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Agriculture, the Rural Sector, and Development

Rob Vos

1. Introduction

Over the past sixty years, most Asian countries have undergone relatively rapid agricultural transformations that helped jump-start broader economic development. However, the changes have differed markedly in nature and speed across countries of the region. In much of East and Southeast Asia, the Green Revolution brought a quantum leap in yields and output of rice and wheat, which boosted smallholder farm productivity and profits. Farms became more commercial and agricultural value-added per worker rose significantly. Public investment and strong support for smallholder agriculture and agrarian reforms through to the late 1990s paved the way for manufacturing industries to develop. Gradually, aggregate economic growth increasingly depended on dynamics in the service and industrial sectors. While the Green Revolution also played an important role in South Asia, the processes of agricultural transformation and structural change have lagged the ones taking place in East Asia. The service sector has become predominant, especially in India, and a mature manufacturing sector has yet to develop. Institutional reforms and public support for rural infrastructure were less pervasive. As a result, South Asia has been slow in making the shift from low- to high-productivity employment, despite the decline in agriculture's share in total gross domestic product (GDP).

These are symptoms of deeper-rooted factors that delayed transformative change, including those that concerned Gunnar Myrdal when he wrote his three-volume *Asian Drama* (Myrdal 1968). At the time of writing, he saw a kind of drama playing out in postcolonial South Asia, and despite the complexities and dissimilarities among the different nations of South Asia there was a clear-cut set of conflicts and a common theme, as in any drama, trapping people into poverty. Myrdal's other seminal contribution (building on ideas of Wicksell and Kaldor) is the concept of circular cumulative causation (Myrdal 1957). From this perspective, he saw that constraints to natural resource availability, historical traditions of production activity, weak institutions, lack of national cohesion, and/or traditional or religious beliefs could conspire to holding back agriculture and broader economic development in cumulative causation.

Myrdal's analysis—and his pessimism—focused mainly on India, but he extended this to Indonesia and other countries as well. He believed that traditional power structures were likely to persist. Unless there was change, the chances of economic take-off were slim. He perceived governments in the region as too 'soft', unable to enforce the discipline needed to implement their development plans. He doubted whether faster agricultural development, crucial for raising living standards in the rural areas and for providing the savings and markets to support industrialization, would take place without either radical land distribution or consolidation into communes, neither of which he believed was politically feasible (Lankester 2004). In such settings, the effect of pushing out labour from traditional activity would initially lead to the reduction of employment, income, and demand. The consequent contraction of the markets would have a depressing effect on new investments, which in turn would cause a further reduction of income and demand and, if nothing happens to modify the trend, there would be a net movement of enterprises and workers towards other areas.

In today's context, the question is how Asian societies managed to break away from this cycle and what type of more benign rural transformation process would be needed to address today's challenges of accelerated urban population growth, rising inequality, unprecedented size of young populations, limited employment prospects, and environmental constraints and threats.

This chapter re-examines Asia's agricultural and rural transformations in the context of economy-wide structural change. It focuses on the different pathways Asian societies have taken in terms of agricultural transitions; transformation of food systems with rising incomes and urbanization; infrastructure development to forge rural–urban linkages; and implications of broader structural economic transformations, with the objective of identifying the factors of cumulative causation explaining why development accelerated in one part of the region and lagged in another. In light of the review of evidence presented in this chapter, lessons will be drawn as to how to address today's challenges for the development of Asia's agriculture and food systems and possible pathways for more inclusive and sustainable rural transformations in the coming decades.

2. Exiting Agriculture, Patterns of Structural Change, and Poverty Reduction

2.1 Agricultural Exit and Structural Change

Economic development has historically been characterized by sustained structural change, typically initiated by a shift of labour out of agriculture into the 'modern' industrial sector. The result of this process is an increased share of non-agricultural sectors in GDP, as well as in employment. The Lewis dual-economy model provided an early theoretical formulation of this process (Lewis 1954).

Investment in modern sector capital would drive economic growth and induce excess labour in agriculture (whose marginal product was assumed to be zero) to move to the modern sector. For most of Asia and Latin America, this modern sector has been industry; rapid growth in Asia has also been spurred by exports of industrial products (especially in China and other parts of East Asia). In India, in contrast, recent structural transformation has been characterized by greater employment in services (both formal and informal), rather than industry (Ashan and Mitra 2016).

The shift from agriculture to non-agriculture has also been a common pattern of growth pathways in Asia. Japan's structural change is most advanced with agriculture shares of GDP of below 2 per cent and agriculture's employment share below 5 per cent (Figure 7.1, upper panel). Structural change in the Republic of Korea started much later, but accelerated from the 1970s to similarly low agricultural shares as prevailing nowadays in Japan. Malaysia's degree of structural change is not far behind. Indonesia, the Philippines, and Thailand still have relatively high shares of agricultural employment at around 30 per cent or more, with the pace of structural change picking up from the 1990s. In these countries, the labour exit from agriculture has lagged the speed in the decline of agriculture's share in GDP. The relative size of Vietnam's agricultural sector was stagnant at around 40 per cent of GDP during the 1970s and 1980s, to start its descent only after the *doi moi* agrarian reform policies of 1987 and 1988 induced a shift away from collective farms to individual private farming (see McCaig and Pavcnik 2016). However, the agricultural employment share remained high at 65 to 70 per cent of the labour force until the early 2000s. Additional domestic and external reforms lifting price controls and restrictions in the mid-1990s induced greater adoption of modern farming practices, pushing up agricultural productivity growth and accelerating the exit of labour from agriculture. Agriculture's employment share dropped from 65 per cent in 2000 to just over 40 per cent in 2016.

In comparison to the other major Asian economies, India's process of structural change appears to be a bit of an outlier, as visible in the lower panel of Figure 7.1. The Green Revolution pushed up agricultural productivity in the country's expanding commercial farm sector. Agriculture's share in GDP declined with the expansion of non-agricultural sectors and, despite the relatively limited labour exit from agriculture, as many (hundreds of millions) smallholders and landless agricultural workers were left behind in the agricultural transformation process. Between 1960 and 1985, agriculture's share in GDP declined from over 60 per cent to about 40 per cent; the sector's employment share remained near stable at around 70 per cent. Agriculture's employment share declined only slowly between 1985 and 2000 to reach 60 per cent at the end of that period. The labour exit from agriculture has accelerated since, as the overall pace of growth of the Indian economy picked up significantly. Nonetheless, in 2016 there was still about

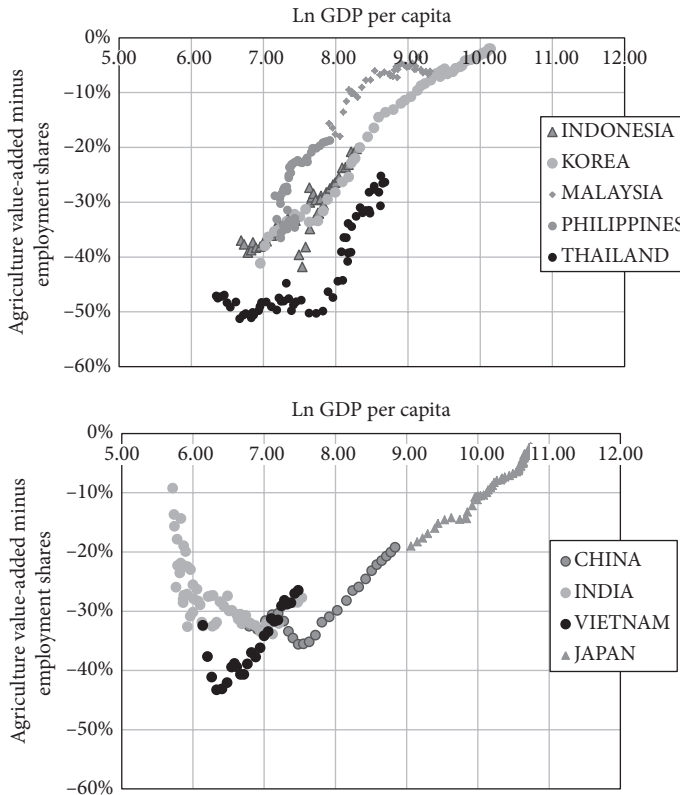


Figure 7.1 Convergence of declining agricultural value-added and employment shares with rising income per capita in China, India, Indonesia, Rep. of Korea, Malaysia, Philippines, Thailand, and Vietnam, 1950–2016.

Note: Period coverage is as follows China (1991–2016); Indonesia (1971–2016); India (1960–2016); Japan (1953–2015); Republic of Korea (1963–2016); Malaysia (1975–2016); Philippines (1971–2016); Thailand (1960–2016); Vietnam (1991–2016).

Source: Author’s calculations from sectoral national income and employment data from Groningen Growth and Development Centre (n.d.) database, World Bank (n.d.) World Development Indicators, and ILO (n.d.) ILOSTAT.

45 per cent of the labour force working in agriculture, on a par (also in terms of the degree of structural change) with that of Vietnam. The slow drop in agriculture’s employment share signals a decline in agriculture’s relative productivity rate. At difference with Vietnam and the rest of the Asian economies, Indian workers leaving agriculture have largely sidestepped manufacturing, whose shares in GDP and employment remain low at around 12 per cent. Instead, the structural change has been towards modern and informal services sectors, with the modern part being a major driver of the recent growth acceleration (Ashan and Mitra 2016).

2.2 Structural Change, Growth, and Poverty Reduction

Economic growth in the developing world has led to substantial reductions in poverty over the last two and a half decades. Much of this success was driven by structural change and associated fast economic growth in Asia. Within the region at large, poverty reduction has been more pronounced in most of East and Southeast Asia, where structural change also has progressed the most. The average poverty headcount for these two regions fell from 60.2 per cent in 1990 to 3.5 per cent in 2013 (World Bank 2017).¹ Around 2015, less than 10 per cent of the world's poor population lived in East and Southeast Asia, down from more than half in 1990. The poverty rate also declined significantly in South Asia over this period (from 44.6 to 15.1 per cent), but not as dramatically as in East Asia and, because of faster population growth in South Asia, the sub-region's share of the world's poor population increased from 27.4 to 33.5 per cent.

Various studies provide evidence showing that, especially in early stages of structural transformation, agricultural productivity growth has a larger poverty-reduction effect than increases in industry or services (World Bank 2008; Ivanic and Martin 2018). While impacts vary across countries, also within South Asia, agricultural growth seems more important to poverty reduction than growth in other sectors. The study by Ivanic and Martin (2018) finds that the impact of productivity improvements in agriculture (equivalent to 1 per cent of GDP) would reduce poverty in India by 1.6 percentage points, more than three times the impact of productivity improvements of the same relative magnitude in industry and services. In Bangladesh, the impact of agricultural productivity growth on poverty reduction would be even greater (2.6 percentage points) and more than six times that of non-agricultural sectors, while, in contrast, in Vietnam, the poverty-reduction impact from agricultural growth would be much smaller and only marginally higher than that of productivity growth in industry or services. This suggests different pathways towards inclusive structural change are possible. To understand those, it is important to look at the key factors that influence sectoral poverty-growth elasticities.

3. Agriculture and Food System Changes as Conditioners of Inclusive and Exclusive Structural Transformation

According to Timmer (2014), three key lessons can be drawn from historical pathways of structural transformation. First, structural transformation has shown to be an important way for people to climb out of poverty, especially when productivity rises in both agricultural and non-agricultural sectors through strong

¹ The poverty headcount is calculated using the World Bank's poverty line of US\$1.90 in purchasing power parity (PPP) per person per day.

inter-sectoral linkages (Hirschman 1958; World Bank 2008). Without broad-based productivity growth, labour more likely will be ‘pushed’ into low-paying informal service jobs, rather than ‘pulled’ out by highly productive manufacturing and services. Second, even with broad-based productivity growth, structural transformation tends to widen the income gap between agricultural and non-agricultural sectors and between rural and urban areas, putting most of the pressure on rural societies to adjust. Third, in order to catalyse productivity growth and structural change, substantial investments in the agricultural sector are needed despite its declining relative importance.

However, the way in which these factors played out in the past, and should be expected to play out moving forward, is conditioned on five other transformative processes that are taking place in parallel: urbanization, dietary change, agricultural technology and farm size change, food market transformations, and rural labour market changes (Reardon and Timmer 2014). All of these change processes are relevant to structural change in Asia. They should be seen as linked in cumulative causation, as Myrdal would argue. These factors will be discussed in the subsequent sub-sections, starting with the importance of shifting demographics and changing diets, followed by the role of changing farm technologies and farming systems, and the dynamics of rural non-farm activities in driving the nature of agricultural transformations. The role of policies and institutional reforms in all of this will be taken on in section 4.

3.1 Shifting Demographics, Shifting Diets

Myrdal wrote *Asian Drama* against the prevailing economic and social conditions in the 1950s and 1960s. Painted with a broad brush, most Asian economies were still strongly agrarian based, with most people living in rural areas, and population growth driven by high fertility rates. Land was scarce, though generally fertile, such that intensification of staple crop production would be critical to addressing both the challenges of food insecurity and poverty. With economic development, however, demographic pressures have changed, as population growth has decelerated and urbanization rates have gone up. Fertility rates and family sizes have fallen with income levels, altering the underlying drivers of economic growth, as capital accumulation becomes more important than labour supply. Higher average urban incomes and larger city populations have led to expanding urban food markets and have changed the composition of food demand, as higher incomes lead to dietary change: even as food shares tend to fall (Engel’s law), total food expenditures typically continue to rise with per capita incomes, as the share of dietary energy that comes from typically cheaper cereals and other starchy food staples falls while consumption of more expensive animal-sourced foods, fruits and vegetables, and processed foods increases (Bennett’s law). These changes

associated with urbanization have created new opportunities for farmers in terms of larger food markets for products with, generally, higher value-added, meeting the needs of a rising Asian middle class (Tschirley et al. 2015). Meats, dairy products, and fruits and vegetable production require higher input use (land, water, fertilizers, and/or pesticides), inducing changes in land use and requiring farmers to adopt new technologies.

The changing demographics and diets have not only changed agricultural transformation processes, but also created new challenges. Increased resource use may lead to overexploitation of natural resources and accelerate environmental degradation, where land and water resources are already scarce (Vos and Bellù 2019). Where population growth is still strong, expanding rural populations may increase population density and reduce average farm size, especially among smallholders (Masters et al. 2013). This could induce farmers to diversify into off-farm employment, which could help accelerate positive structural change and poverty reduction, if rural non-farm activity expands alongside, and rural–urban linkages are strengthened.

On the Asian continent, urbanization has advanced farthest in East Asia, where 60 per cent of the population lives in cities today and the share is expected to rise to 80 per cent by 2050 (Vos 2018). Importantly, East Asia's rural population started to decrease in absolute terms from around 2005, reflective of advanced structural economic change. The Republic of Korea's rural population started to decrease from 1970 and its urban population share had already surpassed 80 per cent by 2015 and is projected to reach almost 90 per cent by 2050. China's urban share in the population increased from less than 20 per cent at the start of its economic take-off around 1980 to 56 per cent in 2015 and is projected to increase to 75 per cent by 2050. The absolute size of China's rural population has been decreasing since 1995. Korea's and China's populations are ageing rapidly and their total populations are expected to shrink from around 2030 onwards.

In Southeast Asia, Thailand and Malaysia had reached their Lewisian turning points around 2000. Indonesia and Vietnam did so more recently, while the Philippines—where population growth is still high—is not expected to reach its turning point before 2040. South Asia is the least urbanized region (even less so than Sub-Saharan Africa) and its rural population is expected to continue to grow *in absolute terms* until about 2030. This is also the case in India.

Due to restrictive population control policies, East Asia (China in particular) reached its demographic transition point much earlier than countries in South Asia. This is also evident from today's youth dynamics. South Asia's youth population is expanding at a rate close to the total population's growth rate, whereas East Asia's youth population is falling in absolute terms and almost as fast as the rural population (see Vos 2018: figure 4). These trends set different employment challenges across the Asian continent, with those in South Asia being most pressing from a

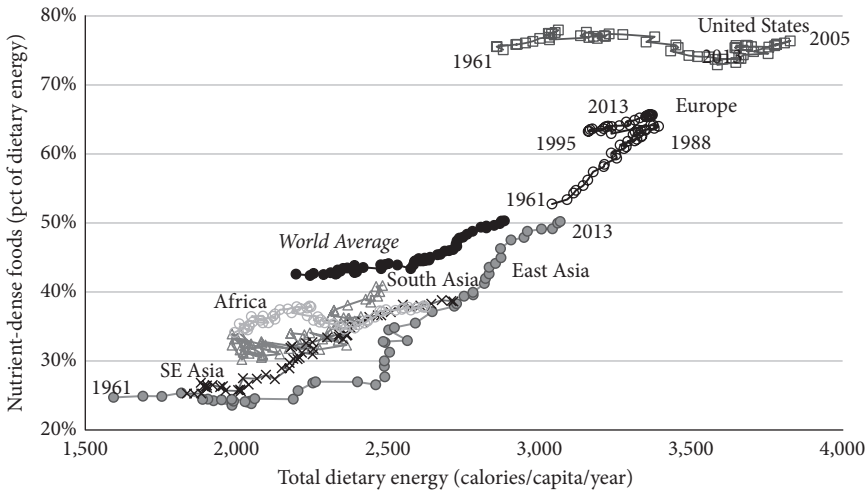


Figure 7.2 From more food to different foods: the dietary transition by Asia in comparison to the rest of the world, 1961–2013.

Note: Europe includes all of the former Soviet Union.

Source: Masters (2018) (with permission), based on FAO food balance sheets data.

structural transformation perspective, as rural populations are still large and rising and vast numbers of young people are entering rural labour markets every year.

Dietary transitions are also taking place at different speeds across the continent. Figure 7.2 shows long-term trends in the per capita quantity of all foods, measured in calories, and a fraction of those calories that come from foods other than starchy staples. Clearly, Asia's sub-regions start at the bottom left of the chart, but, as their incomes have risen, total food energy supply (and apparent consumption) have increased starkly since the 1960s. The share of non-starchy staple crops started to increase markedly from around 1980. This is most visible in East Asia where today over 50 per cent of food energy intake coming from foods other than cereals and starchy roots. In South and Southeast Asia, the dietary transition is clearly less advanced but has also accelerated over the past two decades.

Increased per capita incomes bring not only increased diversity in the types of food, but also the forms in which those foods are consumed (e.g., more processing and packaging). These changes are facilitated by major transformations of agri-food supply chains with increased dominance of modern, large-scale food processing and wholesale and retail distribution. Higher incomes, urbanization, and the structural transformation of the economy have been supported by agricultural productivity increases but impacts on poverty reduction have been influenced by the way in which farm systems have been transformed at the same time through mechanization, changing farm size, and crop and product diversification. We turn to these processes in the next subsection.

3.2 Agricultural Technology Change and Farm Size

Agricultural output growth has been rather robust over the past half-century, especially in East Asia (China in particular), but—from the 1970s—also in Southeast Asia and more recently also in South Asia. As shown in Vos (2018: table 1), in recent decades (from the 1990s), total factor productivity growth has become the main driver of agricultural output growth in Asia, as much as in other parts of the world, whereas output growth in previous decades was mainly driven by increasing the use of inputs (land, labour, fertilizers).²

Important changes in Asia's farming systems have underpinned agricultural productivity growth and efficiency gains over the past four to five decades. Reardon and Timmer (2014) summarize the evidence as showing that farms have become commercial, agricultural production has diversified (away from grains, mirroring the dietary change, as discussed later), even as individual farms have become more specialized (into cropping, or livestock, poultry, and aquaculture), and farmers have shifted from non-purchased to purchased input use (i.e., from human to animal to machine power, from manure, by-products, and residues to chemical fertilizer, and to use of more pesticides and herbicides). The degree and speed of these changes has varied across locations. These changes occurred earliest and fastest in the 'classical Green Revolution' zones, particularly lowland rice systems and irrigated wheat areas. During the 2000s, a second wave of intensification and commercialization occurred in areas that were 'catching up' with the initial Green Revolution zones, such as in Uttar Pradesh in India, northern Bangladesh, and northeast China, in rice, potato, and horticulture (Reardon et al. 2012). Gulati et al. (2004) document the diversification of agricultural production in parts of India with the development of horticulture in the 1990s and 2000s.

More recently, capital intensity of Asian agriculture has increased, significantly reflected in increased use of mechanization and less use of labour. Dawe (2015) finds the uptake of machine use in agriculture (for preparing soils and harvesting) among small and larger farms alike. The development of rental markets for agricultural machinery has facilitated this process. These changes have not been across the board and, especially in many parts of South Asia, the process of commercialization-intensification/diversification-mechanization has been slower, explaining in part the slower structural transformation.

The impact on rural wages and off-farm employment of these processes of change in farm systems is relevant to the dynamics of the structural transformation process. Reardon and Timmer (2014) see an important influence running from rural non-farm employment growth and rural wage increases to greater capital intensity. Greater income from off-farm activity allows farmers to buy or

² See also Alexandratos and Bruinsma (2012), Fuglie (2015), FAO (2017a), and Vos and Bellù (2019) for a corroboration of these trends.

rent machinery. Conversely, mechanization frees labour for both migration to cities and rural non-farm activities.

Improved infrastructure, like rural roads, electricity, irrigation, and communications, has been a critical factor in increasing total factor productivity in China and other parts of Asia over the past three decades (Fan et al. 2004; Fan 2008). Production areas well served by rural roads, and those closer to urban areas, have lower transaction costs of getting inputs, and higher use rates.

These changes (commercialization, modern inputs use, mechanization, improved infrastructure) have helped raise both land and total factor productivity. Growth in labour productivity has been relatively slow in South Asia, as visible from the rather steep upward-sloping land-labour productivity curves in Figure 7.3.

This holds for India, Pakistan, and Nepal, in particular; and to a lesser extent for Bangladesh, where labour and land productivity have moved at a similar pace, albeit both from low levels. Land and labour productivity in Indonesia, Thailand, and the Philippines initially also followed similar growth paths, but giving way for faster agricultural labour productivity and wage growth from the mid-1990s as their industrialization processes further moved up the ladder. In China, land and labour productivity growth have moved in tandem since 1980, as visible in Figure 7.3. The institutional reforms that allowed individual farmers to sell



Figure 7.3 Land versus agricultural labour productivity in selected Asian countries, 1980–2015.

Note: * The curves for Indonesia and the Philippines, not shown here, by and large coincide with that for Thailand.

Source: Author's calculations based on FAO (n.d.) FAOSTAT for data on agricultural land, World Bank (n.d.) World Development Indicators for data on agricultural value-added, and ILO (n.d.) ILOSTAT for agricultural employment.

marketable surpluses and labour to move into non-agriculture were instrumental to this development (see section 4). In contrast, the curves are virtually flat for Japan and the Republic of Korea, which had already reached a stage of deep structural change by the beginning of the 1980–2015 period, shown in Figure 7.4. In Malaysia, extensive plantation-based agriculture carries an important weight and its export-orientation provided a push for labour-saving productivity improvements.

Slow agricultural labour productivity growth is likely also associated with insufficient expansion of employment opportunities outside agriculture in low- and lower-middle-income countries, including those in South Asia. Despite the impacts of mechanization in parts of agriculture, on average, labour inputs per unit

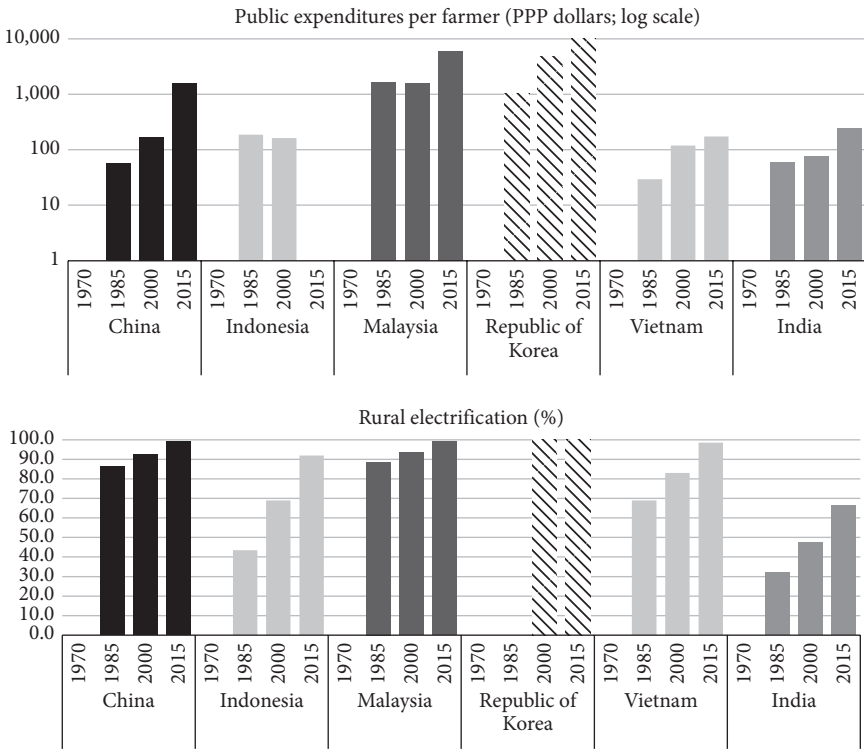


Figure 7.4 Agricultural and rural development support indicators in selected Asian countries, 1970–2015.

Note: The relative rate of assistance (RRA) to agriculture is defined as the percentage by which government policies have raised gross returns to agriculture above what they would be without the government’s intervention as a ratio of government support to non-agricultural sectors. A negative RRA means support to non-agriculture is greater than that to agriculture.

Source: Author’s calculations based on World Bank (n.d.) World Development Indicators for net enrolment rate and rural electrification, and Laborde et al. (2018) for public expenditures per farmer and estimates of relative rate of assistance to agriculture.

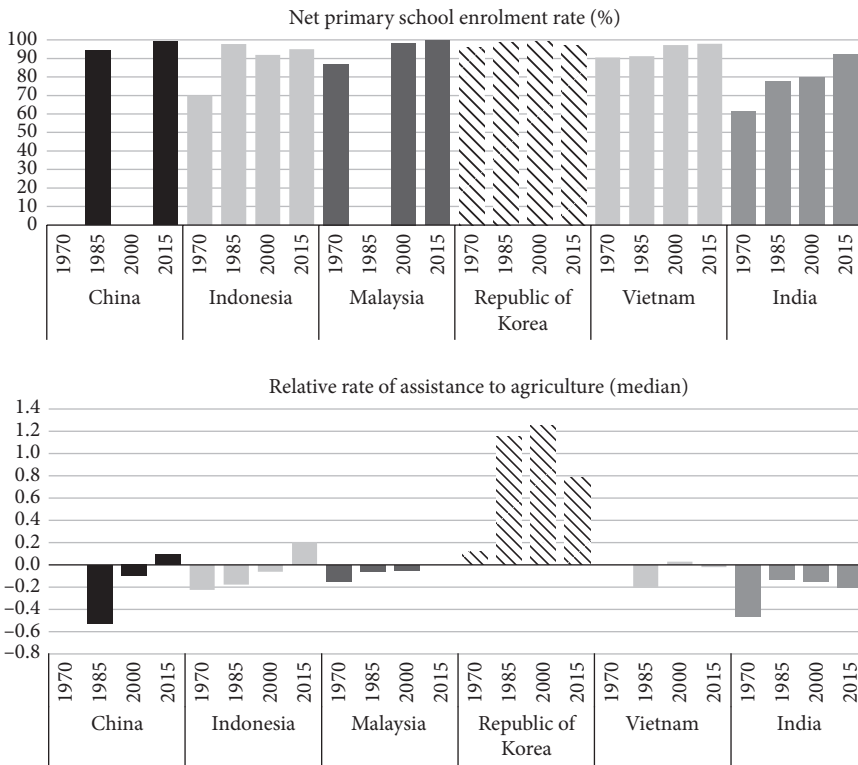


Figure 7.4 Continued

of land have continued to increase in South Asia, which has contributed to higher land productivity while holding back rural wage and labour productivity growth.

Slow agricultural labour productivity growth is further associated with reductions in farm size in Asia. During Europe’s earlier stages of structural change, gains in agricultural labour productivity were associated with land consolidation. In South Asia, but also in Southeast Asia, such a process of land consolidation is yet to set in. Instead, the number of landholdings continues to increase resulting in further declines in the average size of landholdings. Vos (2018: figure 8) shows this trend for India, Indonesia, the Philippines, and Thailand. Even in Thailand, the wealthiest of the four, and the more land abundant and advanced in terms of structural transformation, the number of holdings in 2013 was still greater than in 2003. In India, the average size of landholding was cut in half over the past four decades, falling from 2.3 ha in 1970 to 1.15 ha in 2010. In China, in contrast, average farm size has been on the rise since 2002, though only slightly at best: it increased from 0.55 ha in that year to 0.60 ha in 2008, an increase of just 0.05 ha with nearly all of the increase coming from land consolidation in the northeast (Nie and Fang 2013).

The broader trends towards further fragmentation of farm units is taking place in a context of continued unequal land distribution. In South Asia, 60 per cent of farmland is operated by farm units with more than 2 ha of land. In Southeast Asia, the 'larger' farms (those with more than 2 ha) cultivate 77 per cent of farmlands (Eastwood et al. 2009). Most explanations of the persistence and growth of small landholdings point at several factors: continued rural population growth leading farm families to divide up land and distribute among children; the earlier-mentioned lack of non-farm employment opportunities; diversification to higher-value-added crops (e.g., horticulture) allowing even very small farms to be viable; and institutional restrictions on land transactions (see Deininger and Jin 2009; Gulati et al. 2004; Eastwood et al. 2009; Reardon 2013). This is not to deny that large farms are forming as well. Land rentals are contributing to these changes. In China in 1988, just 1 per cent of land was rented in, but this had grown to 18 per cent by 2008 (Jia 2013).

Yet, continued growth in the number of holdings, coupled with ever more pressing land scarcity in much of Asia, suggests that it is unlikely that farm sizes will typically become much larger for the foreseeable future. This could have two key implications. First, as labour shortages increase, mechanization will likely spread more widely, but will need to work at much smaller field scales than in other parts of the world. In addition, given credit market constraints and high fixed costs involved in owning farm machinery, most farmers would need to access machinery through rental markets.

Second, even if the trend towards fragmentation reverses soon, it will be hard to foresee massive increases in farm size to an extent that will make a substantial impact on increasing farm incomes. Thus, to avoid farm income growth from falling further behind non-farm income growth, (smallholder) farmers would need to shift to higher value-added crops (non-staples) and/or diversify their incomes into non-farm sectors (or leave farming entirely).

All of these change processes are already taking place throughout Asia. The spread of rental markets for agricultural equipment was referred to earlier and further documented in Dawe (2015) and FAO (2017b). Crop diversification is also taking place as noted earlier, as visible, for instance, in the rapidly increasing domestic farm supply of non-grains (fruits, vegetables, fish, meat, and dairy) (Pingali 2007). Rao et al. (2006) and Reardon and Timmer (2014) note for the case of India that there is a strong correlation between agricultural diversification, on the one hand, and the urban share and road and population density, on the other. China has also seen substantial crop diversification during the past forty years, much of it in response to changes in dietary patterns. Land use for the cultivation of fruits, vegetables, and pulses has doubled since 1990 and now accounts for more area than any single cereal (although much less than all cereals taken together) (Dawe 2015).

Income diversification has become a more common feature of Asia's rural economies. Hagglade et al. (2010) estimate that rural non-farm employment and

remittance income from internal migration could make up as much as 51 per cent of total rural household income, based on survey data for Bangladesh, China, India, Korea, Nepal, Pakistan, Sri Lanka, and Vietnam. According to these estimates, rural non-farm employment is by far the main source of income diversification.

None of these relatively recent transformative changes by themselves are guarantees for broad-based economic growth and accelerated poverty reduction. Where these trends have been slow to develop, major economic and social challenges remain. Declining farm sizes reduce farmers' resource base, limit their access to finance, and prevent investment in new technologies (Jayne et al. 2010), prompting a 'premature' exit from agriculture, where smallholders abandon farming even though profitable technologies and markets exist. Even those who remain in agriculture may not be able to take advantage of rising urban demand, particularly farmers in more remote rural areas or where urban centres have better access to imported food (Hazell 2013). Falling farm sizes and import competition have further weakened agriculture's historically strong linkage to poverty reduction, given that most of the world's rural poor are smallholder farmers. Similarly, where rapid urbanization has outpaced urban economic growth and job creation, this has led to greater pressure on urban infrastructure and services and growing numbers of urban poor. Finally, the influx of young job seekers into the workforce—a 'youth bulge' (as applies to much of South Asia)—could stimulate economic growth, but it also raises concerns about an economy's capacity to create jobs—especially the kinds of jobs that match the aspirations of younger generations. Conversely, countries in developing East Asia have already experienced their demographic transition and now face the prospect of an ageing agricultural and rural workforce.

3.3 Labour Markets and Rural and Agri-Food System Transformations

Not only farm systems have changed in Asia. 'Post farm-gate' parts of food supply chains (wholesale/brokerage/logistics/cold chain, processing, and retail) have undergone major transformations as well, with important implications for employment, income diversification, and poverty reduction among rural households. These agri-food system changes are closely related to urbanization processes, as much of Asia's food supply is already moving from rural to urban. This is creating new income and employment opportunities in wholesale, retail, processing, and the logistics of providing food to growing urban populations. Such opportunities can be critical in defining pathways to climb out of poverty for those exiting agriculture or seeking to diversify incomes during processes of agricultural transformation and structural change. The way rural–urban linkages are shaped is crucial for poverty reduction and broader economic development. Rural–urban linkages have long been recognized as a key aspect of economic

development (Lewis 1954; Haggblade et al. 2007). Urban industrial and service sector growth provides employment for workers who exit agriculture, while increases in agricultural production can help avoid an increase in food prices and wages that could slow the pace of industrialization. Agricultural growth can also spur non-agricultural growth in both rural and urban areas through demand for both inputs and intermediation services, as well as consumer goods.

In areas with still widespread low-productivity agriculture, such as in many parts of South Asia, low aggregate demand is likely to generate the development of low-return rural non-farm employment. The low aggregate demand may not only result from poor agriculture, but also growing agriculture with poor links to cities (see e.g., Deichmann et al. 2009, for the case of Bangladesh; Lanjouw and Shariff 2004 and Tiwari 2015, for the case of India) or to export markets so that the farmers cannot 'realize' sufficient profit from agricultural development. Such areas continue to see persistent poverty in a context of increasing shares of low-income non-farm employment and stagnant agricultural production.

Much of rural off-farm employment tends to be generated in the proximity of cities and towns. Recent studies further suggest that dynamic structural change through agri-food system development (characterized by both rapid agricultural productivity growth and rural non-farm wage and employment growth) is more likely to occur when taking place close to smaller towns and intermediate cities (see e.g., FAO 2017b; IFPRI 2017). Based on evidence for Bangladesh, Deichman et al. (2009) similarly find that high-potential agricultural production areas that are near to cities tend to generate more and higher-return rural non-farm employment (both for wage earners and self-employed), while where the high-potential farm area is far from the city, low-return rural non-farm employment predominates, mostly only in informal services. Moreover, most of urban food demand in Asia is concentrated in smaller urban areas: about 60 per cent, according to FAO estimates (FAO 2017b), suggesting there is a large potential for dynamic rural non-farm employment creation through agri-food business development. In fact, during rapid structural transformation in Indonesia, Malaysia, and Vietnam, food processing industries have played an important role in pulling labour into off-farm activity and account for about one-sixth of total manufacturing employment around 2010 (FAO 2017b). In Vietnam, employment in agri-food processing more than doubled between 1999 and 2009. While still most of the employment growth (about 53 per cent) was generated in small, household-based enterprises in rural areas and small towns, employment growth in modern private enterprises was higher in relative terms (McGaig and Pavcnik 2016), reflective of broader changes in agri-food systems taking place in Vietnam as much as elsewhere in Asia.

These transformations involve modernization of the midstream of food supply chains with the emergence of large-scale wholesale and retail food distributors ('supermarket revolution') and vertically integrated food processing companies,

and reduced roles for state-operated food distribution networks (Reardon and Timmer 2014). In much of Southeast Asia (outside Vietnam, Cambodia, Laos, and Myanmar), wholesale sector transformation started in the 1970s, while processing transformation took off in the 1980s. Retail transformation (the ‘supermarket revolution’) did not start until the mid-to-late 1990s. China, India, and Vietnam had their growth and urbanization spurts mainly in the 1990s/2000s or opened up food industries no earlier than during the 1990s.

The massive proliferation of wholesale markets, the extension and improvement of rural roads, and the regulatory liberalization of their operations in most countries opened the door to what Reardon and Timmer (2014) label as ‘progressive disintermediation’ in the rural areas and in supply chains. This trend is seen to have been driven by two main factors. The first of these is regulatory changes (such as in some states in India and privatization of state-owned businesses in Vietnam) that have freed up wholesale markets and provided incentives to large-scale traders, distributors, and food companies to establish direct links to farmers (e.g., through contract farming or supermarket-led collection centres). The second is the diffusion of wholesale markets in towns near or in rural areas, and the improvement of road systems connecting rural areas to urban wholesale markets. In many locations, however, this has undercut small-scale village traders in diverse settings and further stimulated direct purchase from farmers by wholesale market traders who previously procured via village traders.

The broader agri-food supply chain transformations have been influenced by urbanization and diet change, as discussed earlier. The agri-food system changes themselves, in turn, influence both the change processes taking place downstream (in urban food markets and diets) and upstream (in factor markets and farming). As mentioned, they are bringing sources of new dynamics in the form of off-farm employment demand in processing and distribution services and a source of income diversification for farmers, bringing extra cash for investing in farm productivity and mechanization. However, where rural–urban linkages have remained weak, rural livelihoods have been undermined. Large-scale urban manufacturers catering for mass markets have also displaced (and are displacing) small-scale businesses in food processing and distribution in rural areas and near or in cities, thereby diminishing non-farm rural employment without generating sufficient new jobs for the displaced workers. This problem is particularly pressing in areas with low agricultural potential and poor connectivity to urban markets and is holding back poverty reduction.

4. The Role of Policies

At the time when Myrdal (1968) wrote *Asian Drama*, most of developing Asia faced some similarity in initial conditions in the early stages of their economic lift

off, characterized by high birth rates and relatively fertile but scarce agricultural land. The Green Revolution brought new high-yielding varieties for staple crops, facilitating substantial farm productivity increases, even for smallholders, to jump-start agricultural transformations and structural change. While broadly adopted across the region, the speed of adoption of the new technologies and success in ‘pushing’ broader economic development through agricultural productivity growth has varied depending importantly on policies and institutional reforms. Despite policy differences, a common feature across the region has been the fading of the direct role of Asian governments in agricultural production and other stages of the food chain. The parallel development has been the growth of off-farm, private sector small and medium-sized agri-food businesses and services, which have stepped into the void left by parastatals. Policy reforms further enabled entry of large-scale domestic and foreign firms such as processors and supermarket and fast food chains. Many governments took on another role in supporting transformative change, including through large infrastructure programmes that helped strengthen rural–urban linkages and food supply chain development.

Laborde et al. (2018) and Vos (2018) explain different rates of ‘success’ with agricultural transformations by key differences in agricultural price incentives, public spending priorities for investing in agricultural research and development (R&D), rural infrastructure, education and health, and reforms of rural institutions (including land reform and credit schemes) across developing-country regions and over different periods of time since 1970. According to Laborde et al. (2018), the more critical factor appears to be the degree of coherence and complementarity across these areas of intervention to promote sufficient agricultural productivity growth to facilitate (‘push’), a take-off of non-agricultural sectors by freeing up labour and savings, and by overcoming population pressures on food security.

Based on studies for Asia’s major economies, Vos (2018) concludes that institutional reforms were critical in initial stages to unleash farm-level productive forces, while input subsidies (for seeds and fertilizers) and infrastructure development were important to promote the adoption of Green Revolution technologies from the 1970s. The returns to these public support measures have diminished over time and the push for deeper agri-food system transformations was influenced by agricultural price policy reforms and privatization of food distribution and processing networks. These more recent transformations have helped accelerate poverty reduction and underpin broader economic development, where these were supported by public investment in basic services and infrastructure that strengthened rural–urban linkages and enabled non-farm economic development. Agricultural and rural transformations have been slow and have failed to accelerate poverty reduction where policies and institutional reforms, supportive of agricultural productivity growth, fell short on these counts.

Key changes in indicators of public support for agriculture and rural development over 1970–2015 are displayed in Figure 7.4. The Republic of Korea, for instance, maintained a high level of spending, as did China and Malaysia. In all rapidly transforming countries there was a strong focus on complementarity with public investments, including complementary support to agricultural development through public investments in research, extension services, primary education, and rural infrastructure, such as irrigation, electricity, and roads. Direct price interventions also played a key role in the agricultural transformation process for all countries, but the price interventions were first marked by an apparent strong anti-agricultural bias, as indicated by the relative rate of assistance (RRA) in Figure 7.4. Over time, Asian countries saw a strong shift from negative to positive price supports for agriculture. However, as becomes clear from the country narratives below, just looking at the relative price (including support measures) of agriculture vis-à-vis non-agriculture may be misleading if not considering other, complementary forms of support to agricultural development, especially through reforms of agrarian institutions and development of rural infrastructure, as the following country narratives try to make clear.

Institutional reforms in the Republic of Korea, China, and Vietnam, in particular, were critical in unleashing agricultural productive forces and labour for industry in the early stages of their growth accelerations (see also Ocampo and Vos 2008: chapter 5), though the impact of these reforms likely would have been much less if they were not complemented by strong public support for the development of non-agricultural (industrial) sectors.

The land reform introduced by the South Korean government with support of the United States in 1949 led to relatively equitable land distribution (Tsakok 2011). Combined with effective and sustained public support to smallholder agriculture, this proved effective to substantially lift agricultural productivity and develop commercial farming. In the Republic of Korea, significant public rural investments were already made during the Japanese colonial period. Over 1910 through 1945, investments went mostly in support of the development of the rice sector. This was part of a strategy to secure Japan's food self-sufficiency. In the immediate post-Korean war period, public investment prioritized research and extension services leading to the early introduction of new high-yielding varieties and the expanded use of chemical fertilizer and irrigation, compounding the productivity-enhancing effects of the land reform (Tsakok 2011). Korea sustained its relatively strong support to the agricultural sector in subsequent decades (Figure 7.4). After a brief spell of anti-agriculture bias during the initial import-substitution stage of industrial development in the 1960s, price incentives shifted in agriculture's favour with the shift to export-led industrialization in the 1970s, as visible from the strongly positive RRA in Figure 7.4 (Honma and Hayami 2009). The main objective of the Korean government was to keep food prices low and, hence, real urban wages down.

China prioritized import-substituting industrial development until 1979, which proved detrimental to agricultural development. This radically changed with the introduction of the household responsibility system, which entitled farmers and town and village enterprises to manage and commercialize production themselves and earn profits. According to one study, this institutional reform alone would explain 60 per cent of agricultural growth in China between 1978 and 1990 (EIU 2008). The reform was complemented by policies introduced in the 1980s that allowed freer labour mobility and rural–urban migration, facilitating the exit of labour resources out of agriculture and into both rural and urban non-farm employment (Tsakok 2011). During the 1990s and 2000s, China stepped up public expenditures in support of agriculture and rural development, with most of the spending going to rural education (33 per cent), irrigation and water control (30 per cent), and other infrastructure, including power supply and roads (20 per cent). Fan et al. 2004 find a significant impact of public investment on agricultural growth and rural poverty in China either directly by stimulating agricultural production or indirectly by creating improved employment opportunities in the non-farm sector. These support measures were complemented by a gradual build-down of the anti-agriculture bias in price incentives. During the period of the Great Leap Forward, until 1979, agricultural incomes were squeezed through taxes and administered prices, while farmers were not allowed to market their production surpluses (Tsakok 2011). After 1979, purchase prices of most agricultural products were lifted and in-quota and above-quota prices for grains, oil crops, cotton, sugar, and pork were raised. In the 1990s, subsidies on various crops, including soybeans, were introduced. As a result, the RRA moved out of negative territory, turning positive in the 2000s (Figure 7.4).

In Malaysia, government support to large-scale tree-crop plantation agriculture (rubber, palm oil, coconut) has been a critical ingredient of natural resource-led growth and structural transformation. Government policies have underpinned productivity growth on large-scale plantations through significant R&D spending, land development, and infrastructure investment promoting the vertical integration with processing industries. In parallel, however, the Malaysian government also invested heavily in smallholder agriculture through price support schemes, input subsidies, and low-interest rate credits. Between 1971 and 1995, the share of public expenditures allocated to agriculture and rural development averaged 17 per cent. The New Agricultural Policy of 1984 provided a further push to agricultural income growth, commercialization of farming, and overall economic transformation through agricultural market development, R&D, and incentives to diversification from rice to agro-industrial crops, including rubber and palm oil (Tsakok 2011).

In Vietnam, collective farming was replaced with family farming during the period of *doi moi* (the policy of renovation) in the 1980s. Under the new system, farmers were allowed to sign contracts with the government on parcels of land for

up to 15 years—in effect, they leased the land—and were given the freedom to sell their products as they wished. As in the case of China, other reforms proceeded at the same time, including domestic market and trade liberalization, allowing for the introduction of market-based transactions in agricultural and non-agricultural products and entry of foreign direct investment. Vietnam's institutional reforms were complemented with significant public investment in rural infrastructure (roads and electrification), as well as in basic social services, including primary education, vocational training, and healthcare. These investments paid off by the 1980s, as visible in accelerated agricultural productivity growth and fast growth of non-agricultural sectors (Van Arkadie and Duc Dinh 2004).

In the case of India, in contrast, land reform was limited to a stricter enforcement of the existing tenancy law. The government had enacted a land reform act in 1955. However, it did not enforce the law largely because of the lack of administrative and legal resources. This, combined with low-level public investment in infrastructure and rural development, was probably a key factor in holding back agricultural productivity growth and rural transformation in most of India until at least the 1990s, after which such investments were stepped up (Ocampo and Vos 2008). Public spending per farmer also increased recently in India, but to levels no higher than those in Vietnam and well below levels spent by faster agricultural transformers in Asia. Spending was stepped up only decades after the land reform of the 1970s and the lack of complementary support through improved rural infrastructure may well have contributed to the failure of that reform to spur agricultural productivity growth. Traditionally most of India's public support to agriculture has been for input subsidies for fertilizers and irrigation water with much less priority for investments in rural infrastructure. More recently, such investments have been stepped up, leading to increased rural road density and access to electricity, helping to accelerate agricultural growth. Yet, at about 60 per cent, rural electrification coverage in India remains well below that in other parts of Asia where agricultural and rural transformations have progressed earlier and at a faster pace (Figure 7.4). Also, the relative rate of agricultural assistance has remained negative to date (Figure 7.4), despite high input subsidies on, especially, fertilizer use. Public procurement of staple crop purchases for food reserve holdings and food distribution schemes tilted agricultural support in favour of consumers.

Regulatory changes to other parts of the agri-food system have been important, too, in facilitating transformative change of agriculture and rural economies. In developing East Asia (other than China), development and opening up of wholesale distribution and food processing came with broader industrial development and urbanization during the 1960s to 1980s. China, India, and Vietnam opened up food industries no earlier than during the 1990s. The bigger changes in most parts of the region took place from the mid-1980s on the wave of economic

liberalization and globalization. During these phases, agri-food systems modernized and many parts of supply chains saw the emergence of large-scale operators in retail ('supermarket revolution'), wholesale, and food processing, as well as greater vertical integration of food market value chains, as mentioned in the previous section.

5. The End of the 'Asian Drama'?

Both international experience and economic theory show that structural change is an essential component of long-term economic development. Urbanization and industrial growth are key features of this structural change. Along the way, rural labour and savings are being pulled into higher productivity sectors to underpin broader economic growth. With some variation across countries, this process was key to the remarkable acceleration of economic growth in East Asia over the past half-century or more, belying Gunnar Myrdal's notion of an Asian drama. However, this 'miracle' could not have come about without strong agricultural productivity growth and agrarian change in initial stages of economic take-off. The Green Revolution, reforms of agricultural and rural institutions, and public investment in rural infrastructure have been critical factors in East Asia's take-off. In subsequent stages, industrial and other modern sector development took over as the drivers of economy-wide growth, while at the same time pushing agriculture and rural economies to deeper transformative change, as, *inter alia*, urbanization and income growth have induced major dietary change and pushed for more industrial organization of food systems at large.

This process is also taking place in South Asia, albeit at a slower and delayed pace. Myrdal's concerns with India's and other South Asian countries' structural impediments to development, including land scarcity, historical traditions of production activity, weak institutions, and a 'soft state', indeed held back agricultural growth and broader economic development in cumulative causation, certainly in comparison with other parts of Asia. Yet, as these constraints were lifted, partially at least, faster growth was unleashed. However, moving forward, fewer of the lessons from East Asia's experience may hold for India and the rest of South Asia.

Some patterns will likely remain the same. All countries will see agricultural employment become less and less important. This decline is consistent with agricultural productivity growth and the wider spread of mechanization, as well as with agri-food transformations and dietary change with increased demand for processed food and importance of off-farm activity related to food chains. But the pace of these changes has been different and will be different across countries (as much as across regions within countries).

Structural transformation is already most advanced in the countries of developing Asia, but pathways have differed starkly. In Malaysia, agricultural export

growth and extensive farming have driven the rapid labour exit from agriculture, leading to a faster declining agricultural employment share than the sector's GDP share. Elsewhere, as in India, much of South Asia, and to a lesser extent in Indonesia, Thailand, Vietnam, and the Philippines, the decline of agriculture's employment share has lagged the drop of agriculture's share in GDP. These contexts are further characterized by increased fragmentation of landholdings. Agricultural labour productivity growth has been slower in consequence and could slow down poverty reduction if not offset by other drivers. Employment growth in non-farm (agri-food and other manufacturing) activities as well as agricultural exports have been important other drivers for poverty reduction in the Southeast Asian countries. Such factors have been less dynamic in recent decades in the countries of South Asia, warranting the expectation that poverty among their populations will be far from eradicated in the coming decades.

The ability of small farms to be efficient and dynamic agri-food systems to develop so as to underpin dynamic and inclusive structural change have been strongly conditioned by public investments and policy choices, as discussed in section 4.

Ongoing urbanization and modernization of agri-food systems are changing the nature of rural transformations. Farm efficiency and rural employment opportunities are increasingly influenced by what happens beyond the farm gate and the strength of rural–urban linkages. But this unlikely will suffice to put an end to the Asian drama. Land scarcity combined with continued population pressure has led to further fragmentation of landholdings and to added pressure on already degraded land and water resources (Vos and Bellù 2019). Such constraints imply that continuation along past development pathways will hit on environmental constraints. Likewise, while structural change has dramatically brought down poverty and undernourishment in Asia, dietary and food system changes have brought new malnutrition challenges as overweight and obesity are on the rise.³

Finding the appropriate balance between an effective public role and an efficient private role in the modernization of agriculture and the entire food system has always been a difficult challenge. The balance not only needs to focus on underpinning economic growth and development with more productive agriculture and food systems, but also on doing so in a sustainable way and avoiding new burdens of malnutrition and disease to take away from economic progress. The political economy of pathways will be tricky. Myrdal's notion of cumulative

³ While still significantly lower than in high-income countries like the United States, the prevalence of obesity has increased steeply in most Asian countries. It has doubled or tripled in Thailand and Malaysia between 2000 and 2016 to affect well over 10 per cent of adults. Obesity has also (near) tripled in China and Indonesia in the same period. Data based on age-standardized body mass index estimates of the World Health Organization (WHO 2017).

causation remains valid for understanding today's trade-offs, despite the remarkable economic progress made since he wrote *Asian Drama*.

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