

GLOBAL VALUE CHAIN, CITIES AND URBAN AMENITIES: NEXT STAGE OF GROWTH FOR ASEAN AND EAST ASIA

**Shandre Mugan Thangavelu, Fukunari Kimura,
Dionisius A. Narjoko**

JCI-JSC Working Paper

JCI-JSC-WP-2022-01

Global Value Chain, Cities and Urban Amenities: Next Stage of Growth for ASEAN and East Asia

JCI-JSC Working Paper

JCI-JSC-WP-2022-01

January 2022

The JCI-JSC Working Paper series is published to disseminate preliminary research findings and stimulate intellectual discourse on wide-ranging public policy issues, ranging from security to sustainability. The views expressed herein are those of the author(s) and do not necessarily reflect the views of the Jeffrey Cheah Institute on Southeast Asia and the Jeffrey Sachs Center on Sustainable Development.

Authors

Shandre Mugan Thangavelu

Fukunari Kimura

Dionisius A. Narjoko

Editors

Woo Wing Thye

Shandre Mugan Thangavelu

ISBN: To be confirmed

© Sunway University Sdn. Bhd.

Published by Sunway University Sdn Bhd

No. 5 Jalan Universiti

Bandar Sunway 47500

Selangor Darul Ehsan.

In collaboration with Jeffrey Cheah Institute on Southeast Asia and Jeffrey Sachs Center on Sustainable Development.

Jeffrey Cheah Institute on Southeast Asia (JCI) is an independent public policy think-tank based at Sunway University on the outskirts of the Malaysian capital, Kuala Lumpur. The Institute's research programme is grouped around three core disciplines: economic development, governance, and social progress, including education. Its mission is to develop solutions to some of the region's most pressing development problems. JCI seeks to engage policymakers, scholars and ordinary citizens through regular public lectures and discussions, and to build lasting academic partnerships in the region and the wider Asia-Pacific.

Jeffrey Sachs Center on Sustainable Development (JSC) is a regional center of excellence that advances the achievement of the 17 Sustainable Development Goals (SDGs) in Malaysia and Southeast Asia, tackling the sustainability agenda through education, training, research and policy advisory. Launched in December 2016, the Center operates out of Sunway University and was borne out of a \$10 million gift from the Jeffrey Cheah Foundation (JCF) to the UN Sustainable Development Solutions Network (SDSN).

ABSTRACT

In this paper, we explore the impact of urban amenities on the development and transformation of GVC in ASEAN and East Asia in terms of skills development and the unbundling of manufacturing and services activities due to telecommunication and information technologies. The paper highlights the importance of urban amenities to retain and maintain skill labour in the key cities to drive economic growth. We used the city level data for Asia and ASEAN from UN, Department of Economic and Social Affairs, Population Division, to understand the relationship among cities, GVC and urban amenities. The paper highlights that the next stage of growth in ASEAN will be driven by the competitiveness of cities in terms of attracting and retaining skilled labour, developing the telecommunication infrastructure, developing quality urban amenities, and creating the connectedness to regional and global cities.

Key Words: GVC, Structural Transformation and Urban Amenities



CONTENTS

ABSTRACT	3
GLOBAL VALUE CHAIN, CITIES AND URBAN AMENITIES: NEXT STAGE OF GROWTH FOR ASEAN AND EAST ASIA	5
1. Introduction	5
2. GVC Transformation in Asia and ASEAN	7
3. Urbanization and Trends of Cities in ASEAN and Asia	10
4. Topology of GVC Transformation and 'Unbundling' Effects in ASEAN: GVC, Cities and Regional Development	15
a. First Stage Unbundling.....	15
b. Second Stage Unbundling.....	15
c. Third Stage Unbundling.....	22
5. Policy Discussion	23
ANNEXE.....	28
AUTHORS.....	31

GLOBAL VALUE CHAIN, CITIES AND URBAN AMENITIES: NEXT STAGE OF GROWTH FOR ASEAN AND EAST ASIA

1. Introduction

The regional and global production value chain and network are important features and the key driver of economic growth and integration in East Asia and ASEAN. The impact of GVC on the East Asian manufacturing and services activities and hence on its economic development is quite significant (Kimura, 2018; Baldwin, 2011, ASEAN Integration Report, ASEAN Secretariat, 2019). Recent evidence shows that DVA (domestic value-added) of the exports of ASEAN Member States have been relatively high and stable since 2010 (ASEAN Integration Report, ASEAN Secretariat, 2019). The DVA of exports ranges around 47% for Singapore to 90.3% for Brunei. The FVA (foreign value-added) in exports is at 39% for Singapore and at a lower range of 6.7% for Brunei.

East Asia and ASEAN are undergoing significant structural transformation due to the dynamism of regional and global value chain. It is driving deeper economic and regional integration. In fact, the global value chain network is driving the economic transformation of East Asia from both the demand 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 GVC from digital and telecommunication technologies are creating new economic opportunities and also are inducing greater creative-destructions in the respective East Asian and ASEAN economies.

The effects of GVC is not a new phenomenon in Asia. Since 1970s, US retailers and big brand-name companies started offshoring their labour-intensive activities overseas (Gereffi 2013) in search of cheap labour advantages. However, in the recent GVC transformation, the pace of GVC has accelerated in terms of the speed, scale, depth and breadth of global interactions (Elms and Low 2013). The fragmentation process has intensified since 2000s beyond manufacturing sector to services such as accounting, medical procedure and call centres (Gereffi and Sturgeon 2013). GVCs have also proliferated geographically involving broader countries from various regions and organizationally manifest in more complex and multi-layer inter-firm networks across the globe. This production configuration, which has become the most important feature of global economy today (De Backer, De Lombaerde and Lapadre 2018; OECD 2013), is driven by technological progress, advances in the transport and logistic sector that lead to significant decline in trade costs, more liberal regional and national policies toward freer trade and investment flows, and the

opening up of emerging economies, especially in China and India (Kimura 2018; Baldwin 2012, 2013; De Backer, De Lombaerde and Lapadre 2018).

The key transformation of the GVC is the depth and degree of integration and inter-dependency of the regional economies to global activities. There is a significant shift in the trade patterns in regional and global economy from exchange of final goods to trade in parts and components. Geographic dispersion of production has substantially increased economic interdependency among economies around the world especially in terms of investment flow and intensification of flow in intermediate goods. WTO and IDP-JETRO (2011) estimated that trade in intermediate goods in 2009 represents more than 50% of non-fuel merchandise trade. The share of intermediate input trade is found even higher (over 50% of goods trade and almost 70% of services trade) in Gurría (2015) and roughly two-third in Johnson and Noguera (2012). In his latest book on the new globalization, Baldwin (2016) describes the '21st century trade' as growing exchange of parts and components along with 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 process within and across countries due to technological advancement from telecommunication and information technologies have intensified the growth and inter-dependency of production processes between manufacturing and service activities. Services serve as inputs and linkages across value chains process, making it the 'glue of supply chains' (Low 2013) or sometimes refer to 'servicification' of production (Hoekman and Shepherd 2017, Thangavelu et. al, 2018). In the seminar work on the role of services in production and international trade, Jones and Kierzkowski (1990) firmly argues that the speed and efficiency with which service links operate clearly have a bearing on the optimal degree of fragmentation and that the gains from service liberalization may exist in form of greater participation in production process. Baldwin (2016) regards services such as telecommunication, transport and logistics, trade-related finances and custom clearance necessary to coordinate fragmented production. The importance of services in GVC is manifest in large and increasingly share of service in value-added trade, accounting for more than 40% in 2009 rising from 30% in 1985 (Heuser & Mattoo 2017). The impact of servicification of the Asia is also reflected by the recent study by Thangavelu et. al (2018) indicating that the degree of servicification of manufacturing activities in ASEAN has increased over the years.

The recent transformation of the GVC also highlights the importance of unbalance growth within and between countries due to the unbalance industrial and competitive responses of the specific regions within countries and also between countries. The key dimension of regional disparity within the economy is based on how responsive key cities are in the domestic economy to absorb, diffuse and disseminate key technologies and specific tasks to firms and workers in response to the dynamic shifts in the GVC. 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, research centres; and the social infrastructure such as urban amenities in hotels, restaurants, libraries, internet café, and soft and hard connectivity.

A recent study by Glaeser et. al (2015) highlights the importance of cities to create urban networks that creates innovation and entrepreneurship to spur the economic growth of the domestic economy and region. The urban networks through urban amenities increase global economies of scale through innovation in services and global linkages, although the return on local returns could decline due to the trade-off of urban congestion and living. In turn, the returns of urban networks to attract skilled workers to move and live in large and mega cities due to the higher returns from global urban networks.

The impact of urban network and agglomeration is not only on the innovation of services, but also on the manufacturing activities as urban amenities also create the economies of scale and knowledge spillovers for firms to innovate and increase their entrepreneurial activities (Chen et. al, 2020). A recent study of Asia by Chen et. al (2020) highlights the agglomeration effects through presence of top-tier universities at the Asian cities in raising the effectiveness of firm level R&D activities.

In this paper, we explore the development and transformation of GVC in Asia and East Asia in terms of skills development, unbundling of manufacturing and services activities due to telecommunication and information technologies, and the importance of urban amenities to retain and maintain skill labour in the key cities to drive economic growth. We used the city level data for Asia and ASEAN from UN, Department of Economic and Social Affairs, Population Division, to understand the relationship between cities, GVC and urban amenities. The results of our study indicate the importance of cities and urban amenities as important leverages for pandemic and post-pandemic recovery. Cities and urban centres will be the key to develop, attract, and sustain digital technologies and maintain the degree of openness necessary for the pandemic recovery.

The next section will discuss the GVC transformation in Asia and ASEAN. Section 3 will provide the population agglomeration and trends of cities in Asia. In section 4, we will provide the topology of GVC transformation and 'unbundling' effects of GVC. We will provide discussions on skill and unbundling of skills to tasks in Section 4. Section 5 will provide the policy discussion in terms of the pandemic recovery.

2. GVC Transformation in Asia and ASEAN

The East Asia region is transforming itself into one of the most dynamic regions in production networks and has seen unprecedented expansion of trade in intermediate goods. The studies by Athukorala (2011); Kimura et. al (2007); Obashi and Kimura (2017) provide the insights and evidences on the determinants of GVC integration in East Asia. The region is under the rapid expansion in terms of the 'international production networks' characterised by complex interconnectedness and governance structure due to production fragmentation in parts and components (Kimura et. al, 2007). Kimura et. al, 2007 used the parts and components statistics to proxy trade in value-added and regress with income gap (to capture location advantage) and distance (to capture service link cost). The findings confirm theoretical explanation that differentiate in location advantage measured by income gap are important in production networks.

Recent study by Taguchi, Matsushima and Hayakawa (2014) estimate 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 sub-region. The findings support the fragmentation framework that signifies differences in location advantage and low service cost that encourages firms to fragment production processes. Also, 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 the country's attractiveness as location of production network.

The key trends of complex GVC participation is given at Figure 1. The complex GVC participation rate is where the share of gross output involves the production in two or more countries in the global production network. The average of the complex GVC participation in Asia is around 40%, where the region participates in export activities in at least 2 countries. The key Asian countries participating in complex GVC activities are Korea, Malaysia, Singapore, Taipei, Thailand and

Vietnam. The GVC activities of these countries indicate more than 50% average share of gross exports in complex GVC activities, highlighting their reliance on global value chain activities to drive their export growth. The high complex GVC activities reflect the level of diversification of export activities in these countries, particularly in electronics and electrical, machine parts and components and transport equipment.

It is also interesting to note the complex GVC network is also driven by the sophistication and diversification of service sector through service linkages and services GVC. The key economies that rely on service trade are Singapore and Hong Kong. We observe that Singapore is more involved in complex GVC activities as compared to Hong Kong and this might be due to the larger China hinterland affecting the Hong Kong economy.

The two economies that provide interesting comparison in ASEAN are Malaysia and Vietnam. We also observe that the complex GVC participation rate of Vietnam has significantly increased since 2000, where more than 50% of its gross exports are involve 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.

It is interesting to observe the ASEAN LDCs of Cambodia and Lao PDR tend to have a lower share of gross exports in complex GVC activities, especially for Lao PDR as it is below the average share of 40% for Asia. We observe the complex GVC activities for Cambodia is increasing over time from 38% to 40% showing signs of diversification in exports. However, the Cambodian main exports are still in textiles and wearing apparels, and is heavily driven by the investment from China.

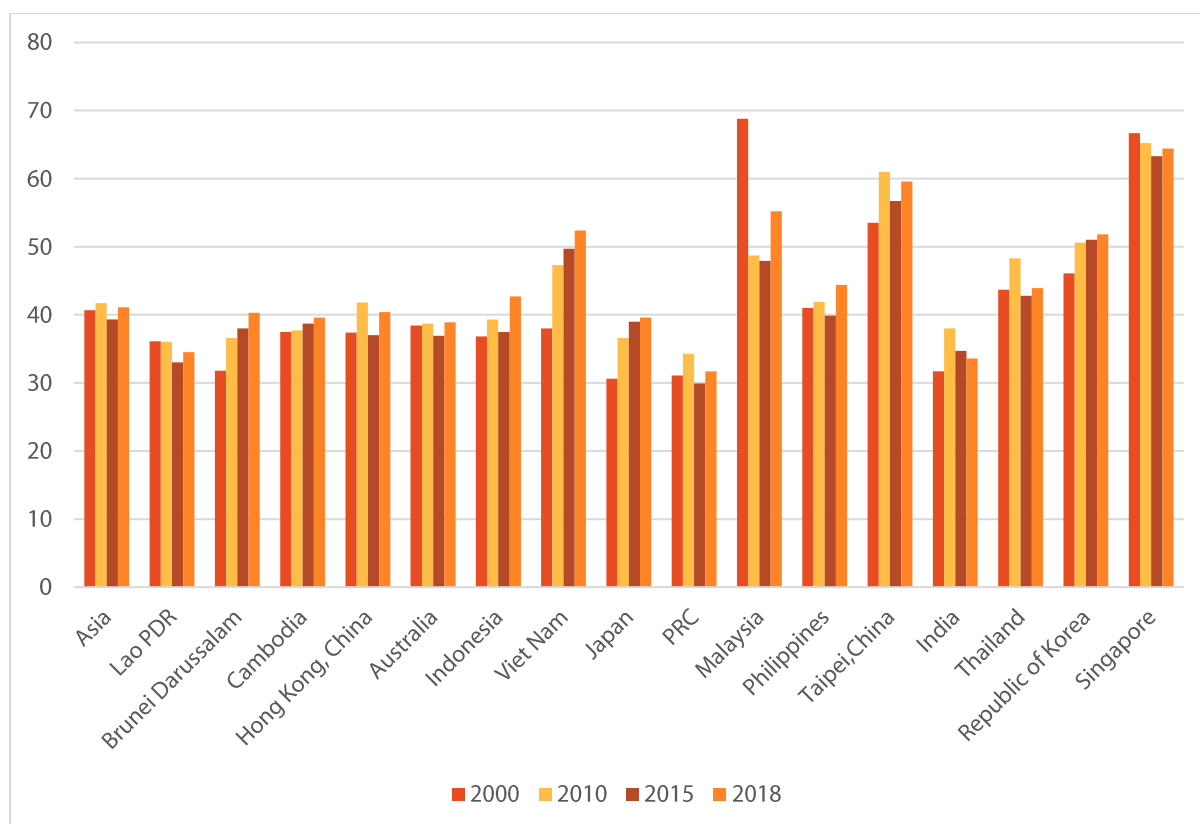


Figure 1: Complex GVC Participation in Asia: 2000-2018

Source: ADB Asia Integration Report 2019

The complex RVC (regional value chain) activities are reflected in Figure 2 from 2000 to 2018. The complex RVC activities reflect the share of gross exports that are in production across two countries within the same region. Overall Asia has a lower complex RVC activities as compared to complex GVC activities. The share of complex RVC is only around 25% of the share of gross exports. The key Asian countries showing higher complex RVC are Korea, Malaysia, Singapore, Taipei and Vietnam. We observe Thailand has a lower share of complex RVC and it is also declining over the years from 28% in 2010 to nearly 22% in 2018 respectively. In contrast, the complex RVC activities of Vietnam is rising from 23% in 2000 to over 41% in 2018. We also observe a higher rate of complex RVC activities for Philippines at 29% in 2018, slightly above the Asian average of 25% of gross exports. The other ASEAN countries of Brunei, Cambodia, Lao PDR, and Indonesia tend to experience lower complex RVC activities reflecting less sophisticated production structure and weaker linkages to participate fully in the complex value-chain production.

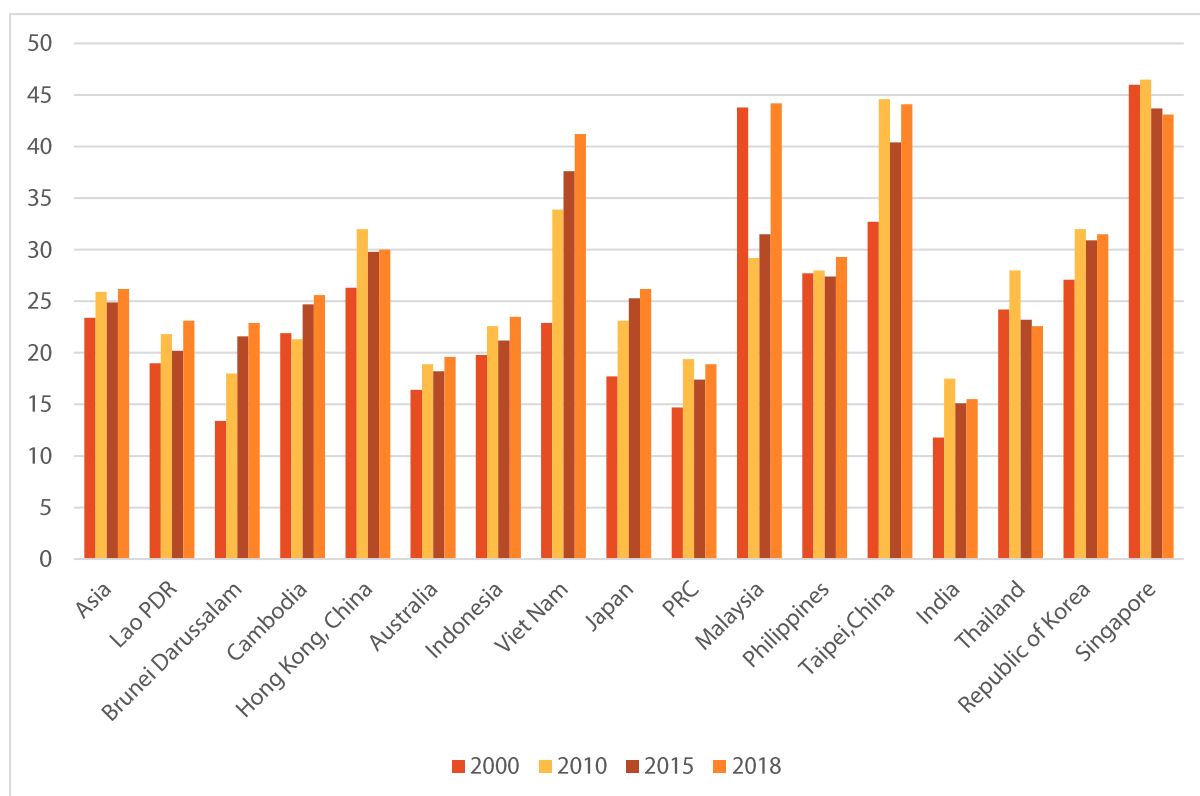


Figure 2: Complex Regional Value-Chain in Asia: 2000 - 2018

Source: ADB Asia Integration Report 2019

The ratio of complex RVC to GVC is given at Figure 3. The ratio reflects that ASEAN countries still rely on complex RVC to drive their export activities. The key Asian countries of Malaysia, Philippines, Hong Kong, Singapore and Vietnam rely on the regional production structure to drive their export growth. It is also interesting to observe Indonesia tend to experience a lower RVC-GVC intensity across the ASEAN countries, reflecting the weakness of the value-chain activities and diversification of its value-chain exports to participate in the complex GVC activities in RVC and GVC. The ASEAN LDCs of Cambodia and Lao PDR are weaker in terms of its complex GVC activities as its exports activities are not very sophisticated to cross several production networks in the regional and global value chain.

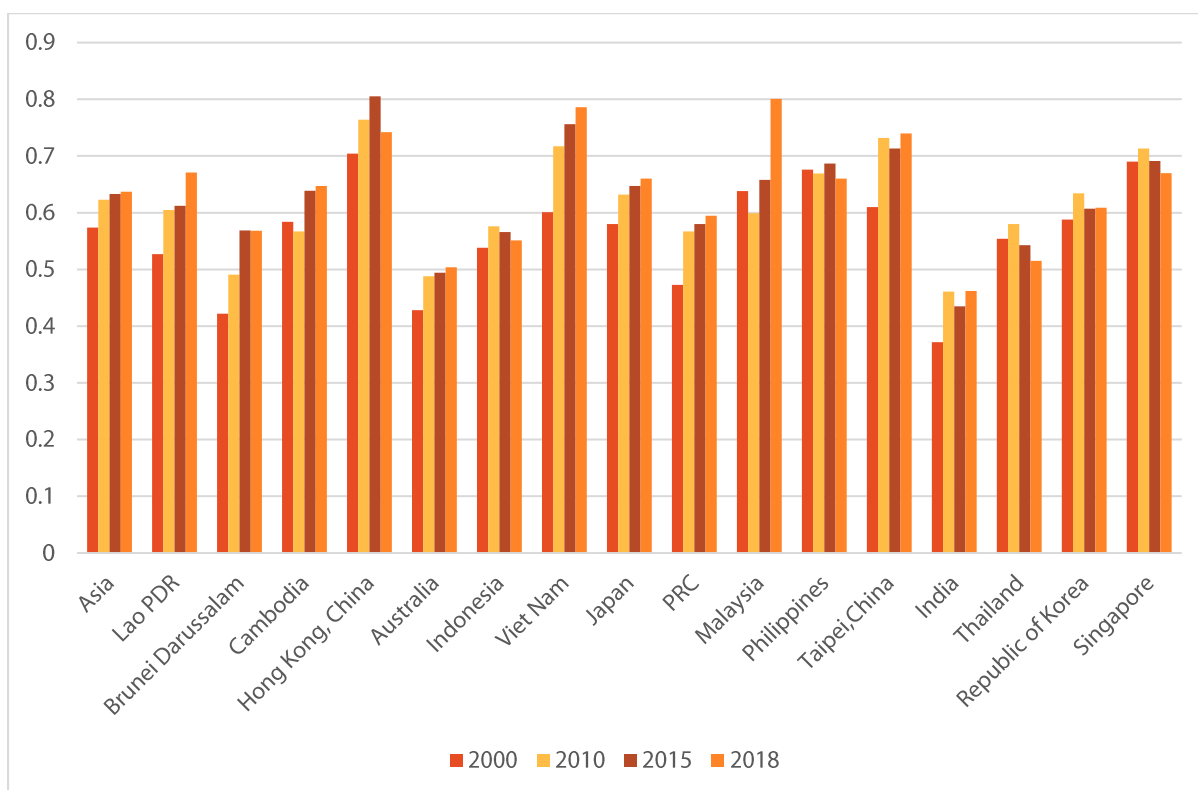


Figure 3: Complex RVC to GVC Ratio in Asia: 2000 -2018

Source: ADB Asia Integration Report 2019

The weaker linkages of key ASEAN Member States (AMS) to participate in the 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 in terms of technology, human capital, strong forward-looking institutions and connectivity in soft and hard infrastructure is still lacking in the ASEAN region. This provide ample opportunity to undertake more active economic liberalization and key reforms to improve the GVC and RVC network in the region.

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

3. Urbanization and Trends of Cities in ASEAN and Asia

Urbanization has a positive impact on economic growth of domestic and regional economies (UN World Urbanization Prospects, 2018). The positive relations between economic growth and urbanization rate is given at Figure 4. Urbanization is primarily driven by population densities and non-agricultural economic activities in terms of manufacturing and services. It is driven by agglomeration of activities of cities, which consists of activities from townships, municipalities and metropolitan areas. It is very clear from Figure 4 that the growth of cities drives the urbanization, and in turn drives economic activities and growth in the economy.

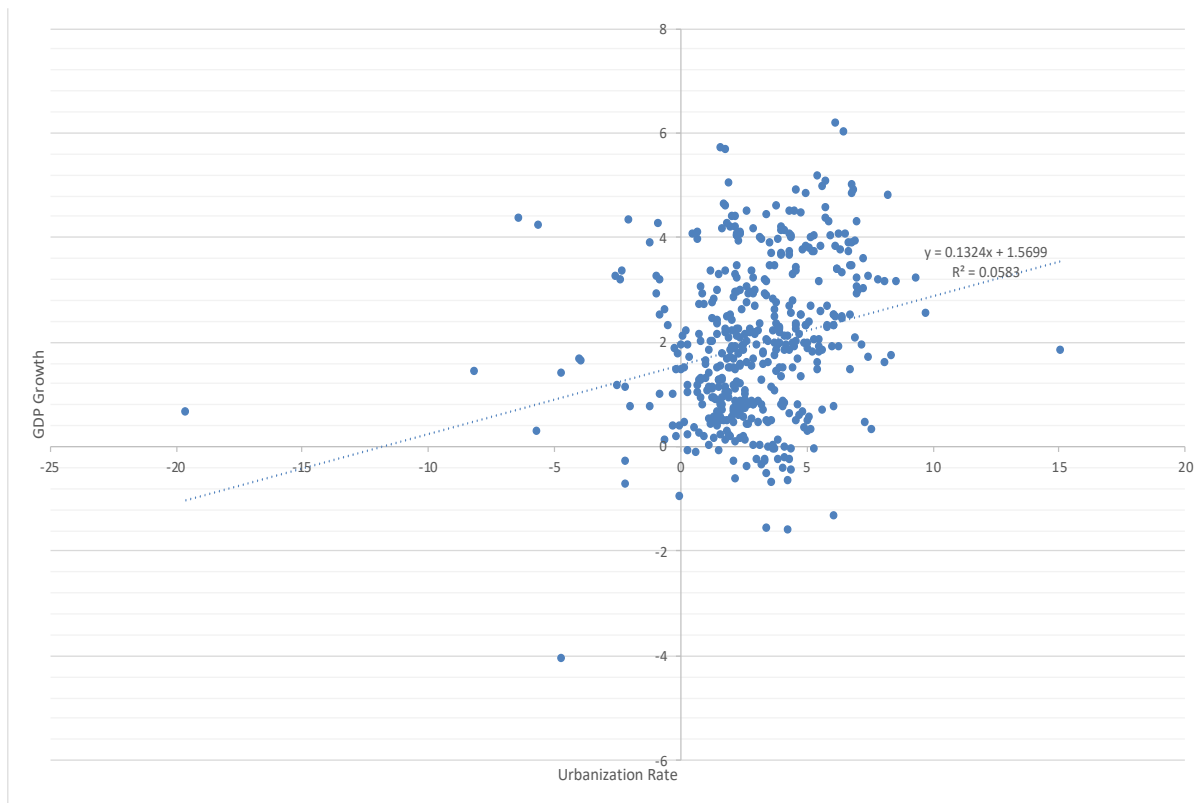


Figure 4: Real GDP Growth and Urbanization Rate from 2018-2019

Source: World Bank Indicators, 2020

The competitiveness of cities is multidimensional as indicated by Glaeser et. al. (2015) in terms on the local returns to scale in innovation, supply of skilled labour elasticity, supply of housing and urban amenities. The urban strategy of mega-sized cities (population of 10 million and above as defined by UN World Urbanization Prospects 2018) that attracts skilled workers and drive innovation or network of large cities creating urban agglomeration is very dependent on the institutions reforms, urban networks, urban amenities, global and regional linkages, and the degree of innovation driven by entrepreneurship and SMEs at respective regions.

The key trends of different class types of cities in terms of population is given at Figures 5 to 7. In Figure 5, the number of cities by class types in terms of population size is given for the respective regions. It is clear that there is a strong growth in medium-size (1-5 million population) and small-sized (less than 1 million) cities, as these class cities are experiencing significant growth in 2020 as compared to 2000. The overall number of the medium-sized cities (500K-1 million) in the World increased from 396 to 626 and small-sized cities (300K to 500K) increased from 524 to 729 in 2000 to 2020 respectively. In fact, it is clear from Figure 5 that the large increase in the medium- and small-sized cities is driven primarily by growth of cities in Asia, particularly driven by the economic growth and development in Southeast and East Asian for the past 2 decades.

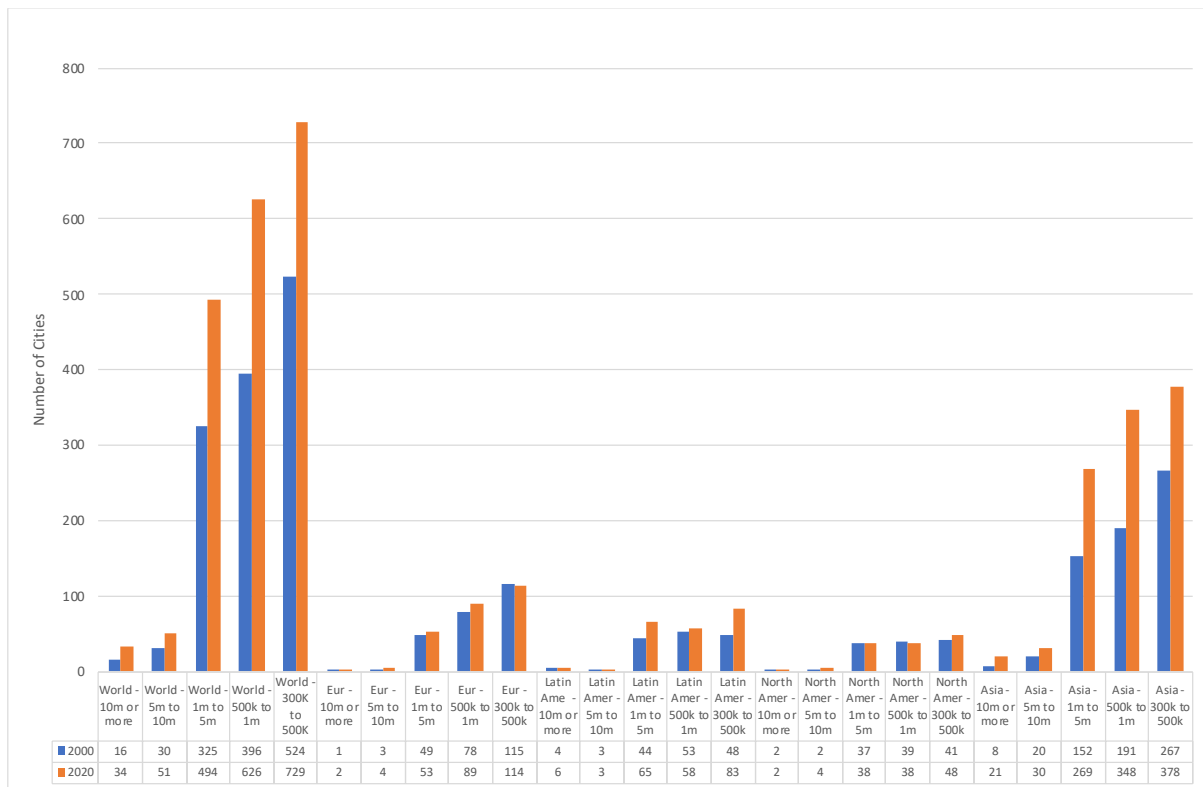


Figure 5: Numbers Cities by Class Types by Regions (population size): 2000-2020

Source: UN World Urbanization Prospects: The 2018 Revision; Eur - Europe

We also provide the breakdown of cities by class types by regions in Asia in Figure 6. The detail breakdown of 794 cities in East Asia, South Asia (India), and Southeast Asia by the class types of cities in terms of small-sized (less 500K), small-medium sized (500K-1 million), medium-sized (1-5 million) and large and mega-cities (5 million and above) is given at the appendix A. Firstly, we observe a significant growth in cities in East Asia mainly driven from economic development of China, Korea, Japan and Taiwan. In particular, we observe significant growth of medium- and small-sized cities in China from 2000 to 2020 driven by the economic liberalization and development of China. The number of large and mega-cities also doubled in China from 9 to 18 large-sized cities (5-10 million) and 4 to 8 mega-sized cities from 2000 to 2020. We also observe growth in medium- and small-sized cities in South Asia, driven by the economic liberalization and development of the Indian economy. In Southeast Asia, we also observe significant growth of small-sized and medium-sized cities from 2000 to 2020, where the number of cities doubled in 2 decades. We also observe the development mega-cities in Southeast with 3 mega-cities in 2020 as compared to 2000.

The critical issue of small-sized and medium-sized cities is whether these cities are efficient in terms of creating urban agglomeration and 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, skill labour, urban amenities, urban policies to facilitate innovation and entrepreneurship, and the capacities of cities to participate in global and regional trade and investment activities. The class types of cities in terms of population size is given at Table 1 for the top 120 cities in Asia based on the definition of cities by UN Urbanization Prospect 2018.

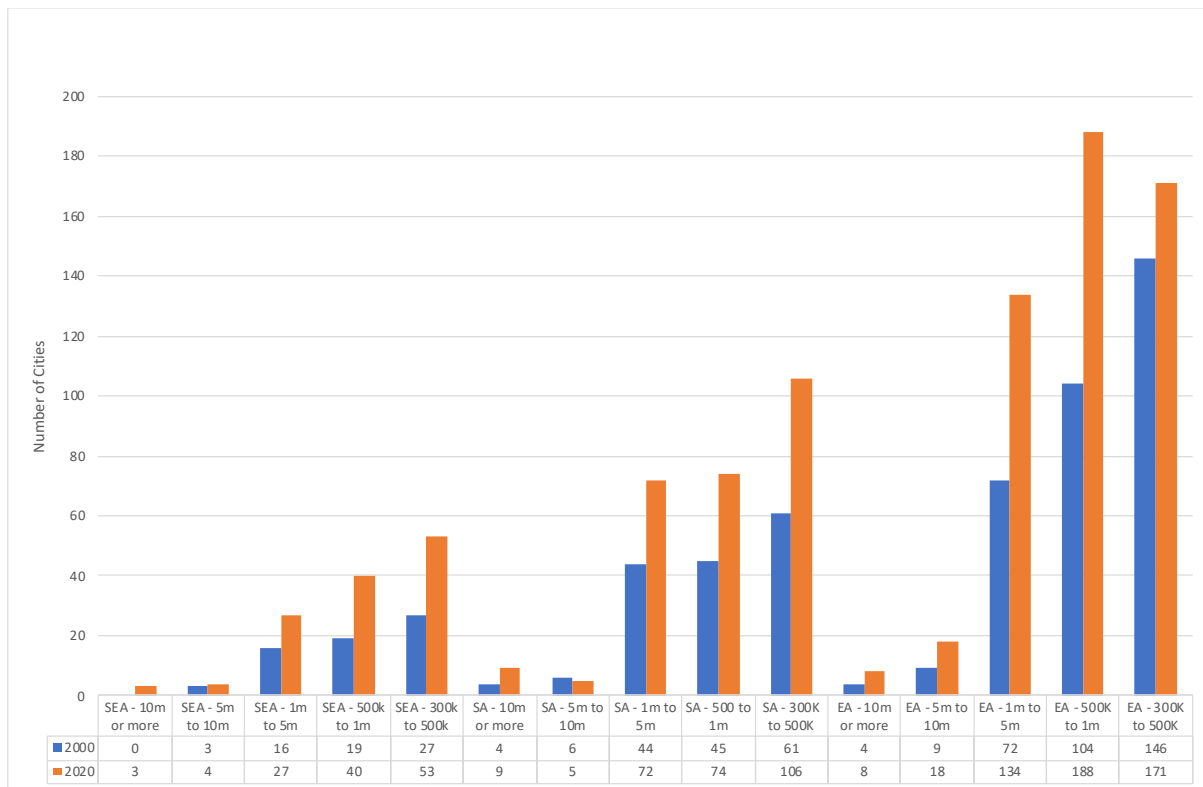


Figure 6: Numbers Cities by Class Types in Asia (population size): 2000-2020

Source: UN World Urbanization Prospects: The 2018 Revision; Eur - Europe

It is interesting to observe that Asia has more medium-sized cities of 2-5 million population. However, we also observe significant differences across and within the class types of cities. Firstly, the mega-cities and large-sized cities has higher degree of openness in terms of connectedness to global and regional network compared to medium-sized cities. The mega- and large-sized cities are exposed to service linkages and trade linkages to goods and services activities to the regional and global networks. Secondly, the degree of participation in the GVC activities also 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 compared to Delhi and Dhaka, which are defined as mega-cities by UN World Urbanization Prospects 2018. The urban amenities also play an important role in improving the competitiveness of cities as urban amenities are generally higher in more skilled and forward-looking cities as more educated and skilled workers tend to gravitate to cities with higher amenities (Glaeser et. al, 2015). Also, efficient cities tend to invest more in quality amenities that is driven by preferences of the skilled and educated city population. It is clear that population density is critical for cities and domestic economy to grow, however, it is not a sufficient condition for efficient and sustainable growth in next stage of growth in Asia. The next stage of growth in East Asia and ASEAN will critically be dependent on efficiency of cities to connect to regional and global value chain activities.

Mega-Cities (10million and above)	Large-Sized Cities (5- 10 million)	Medium-Sized Cities (3-5 million)	Medium-Small-Sized Cities (2-3 million)
Tokyo (37,393) Dhaka (31,234) Delhi (30,291) Shanghai (27058) Karachi (23,128) Beijing (20,463) Mumbai (20, 411) Osaka (19, 165) Lahore (19,117) Chongqing (15, 872) Kolkata (14, 850) Manila (13, 923) Tianjin (13, 589) Guangzhou (13 302) Shenzhen (12, 357) Bangalore (12, 327) Chennai (10, 971) Jakarta (10, 770) Bangkok (10, 539) Hyderabad (10, 004) Seoul (9, 963)	Nagoya (9,552) Chengdu (9,136) Nanjing (8,847) Ho Chi Minh City (8,602) Wuhan (8,365) Ahmadabad (8,059) Xi'an (8,001) Kuala Lumpur (7,997) Hangzhou (7,642) Hong Kong (7,548) Dongguan (7,408) Foshan (7,327) Shenyang (7,220) Surat (7,185) Chittagong (7,110) Suzhou, Jiangsu (7,070) Pune (Poona) (6,629) Haerbin (6,387) Singapore (5,935) Qingdao (5,620) Dalian (5,618) Kitakyushu-Fukuoka (5,529) Shandong (5,360) Yangon (5,332) Zhengzhou (5,323)	Melbourne (4,968) Sydney (4,926) Xinbei (4,759) Hà Noi (4,678) Changsha (4,578) Kunming (4,443) Changchun (4,426) Wulumqi (4,369) Shantou (4,327) Hefei (4,242) Ningbo (4,116) Shijiazhuang (4,114) Jaipur (3,909) Taiyuan (3,891) Nanning (3,860) Xiamen (3,720) Fujian (3,686) Lucknow (3,677) Jiangsu (3,625) Wenzhou (3,624) Nanchang (3,598) Kozhikode (3,555) Busan (3,465) Tangshan, Hebei (3,426) Bekasi (3,394) Malappuram (3,391) Guiyang (3,317) Preshawa (3,279) Wuxi, Jiangsu (3,256) Rawalpindi (3,175) Kanpur (3,124) Kochi (3,082) Lanzhou (3,081) Thrissur (3,068) Indore (3,017)	Surabaya (2,944) Shizuoka- Hamamatsu (2,922) Zhongshan (2,914) Nagpur (2,893) Incheon (2,801) Coimbatore (2,787) Depok (2,727) Handan (2,727) Taibei (2,721) Sapporo (2,670) Huai'an (2,655) Weifang (2,654) Zibo (2,640) Thiruvananthapuram (2,585) Bandung (2,580) Shaoxing (2,540) Yantai (2,527) Huizhou (2,525) Tao Yeun (2,462) Patna (2,436) Brisbane (2,406) Bhopal (2,390) Luoyang (2,387) Tangerang (2,339) Medan (2,338) Sendai (2,327) Nantong (2,276) Agra (2,210) Daegu (2,199) Baotou (2190) Vadodara (2,190) Visakhapatnam (2,175) Kannur (2,167) Liuzhou (2, 165) Hohhot (2,163) Xuzhou (2,146) Hiroshima (2,083) Phnom Penh (2,078) Nashik (2,066) Perth (2,042) Vijayawada (2,040)

Table 1: Class Types of Cities (Population Size) in Asia 2020 – Top 120 Cities in Asia

Source: UN World Urbanization Prospects: The 2018 Revision; Population (m) in parenthesis

4. Topology of GVC Transformation and ‘Unbundling’ Effects in ASEAN: GVC, Cities and Regional Development

GVC activities in Asia and ASEAN is inducing both fragmentation as well creating agglomeration activities in both manufacturing and services activities in the region. Recent studies have identified two important stages of fragmentation or “unbundling” of industrial activities, in the first and second stages, (Kimura, 2018; Baldwin, 2011; Kimura and Obashi, 2015). In this section, we integrate the GVC activities, structural transformation of economy and urban amenities in terms of an integrated framework of open economic strategies and development. The topology of GVC activities, structural transformation and urban amenities is given at Table 2.

a. First Stage Unbundling

In the first stage of “unbundling”, the role of government will be important to drive rapid industrialization and to overcome coordination failures because of the lumpiness and complexity of industries (Baldwin, 2011; Kimura, 2018). The economy will experience high level of communication cost and also ‘face-to-face’ cost due to lack of digital technologies. The economy will 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 entry cost to manufacturing activities will be critical to create the industry-level agglomerate activities, since a larger set of activities also helps to develop the value chain operations. These developments are not straight forward 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 the economic liberalization and openness strategy to increase trade and investment due to declining trade cost. We should expect countries to participate in GVC activities at the low tier factor intensity activities such as raw material exports and labour-intensive activities such as garment and textile exports. The labour force has only unskilled workers with primary or lower education. We expect greater movement of unskilled labour from rural to urban sector 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 infrastructures such as roads, highways, ports and airports. The economy will also experience very weak urban amenities and we observe development of small-tier cities due to rural-urban migration. At this stage, we will observe the development of traditional services trade such as tourism and logistics sectors, and we will also observe some level of development in the financial sector.

b. Second Stage Unbundling

In the second stage, there is a less need to build-up large supply chains and there is lower transaction cost to participate in the supply due to strong connectivity already in place due to information and communication technologies. At this stage, we will experience lower trade cost and low communication cost. However, we will still experience high ‘face-to-face’ cost due to lack of digital infrastructure and technologies. The economy will experience task-wise fragmentation in terms of resource-intensive, labour-intensive, skilled-intensive, skill-knowledge-intensive and knowledge-intensive production in the GVC. Due to the low trade and communication cost, economies can more easily and more quickly join the chain. 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 to enter the chain. At this stage, with respect to governments and institutions, we will observe greater “learning-by-

Table 2: Topology of GVC, Structural Transformation and Urban Amenities

Source: Kimura, 2018; Thangavelu and Wang, 2021; ERIA, 2010

Tier 3	Tier 2a	Tier 2b	Tier 2c	Tier 1
Under-developed economy low level of industrial activity	Hook up with global value chains (the 1st unbundling): resource-based/labour-intensive industries	Participate in production networks (the 2nd unbundling first stage): Jump-start industrialization with machinery industries	Form industrial agglomeration (2nd unbundling second stage): Accelerate technology transfer /spillover	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 (a): 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 is critical
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

Tier 3	Tier 2a	Tier 2b	Tier 2c	Tier 1
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; Vocation training; Technical and vocational education is critical; Emphasis on life-long 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; Urban linkages: low 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
Regional and Global Value Chain				
Low RVC and GVC	GVC participation with labour-intensive activities;	GVC participation and low level of GVC positioning;	GVC participation and high positioning;	GVC positioning (high) in high-value added activities; Innovative services and GVC;

Tier 3	Tier 2a	Tier 2b	Tier 2c	Tier 1
	Service trade increase in tourism and finance (low)	Service linkages; Service GVC (low) in tourism, logistics, aviation; Openness leads to disruptions in GVC (low) in trade	Service GVC (high) Servicification of manufacturing (low) Greater GVC disruptions in trade (high) and technology (low)	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 infrastructures 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;	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 to such 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 high technology intensive infrastructure such digital infrastructure; Strong linkages between cities in the region; Strong rural-urban city linkages; Strong urban amenities and linkages; Highly innovative Urban centres; Innovation and growth driven by urban centres; Telecom infrastructure is in high digital technology; Innovative Cities:

Tier 3	Tier 2a	Tier 2b	Tier 2c	Tier 1
		Stronger telecom linkages and infrastructure in domestic; develop regional linkages in telecom (soft infrastructure)	Develop strong rural-urban linkages; Strong telecom linkages and infrastructure to regional trade and investment activities	Knowledge-based and knowledge driven cities

governing” and institutional convergence as governments learn how to manage the institutional development from other successful economies, thereby also 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 stage of “unbundling”. Export success may have been achieved in the first stage, but in the second policy makers face many new questions: Which supply chains should be joined? Should nations strive to set up their own global value chains? What is the optimal technology policy (intellectual property rights, etc.)? Different nations will be adopting different industrial strategies without their efforts being guided by formal models that explicitly incorporate supply chains (Baldwin, 2011).

In order to understand the second unbundling, we divide this stage into first and second stage. In the first stage, economy will experience low trade and communication cost, but high ‘face-to-face’ cost. At this stage, 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 of 2nd unbundling, economy will experience moderate decline in ‘face-to-face’ cost due to the investment in telecommunication infrastructure and technologies that allow the economy to position and move up to more skill-intensive and skill-knowledge-intensive activities in the GVC.

The key implications of the two stages is the development of skills and human capital as the transition to skilled labour force will take time to develop. In the first stage of 2nd 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 vocation training will be critical as the skills required for technical dimension of manufacturing and services activities will intensify. In the second stage of 2nd 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 life-long learning framework will be emphasized.

In the 2nd 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 the economic growth and development in the economy and region.

It is interesting to observe that the 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 the services linkages at the second stage. Firstly, skills and human capital tend to drive the key services linkages in the global production value chain. Secondly, 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 sub-urban amenities in the form of soft and hard infrastructure developments 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 the global production value-chain activities. Thirdly, the development of infrastructure such a ports, airports, and roads create linkages and increases the agglomerative effects for arm’s length industrial activities. This increases the participation of the SMEs, thus creating the linkages with the multinational firms for product and process innovation in the region.

At this second stage, we will observe development of medium-sized cities and urban linkages will be critical to create agglomeration across the cities. The development of medium-sized and large-sized cities will be driven by greater rural-urban migration and also 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 et. al, 2015). Cities with strong urban and sub-urban amenities tend to be more competitive to attract the 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 (a) greater varieties of services and consumer goods; (b) aesthetics and physical settings of infrastructure, (c) good public goods, and (d) 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, that is, the way that cities can drive creativity. This will be creating 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 2nd unbundling, the ICT revolution and technological improvements lowered communication costs leading to more production unbundling. We will also observe moderate decline in ‘face-to-face’ cost that will increase the movement of services. We observed greater movement of ideas and more industry-wise division of labour. In the second stage, there is a less need to build-up large supply chains and there is lower transaction cost to participate in the supply chain. As a result, economies can more easily and quickly join and participate in the GVC. 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 to enter the chain. The services sector will very crucial in creating the service linkages in the global production value-chain. At this stage, we will observe greater growth in services sector in the domestic economy as well as in trade. As the service linkages and servicification increase in the economy, we will also experience greater GVC disruptions at this stage due to technological and economic shocks that affects both the manufacturing and service activities due to the service linkages in the GVC.

c. Third Stage Unbundling

In the 3rd stage unbundling, we will observe further ICT revolution and technological improvements leading to lowering the face-to-face transaction cost and more “people-to-people” transaction. At this stage, economies will experience more “task” based activities and more fragmentation in individual skills and increase in the service sectors 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 3rd stage of unbundling. The economy requires 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. There will be a requirement for science and technical based education at both secondary and tertiary level to develop life-long learning activities in science and technical based education and skills development through the life-cycle of the workers in the labour market. The skills of workers will have to be upgraded and improved to be relevant and retain in the labour market as the economy will be subjected to high level of disruptions from technology and economic shocks.

The impact of information and communication technologies (ICT) at the 3rd stage unbundling will have important implications for economic and industrial policy. Information technology such as artificial intelligence and digital economy (industry 4.0) will have direct impact on the breaking down of 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 to overcome distances and generate dispersion or fragmentation of activities. Both these innovations have different impact, but significant impact on the domestic economy and the labour market. Industry policy needs to manage both the “agglomeration” effects and “dispersion” effects.

At the 3rd stage 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 to attract and retain skilled labour and to increase the innovative activities to position at higher value-added activities of the regional and global value chain (Glaeser et al, 2015). Cities with strong urban and sub-urban amenities tend to be more competitive to attract the 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 are necessary to create the economies of scale and scope of activities for cities at this stage of unbundling in terms of unbundling of technologies and skills to drive economic growth, and this requires large-size and mega-cities. It might also be possible to have several large-sized cities creating urban-linkages between cities and urban agglomeration with sub-urban segment of its administrative boundaries. At this stage, urban amenities together with technology-intensities and densities through communication and telecommunication technologies will be important to increase the efficiency of large-size and mega-cities to attract domestic and foreign skilled labour. We will observe both physical as well ‘virtual’ movement of labour between cities across regional and global boundaries, thereby increasing the skilled and task-wise fragmentation of individual worker, 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 Asia and ASEAN is growing and deepening as more mature economies are moving to the second stage of production fragmentation and newly emerging ASEAN countries are already building up the industrial base for the first stage of production fragmentation. However, we are also observing certain challenges emerging in the Asian region. The level of liberalization and in particular services and investment liberalization is losing its momentum and slowing down. The Asian cities are plagued with high population densities, decreasing the returns to urbanisation (pollution and congestions) and limiting their productive contribution to the regional growth. The level of trade and investment liberalization in the multilateral agreements such as RCEP is becoming weaker and tends to be of a very low denomination for further regional integration.

5. Policy Discussion

There are several policy issues that have to be addressed as East Asian and ASEAN economies are at different stages of growth in the global production value-chain. Most of the developed ASEAN countries of Indonesia, Philippines, Thailand and Vietnam are at the middle-stage of 2nd unbundling; Malaysia is the later stage of 2nd unbundling and ASEAN LDCs of Cambodia and Lao PDR are now at the beginning stage of 2nd unbundling. Singapore, the city-state is already in the beginning stage of 3rd unbundling. The importance of urban amenities and growth of cities will be critical at the next stage of growth in ASEAN and the region.

We are now observing both the first stage and second stage “unbundling” are occurring concurrently in the development of the Asian region. The regional and global supply chain activities in Asia and ASEAN is growing and deepening as more mature economies are moving to the second stage of production fragmentation and newly emerging ASEAN countries are already building up the industrial base for the first stage of production fragmentation. However, we are

also observing certain challenges emerging in the Asian region. The level of liberalization in services and investment is losing its momentum and slowing down across the ASEAN countries due to the pandemic shock. The Asian cities are plagued with high population densities, decreasing the returns to urbanisation (pollution and congestions) and limiting their productive contribution to the regional growth. The level of trade and investment liberalization in the multilateral agreements such as RCEP will be important to maintain and align domestic economy to sustain the economic competitiveness of the domestic economy in the region.

The questions of how to manage and to create the “agglomeration” and ‘dispersion’ effects in the services sector will be important policy discussions for the next stage of growth of East Asia. It is likely that government might have to adopt a balanced approach to manage both the agglomeration and dispersion effects in the economy. The balanced approach will critically be dependent on the development of urban amenities, urban linkages and skills of labour force to manage the disruptions of technologies and also to manage the movement of people within and between cities. This will be critical for the pandemic recovery of the ASEAN member states and setting the stage for the next stage of growth.

There are several policy implications from the nexus of GVC, structural transformation and urban amenities.

- a. Skills and human capital are one of the key factors linking production, competitiveness, innovation and economic growth in the development of global value chains (Thangavelu and Narjoko, 2015; Thangavelu and Wang, 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 firm participation (joining the GVC) as well as to position to higher tiers of the GVC. Currently, the level of human capital in the ASEAN region is still very low to fully participate and to shift to higher stages of GVC activities, especially in the second stage of the 2nd bundling. The labour force in ASEAN LDCs have only primary and lower education and there is a need to shift the educational level to upper primary and secondary level education. We also observe the more developed ASEAN members of Indonesia, Malaysia, Thailand and Vietnam need a more holistic framework of human capital development emphasising quality education and increasing in the 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 re-training of workers in relevant skills to retain workers in the labour market as these countries experience more GVC disruptions.
- b. The weaker linkages of key ASEAN Member States (AMS) to participate in the 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 in terms of technology, human capital, strong forward-looking institutions and connectivity in soft and hard infrastructure is still lacking in the ASEAN region. This provides ample opportunity to undertake more active economic liberalization and key reforms to improve the GVC, and RVC network in the region.
- c. We also noticed that ASEAN Member States are weaker in complex RVC and GVC activities, which indicates the weakness of key fundamentals in the domestic economy. The development of regional and global value network is critically depend on key domestic fundamentals such as human capital development in skills, technological development and harness digital technologies in information and communication technologies, and development of urban centers to create the agglomerative activities in both economic and social dimensions.

- d. To balance the agglomerative effects and dispersion effects in the domestic economy, there is a need to develop a coordinated industry strategy that includes the alignment of forward-looking policies in terms of alignment of industry policy with human capital development policy in education and training of workers. The alignment in industrial and education policies in the overall development strategy will provide the platform for coordinated structural transformation of the domestic economy to the changes in regional global GVC.
- e. There is a need for further liberalization of services and investment in the ASEAN region. The services sector is still hampered by behind-border-issues and higher regulatory burden imposed by the domestic institutions. The next stage liberalization could focus on key services sectors in creating stronger GVC linkages in the region such as aviation, logistics, finance, e-commerce, educational services and business services. The traditional services trade sectors in ASEAN LDCs such as tourism could be improved and elevated to more service GVC activities such as 'Green Tourism' and 'Cultural Tourism'.
- f. The liberalization of services in investment is critical to push the innovation and entrepreneurship in developing new services GVC and services linkages in the domestic economy and region. The adoption of reforms in management of information in the domestic economy and also at the regional level will provide the necessary platform to develop the region-wide digital platform framework that will create the necessary GVC network to support new innovations and services network in the region.
- g. The liberalization of services should also be aligned to movement of people and in particular movement of semi-skilled and skilled workers in the region. The movement of people will be critical to develop and create the city and urban linkages within the domestic economy and between the cities in the region. This will have important implications for the 3rd stage unbundling in the ASEAN region.
- h. As we observed, East Asia and Southeast Asia experienced significant increase in medium- and small-sized cities from 2000 to 2020. There is a need to create linkages between cities to increase the movement of people and ideas across the cities to increase the innovative and entrepreneurial activities in domestic economy. It is also important to create urban agglomeration in cities in terms of developing competitive sub-urban 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 critically dependent on the quality of urban amenities that increases the liveability of cities and attracts skilled labour to reside and contribute to innovative activities of cities. It is also important that urban amenities will important to manage the negative impacts of medium- and large-sized cities in terms of congestion and higher cost of living in cities. The competitiveness of the cities in Asia and ASEAN will critically be dependent on the quality of the urban amenities that will attract skilled labour and create the innovation and linkages to regional and global value-chain network.

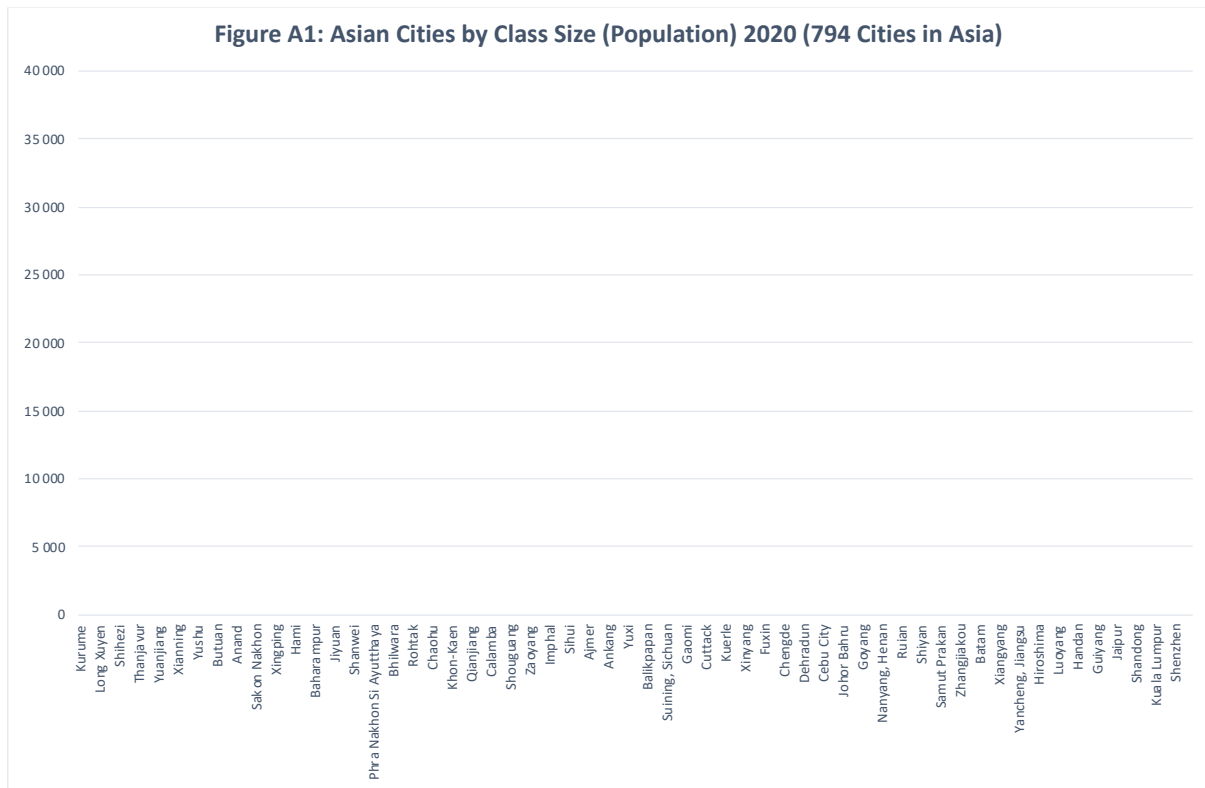


REFERENCES

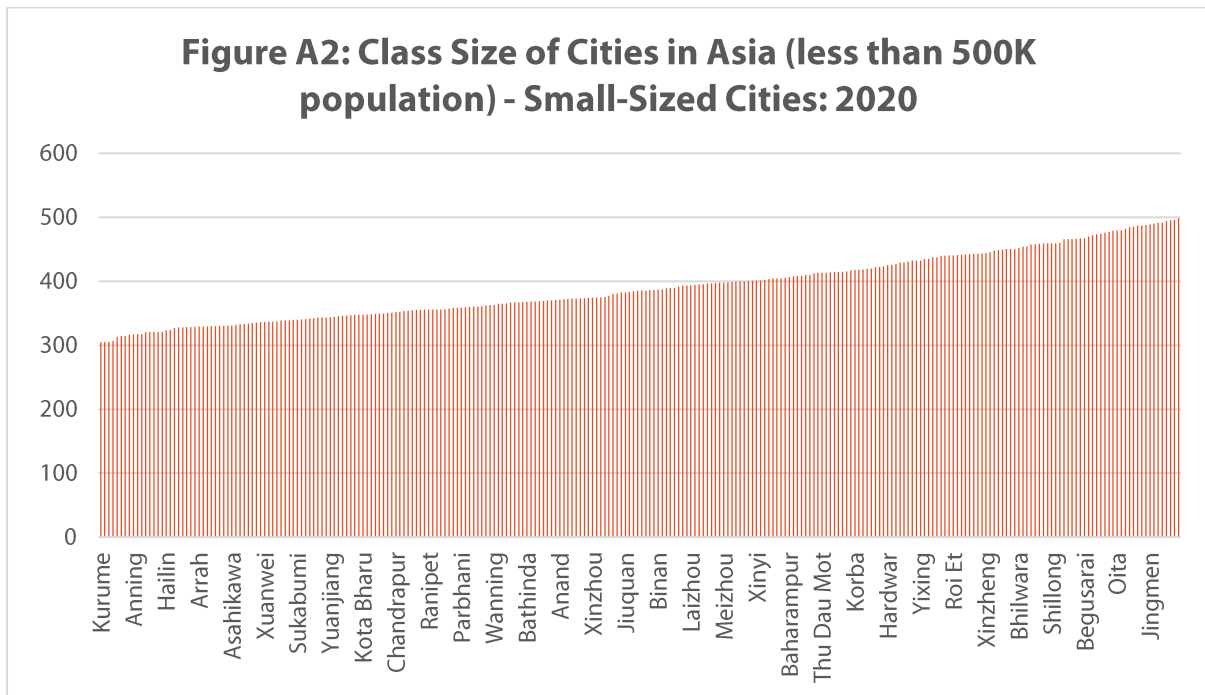
- ADB, 2019, Asian Economic Integration Report 2019: Demographic Change, Productivity, and Role of Technology, Asian Development Bank, Manila.
- ASEAN Secretariat, ASEAN Integration Report 2019, ASEAN Secretariat, Jakarta.
- Athukorala, P, 2011. 'Production networks and trade patterns in East Asia: Regionalization or globalization?', *Asian Economic Papers*, vol. 10, no. 1, pp. 65-95.
- Baldwin, R. (2016), *The Great Convergence: Information Technology and the New Globalization*. Cambridge, MA: The Belknap Press of Harvard University Press.
- Baldwin, Richard. (2011) "21st Century Regionalism: Filling the Gap between 21st Century Trade and 20th Century Trade Rules." Centre for Economic Policy Research Policy Insight No. 56 (May)
- Chen, Liming, Rana Hasan, Yi Jiang, 2020. 'Urban Agglomeration and Firm Innovation: Evidence from Asia', ADB Economics Working Paper No. 616, Manila.
- Elms, DK and Low, P 2013, *Global value chains in a changing world*, World Trade Organization Geneva.
- Economic Research Institute for ASEAN and East Asia (ERIA). (2010) *Comprehensive Asia Development Plan*. Jakarta: ERIA
- De Backer, K, De Lombaerde, P and Iapadre, L 2018, 'Analyzing Global and regional value chains', Elsevier.
- Gereffi, G 2013, 'A global value chain perspective on industrial policy and development in emerging markets', *Duke J. Comp. & Int'l L.*, vol. 24, p. 433.
- Gereffi, G and Sturgeon, T 2013, 'Global value chain-oriented industrial policy: the role of emerging economies', *Global value chains in a changing world*.
- Glaeser, Edward L.; Giacomo A. M. Ponzetto, Yimei Zou, 2015. Urban Networks: Connecting Markets, People and Idea, Working Paper 21794. NBER. (<http://www.nber.org/papers/w21794>).
- Gurria, A 2015, *Istanbul G20 Trade Ministers Meeting - Remarks at session on the slowdown in global trade*, viewed 22 June 2018, <<http://www.oecd.org/about/secretary-general/istanbul-g20-trade-ministers-meeting-remarks-at-session-on-the-slowdown-in-global-trade.htm>>.
- Hoekman, B and Shepherd, B 2017, 'Services productivity, trade policy and manufacturing exports', *The World Economy*, vol. 40, no. 3, pp. 499-516.
- Heuser, C and Mattoo, A 2017, 'Services Trade and Global Value Chains', in *Measuring and Analyzing the Impact of GVCs on Economic Development*, The World Bank, Washington DC.
- Jones, RW and Kierzkowski, H 1990, 'The role of services in production and international trade: A theoretical framework', in RW Jones & AO Krueger (eds), *The Political Economy of International Trade*, Basil Blackwell, Oxford, U.K, pp. 31-48.
- Kimura, Fukunari and Obashi, Ayako, 2015. "Geographical Expansion and Deepening of Production Networks in Asia." ERIA Discussion Paper Series.
- Kimura, Fukunari, 2018, "Unbundlings' and Development Strategies in ASEAN: Old Issues and New Challenges", *Journal of Southeast Asia*, vol 35(1), pp. 13-21.
- Kimura, F, Takahashi, Y and Hayakawa, K 2007, 'Fragmentation and parts and components trade: Comparison between East Asia and Europe', *The North American Journal of Economics and Finance*, vol. 18, no. 1, pp. 23-40.
- Low, P 2013, 'The role of services in global value chains', *Fung Global Institute*, June.

- Noguera, G 2012, 'Trade costs and gravity for gross and value-added trade', Job Market Paper, Columbia University.
(<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.645.3562&rep=rep1&type=pdf>)
- OECD 2013, *Interconnected Economies: Benefiting from Global Value Chains Organisation for Economic Co-operation* OECD Publishing, Paris.
- Taguchi, H, Matsushima, D, Hayakawa, K 2014, 'The emerging production networks in Mekong region', *International Journal of Trade and Global Markets*, vol. 7, no. 1, pp. 18-35.
- Thangavelu, Shandre Mugan, Wenxiao Wang, 2021, 'Skills and Human Capital Policies in ASEAN', in book edited by Fukunari Kimura, Mari Pangestu, Shandre Thangavelu and Christopher Findlay (eds), *Handbook on East Asian Integration*, Edward Elgar, Cheltenham, forthcoming.
- Thangavelu, Shandre Mugan, Wenxiao Wang and Sothea Oum, 2018. 'Servicification in Global Value-Chain: Case of Asian Countries', 2018 (with), *The World Economy*, vol. 41, issue 11, pp. 3045-3070.
- Thangavelu, Shandre Mugan, D. Narjoko, 2014. 'Human capital, FTAs and foreign direct investment flows into ASEAN', *Journal of Asian Economics*, vol. 35, 65-76, 2014.
- United Nations, Department of Economic and Social Affairs, Population Division, 2019. *World Urbanization Prospects: The 2018 Revision (ST/EAS/SER.A/420)*, New York: United Nations.

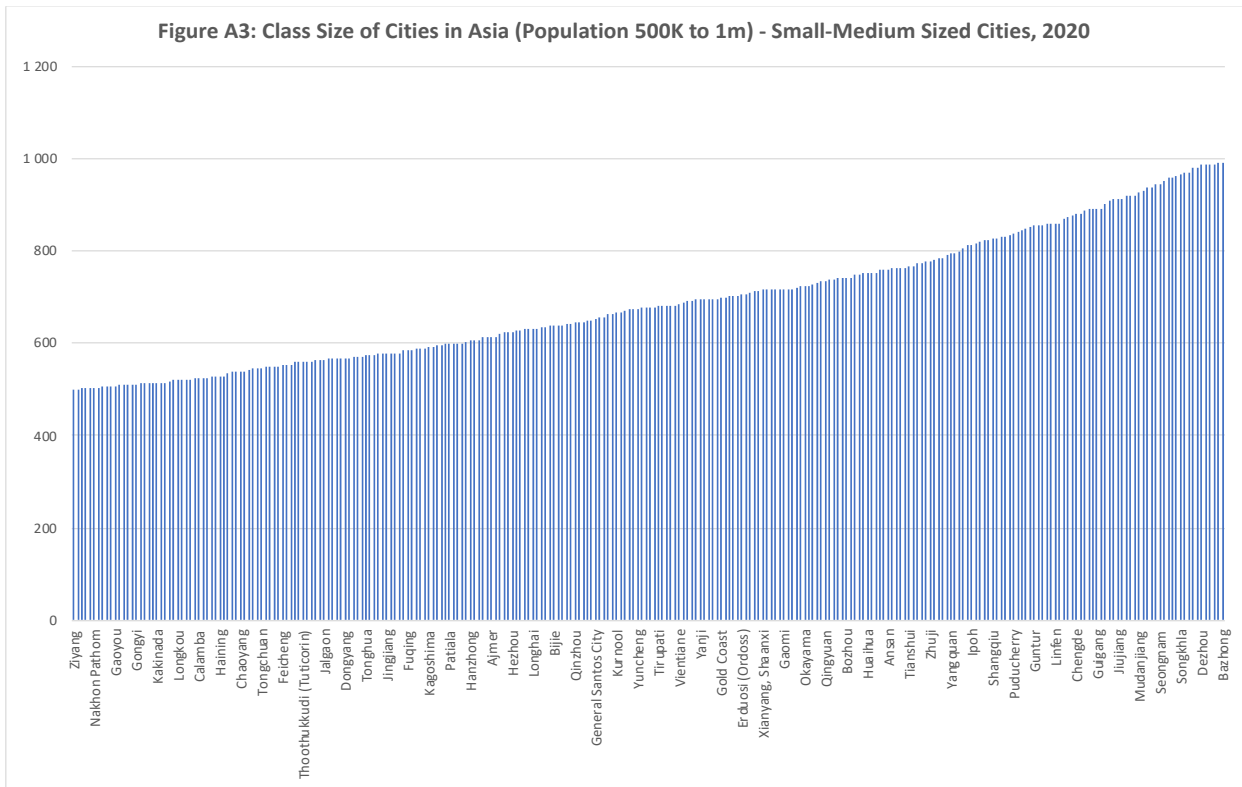
ANNEXE



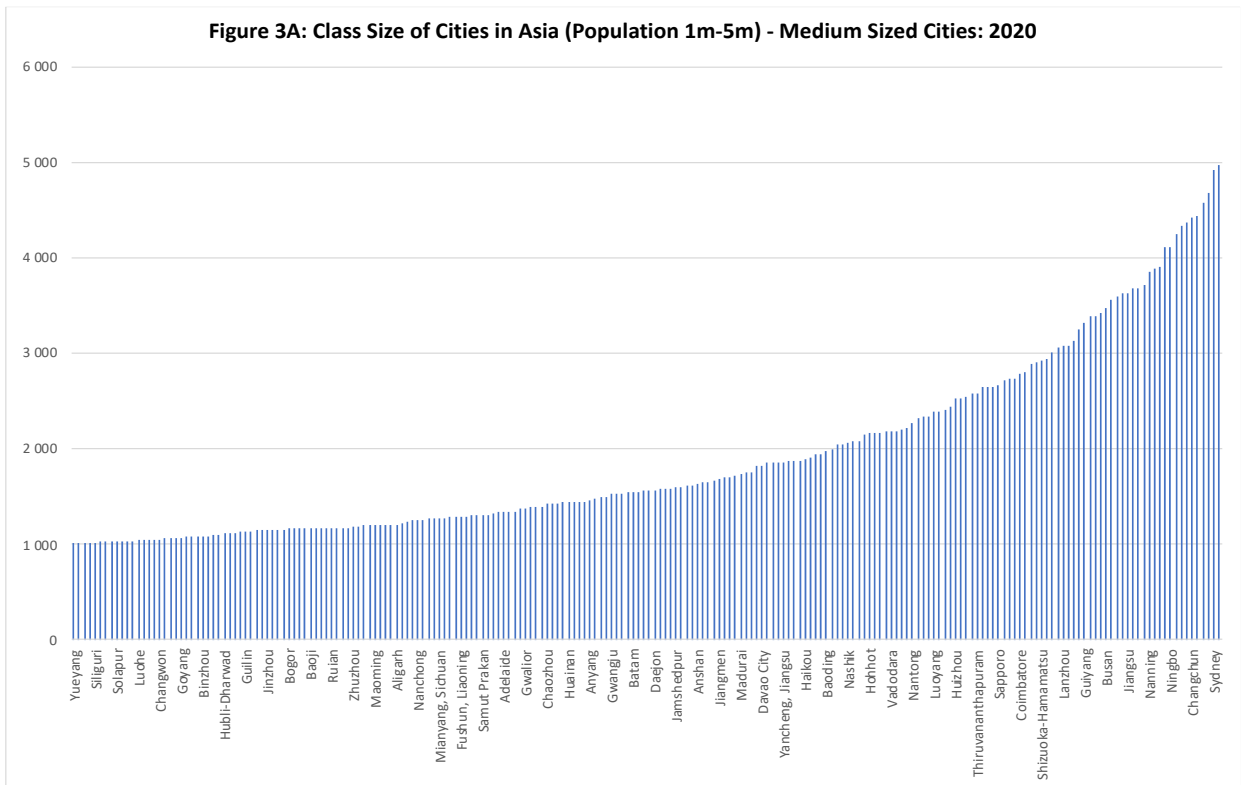
Source: UN World Urbanization Prospect 2018



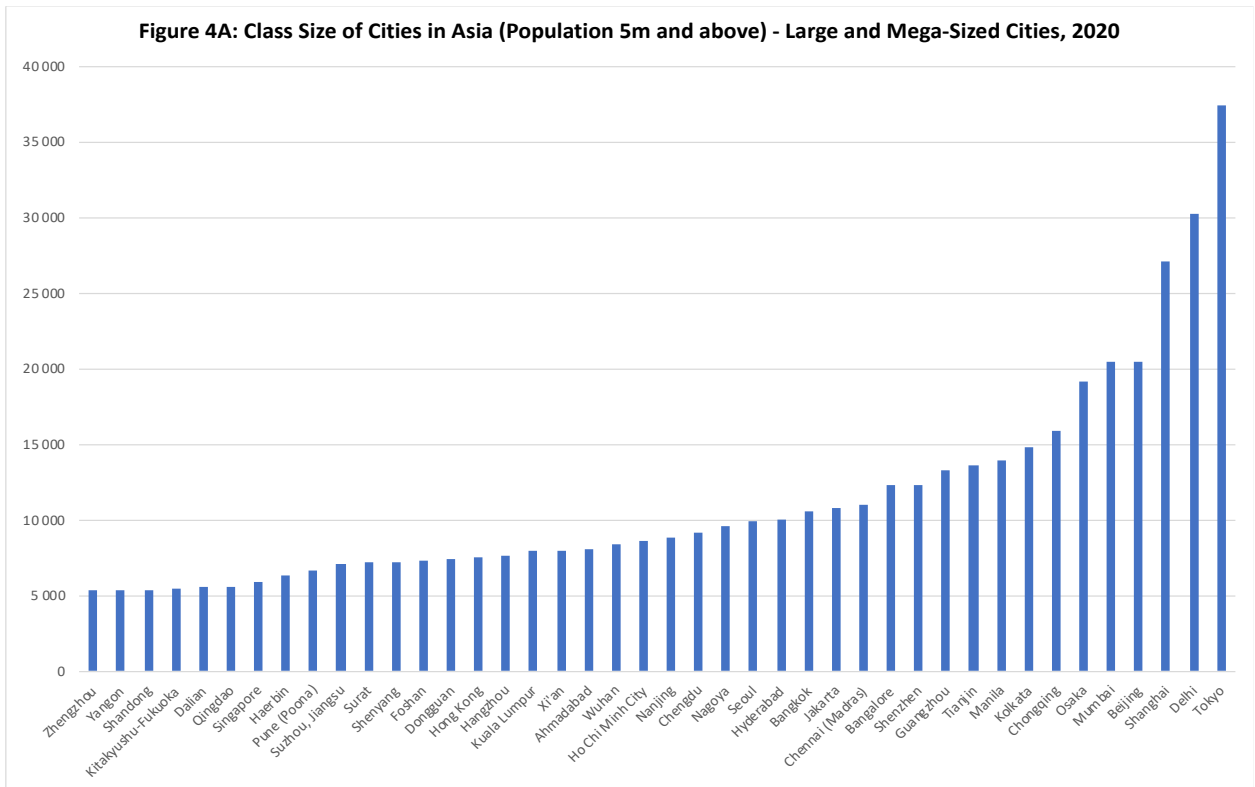
Source: UN World Urbanization Prospect 2018



Source: UN World Urbanization Prospect 2018



Source: UN World Urbanization Prospect 2018



Source: UN World Urbanization Prospect, 2018



AUTHORS

Professor Shandre Mugan Thangavelu is the Vice President of the Jeffrey Cheah Institute on Southeast Asia at Sunway University. Before his appointment, he was a Regional Director at Centre for International Economic Studies at the Institute of International Trade in the University of Adelaide and the Director of the Asia Growth Research Centre at the university. He is an active researcher on human capital development, technology transfer, foreign direct investment, trade, government infrastructure investment, productivity and economic growth. He has written extensively on ASEAN integration, FDI, human capital development, technology transfer and economic growth and has published his research in major international journals. He has written several books on trade, investment, integration and outsourcing in Asia. He has also worked on several international projects commissioned by UNDP, World Bank, ASEAN Secretariat, APEC, and Asian Productivity Organization (APO).

Professor Fukunari Kimura is a Professor at Faculty of Economics, Keio University and Chief Economist at Economic Research Institute for ASEAN and East Asia (ERIA). He was the former Dean of Graduate School at Keio University. Professor Kimura obtained his PhD from Department of Economics, University of Wisconsin-Madison in 1991. He worked for the Department of Economics, State University of New York at Albany as Assistant Professor in 1991-1994, and in the Faculty of Economics of Keio University as Associate Professor in 1994-2000. In particular, he has recently been active in writing on international production networks and economic integration in East Asia.

Dionisius A. Narjoko is a senior economist at the Economic Research Institute for ASEAN and East Asia (ERIA). He received his PhD in Economics from the Australian National University. He was previously affiliated with the Jakarta-based think-tank Centre for Strategic and International Studies and taught at the University of Indonesia. His research focuses on topics related to industrial organisation, international trade, Small and Medium Enterprises (SMEs), ASEAN economic integration.

Comments on the working paper can be directed to shandret@sunway.edu.my.





The Jeffrey Cheah Institute on Southeast Asia is an independent public policy think tank, based at Sunway University on the outskirts of the Malaysian capital, Kuala Lumpur. The Institute's research programme is grouped around three core disciplines: economic development, governance and social progress, including education. Its mission is to develop solutions to some of the region's most pressing development problems. JCI seeks to engage policymakers, scholars and ordinary citizens through regular public lectures and discussions, and to build lasting academic partnerships in the region and the wider Asia-Pacific.

✉ jci@sunway.edu.my  [jeffreycheahinstitute](https://www.facebook.com/jeffreycheahinstitute)
 www.jci.edu.my  [jeffreycheahinst](https://www.youtube.com/jeffreycheahinst)



The Jeffrey Sachs Center on Sustainable Development is a regional center of excellence that advances the achievement of the 17 Sustainable Development Goals (SDGs) in Malaysia and Southeast Asia, tackling the sustainability agenda through education, training, research and policy advisory. Launched in December 2016, the Center operates out of Sunway University and was borne out of a \$10 million gift from the Jeffrey Cheah Foundation (JCF) to the UN Sustainable Development Solutions Network (SDSN).

✉ jsc@sunway.edu.my  [jeffreysachscenter](https://www.facebook.com/jeffreysachscenter)
 www.jeffreysachs.center  [jeffreysachscenter](https://www.twitter.com/jeffreysachscenter)