.031*** (0.008)
		Developing	0.040*** (0.008)	0.030*** (0.005)	0.016*** (0.006)	0.018** (0.008)	0.040*** (0.008)	0.016** (0.007)	0.015** (0.007)

*** = significant at 1%, ** = significant at 5%, significant at 10%.
FDI = foreign direct investment, M&A = merger and acquisition, WGI = World Governance Index.
Notes: Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML) estimator, using the components of World Governance Index. Equations include host country-specific and pair-specific control variables as well as source country-period fixed effects and period fixed effects but not shown for brevity. Source country-period fixed effects as well as period fixed effects are included but not shown for brevity. Standard errors are in parenthesis are based on clustering by country-pair.
Sources: ADB calculations using data from Bureau van Dijk. Zephyr M&A Database; Financial Times. fDi Markets; Institute for Research on the International Economy. http://www.cepii.fr/CEPII/en/cepii/cepii.asp (accessed July 2016); United Nations Conference on Trade and Development. Investment Policy Hub. http://investmentpolicyhub. unctad.org/IIA (accessed August 2016); World Bank. World Development Indicators. http://data.worldbank.org/data-catalog/worlddevelopment-indicators (accessed July 2016); and World Bank. Worldwide Governance Indicators. http://data.worldbank.org/data-catalog/worldwide-governanceindicators (accessed July 2016).

Table 6.23: Effects of Governance on FDI in Different Sectors

		Greenfield Investment				Cross-border M&A			
Source	Host	All (1)	Primary Sector (2)	Service Sector (3)	Other (4)	All (5)	Primary Sector (6)	Service Sector (7)	Other (8)
High-income	High-income	0.032*** (0.006)	0.038*** (0.007)	0.023*** (0.007)	0.039*** (0.005)	0.050*** (0.007)	0.093*** (0.014)	0.047*** (0.009)	0.045*** (0.007)
	Developing	0.048*** (0.004)	0.032*** (0.005)	0.051*** (0.005)	0.048*** (0.004)	0.074*** (0.007)	0.039*** (0.008)	0.080*** (0.008)	0.075*** (0.007)
Emerging	High-income	0.028** (0.012)	0.022* (0.013)	0.014 (0.011)	0.045*** (0.017)	0.046*** (0.011)	0.180*** (0.053)	0.028** (0.011)	0.034*** (0.010)
	Developing	0.020*** (0.006)	0.011 (0.008)	0.022*** (0.007)	0.020*** (0.007)	0.040*** (0.008)	0.021* (0.011)	0.045*** (0.012)	0.042*** (0.008)

*** = significant at 1%, ** = significant at 5%, * = significant at 10%, FDI = foreign direct investment, M&A = merger and acquisition.
Notes: Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML) using overall World Governance Index (WGI). Equations include host country-specific and pair-specific control variables as well as source country-period fixed effects and period fixed effects but not shown for brevity. Source country-period fixed effects as well as period fixed effects are included but not shown for brevity. Standard errors are in parenthesis are based on clustering by country-pair.
Sources: ADB calculations using data from Bureau van Dijk. Zephyr M&A Database; Financial Times. fDi Markets; Institute for Research on the International Economy. http://www.cepii.fr/CEPII/en/cepii/cepii.asp (accessed July 2016); United Nations Conference on Trade and Development. Investment Policy Hub. http://investmentpolicyhub. unctad.org/IIA (accessed August 2016); World Bank. World Development Indicators. http://data.worldbank.org/data-catalog/worlddevelopment-indicators (accessed July 2016); and World Bank. Worldwide Governance Indicators. http://data.worldbank.org/data-catalog/worldwide-governanceindicators (accessed July 2016).

The policy regime as reflected by the business environment appears to help attract FDI, particularly greenfield investments, especially for economies with low scores for governance.

Multinationals from high-income economies are in general more responsive to the local business environment of developing hosts than they are to high-income hosts. In fact, for Asian hosts, multinationals from high-income economies are especially sensitive to the quality of the policy regime. In contrast, multinationals from emerging economies appear to be relatively less sensitive to local business environments (see Table 6.21). The quality of the business environment appears to complement governance: for economies with high quality governance, the local business environment does not have as discernable an effect on FDI as it does for those with lower governance indicator scores, particularly for greenfield investments. This finding suggests that a favorable local business environment may compensate for poor governance (Table 6.24). In terms of attracting multinationals from high-income economies, the most important sub-indicators of the business environment for M&A are the ease of "getting credit", while the ease of being able to "register property" matters most for greenfield investments.

In general, economies in the region have been improving their business environments in various ways. Some recent reforms are documented in ADB's Asian Development Outlook 2016 (ADB 2016). For instance, India's

parliament recently introduced an updated bankruptcy law to streamline debt restructuring. From September 2015 to February 2016, Indonesia introduced 10 reform packages to attract investment, particularly in manufacturing, by opening 35 more sectors to foreign ownership. Additionally, regulations were simplified, procedures for land title registration and business licensing accelerated, formula for minimum wages made more predictable, and new tax incentives provided for labor-intensive industries. In terms of infastructure development, port logistics services are to be reformed and SEZs further developed.

Similarly, in Myanmar, the government's newly developed National Transport Master Plan aims for substantial upgrade to the existing transport infrastructure, including urban-rural links as well as links with neighboring economies across all modes of transport, especially through enhancement of intermodal transport and networks. In Fiji, reformed tax policies aim to stimulate private investment and consumption, and to enhance transparency and compliance. In Georgia, specialized agencies now facilitate exports and upgrade entrepreneurial skills, and work to enhance productive capacity in partnership with the private sector.

More specifically, based on the World Bank's Doing Business 2017 report, economies across the region have improved the business environment as shown by a wide range of "ease of doing business" indicators (World Bank 2016). Of the 10 economies highlighted by the report as having made the biggest improvements in business

Table 6.24: Interaction Effects of EoDB and WGI on Greenfield FDI Flows from High-income to Developing Countries

	(1) Average EoDB	(2) Starting Business	(3) Dealing with Business Construction	(4) Registering Property	(5) Getting Credit	(6) Protecting Minority Investors	(7) Paying Taxes	(8) Trading Across Borders	(9) Enforcing	(10) Resolving Insolvency
EoDB	0.096***	0.012	0.026**	0.065***	0.012	0.008	0.048***	0.017*	0.069***	0.008
	(0.022)	(0.012)	(0.013)	(0.011)	(0.008)	(0.015)	(0.008)	(0.009)	(0.013)	(0.009)
EoDB*WGI_ave	-0.002***	-0.000	-0.000*	-0.001***	-0.000	-0.000	-0.001***	-0.000	-0.001***	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
WGI_ave	0.140***	0.059***	0.076***	0.130***	0.041***	0.053***	0.118***	0.050***	0.134***	0.053***
	(0.025)	(0.019)	(0.018)	(0.015)	(0.011)	(0.014)	(0.011)	(0.013)	(0.017)	(0.007)

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
EoDB = Ease of Doing Business Index, FDI = foreign direct investment, WGI = World Governance Index.
Notes: Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML) estimator. Source country-period fixed effects and period fixed effects are included but not shown for brevity. Standard errors are in parenthesis are based on clustering by country-pair.
Sources: ADB calculations using data from Bureau van Dijk. Zephyr M&A Database; Financial Times. fDi Markets; Institute for Research on the International Economy. http://www.cepii.fr/CEPII/en/cepii/cepii.asp (accessed July 2016); World Bank. Ease of Doing Business Indicators http://www.doingbusiness.org/rankings (accessed July 2016); World Bank. World Development Indicators. http://data.worldbank.org/data-catalog/worlddevelopment-indicators (accessed July 2016); and World Bank. Worldwide Governance Indicators. http://data.worldbank.org/data-catalog/worldwide-governance-indicators (accessed July 2016).

regulations, five are in Asia and the Pacific—Brunei Darussalam, Georgia, Indonesia, Kazakhstan, and Pakistan. Moreover, many economies in the region undertook reforms specifically to ease "getting credit," which our empirical analysis identifies as most important for attracting M&As through improved legislation and procedures, as well as streamlined functioning of credit bureaus. The economies which introduced significant reforms in this regard include Brunei Darussalam, Cambodia, the PRC, and Papua New Guinea. Indonesia and Singapore simplified procedures to register and transfer property, which is important to attract greenfield FDI. At the same time—without attributing any causal inferences as FDI performance depends on a whole host of factors—developing Asia has witnessed an increasing number of M&As (Figure 6.10), particularly in the economies cited. Other economies in the region may benefit by instituting similar reforms to ease credit restrictions and property registrations procedures.

The impact of RTAs on FDI is not clear cut: while RTAs increase both north-south and south-south M&As, they reduce south-south greenfield FDI.

The impact of regional trade agreements on FDI could theoretically work through opposing channels, and is an empirical question. If FDI is market-seeking or tariff-jumping—and therefore a substitute for trade—an RTA could clearly reduce FDI. Even in the case of vertical or GVC–FDI, if economies are at a similar stage of development and have similar factor endowments, multinationals have little scope to slice up the production process. The impact of RTAs also depends on the strength of investment provisions.

While RTAs have no impact on greenfield FDI originating from high income economies, these agreements have a positive impact on M&As to developing countries (North-South M&As). When the source is an emerging economy, RTAs intensify M&As in other developing economies (South-South M&As) but reduce South-South greenfield investments. This suggests that South-South (SS) greenfield FDI may be motivated by tariff-jumping and market-seeking considerations. This finding does not necessarily imply that RTAs always reduce SS greenfield FDI: as trade linkages deepen and trade barriers fall due to greater integration, widening the scope for efficiency seeking, GVC investments may increase even among economies at a similar level of

development. Therefore, over a longer time horizon, RTAs may well increase SS greenfield FDI as well. No impact of RTAs on North-North (NN) FDI was found in the empirical analysis (except for a reduction in NN M&As in the primary sector), but again the potential for greater NN FDI could be unlocked with the progress of greater integration resulting from RTAs (Tables 6.25, 6.26).

GVC–FDI: More Greenfield Investments or M&As?

Multinationals engaging in GVC–FDI in Asia are more likely to use the greenfield mode of entry, while M&As are more probable when domestic markets are the target.

The theoretical literature on FDI mode of entry amounts to only a small part of the many studies dedicated to the behavior of multinational corporations. One notable exception is Nocke and Yeaple (2007), who developed a model of FDI entry in which firms choose to enter a market either through M&As or by establishing completely new entities (greenfield investments). The model provides some guidance: (i) more greenfield FDI than M&As may be expected among firms that are productive, and (ii) relative to M&As, greenfield FDI goes to lower-income markets than the source. More generally, some research has documented that multinational expansion is dominated by M&As in the developed world and by greenfield investments in the developing world, even though M&A FDI is becoming more commonly used to access developing economies as well.[61]

By combining the international trade orientation of foreign-owned affiliates with the mode of entry, the mode of FDI entry can be linked to the market-serving activities that multinationals do most in any given host market. The question is whether the choice of a particular mode of entry into a market (and industry) is linked to the role of the affiliate in either serving the domestic market or being engaged in international trade-oriented activities.

Empirical findings suggest that multinationals prefer greenfield FDI for affiliates engaged in trade-oriented

---

[61]   See Nocke and Yeaple (2007), Head and Ries (2008), and UNCTAD (2000).

Table 6.25: Effects of RTA and BIT on Greenfield FDI in Different Sectors

Host	High Income Economies				Developing Economies			
	All	Primary	Services	Other	All	Primary	Services	Other
Industry	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Source	**High Income Economies**							
RTA	0.003	0.091	0.109	−0.072	0.080	0.136	0.133	0.109
	(0.061)	(0.223)	(0.098)	(0.083)	(0.091)	(0.147)	(0.104)	(0.094)
BIT	0.030	0.753	−0.167	0.053	0.046	−0.113	0.107	0.086
	(0.083)	(0.459)	(0.146)	(0.118)	(0.063)	(0.143)	(0.079)	(0.068)
Number of observations	3544	1841	3073	3184	5758	2519	4015	4385
R–squared	0.993	0.890	0.993	0.988	0.986	0.917	0.989	0.986
Source	**Emerging Economies**							
RTA	0.092	−0.021	0.395**	−0.101	−0.251**	0.002	−0.285	−0.308**
	(0.128)	(0.446)	(0.165)	(0.207)	(0.103)	(0.298)	(0.197)	(0.140)
BIT	0.159	0.108	0.145	0.143	0.295***	0.622*	0.263	0.190
	(0.169)	(0.655)	(0.226)	(0.214)	(0.105)	(0.329)	(0.192)	(0.161)
Number of observations	1240	466	892	990	1962	766	1248	1334
R–squared	0.979	0.852	0.972	0.980	0.938	0.831	0.889	0.908

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
BIT = bilateral investment treaty, FDI = foreign direct investment, RTA = regional trade agreement.
Notes: Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML). Equations include host country-specific and pair-specific control variables as well as source country-period fixed effects and period fixed effects but not shown for brevity. Source country-period fixed effects as well as period fixed effects are included but not shown for brevity. Standard errors are in parenthesis are based on clustering by country-pair.
Sources: ADB calculations using data from ADB. Asia Regional Integration Center FTA Database. https://aric.adb.org/fta (accessed September 2016); Bureau van Dijk. \Zephyr M&A Database; Financial Times. fDi Markets; Institute for Research on the International Economy. http:// www. cepii.fr/CEPII/en/cepii/cepii.asp (accessed July 2016); United Nations Conference on Trade and Development. Investment Policy Hub. http:// investmentpolicyhub. unctad.org/IIA (accessed August 2016); World Bank. World Development Indicators. http://data.worldbank.org/data-catalog/world–development-indicators (accessed July 2016); and World Bank. Worldwide Governance Indicators. \http://data.worldbank.org/ data-catalog/worldwide-governance-indicators (accessed July 2016).

Table 6.26: Effects of RTA and BIT on Cross-border M&A in Different Sectors

Host	High Income Economies				Developing Economies			
	All	Primary	Services	Other	All	Primary	Services	Other
Industry	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Source	**High Income Economies**							
RTA	−0.189	−0.418**	−0.036	−0.014	0.175**	0.189	0.202*	0.228**
	(0.122)	(0.191)	(0.137)	(0.126)	(0.081)	(0.230)	(0.109)	(0.102)
BIT	−0.173	−0.315	0.038	−0.525	−0.097	−0.441*	0.104	−0.212
	(0.347)	(0.567)	(0.319)	(0.421)	(0.145)	(0.265)	(0.220)	(0.135)
Number of observations	3243	1771	2815	2814	3723	1597	2397	2478
R-squared	0.985	0.978	0.990	0.971	0.989	0.903	0.992	0.976
Source	**Emerging Economies**							
RTA	−0.303	−0.430	−0.212	−0.719***	0.493**	0.534	0.348	0.301
	(0.225)	(0.932)	(0.274)	(0.251)	(0.219)	(1.103)	(0.376)	(0.325)
BIT	0.197	0.362	−0.095	0.257	−0.069	0.396	0.193	−1.118*
	(0.262)	(0.920)	(0.506)	(0.310)	(0.356)	(1.089)	(0.671)	(0.593)
Number of observations	1040	325	731	813	975	310	556	667
R–squared	0.955	0.896	0.955	0.926	0.942	0.812	0.931	0.909

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
BIT = bilateral investment treaty, FDI = foreign direct investment, M&A = merger and acquisition, RTA = regional trade agreement.
Notes: Estimates are obtained with Poisson Pseudo-Maximum Likelihood (PPML). Equations include host country-specific and pair–specific control variables as well as source country-period fixed effects and period fixed effects but not shown for brevity. Source country-period fixed effects as well as period fixed effects are included but not shown for brevity. Standard errors are in parenthesis are based on clustering by country-pair.
Sources: ADB calculations using data from ADB. Asia Regional Integration Center FTA Database. https://aric.adb.org/fta (accessed September 2016); Bureau van Dijk. \Zephyr M&A Database; Financial Times. fDi Markets; Institute for Research on the International Economy. http:// www. cepii.fr/CEPII/en/cepii/cepii.asp (accessed July 2016); United Nations Conference on Trade and Development. Investment Policy Hub. http:// investmentpolicyhub. unctad.org/IIA (accessed August 2016); World Bank. World Development Indicators. http://data.worldbank.org/data-catalog/world-development-indicators (accessed July 2016); and World Bank. Worldwide Governance Indicators. http://data.worldbank.org/ data-catalog/worldwide-governance-indicators (accessed July 2016).

Box 6.5: Analyzing the Link between GVC–FDI and Mode of Entry

The two variables of interest are first, the ratio of the number of foreign direct investment (FDI) transactions of merger and acquisition (M&A) to greenfield FDI transactions. Second, the number of foreign affiliates that export and import (global value chain (GVC)–FDI) as a proportion of the total number of foreign affiliates. The average ratio of M&A to greenfield FDI across host economies is 0.63, and the median value is 0.35 (box table 1). Bangladesh has the lowest (non-zero) ratio of M&As entry relative to greenfield in Asia, while the region's richest economies (Australia, Japan, the Republic of Korea, and New Zealand) have ratios of well above 1. The average ratio of GVC–FDI affiliates is of 0.30 (and a median of 0.29), reaching a (non-zero) minimum in Australia (0.16) and a maximum in the PRC (0.79), followed by Taipei,China and Viet Nam.

The relationship between FDI entry mode and affiliate activity as a function of some characteristics of the host economy is interesting. In box table 2 the dependent variable represents GVC–FDI while the control variable is the ratio of M&A to greenfield FDI (counts), both expressed in logs. Clearly, the negative relationship between the two variables survives when other economy controls and sector fixed effects are added to the equation. Moreover, the relation is significant for all sectors pooled together and also for manufacturing. Column (1) indicates that doubling the number of multilaterals choosing M&A entry above greenfield entry, at the bilateral-sector—an increase equivalent to moving from the 90th to the 95th percentile—decreases the share of affiliates exposed to trade by almost 10%. We also tested the share of GVC–FDI as an explanatory variable and the share of M&A FDI entry as a dependent variable, relative to greenfield FDI entry. Results show a similar negative correlation, but quantitatively, the relationship is much larger: doubling the share of GVC–FDI decreases the ratio of M&A to greenfield FDI entry by almost 40%.

1: GVC–FDI and FDI Entry, by Economy

Host Economy	Rank GVC-FDI	Rank M&A–GF Ratio	M&A-GF Ratio	GVC–FDI
PRC	1	9	0.44	0.79
Taipei,China	2	13	0.30	0.74
Viet Nam	3	17	0.23	0.70
Malaysia	4	10	0.41	0.65
Thailand	5	22	0.15	0.65
Philippines	6	16	0.26	0.59
Brunei Darussalam	7	23	0.00	0.50
Indonesia	8	7	0.61	0.42
Kazakhstan	9	20	0.16	0.41
Singapore	10	14	0.29	0.40
Republic of Korea	11	5	1.23	0.35
India	12	11	0.41	0.35
Georgia	13	6	0.77	0.33
Sri Lanka	14	19	0.20	0.28
Hong Kong, China	15	8	0.46	0.23
Bangladesh	16	15	0.27	0.20
Japan	17	4	1.25	0.18
Australia	18	2	1.41	0.16
New Zealand	19	1	3.74	0.00
Uzbekistan	20	3	1.29	0.00
Armenia	21	12	0.33	0.00
Pakistan	22	21	0.16	0.00
Kyrgyz Republic	23	26	n/a	0.00
Afghanistan	24	25	0.00	0.00
Nepal	25	18	0.20	0.00
Azerbaijan	26	24	0.00	0.00

PRC = People's Republic of China, FDI = foreign direct investment, GF = greenfield, GVC = global value chain, M&A = merger and acquisition.
Notes: M&A–GF ratio refers to the ratio of the number of M&As to the number of greenfield projects in an economy. GVC-FDI refers to the share of foreign affiliates in an economy that both export and import. The rank variables just rank the economy with respect to each variable.
Sources: ADB calculations using data from Bureau van Dijk. Zephyr M&A Database; Dun & Bradstreet. D&B Worldbase and Financial Times. fDi Markets.

2: Determinants of GVC–FDI (ordinary least squares)
Dependent variable: log of GVC–FDI, bilateral sector level

	(1)	(2)	(3)
log M&A to GF (counts)	-0.095***	-0.076***	-0.049
	(0.026)	(0.025)	(0.076)
log(distance)	-0.067	-0.028	0.034
	(0.044)	(0.039)	(0.137)
D(sharing language)	-0.086	-0.061	-0.158
	(0.077)	(0.073)	(0.257)
D(sharing colonial past)	-0.240**	-0.128	0.018
	(0.118)	(0.081)	(0.451)
D(RTA)	-0.118	-0.078	-0.444
	(0.079)	(0.068)	(0.295)
D(DTT)	0.087	0.032	0.589**
	(0.103)	(0.077)	(0.281)
D(BIT)	-0.050	-0.073	-0.095
log(rgdpl)	(0.058)	(0.054)	(0.186)
	0.921***	0.734***	2.014*
	(0.215)	(0.197)	(1.044)
log(KL)	-0.537***	-0.284	-1.387
	(0.206)	(0.198)	(1.100)
log(rgdp)	-0.069***	-0.063***	-0.249
Rule of law	(0.026)	(0.022)	(0.150)
	-0.604***	-0.705***	-0.958**
	(0.109)	(0.102)	(0.442)
Number of observations	416	266	38
R-squared	0.548	0.387	0.609
Sample	all	manufacturing	mining

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
BIT = bilateral investment treaty, DTT = double taxation treaty, FDI = foreign direct investment, GVC = global value chain, GF =greenfield, M&A = merger and acquisition, RTA = regional trade agreement.
Notes: The dependent variable is the number of affiliates with export and import activities, as a share of total affiliates, at the bilateral-sector level, in logs. The control variable of interest is the number of M&A to the number of greenfield FDI, in logs, at the bilateral- sector level. Specification in column a with sector fixed effects. Standard errors, clustered at the host-source level, in parentheses.
Sources: ADB calculations using data from Bureau van Dijk. Zephyr M&A Database; Dun & Bradstreet. D&B Worldbase; Financial Times. fDi Markets; Institute for Research on the International Economy. http://www.cepii.fr/CEPII/en/cepii/cepii.asp (accessed July 2016); Penn World Tables 8.0. http://cid.econ.ucdavis.edu/pwt.html (accessed July 2016); United Nations Conference on Trade and Development. Investment Policy Hub. http://investmentpolicyhub. unctad.org/IIA (accessed August 2016); Worldwide Governance Indicators. http://data.worldbank.org/data-catalog/worldwide-governance-indicators (accessed July 2016).

activities (Box 6.5). Although theoretical grounds have yet to be established, one can think of multinationals wanting to acquire domestic firms when their goal is to penetrate a domestic market; the domestic firms would provide strategic assets in the form of local knowledge on institutions, suppliers, the customer base, the labor force, and perhaps conditions for obtaining funding through local capital markets. On the other hand, should the multinational want to use the particular market as an export platform, greenfield FDI may offer more control and thus be a better option.

Policy Implications

Policy makers need to take into account the nuances involved in attracting different types of FDI in devising policies, to fit the economy's development stage, comparative advantage, and industrial policy perspective.

Attitudes about FDI have shifted significantly in recent decades, with economies moving toward greater liberalization and casting off restrictions to foreign ownership. However, FDI regimes in Asia still vary widely and policy makers need to account for the nuances involved in attracting different types of FDI when forming policies, in line with the economy's development stage, comparative advantage, and industrial policy perspective. Economies like Bangladesh, Cambodia, and the Lao People's Democratic Republic attract more labor-intensive FDI, while the India, the Republic of Korea, Malaysia, and Thailand, for example, encourage capital and technology-intensive FDI.

Good governance and quality of institutions in the host economy could signal its government's commitment to honoring the interests of foreign investors and their investments.

Without these conditions, significant increases in FDI are not likely. Based on perception surveys, the quality of institutions varies widely across the region. For example, World Bank Enterprise Surveys note that about 33% of firms globally and 18% of firms in East Asia, Southeast Asia, and the Pacific identify corruption as a major constraint to doing business, compared with about 40%

in South Asia and 22% in Central Asia. Moreover, in South Asia, 17% of firms indicate that the judicial system is a major constraint, compared with 8% in East Asia and Southeast Asia and about 5% in Central Asia (World Bank Enterprise Surveys 2005-2016).

Developing economies with relatively poor governance can still foster FDI inflows by improving the business environment.

A good investment climate attracts the productive domestic and foreign private investment that helps fuel growth and reduces poverty. Improving the business environment is particularly important for economies still working to develop quality institutions, where reform takes time to implement fully. Firms cite tax rates and tax administration as prominent constraints, with surveys across subregions reporting these as concerns for firms in South Asia (26% for tax rates and 19% for tax administration), in Central Asia (24% and 15%), and in East Asia and Southeast Asia (16% and 7%).

The determinants of FDI are diverse and span different modes of entry, motivation, sector, and source economies.

Multinationals' choice of entering a foreign market through acquiring a local firm or by building a new facility also has welfare implications for the host economy, depending on absorptive capacity. It was found that the quality of governance was the most important driver of FDI, more so for M&As than for greenfield FDI, and in particular for multinationals from high-income economies investing in manufacturing and services. The policy regime that helps define the business environment is a major factor in attracting greenfield FDI in economies that lack strong institutions.

The analysis also shows that in terms of market serving motivation, the major factors for attracting trade-promoting or GVC–FDI (as opposed to domestic market-seeking FDI) were labor abundance, low trade barriers (expedited trading procedures and low costs of exporting and importing), as well as an already existing network of domestic firms linked by input–output relations. Less developed economies were more likely to host these type of trade-oriented affiliates, due not only to low labor

costs, but also the prevalence of SEZs that can act as "shields" from a more difficult domestic environment.

Linking to GVCs enables industrial upgrading, and is a successful export-oriented development strategy followed by many economies in the region, particularly in East and Southeast Asia. While seemingly disadvantageous, a low development stage can be leveraged to attract FDI, which can help link a host economy to GVCs. Labor abundance can also draw in GVC–FDI, further supported by lowering trade barriers. Developing countries can also attract more GVC–FDI by fostering richer linkages between domestic industries. The Penang export hub in Malaysia is an example of an area that first attracted multinationals into labor-intensive industries, and subsequently moved into higher value-added segments of the value chain through a successful investment promotion strategy and a rich network of domestic vendors (Athukorala 2014). This could hold particular relevance to those economies that have yet to adequately connect their domestic industries to international production networks.

For instance, most economies in Central Asia draw more than 50% of FDI into natural resources, with another large portion going to sectors serving domestic markets—including real estate development, trade, finance, construction, and communications. There is little evidence of investment projects linking into regional or global value chains. The strong appreciation of regional currencies in 2000–2012 and widespread migration of workers from the Kyrgyz Republic, Tajikistan, and Uzbekistan to Kazakhstan, the Russian Federation, and some other countries keeps wages in the region relatively high—therefore discouraging investment in labor-intensive sectors (ADBI 2014).

This chapter also shows that trade-promoting GVC–FDI is relatively more commonly linked to greenfield projects than to M&As. Hence, help for multinationals to build from the ground up seems important in enabling economies to effectively join GVCs. Firms in less developed economies may not have much to offer as M&A targets, but support for greenfield-GVC–FDI may help create a network of local firms which, through growing interaction with multinationals, can climb the technology ladder and acquire knowledge to operate in the global market. A good example is Wal-Mart in the

PRC, as documented by Head et al. (2014). Even though Wal-Mart eventually decided not to tap the PRC market (horizontal FDI), it kept its "global procurement centers", buying local products to export to its stores around the world. In this way, local firms built access to the international market, and PRC suppliers (whose products were exported through Wal-Mart) started exporting their own products as their brands gained international recognition.

Special Section: The Role of International Investment Policy

The number of bilateral investment treaties (BITs) and other treaties with investment provisions has risen rapidly in recent years. The United Nations Conference on Trade and Development (UNCTAD) lists 2,954 BITs and 362 other treaties with investment provisions, of which 2,319 BITs and 294 treaties with investment provisions are currently in force.

While BITs and other international investment agreements are increasingly important, empirical evidence on the impact of BITs is mixed and inconclusive.[62] Bellak (2015) argues in a meta-analysis to investigate the effect of BITs on FDI that much of the empirical evidence suffers from a publication selection bias, with misleading implications for policy makers. The results of the meta-analysis reveal BITs have no statistically and practically significant effect on FDI after correcting for the bias. Chaisse and Bellak (2015) conduct a descriptive analysis, which shows a wide range of estimated semi-elasticities of FDI on BITs across various measures, with only some statistically significant. The inconclusiveness of existing empirical evidence can be attributed to large differences in research design. Empirical studies differ widely in many aspects, including by dependent variable (FDI flow or FDI stock) and the dataset used (cross-section or longitudinal), and also

---

[62]   See Hallward-Driemeir (2003), Egger and Pfaffermayr (2004), Lesher and Miroudot (2006), and Berger et al. (2010).

in the time periods, control variables, and econometric models employed.

Against this background, the research in this section starts by asking whether bilateral and regional trade and investment agreements in Asia differ much from others—by being more heterogeneous. For this stylized facts on Asia's BITs and the investment chapters of Regional Trade and Investment Agreements (RTIAs) are examined.

Moreover, instead of using a simple BIT dummy variable, the "BITSel Index" created by Chaisse and Bellak (2015) is used. This index helps quantitatively assess the various BIT provisions and international investment agreements. Isolating the effects of each provision allows us to investigate the precise nature of links between investment treaties and FDI. This approach helps understand the links between heterogeneous BIT provisions and their effect on FDI projects, a question that has interested Asian policy makers over the past few decades.

Use of a Poisson Quasi-Maximum Likelihood approach and granular FDI distinguishing by mode of entry—yields interesting insights on the importance of common provisions in BIT and/or RTIAs in boosting FDI recently. Empirical analyses show that BITs which specifically provide foreign investors access to international arbitration mechanisms, and RTIA provisions that protect foreign investors from discrimination, have a large and statistically significant positive effect on FDI. In particular, a "pro-FDI" BIT tends to increase the number of FDI projects by 35.3%, or by 58.4% for a "pro-FDI" RTIA.

BIT Trend Analysis: Data and Heterogeneity of BIT Provisions

Data for BIT trend analysis for Asia consists of 195,840 observations, representing annual observations covering 2000–2016 for each of the 11,520 pairs of economies. Table 6.27 summarizes the data and statistics. It shows the number of Asian BITs enforced within the Asian region (intra-Asia BITs) and other major economic regions. Asian economies enforced 1,075 BITs globally over 2000–2015, according to the UNCTAD database. This is a significant proportion of the BITs enforced worldwide (Figure 6.15).

Table 6.27: Asian BIT Statistics

Regional Pair	UNCTAD BIT[a]		BITSel BIT[a]	
	Number	**Percent**	**Number**	**Percent**
Asia–Asia[b]	306	28.5	142	29.3
Asia–PRC	27	2.5	8	1.6
Asia–Japan	13	1.2	8	1.6
Asia–Republic of Korea	21	2.0	11	2.3
Asia–US	8	0.7	7	1.4
Asia–EU[c]	367	34.1	177	36.5
Asia–Rest-of-World[d]	333	31.0	132	27.2
Total	**1,075**	**100.0**	**485**	**100.0**

BIT = bilateral investment treaty, PRC = People's Republic of China, EU = European Union, UNCTAD = United Nations Conference on Trade and Development, US = United States.
Notes:
[a] Number of UNCTAD BITs refers to the cumulative number of BITs in 2000–2016, according to the UNCTAD database, while the number of BITSel BITs refers to the accumulated number of BITs in the BITSel database by Chaisse and Bellak (2015).
[b] Asia refers to the 48 regional members of the Asian Development Bank.
[c] EU refers to the 28 member economes of the European Union.
[d] Rest-of-world includes all the countries excluding Asia, the People's Republic of China, the European Union Japan, the Republic of Korea, and the United States.
Sources: ADB calculations using data from United Nations Conference on Trade and Development. Investment Policy Hub. http://investmentpolicyhub.unctad.org/IIA (accessed August 2016) and Chaisse and Bellak (2015).

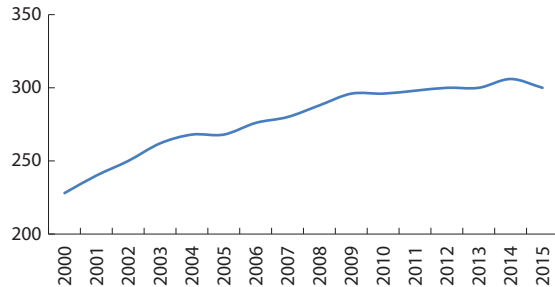**Figure 6.15: World BITs** (number)
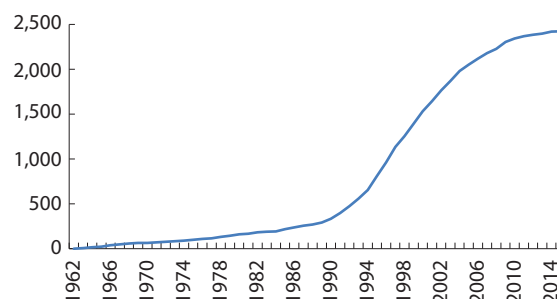
BIT = bilateral investment treaty.
Source: ADB calculations using data from United Nations Conference on Trade and Development. Investment Policy Hub. http://investmentpolicyhub.unctad.org/IIA (accessed August 2016).

The region has maintained the strongest link in BITs with the European Union (EU), which comprises 34.1% of Asian BITs over 2000-2015. This is followed by the rest of the world, with a 31.0% share. Intraregional BITs comprise 28.5%. Notwithstanding, intraregional BITs have become increasingly important in recent years (Figure 6.16). It is also interesting that Asian economies have maintained the most BIT links with the People's Republic of China (PRC), then the Republic of Korea, followed by Japan. A smaller number of BITs have been enforced with

**Figure 6.16: Asian Intraregional BITs,
2000–2015** (number)

BIT = bilateral investment treaty.
Note: This figure corresponds to Asia–Asia BITs (intra-regional BITs).
Source: ADB calculations using data from United Nations Conference on Trade and Development. Investment Policy Hub. http://investmentpolicyhub.unctad.org/IIA (accessed August 2016).

advanced economies outside Asia, such as the United States (US).

Analyzing the heterogeneity of Asian BITs and RTIAs

The analysis was based on the BITSel Index created by Chaisse and Bellak (2015), which codes the 11 most important provisions included in BITs and RTIAs. The database assigns a value to each of the 11 components of the BITSel index, ranging from 1 (least favorable to FDI) to 2 (most favorable to FDI).[63] We group each component into one of five broad categories:

- ENTRY: average of (i) entry rules (admission versus establishment), (ii) non-economic standards (yes versus no), and (iii) free transfer of investment-related funds (no versus yes);
- TREAT: average of (i) national treatment (no versus yes) and (ii) most-favored nation status (no versus yes);
- SCOPE: average of (i) definition of investment (narrow versus broad), (ii) umbrella clause (no versus yes), and (iii) temporal scope of application (short versus long);
- PROTEC: average of (i) fair and equitable treatment (no versus yes) and (ii) direct and indirect expropriation covered (no versus yes); and
- ISDM: investor-related dispute mechanism (no versus yes).

The sample period is 2000–2016. Figure 6.17 presents the average scores of the provisions in the BITs and RTIAs of Asia with the world and major economic regions. The provisions in Asian BITs with the world seem generally favorable for FDI, with average scores above 0.5 across all five categories. By comparison, Asian RTIAs are less favorable to FDI, especially in provisions for treatment and access to international arbitration. This indicates that Asian bilateral treaties grant foreign investors more substantive rights than regional treaties.

A similar story holds when decomposing Asia's BITs and RTIAs with other major economic regions. For instance, of ADB's 48 Asian regional members, 32 have enforced at least one BIT with another Asian regional member during 2000–2016, while only 13 have enforced at least one RTIA with another Asian regional member(s) over that time. On average, Asian BITs receive above average scores for all five categories, with access to fair and equitable treatment and coverage of direct and indirect expropriation the highest, at an index score of 0.95. Depending on partner economy, the scores for investor-state dispute mechanisms (ISDM) vary widely. Usually, Asia-Asia BITs have lower scores in ISDM than those in Asia-advanced economies BITs such as Asia-US BITs. On the other hand, Asian RTIAs receive less favorable scores—averages of 0.18 for treatment, 0.43 for scope, and 0.16 for access to international arbitration.

Asia BIT provisions also strengthened during 1975–2012 to attract more FDI. Over that period, the ISDM, TREAT, and PROTEC measures have featured more prominently in Asian BITs (Figure 6.18).

For FDI, the Financial Times' fDi Markets database was used, which tracks cross-border greenfield FDI across all sectors and economies worldwide.[64] The database provides novel FDI data that offer important advantages over traditional balance of payments FDI data. For one, it covers a very large number of economies and sectors and provides entry mode classification for FDI projects.

The empirical analysis is based on an ADB research paper contributed by Desbordes (2016), the original dataset contains 983,280 observations of FDI, representing annual observations for 2000–2016 for each of the

---

[63] For notational convenience, we recode this to 0 (least favorable to FDI) and 1 (most favorable to FDI).

[64] See the fDi Markets website at http://www.fdimarkets.com.

Figure 6.17: Average Scores of Provisions in BITs and RTIAs
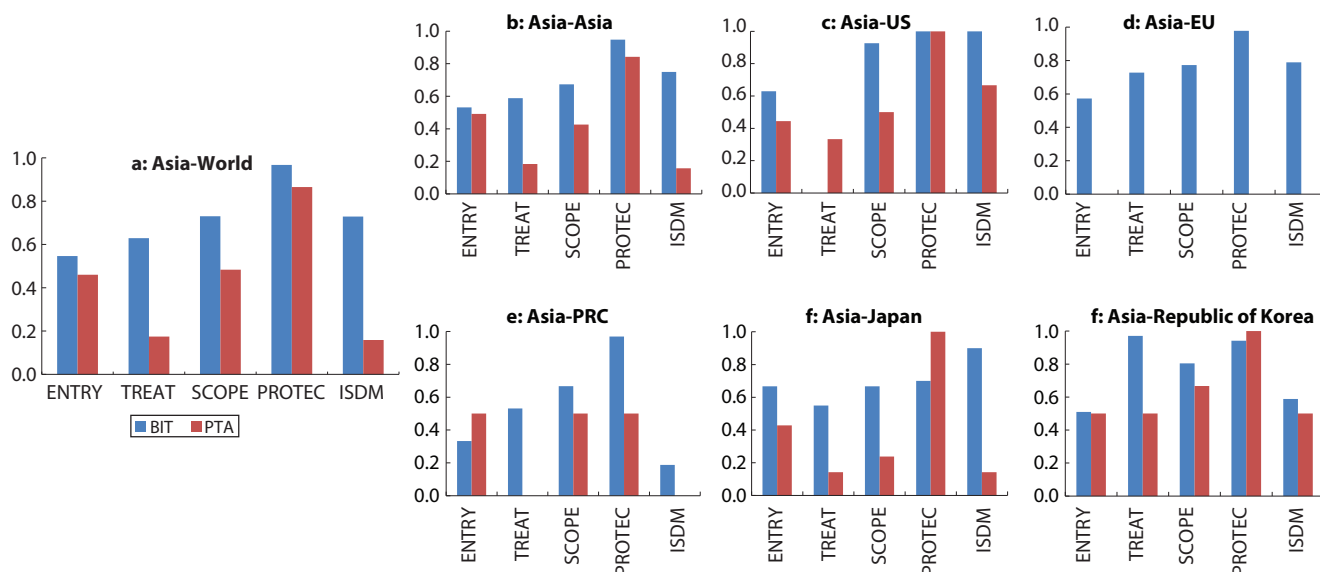
BIT = bilateral investment treaties, PRC = People's Republic of China, EU = European Union, ISDM = investor-state dispute mechanism, RTIA = regional trade investment agreement, US = United States.
Note: See definition of ENTRY, TREAT, SCOPE, PROTEC, and ISDM on page 161.
Source: ADB calculations using data from Chaisse and Bellak (2015).

Figure 6.18: Asian Regional BIT Provisions Over the Past Decades
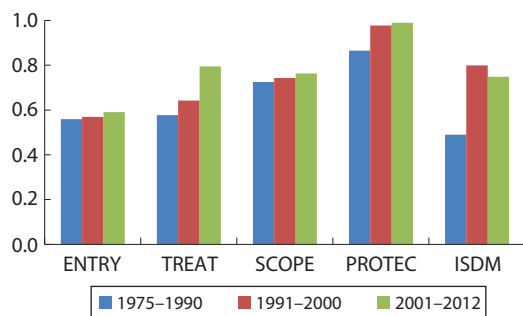
BIT = bilateral investment treaty.
Note: See definition of ENTRY, TREAT, SCOPE, PROTEC, and ISDM on page 161.
Source: ADB calculations using data from Chaisse and Bellak (2015).

57,840 pairs of economies. Then, we construct a cross-sectional data set by getting the average of the variables over the 2004–2010 sample period. We use the cumulated number of FDI projects over 2004–2010 and control for a large number of observed and unobserved variables. We estimate the following cross-sectional exponential model:

$$FDI0410_{ij} = \exp\left(\delta_1 \overline{BIT}_{ij} + \overline{CONT}_{ij}\beta + \theta FDI03_{ij} + \alpha_i + \alpha_j\right)\epsilon_{ij}$$

where $FDI0410_{ij}$ is the cumulated number of FDI projects of firms headquartered in source economy in host economy over 2004–2010, $\overline{BIT}_{ij}$ corresponds to the average of BIT_{ij} which is a dummy indicating the existence, for at least 2 years, of an enforced BIT or of various BIT-related investment provisions, $\overline{CONT}_{ij}$ is the average of the vector of dyadic control variables, $FDI03_{ij}$ is the (log+1) value of the number of bilateral projects in 2003, αi and αj are country fixed effects, and ϵij the multiplicative error term.[65] The vector of dyadic control variables includes geographic distance, time zone difference, and the presence of a common border, language, religion, legal origin, and colonial past. The model also controls for when an RTA or a currency union is in place.

Heterogeneous Impacts of the Provisions of BITs and RTIA

Table 6.28 presents the overall impact of BIT and that of each BIT provision on FDI with other control variables. In all columns, the model controls for country fixed effects, dyadic control variables, double taxation treaties (DTT),

---

[65]   Hence, $FDI03_{ij} = \ln(FDI03_{ij}) + 1$.

Table 6.28: World to World Country Pairs—Specific BIT Provisions

	Cumulated Number of FDI Projects					
	BIT (1)	**ENTRY** (2)	**TREAT** (3)	**SCOPE** (4)	**PROTEC** (5)	**ISDM** (6)
BIT Provision	0.264*** (0.064)	0.402*** (0.106)	0.196*** (0.071)	0.276*** (0.072)	0.275*** (0.063)	0.302*** (0.063)
Number of observations	26,093	26,093	26,093	26,093	26,093	26,093

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
BIT = bilateral investment treaty, DTT = double taxation treaty, FDI = foreign direct investment, ISDM = investor–state dispute mechanism.
Notes: Cluster-robust standard errors are in parentheses. Country fixed effects, the dyadic control variables, DTT, and RTA are included in all columns. See definition of ENTRY, TREAT, SCOPE, PROTEC, and ISDM on page 161.
Sources: ADB calculations using data from Chaisse and Bellak (2015) and Financial Times. fDi Markets.

and RTAs. Column (1) reveals that BITs tend to increase the cumulated number of FDI projects by approximately 26.4% and this is statistically significant at the 1% level. Columns (2) to (6) indicate that all the BIT provisions have a large, statistically significant, positive effect on FDI, with favorable ENTRY conditions having increased the number of FDI projects by about 40.2%.

Table 6.29 assesses the relative importance of each BIT provision to determine which of the five categories matters most from the perspective of foreign investors. In column (1), the marginal effects of each provision on FDI are presented. Results show that ISDM s the only provision statistically significant among the five categories. To perform robustness checks, we examine the overall effect of BIT in columns (2) to (6) and the individual effects of the four BIT provisions while controlling for ISDM.

The exercise confirms the robustness of the result in column (1): BIT and the four BIT provisions do not matter marginally once the presence of an ISDM is controlled. These results indicate the BITs specifically granting access to an ISDM have large, positive, and statistically significant effects on FDI. Hence, the most important provision in BITs is access to international arbitration—a finding in line with the sentiment of many legal scholars, suggesting that access to ISDMis the principal advantage of a BIT.[66]

Table 6.30 shows the effects of RTIAs on FDI, controlling for the presence of BIT and DTT along with the fixed

effects and dyadic control variables. Although RTIAs have no statistically significant effect on FDI, the presence of most RTIA provisions has a large, statistically significant, positive effect on FDI, with the largest being TREAT, at approximately 46.0%, and ENTRY, at about 42.5%.[67] ISDM, on the other hand, does not appear to matter in RTIAs, perhaps because it is absent from most RTIAs in our sample.

In Table 6.31, the relative importance of each RTIA provision is assessed to determine which among the five categories matter most to foreign investors. Column (1) shows the marginal effects of each provision on FDI. Results show that TREAT is the only statistically significant provision. To perform robustness checks, in columns (2) to (6) the overall effect of RTIA and the marginal effects of the four other RTIA provisions are examined while controlling for TREAT. The exercise confirms the result in column (1) that RTIA and the four RTIA provisions do not matter additionally once controlling for the presence of favorable treatment conditions. RTIAs granting the basic principles of national treatment and most-favored nation status have large, positive, and statistically significant effects on FDI. Hence, the most importance provision in an RTIA is the protection from discrimination that it offers foreign investors.

---

[66]   See Walde (2005) and Allee and Peinhardt (2010), for instance.

[67]   These findings support the "multilateral" findings of Buthe and Milner (2014).

Table 6.29: Relative Importance of BIT Provisions—World to World Country Pairs

	Cumulated Number of FDI Projects					
	(1)	(2)	(3)	(4)	(5)	(6)
ISDM	0.282*	0.287**	0.297**	0.308***	0.327**	0.265*
	(0.153)	(0.145)	(0.123)	(0.076)	(0.128)	(0.145)
BIT		0.016				
		(0.145)				
ENTRY	-0.019		0.009			
	(0.216)		(0.202)			
TREAT	-0.024			-0.012		
	(0.082)			(0.083)		
SCOPE	-0.129				-0.035	
	(0.192)				(0.143)	
PROTEC	0.159					0.042
	(0.199)					(0.144)
Number of observations	26,093	26,093	26,093	26,093	26,093	26,093

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
BIT = bilateral investment treaty, DTT = double taxation treaty, FDI = foreign direct investment, ISDM = investor-state dispute mechanism.
Notes: Cluster-robust standard errors are in parentheses. Country fixed effects, the dyadic control variables, DTT, and RTA are included in all columns. See definition of ENTRY, TREAT, SCOPE, PROTEC, and ISDM on page 161.
Sources: ADB calculations using data from Chaisse and Bellak (2015) and Financial Times. fDi Markets.

Table 6.30: Specific RTIA Provisions—World to World Country Pairs

	Cumulated Number of FDI Projects					
	RTIA	ENTRY	TREAT	SCOPE	PROTEC	ISDM
	(1)	(2)	(3)	(4)	(5)	(6)
RTIA Provision	0.012	0.425**	0.460***	0.339**	0.254**	0.138
	(0.136)	(0.186)	(0.165)	(0.171)	(0.112)	(0.171)
BIT	0.216***	0.252***	0.247***	0.215***	0.203***	0.220***
	(0.076)	(0.077)	(0.074)	(0.076)	(0.076)	(0.076)
DTT	0.183**	0.192***	0.173**	0.188***	0.192***	0.186***
	(0.073)	(0.072)	(0.073)	(0.072)	(0.071)	(0.072)
Number of observations	22,585	22,585	22,585	22,585	22,585	22,585

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
BIT = bilateral investment treaty, DTT = double taxation treaty, FDI = foreign direct investment, ISDM = investor-state dispute mechanism, RTIA = regional trade and investment agreement.
Notes: Cluster-robust standard errors are in parentheses. Country fixed effects and dyadic control variables are included in all columns. See definition of ENTRY, TREAT, SCOPE, PROTEC, and ISDM on page 161.
Sources: ADB calculations using data from ADB. Asia Regional Integration Center FTA Database. https://aric.adb.org/fta (accessed September 2016); Chaisse and Bellak (2015); Financial Times. fDi Markets; and United Nations Conference on Trade and Development. Investment Policy Hub. http://investmentpolicyhub. unctad.org/IIA (accessed August 2016).

Impact of BITs and RTIAs on Greenfield FDI in Emerging Asia: A Robustness Check

Panel regressions are conducted for robustness checks on the empirical results of the World-World BIT "country" pairs, using data on Asia-World BIT country pairs and on the impact of BITs on greenfield FDI projects into developing Asia from the World. Data for Asia-World BIT country pairs were taken from the same data source used for the World-World BIT analysis.

The baseline econometric model is given by the following:

$$FDI_{ijt} = \exp(\gamma_1 BIT_{ijt} + \beta X_{ijt} + a_{ij})u_{ijt}$$

where FDI_{ijt} is the cumulated number of FDI projects of firms with headquarters in source country j, in host country i at year t, BIT_{ijt} is a dummy variable equal to 1 if a BIT has been enforced for at least 2 years or BIT-related

Table 6.31: Relative Importance of RTIA Provisions —World to World Country Pairs

	Cumulated Number of FDI Projects					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
TREAT	0.679** (0.301)	0.460*** (0.165)	0.390* (0.213)	0.436*** (0.163)	0.349 (0.220)	0.722** (0.281)
RTIA		0.007 (0.134)				
ENTRY	0.033 (0.259)		0.119 (0.235)			
SCOPE	0.256 (0.242)			0.287 (0.169)		
PROTEC	0.128 (0.213)				0.119 (0.148)	
ISDM	-0.432 (0.273)					-0.294 (0.256)
BIT	0.240*** (0.077)	0.247*** (0.074)	0.253*** (0.076)	0.244*** (0.074)	0.234*** (0.074)	0.252*** (0.073)
Number of observations	22,585	22,585	22,585	22,585	22,585	22,585

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
BIT = bilateral investment treaty, DTT = double taxation treaty, FDI = foreign direct investment, ISDM = investor-state dispute mechanism, RTIA = regional trade and investment agreement.
Notes: Cluster-robust standard errors in parentheses. Country fixed effects, the dyadic control variables, and DTT are included in all columns. See definition of ENTRY, TREAT, SCOPE, PROTEC, and ISDM on page 161.
Sources: ADB calculations using data from Chaisse and Bellak (2015) and Financial Times. fDi Markets.

investment provisions are in place between economies i and j at year t, and equal to zero otherwise, while X_{ijt} is a vector of dyadic control variables, α_{ijt} are country pair fixed effects, and u_{ijt} is the multiplicative error term.[68]

The baseline model is extended to analyze the effects of RTIAs on FDI:

$$FDI_{ijt} = \exp(\gamma_1 BIT_{ijt} + \gamma_2 RTIA_{ijt} + \beta X_{ijt} + a_{ij})u_{ijt}$$

where $RTIA_{ijt}$ is a dummy variable equal to 1 if an enforced RTIA has been in existence for 2 years or various RTIA-related investment provisions are in place between economies i and j at year t, and zero otherwise. The effects of BIT and RTIA on FDI are analyzed, controlling for the existence of double taxation treaties:

$$FDI_{ijt} = \exp(\gamma_1 BIT_{ijt} + \gamma_2 RTIA_{ijt} + \gamma_3 DTT_{ijt} + \beta X_{ijt} + a_{ij})u_{ijt}$$

where DTT_{ijt} is a dummy variable equal to 1 if an enforced DTT has been in place for 2 years or more, or where DTT-related investment provisions exist between economies i and j at year t, and the dummy variable is zero otherwise (Box 6.6).

Table 6.32 shows the results for the heterogeneous impact of BIT on FDI. The marginal impact of specific BIT provisions on Asia's FDI is examined. First, the most important provisions in Asia's BITs are TREAT and ISDM. Provisions in BIT granting for the principles of national treatment and most-favored nation status tend to increase greenfield FDI in Asia by about 7%. Likewise, provisions in BIT allowing for access to international dispute settlement mechanisms increase greenfield FDI projects into Asia by about 6%.

Second, assessing the relative importance of each provision, Asia's BITs have a significant, positive impact on FDI if they include provisions granting access to international arbitration for foreign investors (Table 6.33). These BITs tend to increase the cumulated number of greenfield FDI projects in Asia by about 53%. These

---

[68]   The vector of dyadic control variables includes geographic distance, time zone difference, and the existence of a common border, language, religion, legal origin, and colonial past. The model controls for the existence of an regional trade agreement or a currency union. Because the dependent variable in this model is a count variable, i.e., it can take on nonnegative integer values , the appropriate estimation technique to use is the Poisson quasi-maximum likelihood estimation (Wooldridge 2004). To ensure robustness, we report cluster-heteroskedasticity-robust standard errors.

Box 6.6: Double Taxation Treaty with BITs and RTIAs

Using the United Nations Conference on Trade and Development bilateral investment treaty (BIT) dummy variable for the BIT data, columns (1) to (4) present that (i) BIT tends to increase the cumulative greenfield FDI projects into Asia by about 15%–19% significantly, (ii) BIT shows positive and significant impact on foreign direct investment (FDI) projects when regional trade and investment agreements (RTIAs) is controlled, and (iii) double taxation treaties (DTTs) also would likely increase greenfield FDI projects by about 14%–16%. BITs would likely drive any increase in the number of FDI projects when the impacts of RTIAs and DTT on FDIs are controlled.

Greenfield FDI and UNCTAD BIT dummy variable

| | Cumulated number of greenfield FDI projects | | | |
	(1)	(2)	(3)	(4)
BIT	0.160***	0.156***	0.152***	0.191***
	(0.058)	(0.058)	(0.058)	(0.059)
RTA		0.080***	0.078***	0.114***
		(0.026)	(0.026)	(0.027)
DTT			0.139***	0.159***
			(0.052)	(0.053)
Number of observations	18,277	18,211	18,211	18,211
Country-pairs panel	565	549	549	549

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
BIT = bilateral investment treaty, DTT = double taxation treaty, FDI = foreign direct investment, RTA = regional trade agreement, UNCTAD = United Nations Conference on Trade and Development.
Notes: Dyadic control variables and country-pair fixed effects are included in columns (1) to (3). Year fixed effects and country-pair fixed effects are included in column (4).
Sources: ADB calculations using data from Chaisse and Bellak (2015); Financial Times. fDi Markets; and United Nations Conference on Trade and Development. Investment Policy Hub. http://investmentpolicyhub. unctad.org/IIA (accessed August 2016)..

Table 6.32: Greenfield FDI and Specific BIT Provisions

| | Cumulated number of greenfield FDI projects | | | | |
	ENTRY	TREAT	SCOPE	PROTEC	ISDM
BIT Provision	0.083	0.070**	0.061	0.052	0.059*
	(0.054)	(0.036)	(0.039)	(0.035)	(0.035)
Number of observations	7,035	7,035	7,035	7,035	7,035
Country-pairs panel	274	274	274	274	274

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
BIT = bilateral investment treaty, FDI = foreign direct investment, ISDM = investor-state dispute mechanism, RTA = regional trade agreement.
Notes: Cluster-robust standard errors in parentheses. RTA, dyadic control variables and economyy-pair fixed effects are included in all columns. See definition of ENTRY, TREAT, SCOPE, PROTEC, and ISDM on page 161.
Sources: ADB calculations using data from Chaisse and Bellak (2015); Financial Times. fDi Markets; and United Nations Conference on Trade and Development. Investment Policy Hub. http://investmentpolicyhub. unctad. org/IIA (accessed August 2016).

results support that the principal advantages of BITs are derived from the fundamental principles of national treatment and most-favored nation status, and access to international arbitration.

Table 6.34 shows the results of the impact of each broad category of RTIA provisions on greenfield FDI projects into Asia. As with the previous results in Tables 6.32, the most important RTIA provisions are TREAT and ISDM.

TREAT provisions in RTIAs granting national treatment and most-favored nation status tend to increase greenfield FDI in Asia by about 33.3%. Likewise, ISDM provisions allowing for access to international dispute settlement mechanisms increase greenfield FDI projects into Asia by 28.5%. Both estimates are statistically significant at the 1.0% significance level.

Table 6.35 shows the relative importance of heterogeneity of RTIA provisions where RTIA increases greenfield FDI projects in the Asian region by about 18.0%, controlling for BIT and DTT among others, and TREAT provisions have a significant, positive impact on FDI projects when all provisions are considered.

If provisions to grant anti-discrimination for foreign investors in the form of the basic principles of national treatment and most-favored nation (see Table 6.35 column 2) are included, RTIAs tend to increase the number of greenfield FDI projects into Asia by approximately 33.4%.

Table 6.33: Greenfield FDI and Relative Importance of Specific BIT Provisions

	Cumulated Number of Greenfield FDI Projects	
	(1)	(2)
BIT	0.529**	
	(0.272)	
ENTRY	−0.181	−0.178
	(0.179)	(0.179)
TREAT	0.103	0.125*
	(0.074)	(0.076)
SCOPE	−0.002	−0.095
	(0.167)	(0.181)
PROTEC	−0.638	
	(0.178)	
ISDM	0.187***	0.167***
	(0.061)	(0.059)
DTT	0.101*	
Number of observations	7,035	7,035
Country-pairs panel	274	274

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
BIT = bilateral investment treaty, DTT = double taxation treaty, FDI = foreign direct investment, ISDM = investor-state dispute mechanism, RTA = regional trade agreement.
Notes: Cluster-robust standard errors are in parentheses. RTA, dyadic control variables and country-pair fixed effects are included in all columns. See definition of ENTRY, TREAT, SCOPE, PROTEC, and ISDM on page 161.
Sources: ADB calculations using data from Chaisse and Bellak (2015); Financial Times. fDi Markets; and United Nations Conference on Trade and Development. Investment Policy Hub. http://investmentpolicyhub. unctad.org/IIA (accessed August 2016).

Table 6.35: Greenfield FDI, RTIA, and Relative Importance of RTIA Provisions

	Cumulated Number of Greenfield FDI Projects	
	(1)	(2)
RTIA	0.178***	0.093
	(0.044)	(0.120)
ENTRY		0.187
		(0.265)
TREAT		0.334***
		(0.130)
SCOPE		-0.531
		(0.128)
PROTEC		-0.001
		(0.090)
ISDM		0.010
		(0.081)
BIT	0.064*	
	(0.064)	
DTT	0.092*	0.042
	(0.092)	(0.061)
Number of observations	5,901	8,150
Country-pairs panel	226	310

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
BIT = bilateral investment treaty, DTT = double taxation treaty, FDI = foreign direct investment, RTA = regional trade agreement, RTIA = regional trade and investment agreement.
Notes: RTA dyadic control variables and country-pair fixed effects are included in all columns. See definition of ENTRY, TREAT, SCOPE, PROTEC, and ISDM on page 161.
Sources: ADB calculations using data from Chaisse and Bellak (2015); Financial Times. fDi Markets; and United Nations Conference on Trade and Development. Investment Policy Hub. http://investmentpolicyhub. unctad.org/IIA (accessed August 2016).

Table 6.34: Greenfield FDI and Specific RTIA Provisions

	Cumulated Number of Greenfield FDI Projects				
	ENTRY	**TREAT**	**SCOPE**	**PROTEC**	**ISDM**
RTIA Provision	0.185	0.333***	-0.093	0.081	0.285***
	(0.126)	(0.127)	(0.091)	(0.068)	(0.110)
Number of observations	5,901	5,901	5,901	5,901	5,901
Country-pairs panel	226	226	226	226	226

*** = significant at 1%, ** = significant at 5%, * = significant at 10%.
BIT = bilateral investment treaty, FDI = foreign direct investment, ISDM = investor-state dispute mechanism, RTIA = regional trade and investment agreement.
Notes: Cluster-robust standard errors are in parentheses. BIT, dyadic control variables and country-pair fixed effects are included in all columns. See definition of ENTRY, TREAT, SCOPE, PROTEC, and ISDM on page 161.
Sources: ADB calculations using data from Chaisse and Bellak (2015); Financial Times. fDi Markets; and United Nations Conference on Trade and Development. Investment Policy Hub. http://investmentpolicyhub. unctad. org/IIA (accessed August 2016).

Policy implications

The cross sectional exponential model shows BITs and RTIAs can strongly encourage greenfield and M&A FDI projects. In the case of BITs, the presence of an investor-state-dispute mechanism (ISDM) is the only provision that appears to be significant across different model specifications. For RTIAs, foreign investors seem to be particularly sensitive to the provision expressed by TREAT, meaning that they will not be discriminated against domestic investors or other foreign investors. Provisions for national treatment and most-favored nation status in RTIAs may matter because they are possibly more comprehensive or take place alongside measures supporting international trade liberalization and the creation of regional supply chains. Overall a "pro-FDI" BIT can be expected to increase the number of FDI projects by 35.3%, or by 58.4% for a "pro-FDI" RTIA.[69] These findings suggest that IIAs which guarantee the credible protection of rights can be effective in attracting foreign investors.

To check the robustness of empirical results of the World-World BIT country pairs, panel data regressions are implemented with Asia-World BIT country pairs. The dependent variable is cumulative greenfield FDI projects into developing Asia from the world. First, interestingly, in the individual impact analyses of specific BITs and RTIAs provisions on Asian FDIs, TREAT and ISDM are the most important provisions. Second, in assessing the relative importance of each provision with other control variables, Asian BITs have a significant, positive impact on greenfield FDI projects if they include provisions that grant foreign investors access to international arbitration. In RTIA, the fundamental principles of national treatment and most-favored nation status show a significant positive effect on FDI projects. These results support our findings in the World-World BIT analysis.

Most economies have actively concluded large numbers of BITs and RTIAs with heterogeneous provisions over the decades without certainty of their impacts and long-term effects on economic variables. Particularly, our data show that developing Asian economies have

been apparently using such treaties as important policy tools for attracting FDI projects and enhancing the investment environment regardless of gaps in domestic implementation capacity.

Empirical analyses of cross-sectional and panel data find that concluding BITs and RTIAs has had significant success in attracting FDI. The two most important provisions from the analysis are ISDM in BITs and TREAT in RTIAs. Granting foreign investors international arbitration rights and guarantees of non-discrimination are particularly important for attracting FDI.

BITs and RTIAs vary in their effectiveness in encouraging FDI, depending on design and negotiation outcomes of their provisions. While no standard format for BITs and RTIAs exists, their provisions have somewhat converged over recent years. So an economy wanting to use BITs and RTIAs to promote FDI may consider its capacity for designing, negotiating, and implementing the agreed provisions as a significant potential factor in its ability to promote FDI, particularly since international arbitration mechanisms become increasingly integral to bilateral and regional trade treaties throughout the world.

---

[69] According to specification (6) of Table 6.28 and (2) of Table 6.31, via taking antilog function, the number of FDI projects would likely increase by 35.3% and 58.4%, respectively.

Annexes

Annex 6a: List of Economies for the Mode of Entry Analysis

High-income Economies	Overall WGI	Overall EoDB
Argentina	59.8	67.9
Australia	81.8	80.9
Austria	81.6	75.9
Bahrain	52.4	66.0
Belgium	76.5	73.4
Brunei Darussalam	61.1	58.9
Canada	82.5	82.7
Croatia	57.2	57.0
Cyprus	70.8	68.8
Czech Republic	67.5	62.8
Denmark	86.7	83.4
Equatorial Guinea	25.5	43.1
Estonia	70.2	75.0
Finland	88.0	80.8
France	74.0	68.0
Germany	79.0	77.9
Greece	60.7	59.7
Hong Kong, China	78.4	87.6
Hungary	66.3	65.3
Iceland	82.8	80.2
Ireland	79.6	84.6
Israel	61.2	71.5
Italy	61.8	65.1
Japan	74.0	77.5
Kuwait	53.5	60.1
Luxembourg	83.7	64.9
Malta	74.1	61.2
Netherlands	83.4	75.7
New Zealand	85.2	89.8
Norway	83.8	82.5
Oman	55.0	64.8
Poland	63.2	65.0
Portugal	71.0	71.3
Qatar	62.0	68.2
Republic of Korea	63.9	78.8
Saudi Arabia	43.0	63.8

High-income Economies	Overall WGI	Overall EoDB
Singapore	79.4	91.9
Slovak Republic	64.6	68.9
Slovenia	69.3	62.1
Spain	68.6	70.0
Sweden	85.3	80.1
Switzerland	84.4	73.2
Trinidad and Tobago	53.1	59.3
United Kingdom	78.3	84.1
United States	75.3	84.9
Average	**70.2**	**71.9**

Developing Economies	Overall WGI	Overall EoDB
Albania	43.3	57.1
Algeria	33.3	48.5
Armenia	45.2	62.6
Bangladesh	31.4	49.4
Belize	49.7	58.9
Bolivia	38.8	47.9
Bosnia and Herzegovina	42.9	51.8
Botswana	64.5	63.4
Brazil	50.5	49.0
Bulgaria	54.0	67.0
Burkina Faso	43.3	39.2
Cambodia	33.5	47.6
Cameroon	32.4	41.2
Cape Verde	58.9	53.6
Chad	23.6	28.6
Chile	73.2	68.3
Colombia	40.5	63.4
Republic of Congo	28.1	36.0
Democratic Republic of Congo	17.5	31.0
Costa Rica	61.6	54.0
Dominican Republic	42.8	59.2
Ecuador	34.3	56.1
Egypt	38.2	49.3
El Salvador	46.8	58.1
Ethiopia	30.8	45.0

Annex 6a continued

Developing Economies	Overall WGI	Overall EoDB	Developing Economies	Overall WGI	Overall EoDB
Fiji	41.9	67.1	Myanmar	17.8	41.5
Gabon	39.7	47.9	Namibia	56.2	61.6
Georgia	44.8	72.2	Nepal	32.5	58.5
Ghana	50.7	60.7	Nicaragua	39.2	53.2
Guatemala	37.7	56.2	Niger	37.5	37.2
Guinea-Bissau	25.8	36.2	Nigeria	26.9	43.9
Guyana	42.3	57.9	Pakistan	29.5	55.9
Haiti	25.5	38.4	Panama	51.4	62.9
Honduras	37.9	56.6	Papua New Guinea	35.7	53.7
India	44.3	46.7	Paraguay	34.7	57.2
Indonesia	37.9	54.0	People's Republic of China	39.1	54.4
Iran	29.5	54.8	Peru	43.4	67.0
Iraq	18.8	44.8	Philippines	40.6	50.5
Jamaica	49.2	60.8	Réunion	51.3	64.9
Jordan	49.5	52.3	Russian Federation	35.6	58.0
Kazakhstan	38.3	56.0	Rwanda	39.3	51.4
Kenya	35.9	55.7	Senegal	45.1	41.8
Kyrgyz Republic	32.3	57.8	Seychelles	52.6	62.1
Lao People's Democratic Republic	28.7	45.9	Sierra Leone	33.5	44.0
Latvia	63.3	73.1	Solomon Islands	37.1	56.0
Lebanon	37.6	58.0	South Africa	56.2	69.5
Lesotho	46.7	49.6	Sri Lanka	43.4	56.1
Liberia	29.0	42.9	Sudan	19.4	47.4
Libya	28.9	28.9	Suriname	48.4	40.5
Lithuania	64.4	73.8	Swaziland	37.7	55.8
Madagascar	41.8	46.2	Tanzania	41.9	52.7
Malawi	42.9	49.8	Thailand	46.4	70.2
Malaysia	56.8	73.8	Togo	30.9	37.8
Mali	41.8	41.6	Tunisia	48.1	63.5
Mauritania	37.9	40.9	Turkmenistan	48.4	63.1
Mauritius	65.5	70.8	Uganda	38.0	49.6
Mexico	48.1	68.3	Ukraine	39.0	43.1
Moldova	41.1	59.0	Uruguay	64.3	57.0
Mongolia	47.7	59.4	Venezuela	27.1	35.7
Morocco	43.5	58.6	Viet Nam	39.3	57.2
Mozambique	43.7	50.3	Zambia	42.7	57.0
			Average	**41.2**	**53.5**

EoDB = Ease of Doing Business, WGI = World Governance Index.
Note: EoDB and WGI averaged for years 2003, 2006, 2009, and 2012.
Source: World Bank (2016); World Bank. Worldwide Governance Indicators. http://data.worldbank.org/data-catalog/worldwide-governance-indicators (accessed July 2016).

Annex 6b: Data and Methodology for FDI Drivers by Mode of Entry

A more detailed description of data, model setup and specifications for the analysis of FDI drivers by mode of entry are described here. A bilateral panel dataset of greenfield and M&A is constructed, respectively, from 26 high-income economies (24 OECD members as well as Hong Kong, China and Singapore) to 97 developing economies and 45 high-income economies for 2003–2015 (see Annex 6.a for the list of economies). A gravity model is then applied to estimate the impact of institutional policy factors on FDI flows.

The World Bank's Worldwide Governance Indicators (WGI) are used to assess the host economy's institutional quality on investment inflows. These are available annually from 1996 for 215 countries and territories. The WGIs comprise six indicators: (1) voice and accountability, (2) political stability and absence of violence/terrorism, (3) government effectiveness, (4) regulatory quality, (5) rule of law, and (6) control of corruption. These aggregate indicators are based on data sources produced by a variety of organizations. Each indicator ranges from -2.5 to 2.5, with higher score for higher quality of governance/institution.[70] For easier comparison with other policy measures, the WGIs are transformed to range between 0 and 100, by adding 2.5 and then multiplying them by 20.

For measuring the policy regime of an economy, the World Bank's Ease of Doing Business Indicator (EoDB) is used. The EoDB reports have ranked ecoomies annually since 2003. The Doing Business 2016 reports include 10 components: (1) starting a business, (2) dealing with construction permits, (3) getting electricity, (4) registering property, (5) getting credit, (6) protecting minority investors, (7) paying taxes, (8) trading across borders, (9) enforcing contracts, and (10) resolving insolvency. Each indicator ranges from 0 to 100, with higher score representing better environment for doing business.

Most theoretical formulations of the gravity equation specify Y_{ijt}, flows of transactions from origin i to destination j, as the product of country/territory and bilateral-specific terms

$$Y_{ijt} = \alpha_t \frac{M_{it} M_{jt}}{D_{ijt}} \quad (1)$$

where M_{it} and M_{jt} measure the attributes of origin i and destination j at a specific point in time t and α_t is a common time-specific factor. D_{ijt} reflects transaction costs between i and j at time t. In the application, Y_{ijt} is bilateral FDI flows (greenfield or M&A) from origin i to destination j at time t.

Two types of bilateral FDI flows are considered in the analysis: new greenfield FDI projects and new cross-border M&A deals. In the application, the host-specific terms, Mjt, are specified as

$$M_{jt} = \eta\ POLICY_{jt} + \gamma_1 \ln POP_{jt} + \gamma_2 \ln PCGD_{Pjt} + \gamma_3 \ln POP_{jt} + \gamma_4\ GROWTH_{jt} + \gamma_4\ INFLATION_{jt}$$

where POP_{jt} and $PCGD_{Pjt}$ are, respectively, the population and per capita GDP (PCGDP) of host economies and $GROWTH_{jt}$ and $INFLATION_{jt}$ are, respectively, GDP growth rate and inflation rate of host economies.[71]

It should be noted that institutional and policy variables are likely to be highly correlated with the level of economic development and hence without including a variable that captures the level of economic development, any positive relation with a policy variable and FDI flows may reflect a positive relation between economic development levels and FDI flows. Therefore, the logs of GDP per capita and population are considered separately. Population, GDP per capita, GDP growth rate, and inflation rates approximated by consumer price index (CPI) are all drawn from the World Bank's World Development Indicators.

GDP growth and inflation rates are included to capture the short-term fluctuations of macroeconomic conditions of host economies. Globerman and Sapiro (2004) find that economic growth is an important determinant of aggregate FDI, but not of the cross-border M&A flows. Higher inflation rates may suggest greater

---

[70]   For the methodology of the WGI, see Kaufmann, et al. (2011). See Thomas (2009) for a critical review.

[71]   As will be discussed in the following, the home country-specific terms, M_{jt}, will be absorbed by home-year fixed effects which account for multilateral resistance.

macroeconomic instability of the host and the currency value of the host economy may become weaker against other currencies, resulting in a lower value of local firms in terms of foreign currencies. This may increase or decrease a multinational's incentives to invest in the economy, depending on their motives (and modes) of FDI.

Also, the bilateral term is specified as

$$D_{ijt} = \beta 1 \ln RTA_{ijt} + \beta 2 \ln BIT_{ijt} + \theta\, PAIR_{ij} + u_{ijt}$$

where RTA_{ijt} and BIT_{ijt} indicate whether both economies are members of a bilateral/regional trade agreement or a bilateral investment treaty, respectively, and $PAIR_{ij}$ indicates bilateral fixed effects between economies i and j. PAIR includes log of geographic distance between source and host countries, a common language dummy and also a dummy for contiguity. Kogut and Singh (1988) argue that cultural factors have a more important influence on cross-border M&A than greenfield investment because unlike greenfield investment, cross-border M&A often requires the utilization of existing personnel, management, and organizational culture.

There are three main issues for a consistent estimation of the coefficients for the institutional and policy variables in the gravity framework. First, many pairs do not exert FDI flows and hence enter with zeros. Taking logs of the dependent variable would drop zero observation and result in biased estimates given that zero flows may indicate that fixed costs exceed expected variable profits (Razin et al. 2004; and Davis and Kristjánsdóttir 2010). Based on the property that the expected value of the logarithm of a random variable is different from the logarithm of its expected value (i.e., E [In(Y)] ≠In E(y), Santos Silva and Tenreyro (2006) argue that estimating a log-linearized gravity equation by ordinary least squares (OLS) results in bias. They also argue that OLS would be inconsistent in the presence of heteroskedasticity (Lee and Ries 2016). Instead they suggest suggested that a gravity equation be estimated in its multiplicative form:

$$Yi = \exp(\chi_i\beta) + \varepsilon_i \tag{2}$$

This formulation can be estimated using the Poisson Pseudo-Maximum Likelihood (PPML) estimator. As

PPML has received increasing recognition in estimating the gravity model, PPML is utilized in the study.[72]

The second concern relates to the endogeneity of policy variables. That is, FDI inflows may cause the policy makers of hosts to make their FDI environment more favorable to foreign investment. Three tactics override this concern. First, as an effort to reduce random volatility of FDI flows and to obtain fewer cases of zero values, the time dimension is reduced to four periods by taking the mean of the dependent variable for years 2004–2006, 2007–2009, 2010–2012, and 2013–2015. And then the dependent variable is matched with the policy variables and other explanatory variables for the preceding year of each sub-period (i.e., 2003, 2006, 2009, and 2012), thus allowing contemporaneous and lagged effects (1-2 years) of policy factors on FDI inflows to accrue.

The third concern is that "structural" gravity models consistent with theory require that estimation of a gravity equation take account of not only bilateral distance and transaction costs but also "multilateral resistance" (Anderson and van Wincoop 2003). This issue has been addressed in the empirical literature by including source-year and host-year fixed effects in panel data estimations. However, including a full set of time-varying source and host economy fixed effects is not feasible for the intended purpose because with host-year fixed effects, host economy-specific policy variables would not be measured. Therefore, only the source-year fixed effects for the sources' outward multilateral resistance are included. Arguably, FDI decisions are made by multinationals of source economies and hence host economies' inward multilateral resistance (host-year fixed effects) does not matter much.

As for the estimation of time-varying pair-specific policy variables (RTA and BIT dummy variables), a full set of time-varying source and host economy fixed effects is included, along with bilateral pair fixed effects. This specification is consistent with the "structural" gravity models of Anderson and van Wincoop (2003) and Baier and Bergstand (2007) in that it incorporates a full set of multilateral resistance effects.

Background papers

R. Desbordes. 2016. A Granular Approach to the Effects of Bilateral Investment Treaties and Regional Trade Investment Agreements on Foreign Direct Investment. Background paper prepared for Asian Economic Integration Report 2016 theme chapter on "What Drives Foreign Direct Investment in Asia and the Pacific?" Manuscript.

H.-H. Lee. 2016. Policy Factors Influencing FDI Inflows: A Comprehensive Analysis. Background paper prepared for Asian Economic Integration Report 2016 theme chapter on "What Drives Foreign Direct Investment in Asia and the Pacific?" Manuscript.

N. Ramondo. 2016. Factory Asia: The Determinants of Multinational Activity in the Context of Global Value Chains. Background paper prepared for Asian Economic Integration Report 2016 theme chapter on "What Drives Foreign Direct Investment in Asia and the Pacific?" Manuscript.

N. Ramondo. 2016. FDI Entry Mode and the Activity of Affiliates of Multinational Firms. Background paper prepared for Asian Economic Integration Report 2016 theme chapter on "What Drives Foreign Direct Investment in Asia and the Pacific?" Manuscript.

References

G. Abonyi, A. Zola, and E. Suwannakarn. 2014. *Scoping Study on Developing Border Economic Areas and Cross-border Linkages between Thailand and its Neighbours.* Manila.

_____. 2015. *Asian Economic Integration Report 2015: How Can Special Economic Zones Catalyze Economic Development.* Manila. https://aric.adb.org/pdf/aeir/AEIR2015_complete.pdf

_____. 2016. *Asian Development Outlook 2016: Asia's Growth Potential.* Manila. https://www.adb.org/publications/asian-development-outlook-2016-asia-potential-growth

_____. 2016. *The Role of Special Economic Zones in Improving Effectiveness of GMS Economic Corridors.* Manila (forthcoming).

ADB Institute. 2014. *Connecting Central Asia with Economic Centers.* Tokyo. http://www.adb.org/sites/default/files/publication/159307/adbi-connecting-central-asia-economic-centers-final-report.pdf

B. Aitken, A. Harrison, and R. Lipsey. 1996. Wages and Foreign Ownership: A Comparative Study of Mexico, Venezuela, and the United States. *Journal of International Economics.* 40 (3). pp. 345–371.

M. Aleksynska and O. Havrylchyk. 2011. FDI from the South: the Role of Institutional Distance and Natural Resources. *Working Papers.* No. 2011-05. Paris: CEPII Research Center.

L. Alfaro. 2003. *Foreign direct investment and growth: Does the sector matter?* http://www.grips.ac.jp/teacher/oono/hp/docu01/paper14.pdf

J. E. Anderson and E.van Wincoop. 2003. Gravity with Gravitas: A Solution to the Border Puzzle. *American Economic Review.* 93(1). pp. 170–192.

P. Antràs, D. Chor, T. Fally, and R. Hillberry. Measuring the Upstreamness of Production and Trade Flows. *American Economic Review: Papers & Proceedings.* 102 (3). pp. 412–416. http://scholar.harvard.edu/files/antras/files/acfh_published.pdf

P. Antràs, M. Desai, and F.C. Foley. 2009. Multinational Firms, FDI Flows and Imperfect Capital Markets. *Quarterly Journal of Economics.* 124 (3). pp. 1171–1219.

P. Athukorala. 2013. Intra-Regional FDI and Economic Integration in South Asia: Trends, Patterns and Prospects. *UNCTAD Regional Value Chains Background Paper.* Geneva: United Nations Conference on Trade and Development.

D. Aykut and S. Sayek. 2007. The Role of the Sectoral Composition of Foreign Direct Investment on Growth. In L. Piscitello and G. Santangelo eds. *Do Multinationals Feed Local Development and Growth?* London: Elsevier. pp. 35–62.

S. L. Baier and J. H. Bergstrand. 2007. Do Free Trade Agreements Actually Increase Members' International Trade? *Journal of International Economics.* 71(1). pp. 72–95.

R. Barro and J. -W. Lee. 2013. A New Data Set of Educational Attainment in the World, 1950-2010. *Journal of Development Economics.* 104. pp. 184–198.

T. Beck, A. Demirguc-Kunt, and R. Levine. 2009. Financial Institutions and Markets Across Countries and Over Time: Data and Analysis. *World Bank Policy Research Working Paper Series.* No. 4943. Washington, DC: The World Bank.

C. Bellak. 2015. Economic Impact of Investment Agreements. *Department of Economics Working Paper*. No. 200. Vienna: Vienna University of Economics and Business. http://www.cuhk.edu.hk/law/proj/BITSel/download/Christian_Bellak(2015).pdf

A. Berger, M. Busse, P. Nunnenkamp, and S. Roy. 2010. Do Trade and Investment Agreements Lead to More FDI? Accounting for Key Provisions Inside the Black Box. *WTO Staff Working Paper ERSD-2010-13*. Geneva: World Trade Organization. https://www.wto.org/english/res_e/reser_e/ersd201013_e.pdf

T. Büthe and H. V. Milner. 2014. Foreign Direct Investment and Institutional Diversity in Trade Agreements: Credibility, Commitment, and Economic Flows in the Developing World, 1971–2007. *World Politics*. 66 (1). pp. 88–122.

H.-S. Byun, H.-H. Lee, and C.-Y. Park. 2012. Assessing Factors Affecting M&As versus Greenfield FDI in Emerging Countries. *ADB Economics Working Paper Series No.293*. Manila: Asian Development Bank. https://www.adb.org/sites/default/files/publication/30058/economics-wp293.pdf

R. E. Caves. 2007. *Multinational Enterprises and Economic Analysis*. Cambridge, UK: Cambridge University Press.

J. Chaisse and C. Bellak. 2015. Navigating the Expanding Universe of International Treaties on Foreign Investment Creation and Use of a Critical Index. *Journal of International Economic Law*. 18 (1). pp. 79–115.

A. Chongvilaivan. 2012. From Inward to Outward: An Assessment of FDI Performance in Thailand. *Southeast Asian Affairs*. Vol. 2012. pp. 318–338. Singapore.

J. Coolidge and S. Rose-Ackerman. 1997. High-level rent-seeking and corruption in African regimes: Theory and cases. *Policy Research Working Papers*. No. 1780. Washington, DC: The World Bank.

J. Darby, B. Ferrett, and I. Wooton. 2013. FDI, Trade Costs, and Regional Asymmetries. *CESifo Working Paper Series*. No. 4469. Munich: CESifo Group Munich.

R. B. Davis and H. Kristjánsdóttir. 2010. Fixed Costs, Foreign Direct Investment, and Gravity with Zeros. *Review of International Economics*. 18 (1). pp 47–62.

J. H. Dunning and S. M. Lundan. 2008. *Multinational Enterprises and the Global Economy*. Cheltenham, UK: Edward Elgar.

P. Egger and P. Pfaffermayr. 2004. Distance, Trade and FDI: A Hausman–Taylor SUR approach. *Journal of Applied Econometrics*. 19 (2). pp. 227–246.

S. Globerman and D. Shapiro. 2002. Global Foreign Direct Investment Flows: The Role of Governance Infrastructure. *World Development*. 30 (11). pp. 1899–1919.

S. S. Golub. 2009. Openness to Foreign Direct Investment in Services: An International Comparative Analysis. *World Economy*. 32 (8). pp. 1245–1268.

M. Hallward-Driemeier. 2003. Do Bilateral Investment Treaties Attract FDI? Only a Bit…and They Could Bite. *Policy Research Working Papers*. Washington, DC: The World Bank. http://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-3121

T. Harding and B. S. Javorcik. 2011. Roll Out the Red Carpet and They Will Come: Investment Promotion and FDI Inflows. *The Economic Journal*. 121 (557). pp. 1445–1476.

P. Harms and P. G. Meon. 2014. Good and Bad FDI: The Growth Effects of Greenfield Investment and Mergers and Acquisitions in Developing Countries. *CEB Working Paper*. No. 14/021. Brusselles: Université Libre de Bruxelles - Solvay Brussels School of Economics and Management Centre Emile Bernheim.

A. E. Harrison and J. Scorse. 2005. Do foreign-owned firms pay more? Evidence from the Indonesian Manufacturing Sector 1990–99. *Working Paper*. No. 98. Geneva: International Labour Office.

K. Head and J. Ries. 2008. FDI as an Outcome of the Market for Corporate Control: Theory and Evidence. *Journal of International Economics*. 74 (1). pp. 2–20.

K. Head, R. Jing, and D. Swenson. 2014. From Beijing to Bentonville: Do Multinational Retailers Link Markets? *Journal of Development Economics*. 110. pp. 79–92.

E. Helpman, M. J. Melitz, and S.R. Yeaple. 2004. Export Versus FDI with Heterogeneous Firms. *American Economic Review*. 94(1). pp. 300–316.

IMF. 2004. Round Tripping. *Issues Paper (DITEG) No. 13*. September. https://www.imf.org/External/NP/sta/bop/pdf/diteg13.pdf

H.L. Kee, A. Nicita and M. Olarreaga. 2009. Estimating Trade Restrictiveness Indices. *Economic Journal*. 119. pp. 172–199.

B. Kogut and H. Singh. 1988. The Effect of National Culture on the Choice of Entry Mode. *Journal of International Business Studies*. 19 (3). pp. 411–432.

H.-H. Lee and J. Ries. 2016. Aid for Trade and Greenfield Investment. *World Development*. pp. 206–218.

M. Lesher and S. Miroudot. 2006. Analysis of the Economic Impact of Investment Provisions in Regional Trade Agreements. *OECD Trade Policy Papers*. No. 36. Paris: OECD Publishing. http://www.oecd-ilibrary.org/docserver/download/5l4vwbdwmcmx.pdf?expires=1478168636&id=id&accname=guest&checksum=FCD3DA2DCC4BACA9FC37918D28971E6B

R. E. Lipsey and F. Sjöholm. 2004. FDI and Wage Spillovers in Indonesian Manufacturing. *Review of World Economics / Weltwirtschaftliches Archiv*. 140 (2). pp. 321–332. www.jstor.org/stable/40441012.

_____. 2011. The Role of South-South FDI in the Economies of Developing Asia. *ADB Economics Working Paper Series*. No. 273. Manila: Asian Development Bank. https://www.adb.org/sites/default/files/publication/29144/economics-wp273.pdf

M. J. Melitz. 2003. The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity. *Econometrica*. 71 (6). pp. 1695–1725. http://web.stanford.edu/~klenow/Melitz.pdf

T. H. Moran. 2001. Parental Supervision: The New Paradigm for Foreign Direct Investment and Development. *Policy Analyses in International Economics*. No. 64. Washington, DC: Institute of International Economics.

_____ 2011. *Foreign Direct Investment and Development: Reevaluating Policies for Developed and Developing Countries*. Washington, DC: Peterson Institute for International Economics.

G. B. Navaretti and A. J. Venables. 2005. *Multinational Firms in the World Economy*. Princeton, US: Princeton University Press.

V. Nocke and S. Yeaple. 2008. An Assignment Theory of Foreign Direct Investment. *Review of Economic Studies*. 75 (2). pp. 529–557.

J. Nylander. 2015. Hong Kong Overtakes the U.S. in FDI. *Forbes*. June 25. http://www.forbes.com/sites/jnylander/2015/06/25/hong-kong-overtakes-the-u-s-in-fdi/#3751d3f537f5

N. Ramondo, A. Rodriguez-Clare, and F. Tintelnot. 2015. Multinational Production: Data and Stylized Facts. *American Economic Review Papers and Proceedings*. 105 (5). pp. 530–536.

A. Razin, Y. Rubinstein, and E. Sadka. 2004. Fixed Costs and FDI: The Conflicting Effects of Productivity Shocks. *NBER Working Paper Series*. No.10864. Cambridge, MA: National Bureau of Economic Research.

J. M. C. Santos Silva and S. Tenreyro. 2006. The Log of Gravity. *Review of Economics and Statistics*. 88 (4). pp. 641–658.

D. W. Te Velde and O. Morrissey. 2003. Do Workers in Africa Get a Wage Premium if Employed in Firms Owned by Foreigners? *Journal of African Economies*. 12 (1). pp. 41–73.

United Nations Conference on Trade and Development. 2000. *World Investment Report 2000: Cross-border Mergers and Acquisitions and Development*. Geneva: United Nations. http://unctad.org/en/Docs/wir2000overview_en.pdf

_____. 2013. *World Investment Report 2013: Global Value Chains: Investment and Trade for Development*. Geneva: United Nations. http://unctad.org/en/PublicationsLibrary/wir2013_en.pdf

_____. 2015. *World Investment Report 2015: Reforming International Investment Governance*. Geneva: United Nations. http://unctad.org/en/PublicationsLibrary/wir2015_en.pdf

_____. 2016. *World Investment Report 2016: Investor Nationality Policy Challenges*. Geneva: United Nations. http://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=1555

M. Wang and M. C. Sunny Wong. 2009. What Drives Economic Growth? The Case of Cross-Border M&A and Greenfield FDI Activities. *Kyklos*. 62 (2). pp. 316–330.

Z. Wang, S. J. Wei, and K. Zhu. 2014. Quantifying International Production Sharing at the Bilateral and Sector Levels. Paper prepared for The Third World KLEMS Conference Tokyo, Japan, May 19-20. http://www.worldklems.net/conferences/worldklems2014/worldklems2014_Wang.pdf

P. Warr and J. Menon. 2015. Cambodia's Special Economic Zones. *ADB Economics Working Paper*. No. 459. Manila.

J. M. Wooldridge. 2004. Estimating Average Partial Effects Under Conditional Moment Independence Assumptions. *CeMMAP Working Papers*. CWP03/04. London: Institute for Fiscal Studies.

World Bank. 2016. *Doing Business 2017: Equal Opportunity for All*. Washington, DC. http://www.doingbusiness.org/~/media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB17-Report.pdf