1 Smallholder agriculture in the economic and social development of Pakistan

For several decades Pakistan was caught up in the global geopolitics of terrorism and wracked by internal dissension. This led to slow growth in per capita incomes, little change in the structure of the economy and limited social reform. Between 1990 and 2015 the global economy experienced massive change—driven by globalisation, new technologies and the rise of many developing countries—but to a significant degree Pakistan was isolated from these trends. In recent years, however, many things have begun to change in Pakistan and the implementation of new policies has begun. These are in line with the emphasis on rural transformation in the 12th Five Year Plan (2018–2023) from the Planning Commission. An era of significant increases in living standards and real social reform may be at hand.

In our view, at the heart of such a new era of economic growth and social progress will be the renewal of smallholder agriculture, and of the rural economy and infrastructure in which it operates, together with releasing the power of the women who play a key role on small farms. Pakistan has over eight million private farms, on which over half the population of the country depends for income. It is, for example, one of the largest milk producers in the world, in spite of achieving low milk yields per animal. Increased output from smallholder farms would not only provide higher incomes for many of the poorest in Pakistan, but also flow on to higher spending on goods and services in villages and towns, and provide off-farm surpluses to stimulate small-scale manufacturing. Transforming smallholder agriculture in an inclusive way would set in train dynamic, self-reinforcing processes reaching across the whole economy and driving more rapid growth and social reform.

Pakistan is not alone in the challenges it faces after several decades of relative inaction. Many other countries have also been unable to participate fully in the structural and technological changes of the past quarter century, nor to come to terms with the transformation of global agriculture over that time. In this chapter we outline briefly these two global trends, with a view to placing the challenges that Pakistan faces, and the analyses and recommendations provided in this monograph, in broader context. The chapter concludes by foreshadowing the policies and strategies to transform smallholder agriculture that are the central theme of this monograph, and discussing the benefits that might accrue from them.

1.1 Shifting patterns of economic development

1.1.1 The industrialisation model

For a century or more, the standard model of economic development has been one in which structural transformation, towards increasing industrialisation, drives growth in GDP per capita. This involves a shift of labour out of low-productivity agriculture into higher productivity industry, and more recently into services. The growth in incomes from the initial expansion of industry increases demand in all three sectors (industry, agriculture and services), and productivity in agriculture and services also starts to rise. As investment in new technologies becomes possible, productivity growth continues in these three sectors, with rising real incomes per head. The result is a rapid shift in the structure of value added away from agriculture to industry, even though agricultural output continues to increase, and an even more rapid shift in employment from agriculture to industry and services.

Most of the current high-income countries (such as the UK, Germany and the USA) exhibited this pattern over a century or more until about 1960, followed a little later in the 20th century by Japan. After 1960 this development process was apparent in the countries of East Asia, such as Korea and Taiwan, and most strikingly in China after its 'opening to the world' in 1978. Figure 1.1 illustrates the pattern of China's economic development over 1978–2016, in terms of the share of the three industry sectors in total value added (left hand panel) and in total employment (right hand panel) over this period.

In 1978, agriculture provided 41.8% of China's GDP, with industry and services both less than 30%, and 70% of employment. Over the past three decades, the structural transformation has been dramatic. Agriculture's share of GDP has fallen by 35 percentage points, to 7% by 2016, with 20 points going to industry (up from 29.4% to 49.5%) and 15 points going to services (up from 28.8% to 43.5%). The share of employment in agriculture has fallen by 43 percentage points over this time (from 70.5% to 27.7%), while the share of industry in employment has risen by 11.5 points and that of services by 31 points.

China's remarkable structural transformation was driven above all by its emergence as the 'factory for the world', and in this regard it is a classic example of the standard model. However, several other features are notable, and foreshadow changes in the development model. First, over the full period 1978–2016 the service sector virtually kept pace with industry in terms of value added, with annual growth rates of 10.7% and 11.0% respectively. Thus, China is in some ways as much a story of services growth as of industrialisation. Indeed, in terms of employment growth, services far outpaced industry (Figure 1.1), even though productivity growth in services was very strong (5.7% per annum over the full period).

Second, while agriculture's share of GDP and employment fell sharply, real value added in the sector rose at 4.3% per annum over 1978–2016 and, with employment in agriculture falling, productivity in the sector rose by 5.1% per annum. This in itself is a remarkable story. Even though agriculture's share of GDP fell to

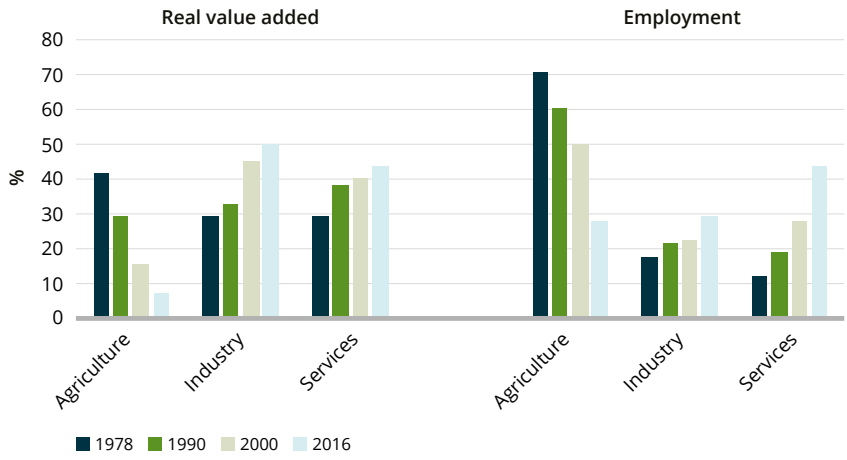


Figure 1.1 **Share of real value added and employment, by industry, in China, 1978, 1990, 2000 and 2016.**
Source: National Bureau of Statistics of China (2017).

7% by 2016 and its employment share to less than 30%, these outcomes mainly reflected the burgeoning growth of other sectors. In China, agriculture itself performed very strongly.

Closer examination of China's data by industry over this period indicates that there were three distinct periods in China's post-1978 development. In the initial period, 1978–90, there was reasonably balanced growth, with significant increases in real value added and employment in all three sectors. The 1990s in China saw a sharp shift to industry and an acceleration of structural change. Real value added in industry more than trebled over the decade, rising 13.5% per annum, and this was a decade of sharp structural change: industry's share of real GDP rose from 32.7% to 44.8% over the decade, while agriculture's share fell from 29.1% to 16.3%. Even so, real value added in agriculture rose by 3.8% per annum and productivity by 4.6%. Over 2000–15 a new and striking pattern became established. Both industry and services grew strongly, and value added growth in agriculture remained solid, at 3.7% per annum, but now with high productivity growth (7.2%) as employment in agriculture fell by 40% over the period. This is what is often described as fully-fledged structural transformation.

1.1.2 Beyond the industrialisation model

China's rapid development has illustrated some new features of the development model, but has itself contributed to the breakdown of the standard model for many low and lower middle income developing countries. Manufacturing has become intensely competitive on a global basis, as a new wave of developing countries in addition to China, such as India and the economies of Eastern Europe, entered export markets. Traded services have also become highly competitive. Both these trends have limited the options for many developing countries to pursue exports of manufactures and services, and have made imports more competitive in their own internal markets.

We start by examining the evolution of the structure of Pakistan's economy in the context of the discussion above and of its regional neighbours. Between 1960 and 1990, Pakistan and the rest of South Asia broadly followed the standard development model, albeit at a moderate pace. As shown in Table 1.1, over this period the share of agriculture in real GDP in Pakistan fell by 20.8 percentage points,

Table 1.1 Share of real value added by industry, Pakistan and South Asia (excluding Pakistan), 1960–2016.

Agriculture	49.7	28.9	22.0	–20.8	–6.9
Industry	9.2	18.7	20.5	9.6	1.8
Services	41.2	52.4	57.5	11.2	5.1
Agriculture	57.7	36.8	15.2	–20.9	–21.6
Industry	21.5	30.5	31.1	9.0	0.6
Services	21.7	33.6	53.7	11.9	20.1

Source: World Bank (2018) and authors' calculations.

from 49.7% to 28.9%. In the rest of South Asia (dominated by India), the fall in agriculture's share was very similar, although the role of agriculture remained higher. This decline led to a rise in the share of both industry, which more than doubled its share in Pakistan, from 9.2% to 18.7%, and the services sector. These changes were in line with those in the rest of South Asia, but one distinctive feature of Pakistan was the high share of services, and a lower share of industry, as early as 1960.

If this pattern had continued after 1990 through to 2016, both Pakistan and the rest of South Asia would have achieved fundamental structural change, but this proved not to be the case (Table 1.1 and Figure 1.2). Over 1990–2016 the rise in the industrial share of GDP was minimal (1.8 percentage points in Pakistan and 0.6 points in South Asia excluding Pakistan). In Pakistan, there was a much slower decline in the agricultural share (by 6.9 percentage points to 22.0%) and most of this share went

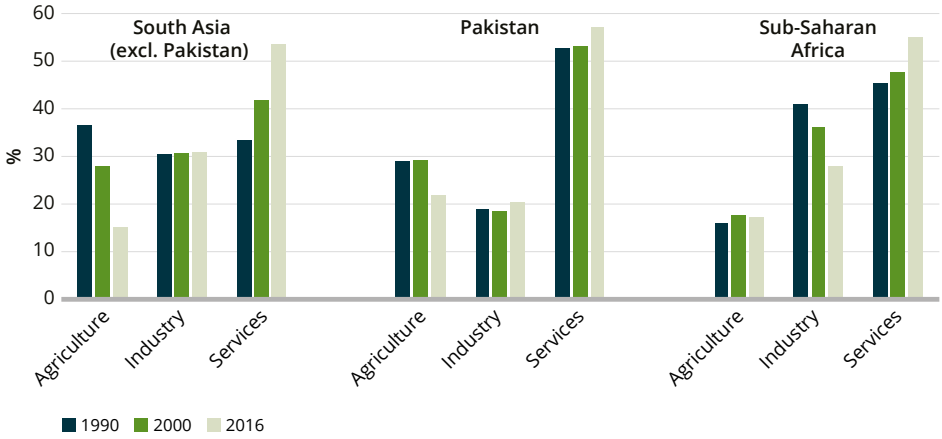


Figure 1.2 Share of real value added, by industry, in South Asia (excluding Pakistan), Pakistan and Sub-Saharan Africa, 1990, 2000 and 2016 (%).
Source: World Bank (2018) and authors' calculations.

to services (up 5.1 points to 57.5%). The stall in the rise of industry is also evident in South Asia (excluding Pakistan), and structural change was associated with a more pronounced shift from agriculture to services—the share of agriculture falling by 21.6 percentage points and that of services rising by 20.1 points. By 2016 in both cases, the majority of GDP originated in the services sector, and the service sector share was much higher than in China. But the main lesson is that after 1990, structural change within Pakistan virtually stopped, even relative to the slow change taking place in the rest of South Asia.

In Sub-Saharan Africa, the dynamics have been quite different: there has been no significant fall in the share of agriculture, with real GDP shifting from industry to services. By contrast with the standard development model, the only real structural change here has been the growth of services at the expense of industry, with the share of industry in total GDP falling significantly.

Figure 1.3 shows the share of employment for three more recent periods—2000, 2010 and 2016—and these inevitably reflect these sectoral trends in real GDP, as well as changes in productivity and the higher overall rates of growth in the balance of South Asia. In South Asia (excluding Pakistan), structural change in employment is more apparent than in value added, with a 20 percentage point fall in the agricultural share being distributed across both industry and services. In Pakistan, structural change is again more modest, with only a 6 percentage point fall in agriculture. Even so, in both components of South Asia, by 2016 only a little over one-fifth of employment is in industry and just over 30% in services, with agriculture still providing over 40% of employment. In Sub-Saharan Africa the employment transformation is even more subdued, with the industry share stuck at about 11% and the services share rising only slowly, reaching 34% in 2016. The agricultural share of employment remains close to 60%.

But the most striking figures are for labour productivity (Table 1.2 and Figure 1.4). In 1991 Pakistan had much higher overall labour productivity than the rest of South Asia, by about 80% in terms of GDP measured in constant US dollars per employee. This was founded on much higher productivity in both agriculture and services, if not industry, in 1991 (Figure 1.4b). But productivity growth has been much slower in Pakistan in each of the three industry sectors over the past 25 years than in

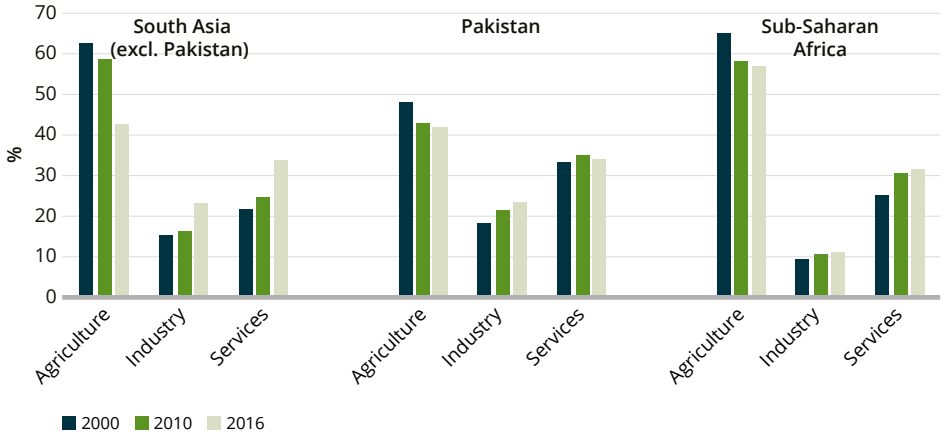


Figure 1.3 Share of employment, by industry, in South Asia (excluding Pakistan), Pakistan and Sub-Saharan Africa, 2000, 2010 and 2016 (%).
Source: ILO (2018) and authors' calculations.

Table 1.2 Labour productivity by industry and total, in Pakistan and South Asia (excluding Pakistan), 1991–2016 (constant 2010 US$ and %).

	1991 (US$)	2016 (US$)	Average annual change 1990–2016 (% pa)
Pakistan			
Agriculture	869	1,102	1.0
Industry	1,349	1,844	1.3
Services	2,293	3,568	1.8
Total	**1,430**	**2,119**	**1.6**
South Asia (excluding Pakistan)			
Agriculture	441	1,040	3.5
Industry	1,579	3,984	3.8
Services	1,261	4,682	5.4
Total	**791**	**2,953**	**5.5**

Source: World Bank (2018), ILO (2018) and authors' calculations.

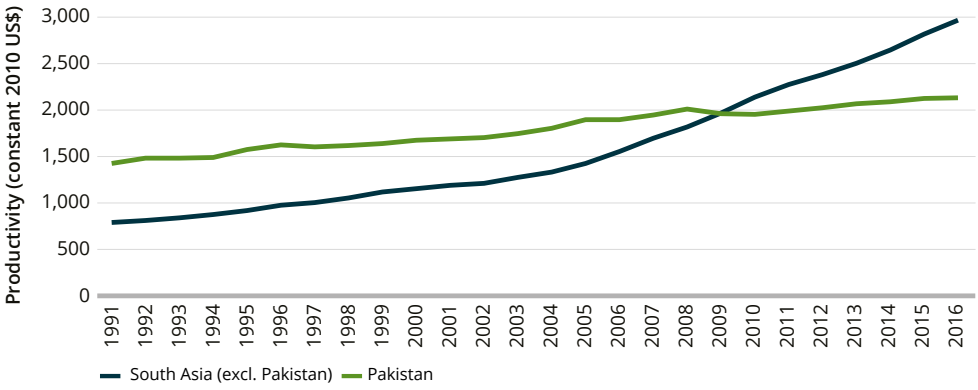
the rest of South Asia. As a result, total labour productivity rose by only 1.6% per annum in Pakistan over 1991–2016, in comparison with 5.5% per annum in the rest of South Asia. As shown in Figure 1.4a, the result was that labour productivity in South Asia (excluding Pakistan), by this measure, went from 80% below that in Pakistan in 1991 to nearly 40% higher by 2016. Figure 1.4a also shows that a significant proportion of this change occurred since about 2004. Prior to 2004, productivity trends in the two regions were more similar, but Pakistan did not experience the surge in productivity that occurred in other parts of the region after 2004.

Figure 1.4b compares productivity levels in Pakistan and in South Asia (excluding Pakistan) from 1991 to 2016, for each of the three industry sectors. In each industry, productivity growth in Pakistan has stalled relative to that in the rest of the region, especially since 2004, with the partial exception of services. Over this 25-year period, productivity growth in Pakistan in agriculture and industry has been about one-third of that in the rest of South Asia (1.0% per annum by comparison to 3.5% in agriculture and 1.3% per annum by comparison to 3.8%), and the differential has been even greater in the second half of the period. This is a striking and powerful indicator of the opportunities missed by Pakistan over the past quarter of a century, but also of the opportunities to be realised by effective policies in the future.

1.1.3 Challenges for recently emerging economies and for Pakistan

These data illustrate the challenge that many developing countries face in the wake of the East Asian revolution, the opening-up of global trade and the rapid application of new technologies in all sectors of the global economy. High rates of growth of manufacturing, based on exports and rising domestic incomes, are difficult to achieve. Services offer some growth, but not an impetus to radical structural transformation. With close to or over 50% of employment in agriculture, much of agriculture tends to be concentrated in smallholder producers, with limited physical or human capital and little policy support to help them achieve higher output and productivity. These smallholder producers are often excluded from modern supply chains, such as those based on supermarkets. Modest growth in agricultural output means that little off-farm surplus is available to drive rural industries,

(a) Total economy



(b) By industry

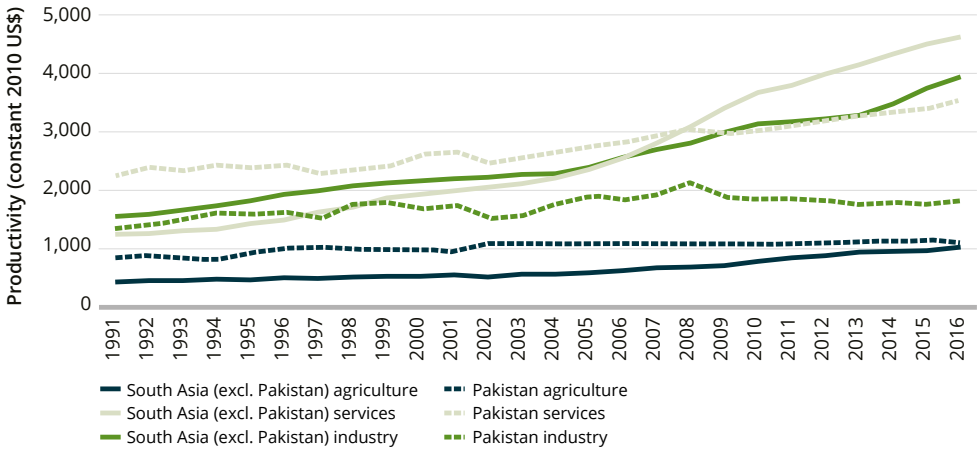


Figure 1.4 Productivity levels—total economy and by industry—in Pakistan and South Asia (excluding Pakistan), 1991–2016.
Source: World Bank (2018), ILO (2018) and authors' calculations.

and there is little surplus income to fuel the growth of services in villages and rural towns. The source of the impetus for structural change and income growth is not apparent, and the problem is more difficult if there is also rapid population growth.

How developing countries best respond to this challenge is a vast topic, beyond the scope of this publication. It is widely acknowledged, however, that an important part of the response is the development of agriculture, and especially the smallholder sector, in ways that are both modernising and inclusive. Global agriculture has not stood still over recent decades, but has also experienced fundamental change. Here we describe recent thinking on inclusive rural transformation as a response to this challenge, before turning to the application of these ideas to Pakistan.

1.2 The transformation of agriculture

1.2.1 The changing nature and context of agriculture

Over the past three decades, many aspects of agriculture around the world have changed dramatically, although others, such as the dominance of small family farms in many countries, remain unchanged. Many recent reports have documented these changes, and we list four of them in Table 1.3.

We review these changes briefly here, as providing essential background to the challenges facing Pakistan.

1.2.1.1 Urbanisation

The combination of rising incomes and rapid urbanisation has driven change in food systems and markets worldwide. The share of the world population living in urban areas rose from 30% in 1950 to an estimated 54% in 2015 and is projected to reach 66% or 6.3 billion people by 2050 (FAO 2017). The ongoing shift of populations to urban centres, large and small, has both put pressure on available supplies of arable land and led to the development of complex supply chains to get food and other rural products to the residents of the cities and towns. In addition, urban populations tend to have higher incomes and to spend more on food and on value-added food products, further enhancing their role in the demand for food.

While many discussions of urbanisation focus on the growth of megacities, for many purposes the growth in small towns and cities is equally important. FAO (2017) reports that half of the global population lives in or within the 'sphere of influence' of small cities and towns. Pakistan, for example, is reported to have, in addition to large cities such as Karachi, Lahore and Faisalabad, 75 cities with a population of 0.1–1.0 million and 448 small towns with a population of less than 100,000. These towns play a key role in rural–urban linkages, the development of which is critical to rural transformation.

1.2.1.2 Dietary change with rising incomes

As incomes and food demand rise, pronounced shifts are evident in dietary patterns. These involve a shift away from a dominant starchy staple (rice or wheat) to greater reliance on

Table 1.3 Key reports on inclusive rural transformation.

Author	Title	Date
FAO	The State of Food and Agriculture: Leveraging Food Systems for Inclusive Rural Transformation	2017
IFAD	Rural Development Report 2016: Fostering Inclusive Rural Transformation	2016
FAO	The State of Food and Agriculture: Innovation in Family Farming	2014
Timmer, C.P.	Managing Structural Transformation: A Political Economy Approach	2014

animal products (meat, fish and dairy products) and more generally to a more diversified diet, for example including fruit and vegetables (Timmer 2014; FAO 2017). This shift in dietary patterns offers scope for diversification for small farmers, and can also lead to the expansion of off-farm services—packing fruit and vegetables; collecting, cooling and shipping milk; slaughtering and meat distribution; and collecting and milling feed grains—which provide employment for members of poor rural households.

1.2.1.3 The evolution of the food system

Urbanisation and dietary change are combining with other factors to drive change in the food system. This is the total of all the processes and activities required for the production, processing, delivery and consumption of food. Generally, food systems now cover a more extensive spatial region, with an increased share of value added contributed beyond the farm gate. In spite of this broader spatial coverage, they are less fragmented and more consolidated, with a greater use of advanced technology in the off-farm sector, hence becoming more capital intensive. Finally, to meet the requirements of the end user, more exacting quality and certification standards must be met by most agricultural products. These changes to the food system can all prove problematic for small farmers.

1.2.1.4 Open economies, rising international trade and the centrality of markets

These changes place much emphasis on the internal trade of agricultural products, and on the local and regional processes that make such trade possible. They are linked also to rising international trade in agricultural products, by both value and volume. Over the decade 2006–16, the value of global agricultural trade rose by 67%, or an average of 5.3% per annum, while trade in manufactured goods rose by only 37% or 3.2% per annum.

These and other changes provide both challenges and opportunities for Pakistan, but only little progress has been made in coming to terms with them. The links between farms and markets remain underdeveloped, extension systems to assist farmers to innovate and use improved technologies have many problems, adequate infrastructure for value-adding to rural produce is often not available, and the majority of farmers have little commercial influence. One sign of this is the fact that, taking 2016–17 and 2017–18 together, Pakistan's imports of food were 30% greater than its food exports.

1.2.2 The continuing dominant role of small family farms

Many of these trends benefit large, commercially oriented farms and create an expectation of a rising role of large farms in global agriculture. But in fact, small family farms remain the dominant agricultural structure outside the developed countries, and this makes it difficult for countries (including Pakistan) to adjust effectively to the changing nature of agriculture. For farms in low and lower middle income countries, the key facts seem to be as follows (FAO 2014):

- Farms of less than 5 hectares occupy about 70% of all farm land (75% in low income countries and two-thirds in lower middle income countries).
- Small farms tend to be more efficient than larger farms in the same country in terms of output per unit of land, perhaps because the land they have is managed more intensively and with great care.
- However, small farms tend to have very low levels of labour productivity, because low-cost labour is abundant.
- As a result small farms in these countries produce a substantial majority of farm output, their share of output being greater than their share of farm land, because of their higher productivity per unit of land.
- In spite of the changes in agriculture summarised above, in most low and lower middle income countries the share of small farms is continuing to grow (Fan

et al. 2013; FAO 2014). This seems to be due in varying degrees to continued rapid population growth, traditional inheritance practices of dividing family land up between the children (or at least the sons) and to limited availability of off-farm work.

In most economic contexts, what matters in terms of productivity is output per unit of input, and particularly labour productivity. But when labour is in unlimited supply and there are few other jobs available with a decent wage, the productivity of land rather than that of labour is what is most important.

Given the continued dominance of small family farms in many developing countries, the challenge is to assist them to come to terms with and benefit from the transformation of agriculture, rather than to facilitate their exit from agriculture. As Fan et al. (2013) and others point out, there are different types of small farms: subsistence farms and commercial farms, and within subsistence farms those that are non-viable and those that are potentially viable. These authors stress that different policies are necessary for different type of small farms. The appropriate policies will also depend on the stage that the country has reached in terms of agricultural transformation and on the other opportunities available to individuals.

1.2.3 The central role of smallholders in Pakistan

According to the 2010 Agricultural Census (Government of Pakistan 2010), in that year there were 24.1 million households in Pakistan, with an average of 7.1 members per household, giving a total population of the country of 171 million. Of these households, 12.3 million were agricultural households, covering 96 million people or 56.2% of the population. These agricultural households consist of 8.3 million farm households (those farming some land), covering 65 million people, and 4 million livestock holders (those having some cattle or buffalos, or five sheep and/or goats but not operating any farm area), covering 31 million household members.

There were 107 million livestock animals (cattle, buffaloes, sheep and goats) in Pakistan in 2010, spread across both livestock holders (40 million animals) and farm households (67 million animals held). While many livestock holders are poor, landless households with a few animals, this sector also includes some larger scale livestock producers. The average number of animals across the 4 million livestock holders in 2010 was 2.1 cattle, 1.9 buffaloes, 1.6 sheep and 4.4 goats, although there is wide variation across holders in both the number and type of animals held. Most farm households also have some livestock animals, although the average number of animals per household is a little lower than for livestock holders. The vast majority of the livestock held by farm households are on small farms—in 2010 80% of the cattle, 76% of the buffaloes and 79% of the goats were on farms of less than 5 hectares, as were about two-thirds of the sheep. These data reinforce the data on the importance of the livestock sector for Pakistan noted above, and its predominantly small-scale nature. Agriculture accounted for 18.9% of national GDP of Pakistan in 2017–18. The livestock contribution in value added was 58.9%, while the crop sector share was 34.4% (Government of Pakistan 2018).

Agricultural households provide important forms of employment for many Pakistanis, including some of the poorest individuals. It should be noted that the data provided here do not include livestock holders who have animals but do not farm any land. On-farm employment involves both family members and hired labour, either permanent or casual. In 2010, 27.7 million family members were doing agricultural work on their holdings, with a 64%/36% split between men and women and a 72%/28% split between full-time and part-time work. Farm households hired 28.7 million other workers, of which the vast majority (94%) were casual workers hired on a daily wage basis and only 6% were permanent employees.

There were 8.3 million private farms in Pakistan in 2010, and Table 1.4 shows the size distribution of those farms in that year, and in 1972. Between 1972 and 2010 the number of farms in Pakistan has more than doubled, from 3.8 million to 8.3 million, while the total farm area increased by only 8%. This implies a halving of average farm size, from 5.3 hectares in 1972 to 2.6 hectares in 2010, and a dramatic shift to smaller farms. Indeed the number of farms with less than 2 hectares increased fivefold over this period, rising from 28.1% of all farms to 64.7%. In addition, the average size of these very small farms fell by 21.5%, to 0.8 hectares.

Thus Pakistan has seen major change in the scale of its farm system in recent decades, with a massive rise in the number of small and very small farms, as well as a fall in the average size of those farms. The number of farms in both the 10–20 hectare range and 20 or more hectares has fallen by 25% or more, and the land area devoted to these farms has fallen. These trends are consistent with those in many other developing countries, and are likely to have continued through to 2018. By 2018, it is likely that farms of under 5 hectares account for over 50% of total farmland area and considerably more than 50% of farm output. The majority of livestock output is also likely to originate from small farms.

Among the factors driving the ongoing increase in the number of small farms and the reduction in size of those farms are traditional inheritance practices which require farms to be divided among the children and the limited supply of off-farm job opportunities relative to the continuing increase in population.

1.3 Strategies for transforming smallholder agriculture

1.3.1 The need for a new approach: towards inclusive rural transformation

Given that in many countries small family farms retain a dominant role in spite of broader economic and technological change, and that broader structural change is slow, it is widely agreed that countries need to pursue inclusive rural transformation as a step to structural transformation. For example, the Rural Development Report 2016 from IFAD defines inclusive rural transformation as a process

Table 1.4 Number of private farms and farm size in Pakistan, 1972 and 2010.

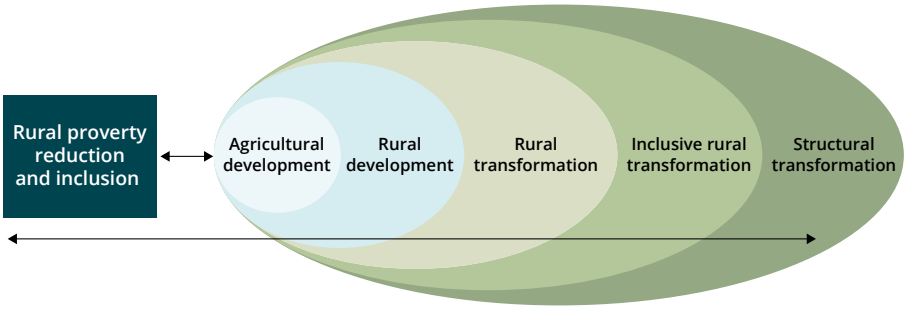
	Number of farms				Total farm area				Average farm area		
	1972		2010		1972		2010		Hectares per farm		Change 1972–2010 (%)
Size (hectares)	Number (millions)	%	Number (millions)	%	Hectares	%	Hectares	%	1972	2010	
Under 2	1.06	28.1	5.35	64.7	1.04	5.2	4.12	19.2	1.0	0.8	–21.5
2 to under 5	1.5	39.9	2.05	24.8	4.99	25.2	6.16	28.7	3.3	3.0	–9.7
5 to under 10	0.79	21.1	0.56	6.8	5.29	26.6	3.79	17.7	6.7	6.8	1.1
10 to under 20	0.29	7.7	0.21	2.6	3.73	18.8	2.72	12.7	12.9	13.0	0.7
20 and above	0.12	3.2	0.09	1.1	4.81	24.2	4.61	21.6	40.1	51.2	27.8
Total	**3.76**	**100**	**8.26**	**100**	**19.85**	**100**	**21.41**	**100**	**5.3**	**2.6**	**–50.9**
Memorandum items											
Under 5	2.6	68.0	7.4	89.5	6.0	30.4	10.3	47.9	2.4	1.4	–41.0
5 – <20	0.8	21.1	0.6	6.8	5.3	26.6	3.8	17.7	6.7	6.8	1.1
20 and above	0.4	10.9	0.3	3.7	8.5	43.0	7.3	34.3	20.8	24.4	17.3

Source: Government of Pakistan (2010).

...in which rising agricultural productivity, increasing marketable surpluses, expanded off-farm employment opportunities, better access to services and infrastructure, and capacity to influence policy all lead to improved rural livelihoods and inclusive growth. Inclusive rural transformation is thus a critical component of inclusive growth as a whole, and of sustainable development in all its dimensions – social, economic and environmental. ... Thus, this report is about transformation, but not just any transformation; it is about transformation that is inclusive and that brings rural people into the economic mainstream and the benefits of the twenty-first century economy. (IFAD 2016, p. 12)

Achieving inclusive rural transformation, and the full structural transformation to which it can give rise, is a multi-stage, path-dependent process. Box 1.1, reproduced from IFAD (2016), illustrates this multi-stage process. The path forward for any particular country depends on their starting point, and hence on their current situation.

Box 1.1 Agricultural development, rural development and rural transformation.



Agricultural development: improving the incomes and quality of life of farmers and agricultural workers, through the better exploitation of land-intensive resources such as agriculture, livestock, forestry and fisheries. Here improved agricultural services lead to improved output per unit of land.

Rural development: improving the opportunities of rural people, going beyond agricultural development to social and environmental objectives and encompassing health, education and other social services.

Rural transformation: rising agricultural productivity, increasing commercialisation and marketable surpluses in a diversified agricultural sector, as well as expanded off-farm employment and better access to services and infrastructure.

Inclusive rural transformation: moving towards a situation in which everyone, without exception, can exercise their rights, develop their abilities and take advantage of opportunities. This would lead to a marked improvement in the quality of life for small farmers, land poor and landless farmers, women and youth, and other marginalised groups.

Structural transformation: rising productivity in both agriculture and the urban economy, leading to major shifts to industry and services from agriculture, to further urban–rural migration and lower fertility rates. These inter-related processes provide the basis for rapid growth in all incomes.

Source: Reproduced from IFAD (2016).

The first stage is agricultural development, involving better use of land-intensive resources and leading to increased output per unit of land. This in turn provides higher incomes and improved quality of life for farmers and agricultural workers. Rural development goes beyond this, and involves broader opportunities for rural people, for example in terms of health, education and the environment. Both of these together can produce rural transformation, in which higher output and increased diversity in agriculture, together with better services, contribute to marketable farm surpluses and to increased spending on local services. This in turn leads to more off-farm employment, both in small-scale manufacturing and services, and to the development of more vibrant rural economies with a multiplicity of opportunities for rural people. Inclusive rural transformation is achieved when all groups within rural society—such as small farmers, land poor and landless farmers, women and youth—can participate fully and achieve a high quality of life.

Just as there are many types of small farmers, developing countries vary greatly in where they sit in terms of both the extent of rural transformation that has taken place and the degree of inclusivity of it. For countries that are both slow transformers and slow includers, the primary focus needs to be on building agricultural output and productivity, particularly in terms of output per unit of land or per animal, and addressing key issues of exclusion (such as the role of women). This seems to be the case for Pakistan in 2018.

IFAD (2016) undertakes an empirical analysis of trends in rural transformation and inclusion for 60 developing countries for a period of about two decades from the 1990s to the 2010s (precise data availability varies across countries). They use one indicator of rural transformation (the rate of change in agricultural value added per worker), one of structural transformation (the share of non-agricultural value added in GDP) and one of inclusion (the rate of change of rural poverty). They find that, while performance differs markedly between countries in a given region, the best performers in terms of increasing agricultural productivity and reducing rural poverty are in East Asia (China, Vietnam and Cambodia, but also Indonesia) and in Latin America (e.g. Ecuador, Chile and Peru). In these countries value added per worker in agriculture has been rising around 3% per annum and rural poverty has been falling by 2.5–3.0% per annum. These results are not representative of most countries studied.

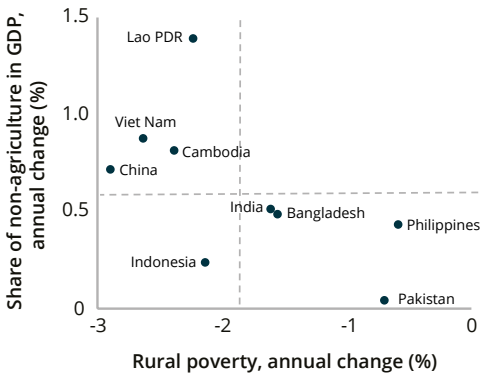
Figure 1.5 shows the IFAD 2016 results for nine countries in Asia and the Pacific. Of the nine, Pakistan has the lowest rate of both rural transformation (about 1% per annum) and structural transformation (close to zero) and is close behind the Philippines for the lowest rate of reduction of rural poverty (0.7% per annum). These data again highlight the need for an urgent and comprehensive policy response in Pakistan.

1.3.2 Recent and prospective policy developments in Pakistan

As noted earlier, important policy initiatives have begun to be put in place in Pakistan in recent years, to address some of the issues described in this chapter. These have been at both the national and provincial levels, and include:

- Pakistan Vision 2025
- National Food Security Policy 2018
- Punjab Growth Strategy 2018
- The SMART Punjab Project
- Punjab Livestock and Dairy Development Policy of Virtual Governance 2015
- The Sindh Agriculture Policy
- Sindh Agriculture Growth Project 2014–2019
- The inclusion of targets related to agriculture, farm incomes and Pakistan returning to being a net food exporter in the 12th Five Year Plan, 2018–23.

(a) Pace of structural transformation and rural poverty reduction, 1990s–2010s.



(b) Pace of rural transformation and rural poverty reduction, 1990s–2010s.

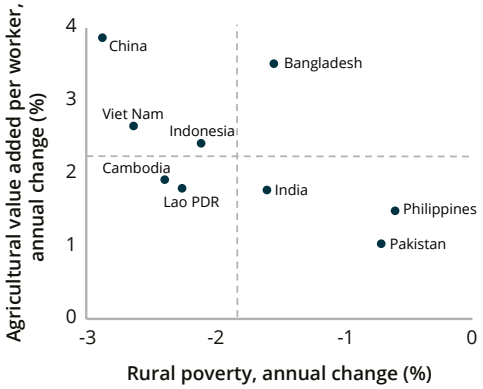


Figure 1.5 Structural and rural transformation and rural poverty reduction in nine Asian countries, 1990–2010.
Source: (a) IFAD 2016, Figure K, p. 43; (b) IFAD 2016, Figure L, p. 44.

These statements and initiatives are discussed further in Chapter 8 of this monograph.

In developing the policy recommendations of this project, our intention is to build on and extend these important developments. In shaping the key areas of focus for policy initiatives, we drew on all available information and the detailed knowledge of the project partners. In addition, we commissioned a field study of the constraints faced by smallholders, as described in Box 1.2, which carried out structured interviews in 207 villages in Punjab and Sindh.

We conclude that major initiatives for transforming smallholder agriculture in Pakistan are required in five areas:

- improved access to markets, domestic and international, and increased reliance on market processes
- greater innovation on the ground in Pakistani agriculture, particularly more demand-based extension services for smallholders and increased R&D focused on their actual needs
- much better access to formal credit for smallholder farmers, through institutional and technological changes that facilitate lending to smallholders
- more effective development of various forms of rural producer organisations, to provide a critical mass of smallholders for innovation, credit access, purchasing, access to downstream facilities such as processing plants, and access to markets
- real enhancement of the role of women, who already play a major role in smallholder farming but are neither empowered nor trained sufficiently to play their roles effectively.

These policies, discussed in detail in the body of this monograph, need to be supported, at the provincial level, by territorial initiatives to support market linkages at the village and town level. They need to be seen as long-term policies and not individual projects; tailored to different circumstances in different regions, with appropriate infrastructure support; and implemented in an integrated way across the five policy areas and with strategic cooperation between the national government and provincial governments. In our view, if there is to be enhanced focus on smallholders and on livestock, major new initiatives are needed to assemble much better data on these sectors.

Box 1.2 Field survey: understanding the constraints faced by smallholders in Punjab and Sindh.

To gain a better understanding of the constraints which policy should address, a team lead by Associate Professor Kashif Rashid from COMSATS University Islamabad carried out a structured interview schedule. The purpose of the field study was to identify the constraints faced by smallholders in dairy, citrus and mango industries in Punjab and Sindh (i.e. those having less than 5 hectares of arable land or less than four dairy animals). In addition to dairy farmers, citrus growers and mango farmers in Punjab and Sindh, different non-farmer stakeholders were also interviewed to collect relevant information, including middlemen, lenders, extension workers and field assistants, and government officials of departments of agriculture, and livestock and dairy in Punjab and Sindh. Overall, the information was collected from 14 villages for citrus in the Punjab (none in Sindh, because little citrus is grown in that province); 45 villages for dairy in the Punjab, 58 villages for mangoes in the Punjab, and 90 villages for dairy and mango farmers in the Sindh.

Focused group discussions were held with smallholders about the importance of access to credit, access to markets, the role of extension services and ways to reduce constraints and improve livelihoods. Extension workers and field assistants were interviewed to determine the type of extension services, academic/training levels, normal working hours, the level of compensation and mechanisms of service delivery available to small farmers. Forthcoming academic papers by Professor Rashid and his colleagues will provide further information on these field studies and their findings.

1.4 The impact of transforming smallholder agriculture in Pakistan

In Pakistan, as in many other developing countries, smallholder agriculture lies at the heart of the economic and social system. The effective and sustained implementation of a strategy for smallholder agriculture would have four economic effects, as shown in Figure 1.6:

- increased output and productivity (both per unit of land and per unit of labour), with a direct increase in household income from livestock and farming activities
- increased spending by smallholder householders on local goods and services, both to supply expanding business activities (e.g. fodder, seed, equipment) and from higher household incomes (e.g. food, entertainment, education, health and housing)
- increased off-farm surpluses, as an input to local, small-scale manufacturing (such as processing of milk, citrus and mangoes)
- higher levels of off-farm employment for members of smallholder households in both the services and industry sectors, resulting in further increases in household incomes.

Taken together, these processes can create a virtuous circle, in which a series of feedback loops between the various effects drive more rapid growth. For example, if a household generates higher income from higher farm and livestock output and from increased off-farm employment, this will provide it with resources to invest in better inputs, improved methods and new technologies. This additional investment will in turn generate increased income in the core business, further purchases by the business on local goods and services, and increased spending by the household. There are also demonstration effects: as

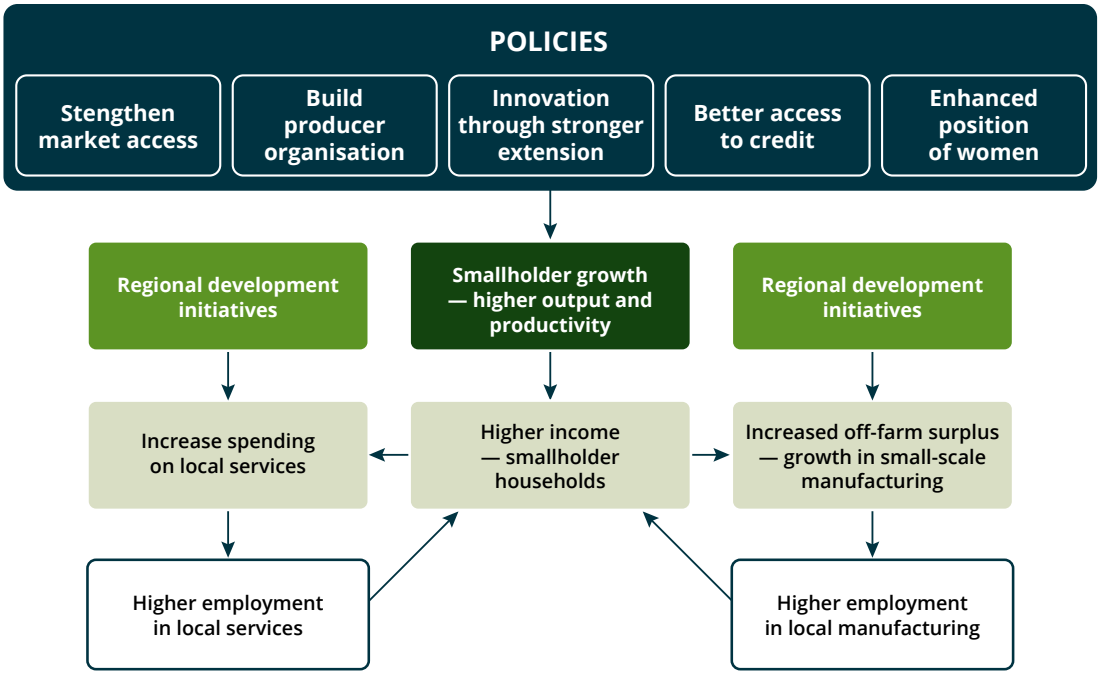


Figure 1.6 The impact of smallholder interventions through dynamic feedback processes.

some households move ahead, many others will be induced to follow a similar path. The social processes put in train by unleashing the power of women to participate more fully in the economic affairs of the household—with more knowledge, respect and confidence—will further stimulate change.

These dynamic processes involving feedback loops have been much studied in economics and related disciplines and underlie the rapid economic growth achieved in some developing countries in recent decades. For the reasons outlined above and throughout this monograph, we believe that Pakistan now has the opportunity to reap the benefits of such processes originating in the smallholder sector.

Such dynamic processes are inherently difficult to quantify, as it is difficult to measure links between farms and sectors, and feedback loops are complex. This is especially true in the case of Pakistan's smallholder agricultural sector, where even basic data are very limited. We offer two indications of the potential scale of the impact of change in the smallholder sector.

In economic terms, we can derive an estimate of impact of a given increase in smallholder value added by 2017–18, relative to what would otherwise be the case. We start from an estimate of the share of smallholders in agricultural value added in 2017–18 (60%), and assume that the multiplier relating the increase in agricultural value added to value added in the rest of the economy is 2, that is, that the full downstream effect of increased smallholder spending on industry and services is twice the original value added in agriculture.

On this basis a 25% increase in smallholder value added by 2027–28, relative to what would otherwise be the case, would increase the rate of growth of national GDP over the decade by 0.7 percentage points (e.g. from 5.0% p.a. to

5.7% p.a.). If the increase in shareholder value added induced by the new strategy was as high as 50%, the increase in the rate of growth of GDP would be 1.4 percentage points (e.g. from 5.0% to 6.4%). If the increase were only 15% over ten years, the increment would be 0.4 percentage points. As there is no difference in the population between the two scenarios being compared here (the unchanged policy case and smallholder strategy case) these increases can also be interpreted as increased growth in per capita GDP. It is worth noting that, over the decade to 2017–18, real per capita GDP in Pakistan increased by 2.0% per annum.

We make no claim to precision in any of these estimates. The point is simply to illustrate that, given Pakistan's current situation, a transformation of smallholder agriculture would have a massive impact of Pakistan's overall economic situation. On the reasonably conservative assumption that the sustained implementation of the policy measures outlined above led to a 25% increase in value added in smallholder agriculture, the result of these measures alone would be to increase the historical growth of GDP per capita by about one-third.

In social terms, one critical effect of the rejuvenation of smallholder agriculture will be a substantial reduction in poverty in Pakistan. There is an extensive literature showing the special effect of growth in agriculture on reducing poverty (see Ravallion and Chen 2007; Loayza and Raddatz 2010; de Janvry and Sadoulet 2010; Grewal et al. 2012), which is in part because in developing countries a high proportion of the poor are in rural areas. This will be especially evident for growth in smallholder as opposed to large-scale agriculture. The data in panel (b) of Figure 1.5 indicate that countries that achieved about 2% per annum growth in real agricultural value added per worker over 1990–2010 had a reduction in rural poverty in excess of 2% per annum. By comparison rural poverty in Pakistan fell by only 0.6% per annum over this period. If Pakistan succeeds in revitalising smallholder agriculture, it can expect to see a rate of reduction in rural poverty in excess of 2% per annum.

References

de Janvry A. and Sadoulet E. 2010. Agricultural growth and poverty reduction: additional evidence. World Bank Research Observer 25(1), 1–20.

Fan S., Brzeska J., Keyzer M. and Halsema A. 2013. From subsistence to profit: transforming smallholder farms. IFPRI Food Policy Report. IFPRI, Washington DC. At www.ifpri.org/publication/subsistence-profit-transforming-smallholder-farms

FAO (Food and Agriculture Organization of the UN) 2014. The state of food and agriculture: innovation in family farming. FAO, Rome. At www.fao.org/3/a-i4040e.pdf

FAO 2017. The state of food and agriculture: leveraging food systems for inclusive rural transformation. FAO, Rome. At www.fao.org/3/a-I7658e.pdf

Government of Pakistan 2010. Agricultural census 2010: Pakistan Report. Pakistan Bureau of Statistics, Agricultural Census Organization, Lahore. At www.pbs.gov.pk/content/agricultural-census-2010-pakistan-report

Government of Pakistan 2018. Economic survey of Pakistan 2017–2018. Ministry of Finance, Islamabad. Available at www.finance.gov.pk/survey_1718.html

Grewal B., Grunfeld H. and Sheehan P. 2012. The contribution of agricultural growth to poverty reduction. ACIAR Impact Assessment Series Report No. 76. Australian Centre for International Agricultural Research, Canberra. At www.aciar.gov.au/node/10696

IFAD (International Fund for Agricultural Development) 2016. Rural development report 2016: fostering inclusive rural transformation. IFAD, Rome. At www.ifad.org/web/knowledge/publication/asset/39240288

ILO (International Labour Organization) 2018. ILOSTAT Database. ILO, Geneva. At www.ilo.org/global/statistics-and-databases/research-and-databases/kilm/lang--en/index.htm

Loayza N.V. and Raddatz C. 2010. The composition of growth matters for poverty alleviation. Journal of Development Economics 93(1), 137–151.

National Bureau of Statistics of China 2017. China statistical yearbook 2017. Beijing. At www.stats.gov.cn/tjsj/ndsj/2017/indexeh.htm

Ravallion M. and Chen S. 2007. China's (uneven) progress against poverty. Journal of Development Economics 82(1), 1–42.

Timmer C.P. 2014. Managing structural transformation: a political economy approach. WIDER Annual Lecture 18, United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki. At www.wider.unu.edu/publication/managing-structural-transformation

World Bank 2018. World Bank DataBank. Washington, DC. At http://databank.worldbank.org/data/home.aspx