Challenge 3

Strengthening Regional and Global Value Chains in Japan and Indonesia

Fukunari Kimura

Economic Research Institute for ASEAN and East Asia (ERIA)

and Keio University

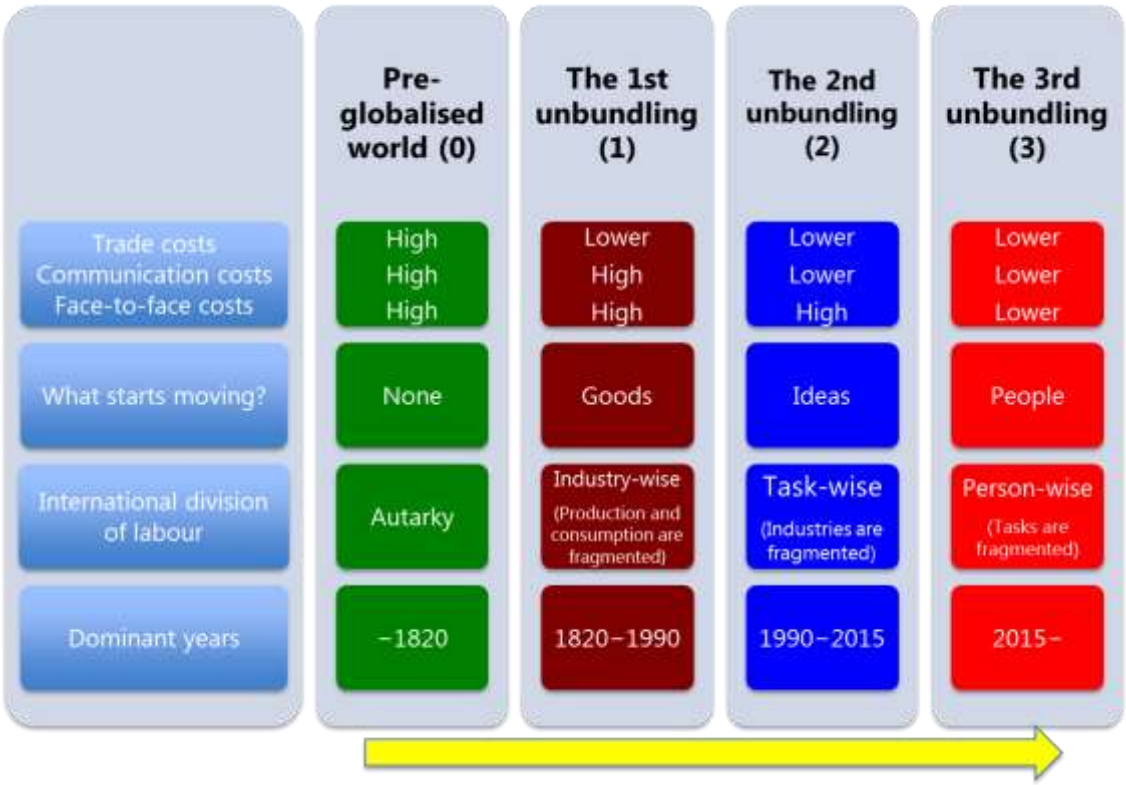
Evolution of the International Division of Labour

The conceptual framework of 'unbundling', proposed by Baldwin (2016), is useful for understanding the evolution of regional and global value chains, particularly for Association of Southeast Asian (ASEAN) Member States (Kimura, 2018). The concept of unbundling can be summarised as in Figure 3-1. In history, the first unbundling, or the industry-wise division of labour, emerged in the early 19th century with lowered trade costs through the steam revolution. The second unbundling, or the task-wise division of labour, started around 1990, when the information and communication technology (ICT) revolution drastically reduced communication costs. The third unbundling, or the person-by-person division of labour, will expand in the coming years thanks to the reduction in face-to-face costs resulting from the digital revolution.

In newly developed economies, such as Indonesia, different layers of unbundling coexist (Kimura and Chen, 2018). Businesses choose the appropriate form of unbundling when constructing their value chains. However, the applicable levels of unbundling are bounded due to physical conditions and the policy environment. In Indonesia, mining industries and plantation agriculture located in the outer islands typically operate their value chains in the first unbundling. Machinery industries and part of the advanced portion of the garment industry in the Java and Riau Islands go with the second unbundling for time-sensitive business-to-business (B-to-B) transactions. The third unbundling is about to emerge in the form of various new businesses that utilise the lowered matching costs in business-to-consumer (B-to-C) and consumer-to-consumer (C-to-C) transactions.

The challenge is how we can upgrade and expand our capabilities for enabling higher levels of unbundling to work. The key is connectivity.

Figure 3-1. Unbundling for Overcoming Distance



Source: Author.

Information Technology versus Communication Technology

To obtain a constructive perspective for the year 2045, we must understand the implication of the current digital revolution. Digital technology has two faces: information technology (IT) and communication technology (CT). Aghion, Bloom, and Van Reenen (2014) originally proposed the concept of IT and CT in the context of intra-firm organisation. Baldwin (2016) applied the idea to the context of the international division of labour. This is an insightful approach when we think of the implication of digital technology for newly developed economies.

IT, represented by artificial intelligence (AI), robotics, machine learning, and big data,

speeds up data processing, economises production processes, and reduces the number of tasks. Therefore, it is likely to generate concentration forces for economic activities. This may mean the possible re-shoring of manufacturing activities back to developed economies. On the other hand, CT, such as the Internet, smartphones, and 5G, overcomes distance, encourages the further division of labour, and generates dispersion forces for economic activities. From the viewpoint of newly developed economies, such as Indonesia, one thing we should do is utilise the feedback from piecemeal IT technologies and seek complementarity between machines and labour to revitalise existing industries. At the same time, CT must be aggressively utilised in order to generate new markets, new business models, and jobs. The aggressive use of CT has already started, not only in developed economies but also newly developed economies. The key is again connectivity.

Widening and Deepening International Production Networks

The mining industries and plantation agriculture located in Indonesia's outer islands, including Sumatra and Kalimantan, are connected directly to global value chains and operate in the first unbundling. Most of the light industries, such as the garment and footwear industries, mainly located in Java, also work in the first unbundling. Some cities in the outer islands, such as Medan and Makassar, seem to be populated enough to initiate more serious manufacturing activities even in the first unbundling. Basic physical logistics links, such as ports and roads, as well as the development of industrial estates, may help labour-intensive industries in some parts of the outer islands build up their manufacturing foundation.

As for the second unbundling, particularly international production networks in machinery industries, Indonesia as a whole lags behind its neighbouring ASEAN Member States, such as Singapore, Malaysia, and Thailand (Obashi and Kimura, 2017). Although links with machinery global value chains are established, efficient industrial agglomerations are not yet established. Compared with the Bangkok Metropolitan Area, the Jakarta Metropolitan Area is not well developed so as to nurture active vertical linkages between foreign and domestic firms. Surabaya is another centre to be enlarged. The Riau Islands do not show any signs of developing domestic vertical linkages. The formation of industrial agglomerations together with participation in international production networks is crucial

for local firms to obtain technology transfers and spillovers from foreign firms (Kimura, Machikita, and Ueki, 2016).

With a certain mass of population, other regions in Indonesia also have good potential for the second unbundling in their machinery industries. Such regions include cities in Java other than Jakarta and Surabaya, Medan, and Makassar. If those cities were in another country, they would naturally become industrial centres.

Facing the wave of the digital revolution, some people may be sceptical of the manufacturing sector. It is true that the service sector will become a major player in the digital era. However, the continuing efforts for manufacturing development are, and will continue to be, important for ASEAN Member States. In particular, countries with large populations, like Indonesia, must take advantage of job creation in the manufacturing sector, which greatly contributes to poverty alleviation (Kimura and Chang, 2017). Soft and hard infrastructure for the second unbundling, such as time-sensitive logistics networks, will also be helpful for stepping up to a higher level of unbundling.

During 2011–2016, we had a period called the 'slow trade' era, when the growth of total international trade became slower than the overall economic growth in the world. Some speculated the end of the global value chain era. However, such claims were not quite true. The slow trade can be explained mostly by a decline of trade in natural resources and materials. Parts and components trade in East Asia was actually growing steadily during the period (Obashi and Kimura, 2018). We still have room for further widening and deepening of the second unbundling in machinery industries.

The policies required for the second unbundling have already been well documented (ERIA, 2015). Institutional and physical connectivity for time-sensitive logistics links is required for participating in the second unbundling. In addition, infrastructure for industrial agglomeration must be prioritised in order to upgrade domestic industries. As for human capital, the relative shortage of managers and engineers is always a problem to be tackled.

Although IT is overall likely to accelerate the substitution between machines and labour, some production processes or tasks may require labour inputs complementary to machines. For example, the partial usage of 3D printers or robots combined with labour inputs is certainly a possibility. To catch up with technological advancement, participation

in international production networks may become even more important in the future.

The Digital Economy and Cross-border Services Outsourcing

The digital revolution with CT started with a drastic reduction in matching costs for B-to-C and C-to-C contacts and transactions. We observe that various new forums and businesses have recently been mushrooming in both developed and developing economies. Numerous platforms, big and small, have emerged through the Internet, including social media, e-commerce, matching for transportation, matching for lodging, and job matching. The costs to participate in such platforms are becoming lower for both providers and customers, and, thus, the platforms are becoming large and efficient marketplaces.

Indonesia has a large and young population, which is a big advantage for the digital economy. Incomplete regulation perhaps initially accelerated the introduction of new businesses with CT. However, now, consumers must be made to feel comfortable with the proper regulatory frameworks to achieve further market expansion.

CT also revitalises existing industries. The use of smartphones in agriculture and fishery, for example, is revolutionising their operations. Design and production in the garment industry may make big advances through computer-assisted design and manufacturing and 3D printing even from a distance. Value chains in the manufacturing sector can be managed and controlled much more efficiently with the Internet of things.

The implications of CT for inclusive growth are of interest. While we do care about fair competition and proper taxation for big platformers, the participants in platforms can be ordinary people, not necessarily college graduates. According to APJII (2018), the Internet-user penetration ratio is 72.4% in urban areas, 49.4% in rural–urban areas, and 48.2% in rural areas. By island, the penetration ratio is 57.7% in Java, 54.2% in Bali–Nusa, 47.2% in Sumatra, 72.1% in Kalimantan, 46.7% in Sulawesi, and 41.9% in Maluku–Papua. Although some gaps surely exist, the unevenness of digital connectivity seems to be much smaller than that of physical connectivity. CT may work as an equalising force.

How can we upgrade the use of CT to the third unbundling, or cross-border services outsourcing? The starting point would be domestic services outsourcing. Telecommuting, which starts within a firm, is already common in developed economies. Platforms for

matching services providers and consumers, such as Upwork, witmart.com, and Amazon Mechanical Turk are about to flourish. While various kinds of services used to be confined within a firm, in the near future, some of them will be actively outsourced through matching platforms.

Can these platforms extend their operations to newly developed economies? The answer is probably yes. If we randomly pick up one college graduate in Indonesia and another in Japan, the difference in their capabilities may be minimal. On the other hand, the difference in their wages will be substantial. Thus, once the large matching costs due to distance, language, culture, and financial links are reduced, the third unbundling, or cross-border services outsourcing, may become one of the major forms of the international division of labour.

What would be the role of the government? The related policies are threefold. First, we must secure digital connectivity and avoid digital divide. Interestingly, investment for digital connectivity has so far been done mostly by private initiatives rather than by huge public expenditure. The involvement of the government may be limited to providing trunk lines and regulating private Internet providers properly. Now, most of the ASEAN Member States are in the process of expanding 4G throughout their respective countries. The next challenge is to upgrade the digital connection to 5G. The 5G technology has already been established, and the ASEAN Member States must prepare for it quickly. It is important to catch up with or even lead the worldwide shift to the technology.

The second type of policy is those related to jobs and human capital. To aggressively utilise CT, we certainly need computer programmers, computer engineers, and entrepreneurs for new businesses. Thus, it is obvious for the government to expand higher education programmes to meet such demand for a new set of human capital. On the other hand, platform users may not be college graduates, which may open another possible channel for inclusiveness. The impacts of CT on the demand for human capital may be much more unpredictable and complicated. This suggests that the upgrading of general education is continuously important for taking advantage of CT.

Third, most importantly, the government must provide a proper regulatory framework for the private dynamism of CT usage. To further activate new businesses, the government may want to help start-ups, or at least not bother them.

Additionally, the policy environment for the 'almost' free flow of data with 'minimal' restriction must be achieved. The free flow of data, both domestic and cross-border, is crucial for invigorating CT-related businesses. However, the flow of data cannot be completely free. We have to consider a series of people's concerns. With proper backup policies, we can take advantage of the advancement of CT.

So far, backup policies for CT-related businesses are highly fragmented across countries. It is even difficult to find best practices in the world. However, the stocktaking of backup policies will certainly be useful for policymakers. The logic behind regulation should be clear to avoid inefficient and excessive regulations. Otherwise, the introduction of CT may be delayed with redundant regulations.

Backup policies include consumer protection; privacy protection; 'general exceptions', such as cultural preservation, public morals, and public health; intellectual property protection; non-discrimination and tariffs; and cybersecurity. In a wider scope, competition policy, taxation, and statistics may also need to be adjusted for CT-related activities. To take advantage of CT, the proper level of regulation, rather than too lenient or unnecessarily excessive regulation, is crucial.

The fragmented regulatory regime is costly. International cooperation and rule-making are very important. International organisations and various economic gatherings, such as the World Trade Organization, the United Nations, and the Asia–Pacific Economic Cooperation, have recently tried to seek a common denominator for the desirable regulatory framework in the era of the digital economy. However, such efforts seem to require substantial time and effort before bearing concrete fruit. Even the United States and the European Union cannot easily reach a conclusion on a number of important issues, let alone big, newly developed economies, such as China and India. Indonesia and Japan must, therefore, catch up with international rule-making.

Japan and Indonesia

To upgrade the capability of utilising higher levels of unbundling, Japan can work with Indonesia in many ways. Table 3-1 tabulates the major policy modes that are required for each level of unbundling in terms of institutional, physical, and people-to-people connectivity. The necessary policy modes will be changed according to the level of unbundling.

Table 3-1. Policies Required for Unbundling

	Pre-globalised world (0)	The first unbundling (1)	The second unbundling (2)	The third unbundling (3)
(i) International commercial policies (FTAs) and behind-the-border issues: Institutional connectivity		Trade liberalisation - GATT/WTO round negotiations - GSP	Trade liberalisation and facilitation - FTAs - Tariff removal - E-customs, TBT - Services (B2B) and investment liberalisation for GVCs	Trade liberalisation - Parcels and de minimis - Modes 3 and 4 in services (B2B, B2C, C2C) - (Cross-border) e-commerce and e-payments - Almost free flow of data Trade facilitation - SPS - Standards and conformance Backup policies and regulations - Consumer protection - Competition policy - Taxation - Cyber-security
(ii) Hard infrastructure and physical economic/living environment: Physical connectivity		Medium-grade connectivity - Road networks - Ports and airports Infrastructure services	High-grade connectivity - Full-scale port with container yard - Full-scale airport - Multi-modal (cargo, passenger) Urban/sub-urban development for industrial agglomeration - Logistics (highway system) - Mass economic infrastructure services (special economic zones/industrial estates, electricity, energy, water)	ICT connectivity - Internet connection - Integrating connectivity Metropolitan development and urban amenities (Glaeser et al., 2001) - Urban transport (LRT, subway, airport access, access to resorts) - Residential environment (children's education, medical services, safety) - Other urban amenities ("consumption")
(iii) Human aspects and inclusiveness: People-to-people connectivity	SME development - e.g., cottage industry	SME development - e.g., exporting primary products Human resource development - Primary and secondary education	SME development - e.g., supporting industry Human resource development - Managers, engineers	SME development - e.g., venture, start-ups Consumer (people)-centred policies - Consumer protection/privacy - Human resource development for innovation and new businesses - Movements of educated people - Avoid digital divide R&D capabilities and innovation hub

Source: Author.

The first row of the table is about institutional connectivity. The second unbundling requires overall tariff removals; trade facilitation; services liberalisation, particularly for B-to-B services; investment liberalisation in manufacturing and related services; and others. For the digital economy and the coming third unbundling, the consumer-oriented liberalisation of goods and services and rule-making for the free flow of data are going to be

crucial. In short, a high-level, modern free trade agreement is needed between Japan and Indonesia, and possibly together with other countries.

One idea is to review the Indonesia–Japan Economic Partnership Agreement and seek the possibility of upgrading the agreement. Another is to cooperate for the early conclusion of the Regional Comprehensive Economic Partnership, which is essential for maintaining ASEAN centrality, and set up continuous discussions for deeper economic integration. Also, if Indonesia wishes to do so, Japan would be happy to facilitate the accession of Indonesia to the Comprehensive and Progressive Agreement for Trans-Pacific Partnership. In any case, international rule-making for e-commerce and data flows may advance quickly in the coming few years. Both countries should not be left out of the world trend on this issue.

The second is on physical connectivity. For the second unbundling, the time-sensitive operation of production networks must be guaranteed. In addition, the formation of efficient industrial agglomeration is important. It is thus natural to invest in the Jakarta Metropolitan Area in order to fully utilise the mechanics of the second unbundling. Infrastructure for industrialisation in other parts of Indonesia would also be a possibility for future cooperation. For the digital economy and the third unbundling, the acceleration of digital connectivity is an urgent issue. Furthermore, urban amenities for attracting high-level human capital, as claimed by Glaeser, Kolko, and Saiz (2001) in the context of competition amongst cities in the United States, will become important because human resources for innovation are going to become increasingly more mobile.

The long-lasting official development assistance programme has continuously supported infrastructure development, mainly for the second unbundling. Other official funds have also played an important role in supporting infrastructure services, such as electricity generation. Japan and Indonesia can extend their cooperation for the necessary infrastructure development.

The third is on people-to-people connectivity. For the second unbundling, the shortage of managers and engineers is chronic. We may still need cooperation on human resource development for the manufacturing sector. For the digital economy, the technological gap between Japan and Indonesia may not be very large. It may be important to set up

meaningful opportunities for Japanese and Indonesian young entrepreneurs and computer engineers to get together.

Japan and Indonesia should lead the whole of East Asia in building up a new international commercial policy regime and utilising the upgraded value chains in the new digital era.

References

Aghion, P., N. Bloom, and J. Van Reenen (2014), 'Incomplete Contracts and the Internal Organization of Firms', *Journal of Law, Economics, and Organization*, 30(Suppl.1), pp. 37–63.

Asosiasi Penyelenggara Jasa Internet Indonesia (APJII) (2018), 'Inforgrafis: Penetrasi & Perilaku Pengguna Internet Indonesia 2017 Survey'. https://apjii.or.id/ (accessed 29 May 2018).

Baldwin, R. (2016), *The Great Convergence: Information Technology and the New Globalization*. Cambridge, MA: The Belknap Press of Harvard University Press.

Economic Research Institute for ASEAN and East Asia (ERIA) (2015), *The Comprehensive Asia Development Plan 2.0 (CADP 2.0): Infrastructure for Connectivity and Innovation*. Jakarta: ERIA (http://www.eria.org/publications/the-comprehensive-asian-development-plan-20-cadp-20-infrastructure-for-connectivity-and-innovation/).

Glaeser, E.L., J. Kolko, and A. Saiz (2001), 'Consumer City', *Journal of Economic Geography*, 1(1), pp. 27–50.

Kimura, F. (2018), 'Unbundling Regimes and Development Strategies in ASEAN: Old Issues and New Challenges', *Journal of Southeast Asian Economies*, 35(1), pp. 15–23.

Kimura, F. and M.S. Chang (2017), 'Industrialization and Poverty Reduction in East Asia: Internal Labor Movements Matter', *Journal of Asian Economics*, 48, pp. 23–37.

Kimura, F. and L. Chen (2018), 'Value Chain Connectivity in Indonesia: The Evolution of Unbundlings', *Bulletin of Indonesian Economic Studies*, *Special Issue Commemorating the 50th Anniversary of the ISEAS*, 54(Issue 2), pp. 165–192.

Kimura, F., T. Machikita, and Y. Ueki (2016), 'Technology Transfer in ASEAN Countries: Some Evidence from Buyer-provided Training Network Data', *Economic Change and Restructuring*, 49(Issue 2), pp. 195–219.

Obashi, A. and F. Kimura (2017), 'Deepening and Widening of Production Networks in ASEAN', *Asian Economic Papers*, 16(1), pp. 1–27.

Obashi, A. and F. Kimura (2018), 'Are Production Networks Passé in East Asia? Not Yet', *Asian Economic Papers*, 17(3), pp. 86–107.