Chapter 10

Global Value Chains, Cities, and Urban Amenities: Case Study of ASEAN and East Asia

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Introduction

Regional and global production value chains and networks are important features, as well as the key driver of, economic growth and integration in East Asia and the Association of Southeast Asian Nations (ASEAN). The impact of global value chains (GVCs) on East Asian manufacturing and services activities, and hence on its economic development, is quite significant (Kimura, 2018; Baldwin, 2011; ASEAN, 2019). Recent evidence shows that domestic value added in the exports of ASEAN Member States (AMS) has been relatively high and stable since 2010 (ASEAN, 2019). The domestic value added in exports ranges from around 47.0% for Singapore to 90.3% for Brunei Darussalam. The foreign value added in exports is 39.0% for Singapore and 6.7% for Brunei.

East Asia and ASEAN are undergoing significant structural transformation due to the dynamism of regional and global value chains. This is driving deeper economic and regional integration. In fact, the global value chain (GVC) network is driving the economic transformation of East Asia from both the demand side in terms of forward-looking and dynamic consumerism, and supply-side effects of fragmentation and agglomeration – integrating deeper regional and global production networks in both manufacturing and services. The transformation of GVCs through digital and telecommunication technologies is creating new economic opportunities and inducing greater creative destruction in the respective East Asian and ASEAN economies.

The effects of GVCs are not a new phenomenon in Asia. In the 1970s, United States (US) retailers and big brand-name companies started offshoring their labour-intensive activities (Gereffi, 2014) in search of cheap labour advantages. However, in recent GVC transformation, the pace of GVCs has accelerated in terms of the speed, scale, depth, and breadth of global interaction (Elms and Low, 2013). The fragmentation process has intensified since the 2000s beyond the manufacturing sector to services such as accounting, medical procedures, and call centres (Gereffi and Sturgeon, 2013). GVCs have also proliferated geographically, involving more countries in various regions, and have become organisationally manifest in more complex and multilayer inter-firm networks across the globe. This production configuration –the most important feature of the global economy today (De Backer, De Lombaerde, and Iapadre, 2018; OECD, 2013) – is driven by technological progress; advances in the transport and logistics sector that lead to a significant decline in trade costs; more liberal regional and national policies supporting freer trade and investment flows; and the opening up of emerging economies, especially China and India (Kimura, 2018; Baldwin, 2013; De Backer, De Lombaerde, and Lapadre, 2018).

The key transformation of the GVCs is the depth and degree of integration and interdependence of economies in the region on global activities. There is a significant shift in trade patterns in the regional and global economy from the exchange of final goods to

trade in parts and components. The geographic dispersion of production has substantially increased economic interdependence amongst economies around the world, especially in terms of investment flows and the intensification of flows in intermediate goods. WTO and IDE-JETRO (2011) estimated that trade in intermediate goods in 2009 represented more than 50% of non-fuel merchandise trade. The share of intermediate input trade was even higher (more than 50% of goods trade and almost 70% of services trade) in Gurría (2015) and roughly two-thirds in Johnson and Noguera (2012). In his latest book on the new globalisation, Baldwin (2016) described 21st century trade as a growing exchange of parts and components along with the international movement of production facilities, personnel, and know-how.

The other aspect of the GVC transformation is the level of growth of service activities and linkages in the production process. The fragmentation of production processes within and across countries due to technological advancements from telecommunication and information technologies has intensified the growth and interdependence of production processes between manufacturing and service activities. Services serve as inputs and linkages across value chain processes, making them the 'glue of supply chains' (Low, 2013) – sometimes referred to as the 'servicification' of production (Hoekman and Shepherd, 2017; Thangavelu, Wenxiao, and Oum, 2018). In the seminar work on the role of services in production and international trade, Jones and Kierzkowski (1990) firmly argued that the speed and efficiency with which service links operate clearly has a bearing on the optimal degree of fragmentation, and that gains from service liberalisation may exist in the form of greater participation in production processes. Baldwin (2016) considered services such as telecommunications, transport and logistics, trade-related finances, and customs clearance as necessary to coordinate fragmented production. The importance of services in GVCs is manifest in the large and increasing share of services in value-added trade, rising from 30% in 1985 to more than 40% in 2009 (Heuser and Mattoo, 2017). The impact of servicification in Asia is also reflected in Thangavelu, Wenxiao, and Oum (2018), which showed that the degree of servicification of manufacturing activities in ASEAN has increased over the years.

The recent transformation of the GVCs also highlights the importance of unbalanced growth within and between countries due to the unbalanced industrial and competitive responses. The key dimension of regional economic disparity is the level of responsiveness of key cities in domestic economies to absorb, diffuse, and disseminate key technologies and specific tasks to firms and workers to respond to dynamic shifts in the GVCs. The key competitive responses are driven by the flexibility of skilled workers to 'unbundle' the technologies and activities; technology-intensive infrastructure such as science parks, universities, and research centres; and social infrastructure such as urban amenities (hotels, restaurants, libraries, internet cafés), and soft and hard connectivity.

Glaeser, Ponzetto, and Zou (2015) highlighted the importance of cities creating urban networks that generate innovation and entrepreneurship to spur the economic growth of the domestic economy and region. Urban networks, through urban amenities, increase global economies of scale via innovation in services and global linkages, although the return on local domestic activities could decline due to the trade-off between urban congestion and living. In turn, the returns of urban networks to attract skilled workers to move to and live in large cities and megacities due to the higher returns from global urban networks (see Table 10.1).

Urban networks and agglomeration not only impact service innovation but also manufacturing activities, as urban amenities create economies of scale and knowledge spillovers for firms to innovate and increase their entrepreneurial activities (Chen, Hasan, and Jiang, 2020). The study also highlighted the agglomeration effects through the presence of top-tier universities in Asian cities creating linkages and raising the effectiveness of firm-level R&D activities.

In this chapter, we explore the development and transformation of GVCs in ASEAN and East Asia in terms of skills development, 'unbundling'[1] of manufacturing and services activities due to telecommunication and information technologies, and the importance of urban amenities to retain and maintain skilled labour in the key cities to drive economic growth. We used city-level data for East Asia and ASEAN from the United Nations (UN), Department of Economic and Social Affairs, Population Division, to understand the relationship between cities, GVCs, and urban amenities. The results of our study indicate the importance of cities and urban amenities as leverage both during the pandemic and in the post-pandemic recovery. Cities and urban centres will be key to develop, attract, and sustain digital technologies and maintain the degree of openness necessary for the pandemic recovery.

The next section discusses GVC transformation in East Asia and ASEAN. Section 3 explores the population agglomerations and trends of cities in East Asia. In section 4, we consider the topology of GVC transformation and unbundling effects of GVCs. We examine skills and their unbundling into tasks in section 4. Section 5 provides a policy discussion in terms of the pandemic recovery.

1 The 'unbundling' effects are discussed in Section 4.

GVC Transformation in East Asia and ASEAN

The East Asia region is transforming into one of the most dynamic regions in terms of production networks, and has seen an unprecedented expansion of trade in intermediate goods. Studies by Athukorala (2011); Kimura, Takahashi, and Hayakawa (2007); and Obashi and Kimura (2016) provided insights into and evidence on the determinants of GVC integration in East Asia. The region is expanding rapidly in terms of international production networks, characterised by a complex governance structure and interconnectedness due to production fragmentation in parts and components (Kimura, Takahashi, and Hayakawa, 2007). Kimura, Takahashi, and Hayakawa (2007) used the parts and components statistics to proxy trade in value added and regression with income gaps (to capture the location advantage) and distance (to capture the service link cost). The findings confirm the theoretical explanation that a difference in location advantage, measured by income gaps, is important in production networks.

Taguchi, Matsushima, and Hayakawa (2014) estimated the effect of location advantage and service link cost on production fragmentation, measured by bilateral trade in parts and components between Thailand and other countries in the Mekong subregion. The findings support the framework for fragmentation, whereby significant differences in location advantage and low service costs encourage firms to fragment production processes. In addition, using trade in parts and components to measure participation in GVCs, Athukorala (2011) adopted the gravity model to estimate the impacts of pair countries' characteristics and policies on trade in parts and components, and found that the stage of development and wage gaps significantly affect a country's attractiveness as the location of a production network.

The key trends of complex GVC participation are presented in Figure 1. The complex GVC participation rate is where the share of gross output involves production in two or more countries in the global production network. The average complex GVC participation in Asia is around 40%, indicating that the region participates in export activities in at least two countries. The key Asian countries participating in complex GVC activities are the Republic of Korea (henceforth, Korea), Malaysia, Singapore, Taiwan, Thailand, and Viet Nam. The GVC activities of these countries indicate more than a 50% average share of gross exports in complex GVC activities, highlighting their reliance on GVC activities to drive their export growth. The high share of complex GVC activities reflects the level of diversification of export activities in these countries, particularly in electronics and electrical, machine parts and components, and transport equipment.

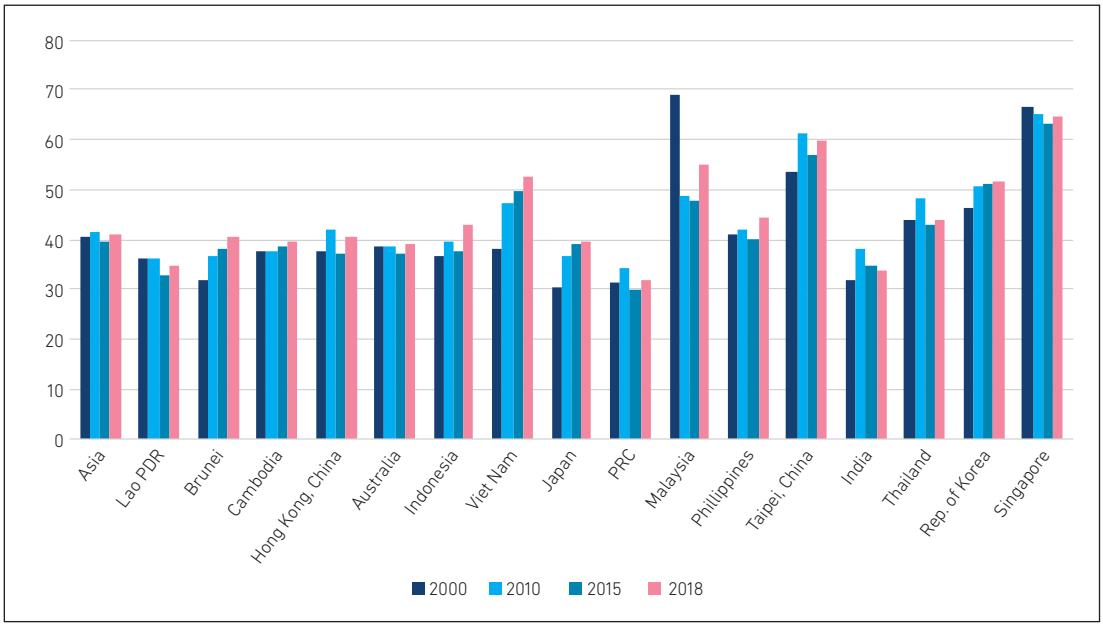
It is interesting to note that the complex GVC network is also driven by the sophistication and diversification of the service sector through service linkages and services GVCs. The key economies that rely on services trade are Singapore and Hong Kong. We observe that

Singapore is more involved in complex GVC activities than Hong Kong, perhaps because the larger Chinese hinterland affects Hong Kong's economy.

Malaysia and Viet Nam provide interesting comparisons in ASEAN. The complex GVC participation rate of Viet Nam has increased significantly since 2000, as more than 50% of its gross exports were involved in complex GVC activities in 2018. In contrast, we observe a significant decline in complex GVC activities for Malaysia since 2000, as the share of gross exports in complex GVC activities declined from nearly 70% in 2000 to around 50% in 2018. The declining share of complex GVC activities for Malaysia is of key concern, as it reflects the structural issues and lack of key economic fundamentals in the domestic economy to move up the value chain and participate in more complex GVC activities.

Two of ASEAN's least developed countries (LDCs) – Cambodia and the Lao People's Democratic Republic (Lao PDR) – tend to have a lower share of gross exports in complex GVC activities, especially the Lao PDR, which is below the average share of 40% for Asia. We note that complex GVC activities for Cambodia have increased over time from 38% in 2000 to 40% in 2018, showing signs of diversification in exports. However, Cambodia's main exports are still in textiles and wearing apparel, heavily driven by investment from China.

Figure 10.1 Complex GVC Participation in Asia: 2000–2018



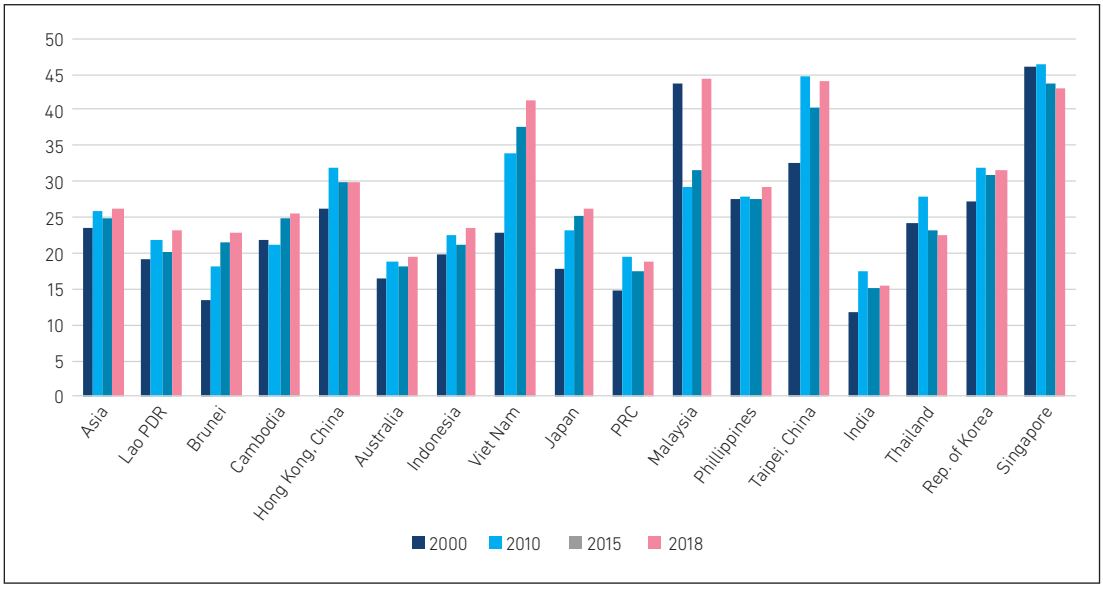
GVC = global value chain.

Note: The Figure follows ADB style for country names.

Source: ADB (2019).

The complex regional value chain (RVC) activities from 2000 to 2018 are shown in Figure 10.2, reflecting the share of gross exports in production across two countries in the same region. Overall, Asia has less complex RVC activities than complex GVC activities. The share of complex RVC activities is only around 25% of the share of gross exports. The key Asian countries with higher complex RVC activities are Korea, Malaysia, Singapore, Taiwan, and Viet Nam. Thailand has a lower share of complex RVC, declining from 28% in 2010 to nearly 22% in 2018. In contrast, the complex RVC activities of Viet Nam rose from 23% in 2000 to more than 41% in 2018. We also observe a higher rate of complex RVC activities for the Philippines, at 29% in 2018, slightly above the Asian average of 25% of gross exports. The other AMS – Brunei, Cambodia, the Lao PDR, and Indonesia – tend to experience lower complex RVC activities, reflecting a less sophisticated production structure and weaker linkages to participate fully in complex value chain production.

Figure 10.2 Complex Regional Value Chain Participation in Asia, 2000–2018



GVC = global value chain, RVC = regional value chain.

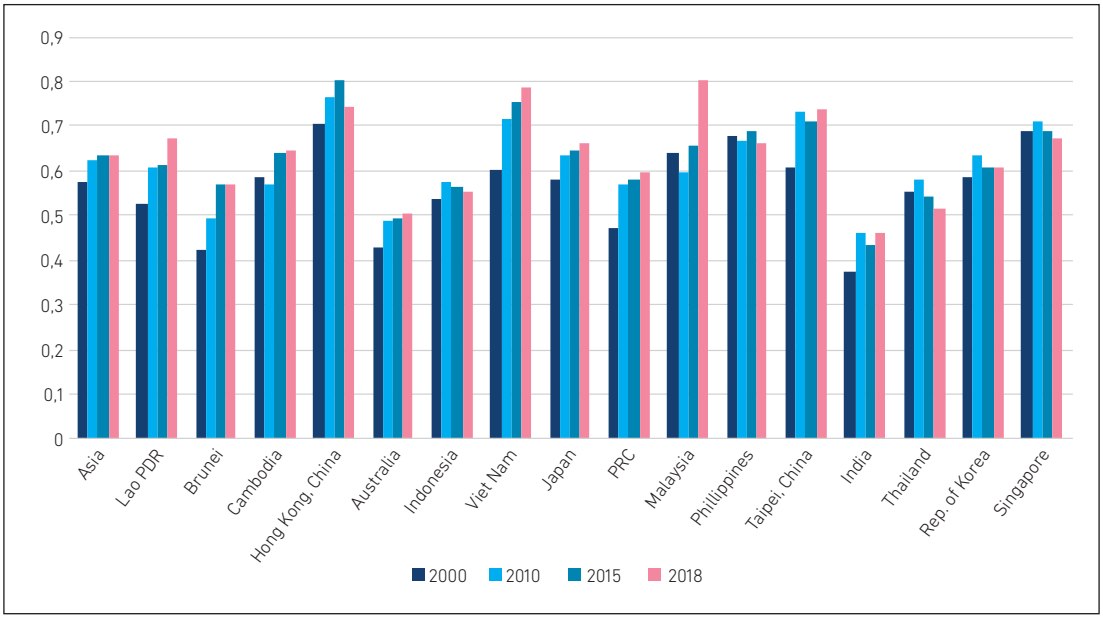
Note: The Figure follows ADB style for country names.

Source: ADB (2019).

The complex RVC to GVC ratio is presented in Figure 10.3. The ratio shows that AMS still rely on complex RVCs to drive their export activities. The key Asian countries – Malaysia, the Philippines, Hong Kong, Singapore, and Viet Nam – rely on the regional production structure to drive their export growth. Indonesia tends to experience lower RVC–GVC intensity across the AMS, reflecting the weakness of its value chain activities and the diversification of its value chain exports to participate in the complex GVC activities in

RVC and GVC. The ASEAN less developed countries (LDCs) of Cambodia and the Lao PDR are weaker in terms of complex GVC activities, as their export activities are not sufficiently sophisticated to cross several production networks in the regional and global value chains.

Figure 10.3 Complex RVC to GVC Ratio in Asia, 2000–2018



GVC = global value chain, RVC = regional value chain.

Note: The Figure follows ADB style for country names.

Source: ADB (2019).

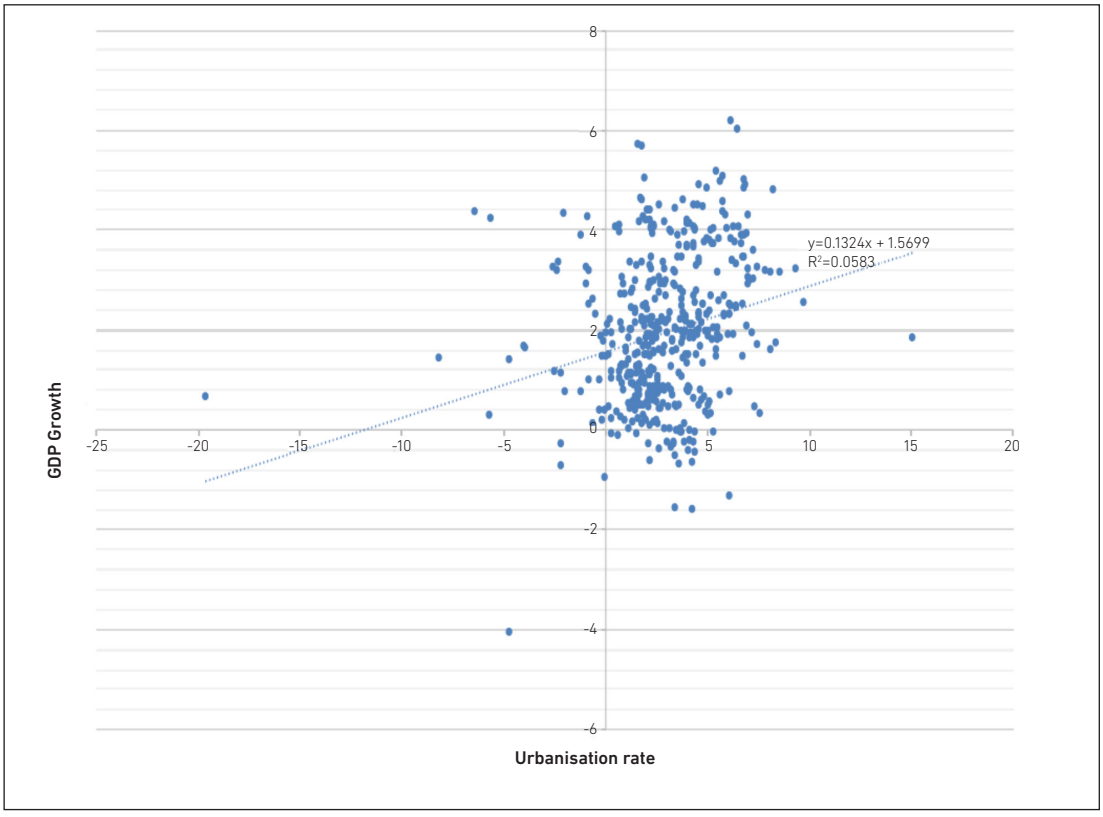
The weaker linkages of key AMS, which prevent participation in complex GVC and RVC activities, are mirrored at the regional level and hinder it from moving up the value chain. The key fundamentals to harness the GVC network – technology, human capital, strong forward-looking institutions, and connectivity in soft and hard infrastructure – are still lacking in the ASEAN region. This provides ample opportunity to undertake more active economic liberalisation and key reforms to improve the GVC and RVC network in the region.

The development of the regional and global value chain network is critically dependent on key domestic fundamentals such as human capital development in skills, technological development and harnessing digital technologies in information and communication technologies (ICTs), and the development of urban centres to create agglomerative activities in both economic and social dimensions.

Urbanisation and Trends of Cities in ASEAN and East Asia

Urbanisation has positive impacts on the economic growth of domestic and regional economies (UN, 2019). The positive relationships between economic growth and the urbanisation rate are presented in Figure 10.4. Urbanisation is primarily driven by population densities and non-agricultural economic activities in terms of manufacturing and services. It is based on the agglomeration of activities in cities, comprising townships, municipalities, and metropolitan areas. It is clear from Figure 10.4 that the growth of cities drives urbanisation and in turn drives economic activities and growth in the economy.

Figure 10.4 Real GDP Growth and Urbanisation Rate, 2018–2019



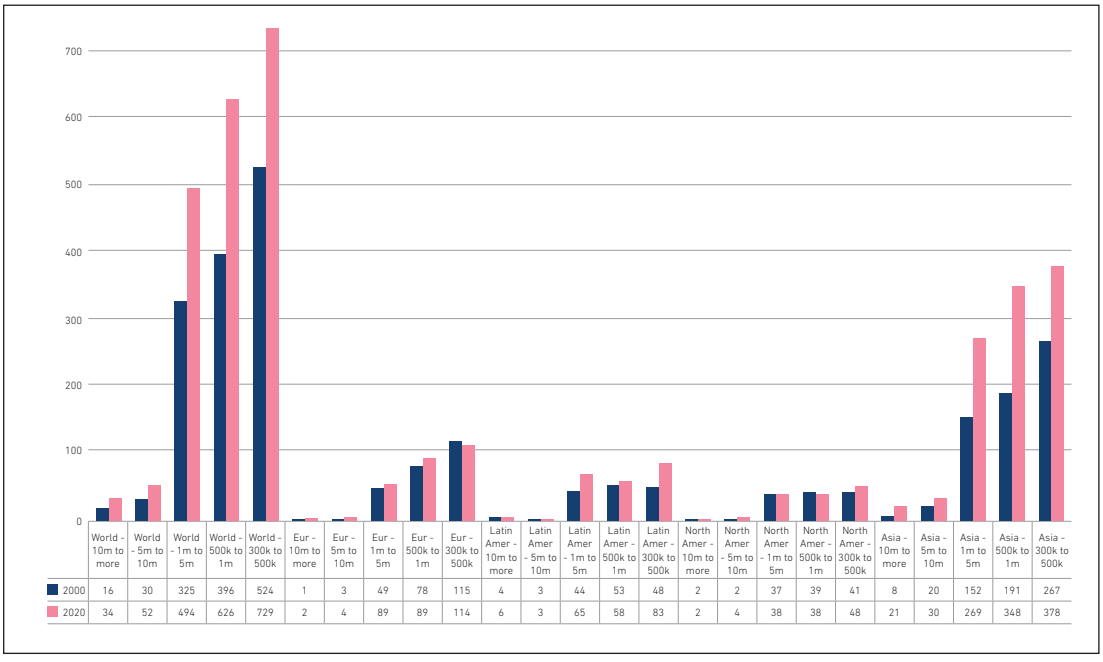
GDP = gross domestic product.

Source: World Bank (2003), World Development Indicators, 2003. Washington, DC: World Bank. http://www.worldbank.org/data/wdi2003/index.htm (accessed 27 December 2020).

The competitiveness of cities is multidimensional, as indicated by Glaeser, Ponzetto, and Zou (2015), in terms of the local returns to scale in innovation, supply of skilled labour elasticity, and supply of housing and urban amenities. The urban strategy of megacities (with populations of 10 million and above as defined by UN (2019)) that attract skilled workers and drive innovation, or networks of large cities creating urban agglomerations, is contingent on institutional reforms, urban networks, urban amenities, global and regional linkages, and the degree of innovation driven by entrepreneurship and small and medium-sized enterprises (SMEs) in the respective regions.

The key trends of different size classes of cities, in terms of population, are presented in Figures 10.5-10.7. Figure 10.5 gives the number of cities by size classes in terms of population for the respective regions. There has been strong growth in medium-sized cities (populations of 1 million–5 million) and small cities (less than 1 million), as these cities experienced significant growth from 2000 to 2020. The number of small-sized cities with a population of 500,000–1 million in the world increased from 396 to 626, and the cities with a population of 300,000–500,000 increased from 524 to 729 from 2000 to 2020, respectively. It is clear from Figure 10.5 that the large increase in medium-sized and small cities is driven primarily by the growth of cities in Asia, particularly economic growth and development in Southeast and East Asia, during the past 2 decades.

Figure 10.5 Number of Cities by Size Classes (Population Size) and Region, 2000-2020



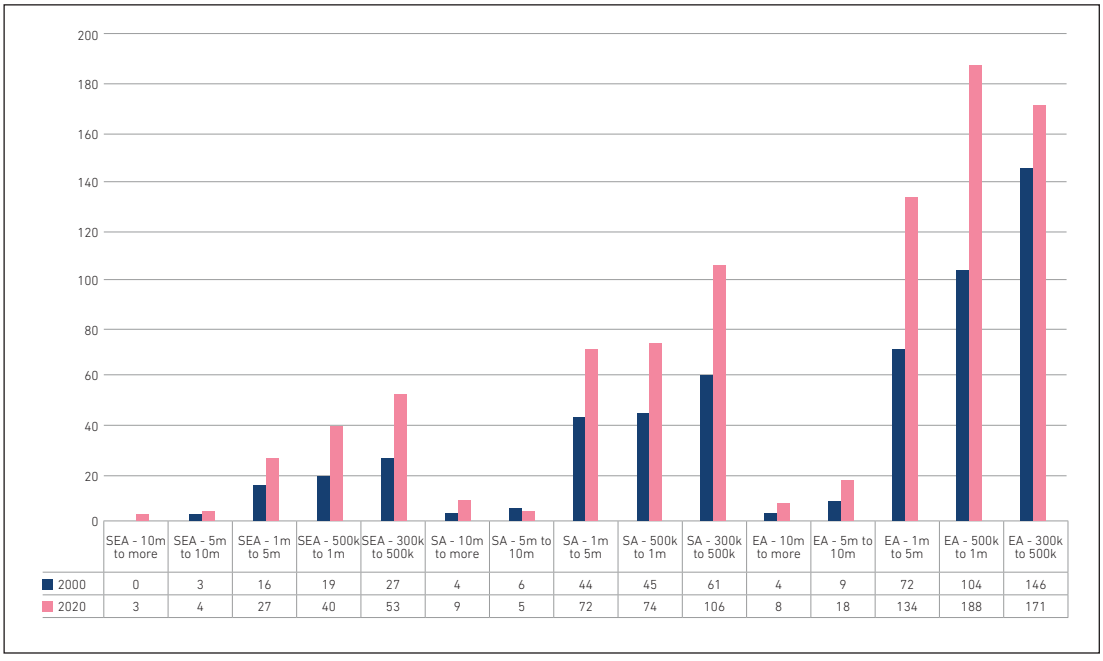
	World - 10m to more	World - 5m to 10m	World - 1m to 5m	World - 500k to 1m	World - 300k to 500k	Eur - 10m to more	Eur - 5m to 10m	Eur - 1m to 5m	Eur - 500k to 1m	Eur - 300k to 500k	Latin Amer - 10m to more	Latin Amer - 5m to 10m	Latin Amer - 1m to 5m	Latin Amer - 500k to 1m	Latin Amer - 300k to 500k	North Amer - 10m to more	North Amer - 5m to 10m	North Amer - 1m to 5m	North Amer - 500k to 1m	North Amer - 300k to 500k	Asia - 10m to more	Asia - 5m to 10m	Asia - 1m to 5m	Asia - 500k to 1m	Asia - 300k to 500k
2000	16	30	325	396	524	1	3	49	78	115	4	3	44	53	48	2	2	37	39	41	8	20	152	191	267
2020	34	52	494	626	729	2	4	89	89	114	6	3	65	58	83	2	4	38	38	48	21	30	269	348	378

Amer = America, Eur = Europe, k = thousand, m = million.

Source: UN, 2019.

We also provide a breakdown of cities by size classes (population size) and region in Asia in Figure 10.6. A detailed breakdown of 794 cities in East Asia, South Asia (India), and Southeast Asia by city size classes (population size) – small (less than 500,000), small to medium-sized (500,000–1 million), medium-sized (1 million–5 million), and large cities and megacities (5 million and above) – is in Annex A (Figures A1 to A4). First, we observe significant growth in East Asian cities, mainly driven by the economic development of China, Korea, Japan, and Taiwan. Medium-sized and small cities in China grew significantly from 2000 to 2020, driven by economic liberalisation and development. The number of large cities and megacities doubled in China from nine to 18 large cities (5 million–10 million) and four to eight megacities from 2000 to 2020. South Asia also experienced growth in medium-sized and small cities, driven by the economic liberalisation and development of the Indian economy. In Southeast Asia, the number of small and medium-sized cities doubled from 2000 to 2020, and three megacities emerged during the same period.

Figure 10.6 Number of Cities by Class Type (Population Size) in Asia, 2000–2020



	SEA - 10m to more	SEA - 5m to 10m	SEA - 1m to 5m	SEA - 500k to 1m	SEA - 300k to 500k	SA - 10m to more	SA - 5m to 10m	SA - 1m to 5m	SA - 500k to 1m	SA - 300k to 500k	EA - 10m to more	EA - 5m to 10m	EA - 1m to 5m	EA - 500k to 1m	EA - 300k to 500k
2000	0	3	16	19	27	4	6	44	45	61	4	9	72	104	146
2020	3	4	27	40	53	9	5	72	74	106	8	18	134	188	171

EA = East Asia, K = thousand, m = million, SA = South Asia, SEA = Southeast Asia.

Source: UN, 2019.

The critical issue for small and medium-sized cities is whether these cities are efficient in terms of creating urban agglomeration and an urban network to drive sustainable economic growth of the domestic economy and the region. The key factors that increase the competitiveness of cities are urban linkages from soft and hard infrastructure, digital connectivity, skilled labour, urban amenities, urban policies to facilitate innovation and entrepreneurship, and the capacity of cities to participate in global and regional trade and investment activities. Table 10.1 presents the types of cities in terms of population size for the top 120 cities in Asia, based on the definition of cities by UN Urbanization Prospect 2018 (UN, 2019).

Most of the cities in Asia covered in Table 10.1 are medium-sized, with populations of 2 million–5 million. However, we observe significant differences across and within the size classes (population size) of cities. First, the megacities and large cities have a higher degree of openness in terms of connectedness to global and regional networks than medium-sized cities. The megacities and large cities are exposed to regional and global networks through service and trade linkages in goods and services activities. Second, the degree of participation in GVC activities varies between cities based on the key domestic fundamentals of technologies; connectivity in soft and hard infrastructure such as telecommunication technologies, and infrastructure; institutional reforms and structure; level of human capital; quality of urban amenities; and degree of connectedness across regional and global cities. For example, Singapore is a medium-sized city, but it is more connected to regional and global activities than Delhi or Dhaka, which are considered megacities by UN (2019). Urban amenities also play an important role in improving the competitiveness of cities, since urban amenities are generally better in more skilled and forward-looking cities as more educated and skilled workers tend to gravitate to cities with better amenities (Glaeser, Ponzetto, and Zou, 2015). In addition, efficient cities tend to invest more in quality amenities – driven by the preferences of the skilled and educated city populations. Population density is critical for cities and domestic economies to grow, but it is not a sufficient condition for efficient and sustainable development in the next stage of growth in Asia. The next stage of growth in East Asia and ASEAN will be critically dependent on the efficiency of cities in connecting to regional and global value chain activities.

Table 10.1 Size Classes of Cities (Population Size) – Top 120 Cities in Asia, 2020

Megacities (10 million and above)	Large cities (5 million–10 million)	Medium-sized cities (3 million–5 million)	Medium-sized to small cities (2 million–3 million)
Tokyo (37,393)	Nagoya (9,552)	Melbourne (4,968)	Surabaya (2,944)
Dhaka (31,234)	Chengdu (9,136)	Sydney (4,926)	Shizuoka-Hamamatsu (2,922)
Delhi (30,291)	Nanjing (8,847)	Xinbei (4,759)	Zhongshan (2,914)
Shanghai (27,058)	Ho Chi Minh City (8,602)	Hà Noi (4,678)	Nagpur (2,893)
Karachi (23,128)	Wuhan (8,365)	Changsha (4,578)	Incheon (2,801)
Beijing (20,463)	Ahmadabad (8,059)	Kunming (4,443)	Coimbatore (2,787)
Mumbai (20,411)	Xi'an (8,001)	Changchun (4,426)	Depok (2,727)
Osaka (19,165)	Kuala Lumpur (7,997)	Wulumqi (4,369)	Handan (2,727)
Lahore (19,117)	Hangzhou (7,642)	Shantou (4,327)	Taibei (2,721)
Chongqing (15,872)	Hong Kong (7,548)	Hefei (4,242)	Sapporo (2,670)
Kolkata (14,850)	Dongguan (7,408)	Ningbo (4,116)	Huai'an (2,655)
Manila (13,923)	Foshan (7,327)	Shijiazhuang (4,114)	Weifang (2,654)
Tianjin (13,589)	Shenyang (7,220)	Jaipur (3,909)	Zibo (2,640)
Guangzhou (13,302)	Surat (7,185)	Taiyuan (3,891)	Thiruvananthapuram (2,585)
Shenzhen (12,357)	Chittagong (7,110)	Nanning (3,860)	Bandung (2,580)
Bangaluru (12,327)	Suzhou, Jiangsu (7,070)	Xiamen (3,720)	Shaoxing (2,540)
Chennai (10,971)	Pune (6,629)	Fujian (3,686)	Yantai (2,527)
Jakarta (10,770)	Haerbin (6,387)	Lucknow (3,677)	Huizhou (2,525)
Bangkok (10,539)	Singapore (5,935)	Jiangsu (3,625)	Tao Yeun (2,462)
Hyderabad (10,004)	Qingdao (5,620)	Wenzhou (3,624)	Patna (2,436)
Seoul (9,963)	Dalian (5,618)	Nanchang (3,598)	Brisbane (2,406)
	Kitakyushu-Fukuoka (5,529)	Kozhikode (3,555)	Bhopal (2,390)
	Shandong (5,360)	Busan (3,465)	Luoyang (2,387)
	Yangon (5,332)	Tangshan, Hebei (3,426)	Tangerang (2,339)
	Zhengzhou (5,323)	Bekasi (3,394)	Medan (2,338)
		Malappuram (3,391)	Sendai (2,327)
		Guiyang (3,317)	Nantong (2,276)
		Preshawa (3,279)	Agra (2,210)
		Wuxi, Jiangsu (3,256)	Daegu (2,199)
		Rawalpindi (3,175)	Baotou (2190)
		Kanpur (3,124)	Vadodara (2,190)
		Kochi (3,082)	Visakhapatnam (2,175)
		Lanzhou (3,081)	Kannur (2,167)
		Thrissur (3,068)	Liuzhou (2,165)
		Indore (3,017)	Hohhot (2,163)
			Xuzhou (2,146)
			Hiroshima (2,083)
			Phnom Penh (2,078)
			Nashik (2,066)
			Perth (2,042)
			Vijayawada (2,040)

Note: Population (million) in parentheses.

Source: (UN, 2019).

Topology of GVC Transformation and Unbundling Effects in ASEAN and East Asia: GVCs, Cities, and Regional Development

GVC activities in East Asia and ASEAN are both inducing fragmentation and creating agglomeration activities in manufacturing and service activities in the region. In the initial stages of development, recent studies have identified two important stages of fragmentation or unbundling of industrial activities in terms of the first and second stages (Kimura, 2018; Baldwin, 2011; Kimura and Obashi, 2015). In this section, we integrate the GVC activities, structural transformation of the economy, and urban amenities in an integrated framework of open economic strategies and development. The topology of the GVC activities, structural transformation, and urban amenities is shown in Table 10.2.

Table 10.2 Topology of GVCs, Structural Transformation, and Urban Amenities

Tier 3: Underdeveloped economy: low level of industrial activity	Tier 2a: Hook up with GVCs (1st unbundling): resource-based/ labour-intensive industries	Tier 2b: Participate in production networks (2nd unbundling, stage 1) – jump-start industrialisation with machinery industries	Tier 2c: Form industrial agglomeration (2nd unbundling, stage 2) – accelerate technology transfer/spillover	Tier 1: Create innovation hub – urban amenities (3rd unbundling): high innovation and digital transformation
Trade cost				
High	Low	Low	Low	Low
Communication cost				
High	High	Low	Low	Low
Face-to-face cost				
High	High	High	Medium	Low
Trade				
Movement of goods: low	Movement of goods: high	Movement of ideas (plus goods): medium Service trade increase: tourism, finance	Movement of ideas (plus goods): high Service linkages and service GVCs Service trade increases: tourism, finance, aviation, logistics, business services	Movement of people (plus ideas and goods) Trade in high value-added goods Service GVCs and high value-added services Services trade and investment are critical

Tier 3: Underdeveloped economy: low level of industrial activity	Tier 2a: Hook up with GVCs (1st unbundling): resource-based/ labour-intensive industries	Tier 2b: Participate in production networks (2nd unbundling, stage 1) – jump-start industrialisation with machinery industries	Tier 2c: Form industrial agglomeration (2nd unbundling, stage 2) – accelerate technology transfer/spillover	Tier 1: Create innovation hub – urban amenities (3rd unbundling): high innovation and digital transformation
International division of labour				
Low	Industry-wise: fragmentation in production and consumption	Task-wise: industry-level fragmentation (medium)	Task-wise: industry-level fragmentation (high)	People-wise: individual skills and task fragmentation
Skills and human capital				
Unskilled Primary and lower education	Unskilled and semi-skilled Primary and upper primary education	Semi-skilled and skilled (low) Upper primary, secondary, and upper secondary; technical education; vocational training	Semi-skilled (high) and skilled (low); secondary, upper secondary, and tertiary education (low); technical education, vocational training Technical and vocational education is critical	Skilled and semi-skilled (high) Upper secondary and tertiary education Technical and science education Vocational training Technical and vocational education is critical Emphasis on lifelong learning platform
Movement of labour				
Rural–urban migration: low	Rural–urban migration: high unskilled labour from rural sector to urban sector	Rural–urban migration: high for semi-skilled and skilled labour from rural sector to urban sector Linkages between urban centres: low Migration between urban centres: low	Rural–urban migration: high Between urban centres: moderate Movement of skilled foreign labour (moderate)	Movement of labour (domestic and foreign) between urban centres: high (daily movement) Rural–urban migration: high; movement of skilled foreign labour (high); virtual movement of skilled labour

Tier 3: Underdeveloped economy: low level of industrial activity	Tier 2a: Hook up with GVCs (1st unbundling): resource-based/ labour-intensive industries	Tier 2b: Participate in production networks (2nd unbundling, stage 1) – jump-start industrialisation with machinery industries	Tier 2c: Form industrial agglomeration (2nd unbundling, stage 2) – accelerate technology transfer/spillover	Tier 1: Create innovation hub – urban amenities (3rd unbundling): high innovation and digital transformation
Regional and global value chains				
Low RVC and GVC	GVC participation with labour-intensive activities Service trade increase in tourism and finance (low)	GVC participation and low level of GVC positioning Service linkages Service GVC (low) in tourism, logistics, aviation Openness leads to disruptions in GVC (low) in trade	GVC participation and high positioning Service GVC (high) Servicification of manufacturing (low) Greater GVC disruptions in trade (high) and technology (low)	GVC positioning (high) in high value-added activities; innovative services and GVC Servicification of manufacturing (high) High GVC disruptions from trade and technology
City development and urban amenities				
Basic amenities; lack of infrastructure such as roads, highways, ports, airports; weak rural–urban linkages Low-tier cities Low telecom infrastructure	Develop key infrastructure such as roads, highways, ports, airports; develop rural–urban linkages Develop medium-tier cities (low) Weak urban amenities and linkages such as hotels, restaurants, hospitals, parks, schools, universities, public housing Develop telecom linkages and infrastructure (domestic)	Develop strong linkages in infrastructure in more ports, airports, highways Strengthen rural–urban linkages Develop strong urban amenities such as higher tier hotels, restaurants, shopping centres, universities, public and private hospitals, public and private schools Develop medium-tier cities (high) Increase in linkages between urban centres and cities Stronger telecom linkages and infrastructure in domestic economy; there is a need to develop regional linkages in telecommunication (soft and hard infrastructure)	Develop regional linkages in infrastructure in terms of ports, airports, highways Develop strong tier 2 and tier 1 cities Increase linkages in urban centres Develop strong urban amenities such as quality schools, universities, private and public housing, private and public schools, private and public hospitals, libraries, parks Transport infrastructure: mass rapid transport, fast trains, telecom connectivity Develop strong rural–urban linkages Strong telecom linkages and infrastructure to regional trade and investment activities	Develop high technology-intensive infrastructure such as digital infrastructure Strong linkages between cities in the region Strong rural–urban city linkages Strong urban amenities and linkages Highly innovative urban centre Innovation and growth driven by urban centres Telecom infrastructure is in high digital technology Level of Innovation in cities: Innovation and Knowledge driven cities

GVC = global value chain, RVC = regional value chain.

Sources: Kimura (2018); Thangavelu and Wenxiao (2021); ERIA (2010).

First Unbundling

In the first unbundling, the role of government is important to drive rapid industrialisation and to overcome coordination failures due to the lumpiness and complexity of industries (Baldwin, 2011; Kimura, 2018). The economy will experience high communication and face-to-face costs because of lack of digital technologies. It will also experience industry-wise fragmentation in production and consumption. There is a common objective across the public and private sectors in terms of driving openness and seeking new global markets. At this stage, trade is necessary for importing key inputs to goods that are then exported. Industrial policy to coordinate and reduce the cost of entry to manufacturing activities will be critical to create industry-level agglomerate activities, since a larger set of activities helps to develop value chain operations. These developments are not straightforward, and it is important to note that it took several decades to build up the supply chain in East Asia.

At this stage, the economy could adopt an economic liberalisation and openness strategy to increase trade and investment due to declining trade costs. We should expect countries to participate in GVC activities through low-tier factor intensity activities (e.g. raw material exports) and labour-intensive activities (e.g. garment and textile exports). The labour force only has unskilled workers with primary or lower education. We expect greater movement of unskilled labour from rural to urban areas to support the development of labour-intensive activities. The rural–urban linkages are much weaker at this stage, with weak infrastructure in roads, highways, ports, and airports. The economy will start developing basic infrastructure such as roads, highways, ports, and airports. It will also experience very weak urban amenities, and we observe the development of small-tier cities due to rural–urban migration. At this stage, we will observe the development of traditional services trade (e.g. tourism and logistics) and some level of development in the financial sector.

Second Stage Unbundling

In the second stage unbundling, there is a less need to build up large supply chains and there are lower transaction costs to participate in the supply chains due to the strong connectivity already in place thanks to ICTs. At this stage, we will experience lower trade and communication costs. However, we will still experience high face-to-face costs due to lack of digital infrastructure and technologies. The economy will experience task-wise fragmentation in terms of resource-intensive, labour-intensive, skill-intensive, skilled and knowledge-intensive, and knowledge-intensive production in the GVCs. Due to the low trade and communication costs, economies can join the chain more easily and quickly. However, the participating firm and therefore the chain itself become more 'footloose'. There is more rapid technological change and competition, as more cost-competitive economies enter the chain. At this stage, with respect to governments and institutions, we will observe

greater 'learning by governing' and institutional convergence as governments learn how to manage institutional development from other successful economies, thereby increasing the convergence of institutions in the region.

The role and the challenges facing the government, multinationals, and domestic firms are quite different in the second unbundling. Export success may have been achieved in the first unbundling, but policymakers face many new questions in the second unbundling: Which supply chains should be joined? Should nations strive to set up their own GVCs? What is the optimal technology policy (intellectual property rights, etc.)? Different nations will adopt different industrial strategies without their efforts being guided by formal models that explicitly incorporate supply chains (Baldwin, 2011).

To understand the second stage unbundling, we can summarise it into two stages. In the first stage, the economy will experience low trade and communication costs, but high face-to-face costs. At this stage, the economy will be able to move up the value chain and participate in labour-intensive and semi-skilled-intensive industrial activities in the GVC. In the second stage, the economy will experience a moderate decline in face-to-face costs due to investment in telecommunication infrastructure and technologies that allow the economy to position itself and move up to more skill-intensive and skilled and knowledge-intensive activities in the GVC.

One of the key challenges of the second stage unbundling is the development of skills and human capital, as the transition to a skilled labour force will take time to develop. In the first stage of the second unbundling, the labour force will have mostly semi-skilled labour in terms of upper primary, secondary, and upper secondary education. At this stage, technical education and vocational training will be critical as the skills required for the technical aspects of manufacturing and services activities will intensify. In the second stage of the second unbundling, the skill requirements will be higher as the labour force requires upper secondary and tertiary education. The labour force also requires training in technical and vocational skills, and the importance of a lifelong learning framework will be emphasised.

In the second unbundling, the economy requires the twin engine of manufacturing and services to drive economic growth. The importance and efficiency of service activities in trade and investment will be critical to maintain and sustain economic growth and development in the economy and region.

It is interesting to observe that services sector growth becomes more important in the second stage of production unbundling in terms of creating services linkages. Several factors lead to the importance of services linkages in the second stage. First, skills and human capital tend to drive the key services linkages in the global production value chain. Second, key services sectors tend to become important components of trade – such as distributional services, financial services, transport and aviation services, telecommunication services,

and logistic services. This is again driven by human capital development and urban and suburban amenities in the form of soft and hard infrastructure development as the region opens up for trade and investment. The soft and hard infrastructure tends to reduce the cost of services linkages, thereby increasing the intensity for further developments and linkages to global production value chain activities. Third, the development of infrastructure, such as ports, airports, and roads, creates linkages and increases the agglomerative effects for arm's-length industrial activities. This increases the participation of SMEs, creating linkages with multinational firms for product and process innovation in the region.

At this second stage, we will observe the development of medium-sized cities, and urban linkages will be critical to create agglomeration across the cities. The development of medium-sized and large cities will be driven by greater rural–urban migration and greater movement of foreign skilled workers to cities. We will also observe the importance of cities in driving the performance of value chains. There are various mechanisms. One is the capability of attracting and retaining skilled workers (Glaeser, Ponzetto, and Zou, 2015). Cities with strong urban and suburban amenities tend to be more competitive in attracting skilled workers to live and work, adding to the competitiveness of the services sector. More developed countries and cities need urban amenities – such as good schools, universities, research centres, shopping centres, hotels and restaurants, and entertainment amenities – to attract skilled workers in terms of (i) greater varieties of services and consumer goods; (ii) aesthetics and physical settings of infrastructure, (iii) good public goods, and (iv) convenience and speed of delivery of services (Kimura and Obashi, 2015). Another role for cities is to shape the way that businesses and people interact with each other to produce ideas about doing things differently, i.e. the way cities can drive creativity. This will create more innovative activities in services unbundling and new ways of doing business, as well as new types of goods and new production technologies.

In the second stage of the second unbundling, the ICT revolution and technological improvements will lower communication costs – leading to more production unbundling. We will also observe a moderate decline in face-to-face costs, which will increase the service linkages in the GVCs. We will observe greater movement of ideas and more industry-wise division of labour. In the second stage, there is less need to build up large supply chains and there are lower transaction costs to participate in the supply chain. As a result, economies can join and participate in the GVC more easily and quickly. However, the participating corporations and therefore the chain itself becomes more 'footloose'. There is more rapid technological change and competition, as more cost-competitive economies enter the chain. The services sector will be crucial in creating service linkages in the global production value chain. At this stage, we will observe greater growth in the services sector of the domestic economy as well as in trade. As service linkages and servicification increase in the economy, we will also experience greater GVC disruptions from technological and economic shocks, which will have a direct impact on both the manufacturing and service activities in the GVC.

Third Stage Unbundling

In the third unbundling, we will observe further ICT revolution and technological improvements – leading to lowering face-to-face transaction costs – and more people-to-people transactions. At this stage, economies will experience more task-based activities and more fragmentation of individual skills, and an increase in service sector trade and activities. We expect more business-to-consumer and consumer-to-consumer activities. At this stage, there will be significant technology and labour market implications from the third unbundling. The economy requires a high level of skills and human capital to drive the innovation and entrepreneurial activities in the economy. The labour force requires upper secondary and tertiary education, particularly in science and technical education at both the secondary and tertiary. There is also a need to develop lifelong learning activities in science and technical based education and skills development through the life cycle of workers in the labour market. This is critical to retain workers in the labour market as the economy will be subjected to a high level of disruptions from technology and economic shocks.

The impact of ICT in the third unbundling will have important implications for economic and industrial policy. Information technology such as artificial intelligence and the digital economy (Industry 4.0) will have a direct impact on breaking down individual skills and will reduce the task-based activities. These technologies will create concentration and agglomeration activities in services and manufacturing. In contrast, communication technologies such as smartphones will likely overcome distances and generate dispersion or fragmentation of activities. Both innovations have different but significant impacts on the domestic economy and the labour market. Industry policy needs to manage both the agglomeration effects and dispersion effects.

In the third unbundling, we will observe the importance of cities in driving the performance of value chains in terms of human capital and technologies. The efficiency and intensity of cities will be important in attracting and retaining skilled labour and in increasing innovation activities to be positioned at higher value-added activities of the regional and global value chains (Glaeser, Ponzetto, and Zou, 2015). Cities with strong urban and suburban amenities tend to be more competitive to attract skilled workers to live and work, adding to the competitiveness of the services sector. The urban agglomeration driven by urban amenities and communication and telecommunication technologies is necessary to create economies of scale and a scope of activities for cities at this stage of unbundling – in terms of the unbundling of technologies and skills to drive economic growth. This requires large cities and megacities. It might also be possible to have several large cities creating urban linkages between cities, and urban agglomeration with suburban segments of their administrative boundaries. At this stage, urban amenities – together with technology intensities and densities through communication and telecommunication technologies – will be important in increasing the efficiency of large cities and megacities to attract domestic and foreign skilled labour. We will observe both physical as well as virtual movement of labour between

cities across regional and global boundaries, thereby increasing the skilled and task-wise fragmentation of individual workers, and greater unbundling of the skills to tasks. We will observe greater acceleration of value-added services and services linkages to support more complex GVC activities in the economy.

The regional and global supply chain activities in East Asia and ASEAN are growing and deepening as more mature economies move to the second stage of production fragmentation and emerging AMS build up an industrial base for the first stage of production fragmentation. However, we also observe certain challenges in Asia. The level of liberalisation – in particular, services and investment liberalisation – is losing its momentum and slowing down. Asian cities are plagued with high population densities, decreasing the returns to urbanisation (through pollution and congestion) and limiting their contribution to regional growth. The level of trade and investment liberalisation in multilateral agreements such as the Regional Comprehensive Economic Partnership is becoming weaker and tends to be of a very low denomination for further regional integration.

Policy Discussion

Several policy issues must be addressed, as East Asian and ASEAN economies are at different stages of growth in the global production value chain. The more developed AMS – Indonesia, the Philippines, Thailand, and Viet Nam – are at the middle stage of the second unbundling; Malaysia is at a higher stage of the second unbundling; and two of the ASEAN LDCs (Cambodia and the Lao PDR) are at the beginning of the second unbundling. Singapore, the city state, is already at the beginning of the third unbundling. The important of urban amenities and growth of cities will be critical at the next stage of growth in ASEAN and the region.

We observe that both the first and second unbundlings are occurring concurrently in the development of Asia as the global supply chain activities in East Asia and ASEAN are growing and deepening. However, we also see challenges emerging in the region. The level of liberalisation in services and investment is losing its momentum and slowing down across AMS due to the pandemic shock. Asian cities are plagued with high population densities, decreasing the returns to urbanisation (through pollution and congestion) and limiting their productive contribution to the regional growth. The level of trade and investment liberalisation in multilateral agreements such as the Regional Comprehensive Economic Partnership will be important to maintain and align domestic economies to sustain the economic competitiveness of domestic economies in the region.

The questions of how to manage and create agglomeration and dispersion effects in the services sector will be important policy discussions for the next stage of growth in East Asia. Governments might have to adopt a balanced approach to manage both the agglomeration and dispersion effects in the economy. Such an approach will be critically dependent on the development of urban amenities, urban linkages, and labour force skills to manage the technological disruptions as well as the movement of people within and between cities. This will be critical for AMS in the pandemic recovery and in setting the stage for the next stage of growth.

The nexus of GVCs, structural transformation, and urban amenities has several policy implications:

a. Skills and human capital are key factors linking production, competitiveness, innovation, and economic growth in the development of GVCs (Thangavelu and Narjoko, 2014; Thangavelu and Wenxiao, 2021). The development of GVCs also imposes new challenges to the high-skilled human capital in these countries, which are tailored to compete with skills from developed countries and to meet the international standards of GVCs. It is very clear that human capital is one of the key fundamentals to improve the firms' participation in GVCs as well as to position to higher-value activities at higher tiers of the GVC. The level of human capital in the ASEAN region is still too low to fully participate in GVCs and to shift to higher stages of GVC activities, especially in the second stage of the second unbundling. The labour force in ASEAN less developed countries (LDCs) have only primary or lower primary education, and there is a need to shift the educational level to upper primary and secondary level education. We also observe that the more developed AMS – Indonesia, Malaysia, Thailand, and Viet Nam – need a more holistic framework of human capital development that emphasises quality education and increases educational attainment to upper secondary and tertiary education, particularly in science and technical education. There is also a need to create an integrated framework for training and retraining of workers in relevant skills to retain workers in the labour market, as these countries experience more GVC disruptions.
b. The weaker services linkages of key AMS, preventing them from participating in complex GVC and RVC activities, reflect the weakness of the region to move up the value chain activities. The key fundamentals to harness the GVC network – technology, human capital, strong forward-looking institutions, and connectivity in soft and hard infrastructure – are still lacking in the ASEAN region. This provides ample opportunity to undertake more active economic liberalisation and key reforms to improve the GVC and RVC network in the region.
c. We also noticed that AMS are weaker in complex RVC and GVC activities, which indicates the weakness of key fundamentals in the domestic economy. The development of the regional and global value network is critically dependent on key domestic fundamentals such as human capital development in skills, technological development and harnessing digital technologies in ICTs, and the development of urban centres to create agglomerative activities in both the economic and social dimensions.

d. To balance the agglomerative and dispersion effects in the domestic economy, there is a need to develop a coordinated industry strategy that aligns forward-looking policies in industrial and human capital development policies in education and training. The alignment of industrial and educational policies in the overall development strategy will provide a domestic policy reform to coordinate the structural transformation of the domestic economy to the changes in the regional and global value chains.
e. There is a need for further liberalisation of services and investment in the ASEAN region. The services sector is still hampered by behind-the-border issues and higher regulatory burdens imposed by domestic institutions. The next stage of liberalisation could focus on key services sectors (e.g. aviation, logistics, finance, e-commerce, educational services, and business services) in creating stronger GVC linkages in the region. Traditional services trade sectors in ASEAN LDCs, such as tourism, could be improved and elevated to more service GVC activities such as green or cultural tourism.
f. The liberalisation of services in investment is critical to push innovation and entrepreneurship in developing new services GVCs and services linkages in the domestic economy and the region. The reforms to national information management systems in the domestic economy and coordination at the regional level will provide a platform to develop a region-wide digital framework to support and develop a more resilience GVC network to support innovative activities in the region.
g. The liberalisation of services should also be aligned with the movement of people, particularly the movement of semi-skilled and skilled workers, in the region. The movement of people will be critical to develop and create city and urban linkages within the domestic economy and between cities in the region. This will have important implications for the third unbundling in the ASEAN region.
h. Since East and Southeast Asia experienced a significant increase in medium-sized and small cities from 2000 to 2020, there is a need to create linkages between cities to increase the movement of people and ideas across cities to support and expand more innovative and entrepreneurial activities in the domestic economy. It is also important to create urban agglomeration in cities by developing competitive suburban and metropolitan areas closer to the cities. The competitiveness of these cities will be critical to drive the next stage of growth in the region. The competitiveness of ASEAN cities will be critically dependent on the quality of urban amenities, which increase the liveability of cities and attract skilled labour to live in and contribute to cities' innovation activities. Urban amenities will also be important in managing the negative impacts of medium-sized and large cities in terms of congestion and the higher cost of living. The competitiveness of the cities in Asia and ASEAN through the quality of urban amenities, service linkages, and skilled labour will be critical for recovery during and after the pandemic and for the structural transformation of ASEAN and East Asia for the next stage of sustainable and inclusive growth.

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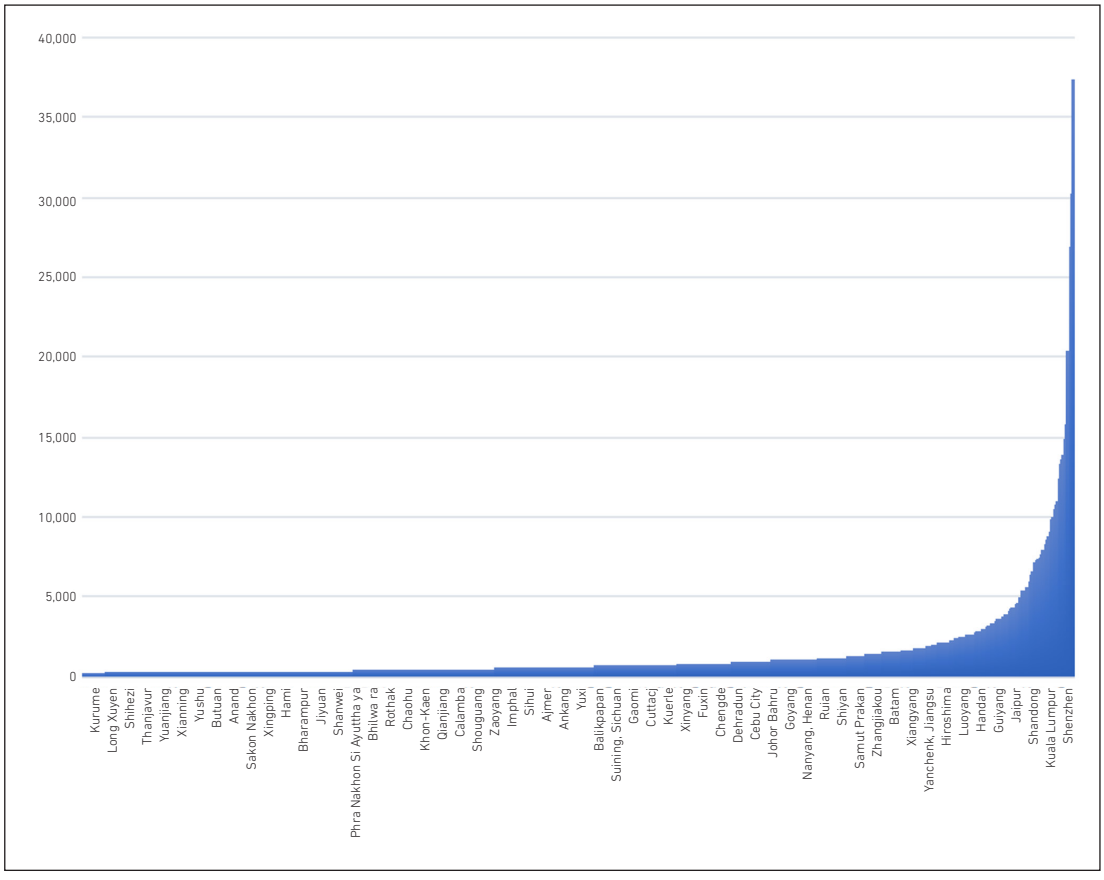
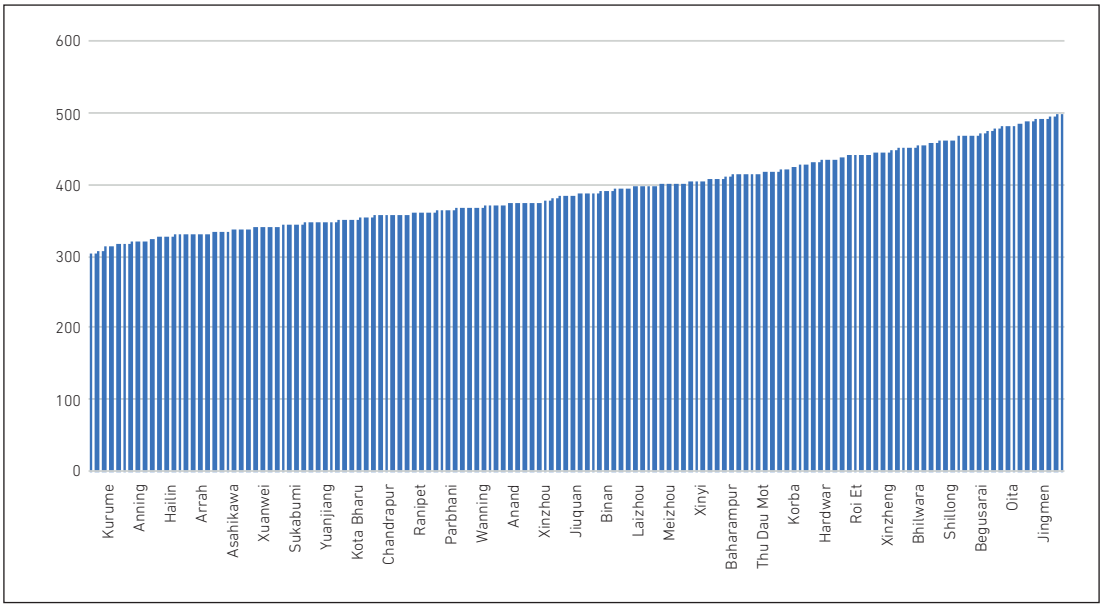
Annex

Figure A1 Asian Cities by Class Size (population), 2020



Source: UN World Urbanization Prospect 2018 (UN, 2019).

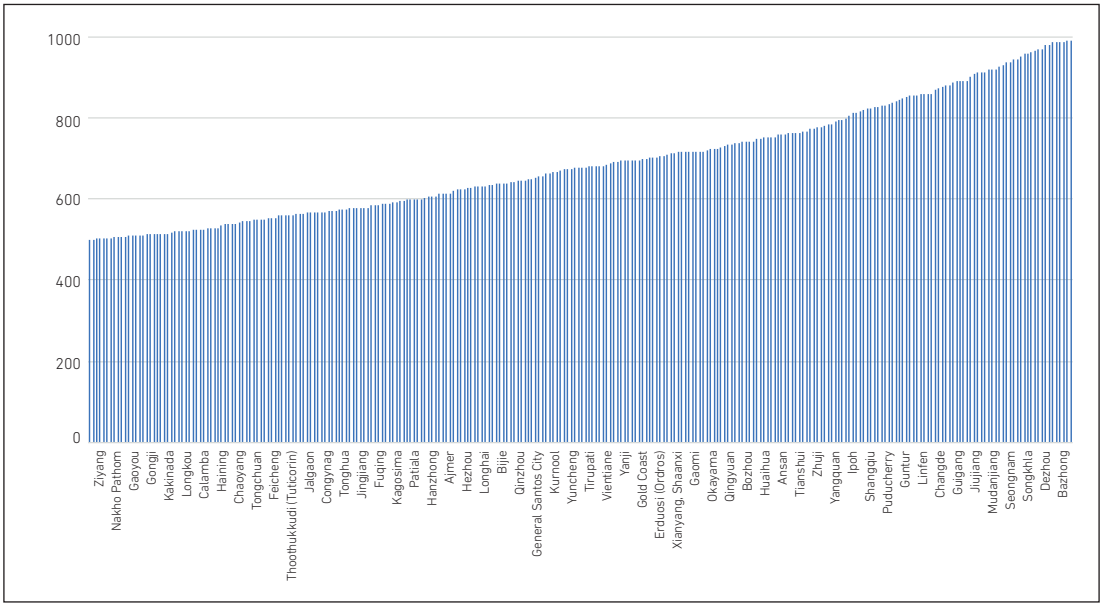
Figure A2 Small Cities in Asia, 2020 (population less than 500,000)



Note: 794 Asian cities.

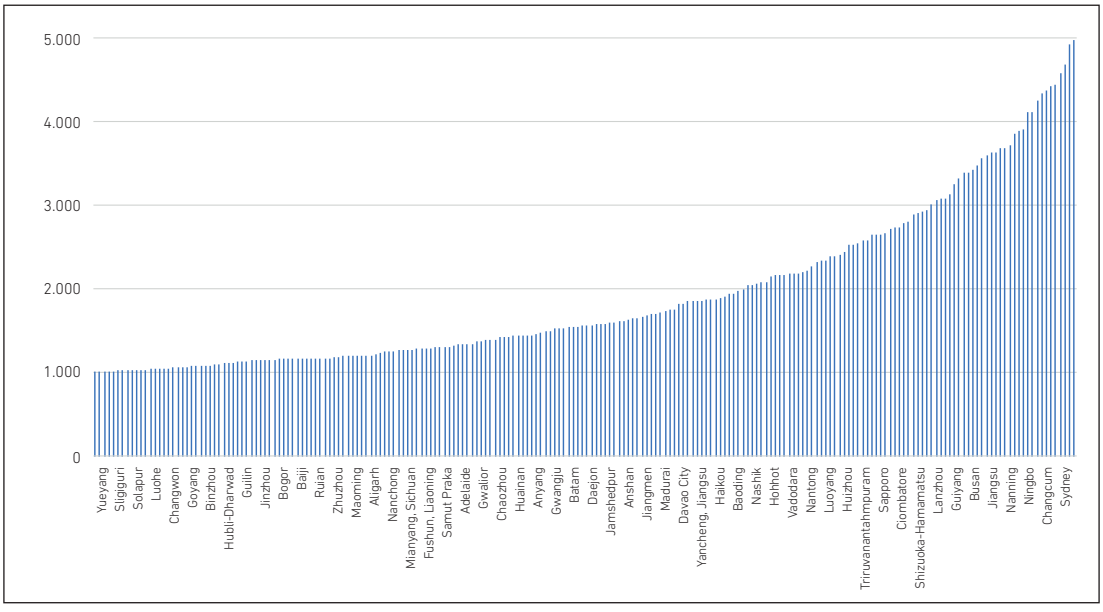
Source: UN World Urbanization Prospect 2018, UN (2019).

Figure A3 Class Size of Cities in Asia (Population 500k to 1m) - Small-Medium Sized Cities, 2020



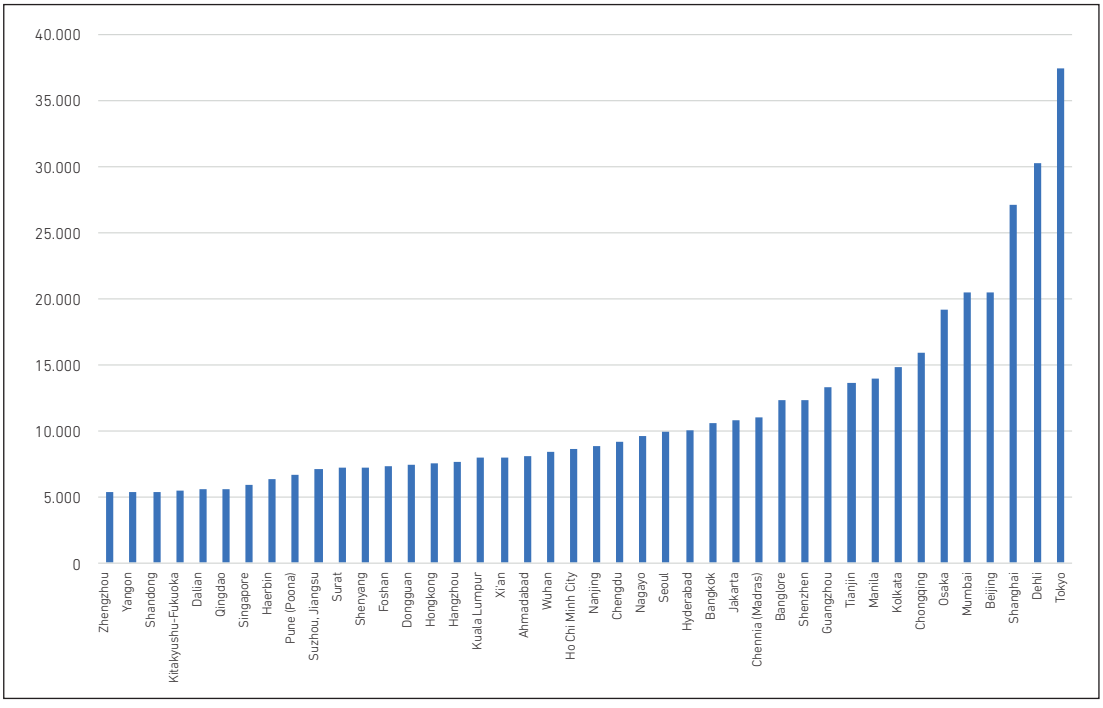
Source: UN World Urbanization Prospect 2018, UN (2019).

Figure A4 Class Size of Cities in Asia (Population 1m to 5m) -Medium Sized Cities, 2020



Source: UN World Urbanization Prospect 2018, UN (2019).

Figure A5 Class Size of Cities in Asia (Population 5m and above) -Large and Mega-Sized Sized Cities, 2020



Source: UN World Urbanization Prospects, 2018, UN (2019).