Chapter 19
Structural Transformation and Development Experience from Asian Countries

Yasuyuki Sawada

Abstract Structural transformation is one of the critical drivers of growth and development worldwide. In all countries that achieved development success, agriculture's share of output and employment declined as industry's share grew, followed by 'deindustrialization,' as services became dominant. Also, we observed productivity upgrading from low to high within each of the three sectors. Asia achieved structural transformation at a much faster speed than other developed regions partly because of the continuous deterioration of agricultural terms of trade. At the same time, the manufacturing industry drives Asia's rapid growth because it has a number of essential features, such as a large scope for innovation and technological progress, scale economies, and the creation of better-paying jobs for a broad population. Yet, a few countries in Asia, such as the Philippines, face a critical question: can industrialization be bypassed for development? This chapter approaches these trends and issues by looking at aggregate statistics and long household panel data to discuss the Asian type of 'canonical industrialization' and 'premature deindustrialization

19.1 Structural Transformation in Asia and the Rest of the World

The structural transformation from agriculture to industrialization and then services has been considered the key driver of successful long-term economic development (Lewis 1954; Ranis and Fei 1961; Harris and Todaro 1970; Hayami and Ruttan 1985; Matsuyama 1992; Hayashi and Prescott 2008; Duarte and Restuccia 2010; Bustos et al. 2020; Gollin et al. 2021). Studies on East Asia's development success repeatedly endorse that industrialization and broad structural transformation have been indispensable for low-income economies to undertake the road to high income (ADB 2020).

Y. Sawada (✉)
The University of Tokyo, Tokyo, Japan
e-mail: sawada@e.u-tokyo.ac.jp

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In the last five decades, developing countries in Asia have achieved structural transformation successfully. In the 1960s and 1970s, most Asian economies were dominated by subsistence agriculture. Over 60% of Asian labor worked on a farm with low productivity; most Asian exports were simple, labor-intensive products (ADB 2020). A striking feature of economic development in Asia is the fast and continuous decline in agriculture and a corresponding increase in the manufacturing and services sectors' combined output and employment shares. The manufacturing sector's share increases to a certain point. It then declines as the economy shifts from the industrialization stage to a 'deindustrialization' stage. In contrast, the services sector's share continues to increase. As shown in Fig. 19.1, an inverted-U relationship exists between industry shares (in output and employment) and per capita gross domestic product (GDP). Services were already the most significant sector by output and employment for most countries in 1970, rising steadily with income.

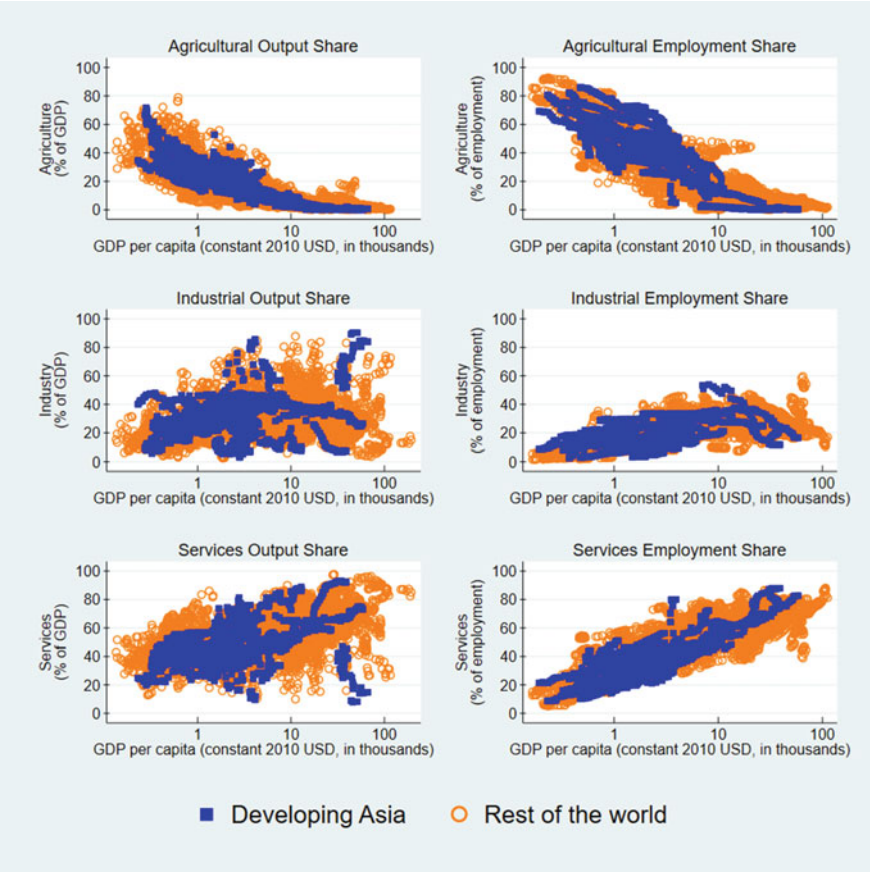

Fig. 19.1 Output and employment structural transformation in Asia and the world, 1970–2018. (Fig. 3.1 in ADB 2020). *Note* GDP = gross domestic product, USD = United States dollar

There are two distinctive features in Asia's structural transformation. First, while the pace of structural change has accelerated in Asia, higher industry shares are seen at lower per capita incomes than before, partly because late starters have the advantage that they can copy those ahead and advance at a quicker pace. Second, unlike the historical pattern of moving from agriculture to industry and then to services, output and employment transformation data show that many countries are directly transitioning from agriculture to services. This is the phenomenon known as 'premature deindustrialization.' Can countries bypass industrialization and growth of the manufacturing sector and leapfrog directly from agriculture-led development to services-led growth? Although the question remains contentious (Rodrik 2016; ADB 2020), the modern micro- and experimental-oriented development economics, which has gone through a 'credibility revolution' radically in the last two decades, is largely silent in answering such a fundamental question (Rosenzweig 2012; Ravallion 2020; Deaton 2020). For example, the dominant approach in development economics does not address long-term issues, such as the Green Revolution and the growth of employment in the manufacturing sector, to reduce poverty in the long-run (Rosenzweig 2012). Put simply, randomized controlled trials (RCTs) cannot provide evidence to identify the key to long-run economic growth (Deaton 2020).

This chapter discusses the core elements of structural transformation in economic development, drawing upon experiences of Asian countries, particularly new micro-level evidence from Asia.

19.2 The Canonical Model of Structural Transformation

Structural change (i.e., the reallocation of labor and broad activities across sectors) contributes to total labor and overall productivity growth. But changes in aggregate productivity also depend on how productivity evolves at the sector levels (i.e., what products are produced and how they are produced). In many Asian economies, the productivity growth within sectors has contributed more to overall productivity growth than the reallocation of labor and other resources into higher productivity sectors (ADB 2020).

Some of the main drivers of successful agriculture development in Asia include technology adoption, product diversification and expansion of the nonfarm economy, policies conducive to agriculture development, and public investments in rural infrastructure. First, technological change since the 1960s in Asia led to significantly improved yields of traditional crops. The Green Revolution, which included introducing new rice and wheat varieties and public investment in irrigation, was coupled with policies on input subsidies to encourage farmers' technology adoption. Second, increasing yields in traditional crops (e.g., rice and wheat) is critical but insufficient for growth, and continued agriculture growth has been partially achieved by structural change within the sector. The expanding demand for livestock and high-value products (which are more labor-intensive than traditional crops) has aided the rapid growth of agriculture in developing Asia. Increasing global trade is a key driver behind these

trends. Third, land reforms were introduced to create tenant-owner agriculture and redress inequality of landholdings, although success is limited in some countries. Policies to develop good access to domestic and international markets, combined with technical assistance from processing and marketing firms, were also implemented, supporting the diversification of farmers' high-value crops. Agriculture-related trade agreements and foreign direct investments have likewise included smallholder farmers in global value chains. Finally, in parallel, supportive infrastructure in the countryside has increased job opportunities and raised the chances for the economic mobility of farmers.

Agricultural development in Asia, in turn, supported economy-wide structural transformation. Experiences from the more developed Asian economies have shown strong complementarities between agricultural development and industrialization. Raising agricultural productivity, creating a virtuous cycle of rural economic development beyond food production, and enabling surplus transfers to support industrialization have been the pathways of successful transformation. Inter-sectoral resource flows, especially labor mobility from agriculture to non-agriculture, stimulated an increase in wage to the capital rental price ratio (ADB 2020).

The shift to manufacturing has become an essential component of Asia's development in the context of export-led growth. After World War II, manufacturing goods exports have gone hand-in-hand in explaining Asian development while the structure of production and exports in East Asian economies underwent major changes. This process accelerated, particularly in the 1960s and 1970s, and manufacturing value-added as a share of GDP and manufacturing employment as a share of total employment increased significantly. Japan and other East Asian economies, Southeast Asian economies, and China experienced a major economic transformation as workers moved from being employed in the primary sector in rural areas to cities where manufacturing employment and production increased substantially. This structural change and industrial upgrading occurred sequentially in the Asian countries following the mechanisms described by the 'flying wild geese model.' As the model matures, Asia has been transforming from an inter-industry trade pattern to an intra-industry trade system by strengthening regional production networks and global value chains (ADB 2020).

The development of the services sector is also an essential story of structural change. The role of the services sector has clearly been on the rise, whether viewed in terms of output or employment. The key drivers of Asia's services sector revolution are urbanization, information technology and e-commerce development, globalization, and consequent expansion of business process outsourcing (BPO). However, labor productivity in this sector remains low, which can be attributed to the dominance of traditional activities, such as wholesale and retail trade, hotel and restaurants, real estate, transport, personal services, and public administration. There are thus concerns about weak backward and forward linkages in the services sector. Other distinctive features of the services sector are its massive heterogeneity (low vs. high-productivity subsectors), difficulties in measuring its output, and its highly regulated nature. These features raise questions about the services-led growth model,

bypassing industrialization and growth of the manufacturing sector and leapfrogging directly from agriculture-led development to services-led growth, or simply, premature deindustrialization (Rodrik 2016; ADB 2020).

19.3 The Model

Otsuka et al. (2008) used primary data of rural households collected in Asia and Sub-Saharan Africa, spanning nearly two decades or longer, to examine the hypothesis of the two-phase process of economic development and structural transformation. First, in the early stage of economic development, when farming is a dominant source of income, access to land and agricultural technology are the significant determinants of farm household income. Accordingly, there is no incentive to invest in human capital and participate in the nonfarm labor market without substantial productivity improvements in agriculture. Second, as the economy develops with rising agricultural productivity and resulting in deterioration of agricultural terms of trade, the availability of nonfarm jobs increases, emphasizing the importance of human capital, which, in turn, incentivizes rural families to invest in human capital and switch to nonfarm jobs. In this way, an economy moves from being dependent on agriculture as its primary sector to increasingly relying on the secondary and tertiary sectors.

These hypotheses are built on the canonical two-sector model of economic development in which labor reallocation from a low-productivity farm sector to a high-productivity nonfarm sector is the key driver of development. In such modeling, the recent general equilibrium models reveal that it is indispensable to incorporate a preference structure that exhibits Engel's law (i.e., the inverse relationship between a household's income and food expenditure share).[1] To illustrate this feature, we employ the models of Matsuyama (1992, 2007) and Eswaran and Kotwal (1994) to formulate a simple general equilibrium model with the two sectors (i.e., the farm and nonfarm sectors), denoted by F and N, respectively. We postulate that the production functions in these two sectors are well-behaved neoclassical functions (i.e., concave), satisfying the Inada conditions. Then, we can derive the following first-order necessary condition as the equilibrium condition of the labor market:

$$MP_L^N = \frac{P_F}{P_N} MP_L^F \tag{19.1}$$

[1] Generally speaking, we can consider three alternative ways to formalize the preference. The first way is to incorporate the minimum subsistence level of food consumption, (a.k.a. the Stone-Gearly utility function) (Matsuyama 1992, 2007). Second, a hierarchical preference structure formulated by Eswaran and Kotwal (1994) can also exhibit Engel's law. Third, we can incorporate a positive constant term in the consumption of nonfarm goods (Murata 2002; Duarte and Restuccia 2010).

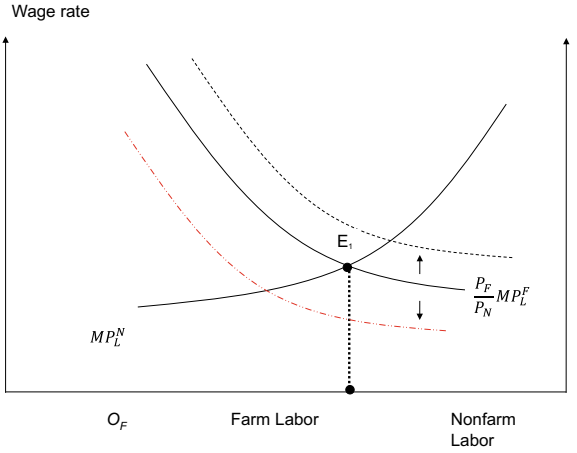

Fig. 19.2 Labor market equilibrium condition

where the marginal productivity of labor in the nonfarm and farm sectors are denoted by $MP_L{}^N$ and $MP_L{}^F$, respectively. P_F and P_N, respectively, are the prices of farm and nonfarm products. In Fig. 19.2, given the equilibrium relative price, we describe the labor market equilibrium condition where O_F is the origin for the farm sector and O_N is that for the nonfarm sector. The length of the horizontal axis in Fig. 19.2 corresponds to the total amount of labor force in the economy. For a closed economy, the domestic goods market equilibrium condition determines the relative price.[2]

Now consider the Green Revolution, which can be incorporated into the model as a case of a positive productivity increase in the farm sector. Then, in Fig. 19.2, the $MP_L{}^F$ locus shifts toward the right from the solid to the dotted curve. This would generate a direct effect of enhancing farm employment. Yet, this is not the only change made by the Green Revolution. At the same time, because of Engel's law, the relative price of farm to nonfarm goods, P_F/P_N(i.e., the terms of trade of agriculture), should decline, thereby shifting the curve to the left (dashed red curve). The total effect on sectoral labor allocation should depend on the relative magnitude of these two opposing effects (i.e., the immediate productivity effect and the price effect). Matsuyama (1992) and Eswaran and Kotwal (1994) show that, under plausible assumptions, the latter effect dominates the former, leading to a labor reallocation from farm to nonfarm sectors after all.

In reality, the long-term decline in real rice prices in the world may be consistent with deteriorations in the farm-nonfarm terms of trade (Fig. 1.3). Such a change in terms of trade is likely to be generated by the Green Revolution, which is represented by a shift of the $MP_L{}^F$ locus toward the left in Fig. 19.2. Theoretically speaking, in a small open economy setting, there will be no price effects, and thus, farm productivity improvements would directly expand the equilibrium share of farm labor. Yet, it would be likely that sufficient growth in nonfarm productivity, additionally shifting the $MP_L{}^N$ locus toward the left, combined with the deterioration of the agricultural

[2] In the case of a small open economy, the relative price is given exogenously.

terms of trade in the world market shown in Fig. 1.3, still helped achieve structural transformation from farm to nonfarm sectors in Asia. The importance of nonfarm productivity growth is much clearer in the case of post-World War II Japan, where high-productivity growth in the nonfarm sector outweighed the productivity improvements in the farm sector (Hayami 1975; Minami 2002). The overall observation of the continuous structural transformation in Asia shown in Fig. 19.1 is consistent with the mechanisms described here.

What are the underlying mechanisms behind such productivity growth, then? We believe that human capital investments are the key to explaining productivity growth in the farm sector and, more importantly, in the nonfarm sector. For developing countries as latecomers, the adoption, imitation, and assimilation of the flows of technical know-how from developed countries, rather than the development of domestic research and development (R&D) sectors, help their nonfarm productivity to catch up to the technological leader. This also suggests the importance of the absorptive capacity of advanced foreign technologies in Asian countries (ADB 2020; Kunieda et al. 2021). The absorptive capacity, with which the gap between the technology frontier and the current level of productivity is filled, should closely depend on the level of human capital (Nelson and Phelps 1966; Keller 2004; Benhabib and Spiegel 2005; Sonobe and Otsuka 2006). Ohkawa and Kohama (1989) discuss that the historical experience of Japan is a typical example of borrowed technology-driven industrialization. Their argument indicates that Asia's success was attributable to its rapid human capital accumulation, by which the absorptive capacity of foreign technology was increased, enabling rapid structural transformation.

19.4 The Case of Laguna Province, Philippines

To capture the long-term dynamics of structural change in-depth, we selected a particular area, Laguna province in the Philippines, located to the south of the capital city Manila. It is the third-largest province in the Philippines, with a population of more than 3 million. Laguna Lake, the largest lake in the Philippines, is located in the center of the province, and agriculture and fishery have long been developed along the lake.

19.4.1 Structural Transformation Seen from the Sky

The map of Laguna province in 1976 and 2016 is shown in Fig. 19.3. The map was based on Landsat satellite images of the NASA Goddard Space Flight Center and the US Geological Survey, in which the area was classified into four categories using a machine learning algorithm. The categories are waterbody (blue), vegetation (green), bare land (orange), and build-up (red). Manila is located to the northwest of the lake and was already developed in 1976, as illustrated by the dominance of the build-ups.

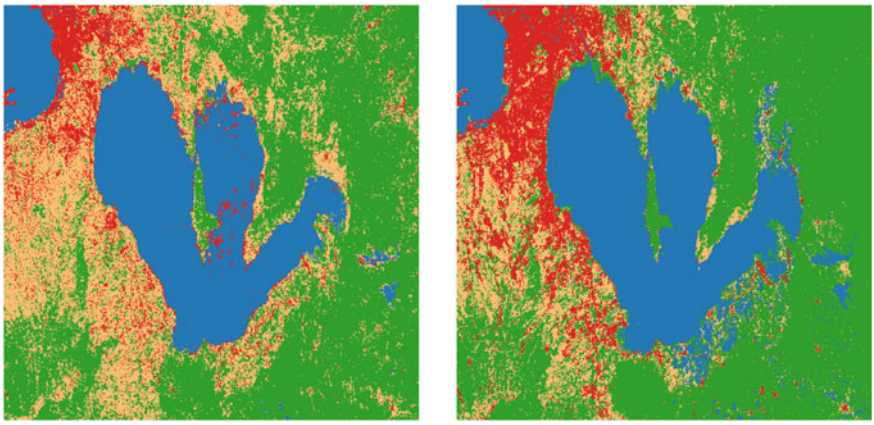

Fig. 19.3 Land use observed by satellite images of Laguna Province in 1976 and 2016. (Kim et al. 2021)

Laguna province is located to the south of Laguna Lake. If we compare the southwest (henceforth, west) and southeast (henceforth, east) sides of the lake, the proportion of build-up in the 1976 image is similar. This suggests that the development was evenly-distributed in Laguna province in the 1970s, giving us suggestive evidence of 'baseline balance.'

The unique characteristic of Laguna province is that the development has been pretty even until the mid-1970s, and primary industry has been the center of the economy. However, the Southern Luzon Expressway (SLEx) was constructed in 1978, by which the west was connected directly to Manila. This improved connectivity to Manila attracted investments, and several industrial parks were built from the late 1980s until the '00s in the west. Due to the expressway and the industrial parks, the west experienced rapid industrial development.

Using the information on land uses obtained from Landsat satellite images in 2016,[3] Fig. 19.3 illustrates changes in land usage. We can observe overall land cover changes from agriculture (vegetation in green and barren in orange) to built-up (red), especially in the west.[4] A series of satellite images show that the proportion of built-up in the west gradually increased over time, whereas the proportion in the east did not change much (Kim et al. 2021).

[3] We constructed land-use data at 269 m × 269 m pixel size from satellite images. While all the images are combined from images during the dry season and wet season, we undertook refinements and quality control of low-resolution images from the old dataset from the 1970s, variations in seasons, and a mechanical failure in the '00s.

[4] The Manila to Alabang portion of SLEx was started in 1969 and the Alabang to Calamba part opened in 1978 (Hayami and Kikuchi 2000).

19.4.2 Structural Transformation Seen from the Ground

To further explore micro-level dynamics of structural transformation, we employ another source of information from the ground level (i.e., the Laguna Multipurpose Household Survey), which was designed and initiated by Professors Robert Evenson and Barry M. Popkin with 34 barangays and 576 households in Laguna province in 1975 (Evenson 1980).[5] The panel survey was conducted in 1977, 1982, 1985, 1990, 1992, and 1998 (Ejrnæs and Pörtner 2004).

Since the original data files and respondent lists for the first survey in 1975 were not available, unfortunately, data from 322 households from the 23 barangays surveyed in 1977 were used as baseline information for our tracking survey, which was conducted with all the original respondents as well as their descendants in 2017 (Kim et al. 2021). The survey targeted all individuals in the family trees of the original 322 respondents surveyed in 1977, including information about those who had already passed away at the time of our tracking survey. This unique data allows us to analyze sample individuals' occupation choices in the period of dynamic structural change. The sample obtained from the tracking survey includes 23,650 individuals from 4,992 households in 318 family trees. Almost half of the original households were still located in the same barangay, and nearly two-thirds of them were in the same municipality (including the same barangay). Thus, we were able to reach a 98.7% tracking rate, which is, we believe, a higher rate of recontact than other similar tracking surveys.

Using the tracking dataset, we examined the age-specific distribution of primary lifetime occupations in the west and east separately (Fig. 19.4). While, in both areas, we observed a dramatic decline in the employment share of the agriculture sector over the generations, transformation in sector-specific employment structure from agriculture to traditional services, and manufacturing being more salient in the west than in the east. In the west, the manufacturing sector became the dominant sector over the agriculture sector in the labor market for those below 57-year-old (vertical solid line), replacing the farm sector common for those above 60 years old. The modern services sector dominated the agriculture sector for those below 52 years old (vertical dashed line). These patterns show that the west follows the canonical structural transformation pattern from agriculture to manufacturing and then to (modern) services.

[5] The original 34 sample barangays of the survey were selected by stratified random sampling. Thirteen sample barangays representing (i) lowland rice farming barangay were drawn from earlier survey, named Farm and Home Development Office survey, conducted by UPLB. With regard to the other three categories of barangays, sample barangays were randomly selected from the list of all barangays in each category; six upland barangays, three fishing barangays, and 12 semi-urban barangays. The total of 34 sample barangays are selected to represent the socio-economic condition of entire Laguna province. In each of the 34 barangays, 16 households were randomly selected from the census of barangay households (except 27 households selected in each of the three fishing barangays). With such sampling framework, 576 households were surveyed in the 1975 survey (one household missing).

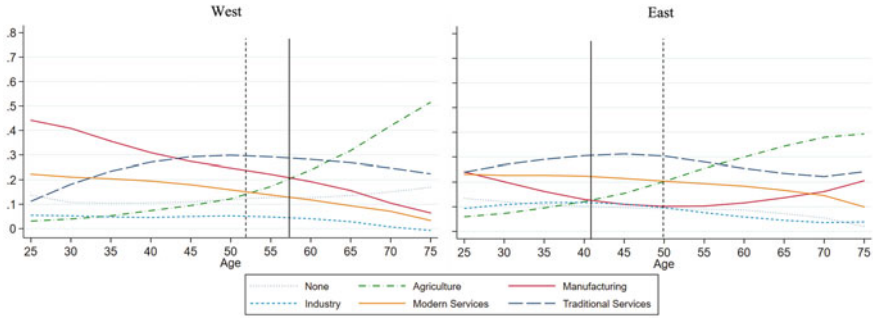

Fig. 19.4 Occupational dynamics in the southwest (west) and southeast (east) sides of Laguna Lake in the Philippines (Kim et al. 2021)

However, traditional services had the highest share among those below 57 years old in the east. The modern services sector dominated the agriculture sector for those below 50 years old (vertical dashed line) and then by the manufacturing sector for those below 41 years old (vertical solid line). The east bypassed manufacturing occupations by transforming its initial agricultural dominance into traditional and modern services occupations. These two figures show the co-existence of the 'canonical structural transformation' in the west and 'premature deindustrialization' in the east. On the one hand, we found that infrastructure development and manufacturing sector investments in the west facilitated occupational transformation from agriculture to manufacturing. On the other hand, with the inaccessibility of manufacturing, the east showed premature deindustrialization, which induced the servicification of occupations.

19.5 Concluding Remarks

Historically, there have been unprecedented structural changes in Asian countries in the last few decades. The share of agriculture has declined sharply, and the shares of industry and services are increasing rapidly. The pattern of structural change, however, has been diversified, even within a country, and not all economies have moved in the same direction and at the same speed. While we still observe that the employment shares in agriculture in Asia are still significant, we also recognize the need to speed up the transition of labor into the more productive manufacturing and service sectors. In addition, these economies will have to industrialize rural areas so that agriculture can catalyze industrial development. Since the agricultural employment capacity has been more or less saturated in Asia, it will be imperative for the manufacturing and service sectors to absorb surplus labor from agriculture.

There are remaining issues that need further investigation in the future. First, there is much room for further examination of the role of the agriculture sector in the region as the sector will remain a significant employer in many Asian economies

in the coming decades, particularly in agribusiness and food processing. Moreover, developing modern agriculture and facilitating rural transformation remains a priority for many low- and middle-income Asian economies.

Second, it will be imperative to investigate whether manufacturing remains essential and whether industrialization, in general, cannot be bypassed. While historical analysis indicates that, with few exceptions, countries have been unable to achieve a high-income economy without having a significant manufacturing sector, a dramatic decrease in cross-border communication costs and the 'third unbundling' as posited by Baldwin (2016) may enable a country to absorb a large number of laborers in the service sector and, thus, bypass manufacturing production altogether. Since services will ultimately be the largest sector in both output and employment, low- and middle-income Asian economies need to nurture a more productive services sector to achieve inclusive growth in Asia.

Finally, the low carbon and green growth agenda will be a critical strategic overlay for developing Asia's continuing structural transformation because environmental degradation and climate change threaten the sustainability of Asian development. Asian countries must scale up efforts to protect the environment and act toward climate change mitigation and adaptation while the government and private sector support further structural transformation. Examples include manufacturing and services industries supported by enhanced investments in renewable energy, energy efficiency, sustainable public transport, climate-resilient infrastructure, strengthened framework legislation, safeguard policies, and air and water quality standards.

Recollections of Professor Keijiro Otsuka

I had the chance to meet Professor Kejiro Otsuka for the first time in 1995 when I worked for the International Food Policy Research Institute (IFPRI) as an unpaid summer intern. Considering my situation, Kei kindly offered me a free house-sitting opportunity while his family was away visiting Africa. Since then, we have worked together and have become close friends. In 2008, we coedited a book entitled *Rural Poverty and Income Dynamics in Asia and Africa,* published by Routledge (Otsuka, Estudillo, and Sawada), for which I had a memorable visit to the International Rice Research Institute (IRRI) with him and Jonna as well as Professors Yujiro Hayami and Randy Barker, among others. In the last two decades, Kei has been one of the most influential persons in my academic and non-academic life. I am honored very much to join the Festschrift celebrating his substantial contribution.

References

ADB (Asian Development Bank) (2020) Asia's journey to prosperity: policy, market, and technology. Asian Development Bank, Manila

Baldwin R (2016) The great convergence: information technology and the new globalization. Harvard University Press, Boston

Benhabib J, Spiegel M (2005) Human capital and technology diffusion. In: Aghion P, Durlauf S (eds) Handbook of economic growth. North Holland, Amsterdam, pp 935–966

Bustos P, Garber G, Ponticelli J (2020) Capital accumulation and structural transformation ["capital deepening and nonbalanced economic growth"]. Q J Econ 135(2):1037–1094
Deaton A (2020) Randomization in the tropics revisited: a theme and eleven variations. In: Bédécarrats F, Guérin I, Roubaud F (eds) Randomized control trials in the field of development: a critical perspective. Oxford University Press, London
Duarte M, Restuccia D (2010) The role of the structural transformation in aggregate productivity. Q J Econ 125(1):129–173
Ejrnæs M, Pörtner CC (2004) Birth order and the intrahousehold allocation of time and education. Rev Econ Stat 86(4):1008–1019
Eswaran M, Kotwal A (1994) Why poverty persists in India. Oxford University Press, New Delhi
Evenson R (1980) Note on the laguna household survey in the Philippines. Unpublished mimeograph
Gollin D, Hansen CW, Wingender AM (2021) Two blades of grass: the impact of the Green Revolution. J Polit Econ 129(8):2344–2384
Harris JR, Todaro MP (1970) Migration, unemployment, and development: a two-sector analysis. Am Econ Rev 60(1):126–142
Hayami Y (ed) (1975) A century of agricultural growth in Japan: its relevance to Asian development. University of Tokyo Press, Tokyo
Hayami Y, Kikuchi M (2000) A rice village saga: three decades of Green Revolution in the Philippines. Barnes & Noble and IRRI, Manila
Hayami Y, Ruttan VW (1985) Agricultural development: an international perspective. Johns Hopkins University Press, Baltimore, MD
Hayashi F, Prescott EC (2008) The depressing effect of agricultural institutions on the prewar Japanese economy. J Polit Econ 116(4):573–632
Keller W (2004) International technology diffusion. J Econ Lit 42(3):752–782
Kim S, Higuchi Y, Kajisa K, Sawada Y (2021) Infrastructure investments, schooling, and structural transformation in development: evidence from multi-generation tracking survey in the Philippines. In: Paper presented at the 2021 JADE conference, Tokyo, Japan
Kunieda T, Okada K, Sawada Y, Shibata A (2021) On the two catching-up mechanisms in Asian development. Surf Rev Lett 38(2):31–57
Lewis WA (1954) Economic development with unlimited supplies of labor. Manchester Sch Econ Soc Stud 22(1):139–191
Matsuyama K (1992) Agricultural productivity, comparative advantage, and economic growth. J Econ Theory 58:317–334
Matsuyama K (2007) Structural change. In: Blume L, Durlauf S (eds) New Palgrave dictionary of economics, 2nd ed. Macmillan, London
Minami R (2002) Economic development of Japan, 3rd ed (in Japanese). Toyo-Keizai-Shinpo-Sha, Tokyo
Murata Y (2002) Rural-urban interdependence and industrialization. J Dev Econ 68(1):1–34
Nelson R, Phelps E (1966) Investment in humans, technological diffusions, and economic growth. Am Econ Rev 56(1):69–75
Ohkawa K, Kohama H (1989) Lectures on developing economies: Japan's experience and its relevance. University of Tokyo Press, Tokyo
Otsuka K, Estudillo JP, Sawada Y (eds) (2008) Rural poverty and income dynamics in Asia and Africa. Routledge, London
Ranis G, Fei JCH (1961) A theory of economic development. Am Econ Rev 51(4):533–558
Ravallion M (2020) Should the randomistas (continue to) rule? In: Bédécarrats F, Guérin I, Roubaud F (eds) Randomized control trials in the field of development: a critical perspective. Oxford University Press, London
Rodrik D (2016) Premature deindustrialization. J Econ Growth 21(1):1–33
Rosenzweig MR (2012) Thinking small poor economics: a radical rethinking of the way to fight global poverty: review essay. J Econ Lit 50(1):115–127
Sonobe T, Otsuka K (2006) Cluster-based industrial development: an East Asian model. Palgrave Macmillan, Hampshire, UK