CHAPTER 6

Structural transformation, agriculture and Africa’s development
Key messages

- The African pattern of structural change is very different from the classical pattern that produced high growth in Asia, and, before that, for the European industrialisers. Labour is moving out of agriculture and rural areas, but formal manufacturing industries are not the main beneficiary. Urban migrants are being absorbed largely into services, that are not particularly productive, and into informal activities.

- Africa has huge potential not only to attain food security but also to generate surpluses that can be traded in international markets. Africa has most of the resources necessary to scale-up agricultural production and productivity. Land and human capital inputs are not scarce in the continent. Physical capital and the good policies necessary to complement Africa’s natural and human resources could be augmented for improved agricultural development.

- African countries will need to develop an array of high productivity sectors to complement traditional agriculture. The policy agenda should focus on agriculture as a source of growth, through agro-based industrialisation, rather than justifying investment in the sector as a means to address poverty and food security. Adding value to many of Africa’s primary exports may earn the continent a competitive margin in international markets. In addition, the volume of Africa’s food imports are indicative of potential growth in intra-Africa trade in processed agricultural goods.
6.0 Africa’s dual economy

Neoclassical growth theory establishes a presumption that poor countries should grow faster than rich countries. After all, they have the advantage of economic backwardness: Low capital-labour ratios should raise the return to investment, *ceteris paribus*. Further, they can rely on global capital markets to supplement domestic savings, so the latter should not act as a constraint. Finally, they have access to global markets so that they can expand output in tradable goods in which they have comparative advantage.

The standard growth theory does not do a very good job of describing growth miracles. A complementary perspective is provided by the tradition of dual-economy models that have long been the staple of development economics. The birth of modern growth economics has overshadowed these models, but it is clear that the heterogeneity in productive structures, which dual-economy models capture, continues to have great relevance to low income economies in Sub-Saharan Africa. A hallmark of developing countries is the wide dispersion in productivity rates across economic activities: Modern versus traditional; formal versus informal; traded versus non-traded; cash crops versus subsistence crops; etc. Productivity levels vary even within individual sectors, as recent studies have documented.

Implicit in dual-economy models was the difference in the dynamic properties of productivity across the modern-traditional divide. Traditional sectors were stagnant, while modern sectors had returns to scale, generated technological spill-overs, and experienced rapid productivity growth. This picture has been refined over time, and we no longer think of traditional sectors – such as agriculture – as being necessarily stagnant. But in one important respect, recent findings reinforce the dual-economy perspective. Rodrik (2013) finds that, modern, organised manufacturing industries are different: They exhibit unconditional convergence, unlike the rest of the economy. This is rather remarkable. It suggests that modern manufacturing industries converge to the global productivity frontier regardless of geographical disadvantages, lousy institutions, or bad policies. Under better conditions, convergence could be faster of course. But what is striking is the presence of convergence, in at least certain parts of the economy, even in the absence of good fundamentals.

The dual nature of African economies therefore means that the path to sustainable growth depends on the relative sizes of these traditional and modern sectors, and their contribution to overall economic growth. Modern sectors (like manufacturing) exhibit a different growth path from traditional sectors. The former tends to catch up with the rest of the world faster than the latter. The sectors change over time, with resources switching from traditional to modern. Viewing the structure of African economies in this context, the sources of growth can be decomposed into three components: One due to growth in the modern sector; one due to growth in traditional sectors; and, growth due to the reallocation of resources between the sectors, so-called structural transformation. These three sources are influenced by different factors or policy interventions. First, traditional sector growth is likely to be influenced by a set of policies including accumulation of fundamental capabilities such as institutions, and human and physical capital. This sector is dominantly characterised by smallholder agriculture with limited resource capacity. Most countries in Africa have more that 50% of all agricultural employment in the rural economy, with poverty incidence greater than 50% in most countries (Figure 6.1). The magnitude of growth
and its rate of expansion – that is to say, the growth impact depends on the pace of industrialisation. Rapid industrialisation produces fast growth to middle-to-upper income status. In the later stages of growth, as industrial convergence runs out of steam, economic progress begins to rely disproportionately on the fundamentals, thus growth slows down. Long-term convergence requires both structural change and good fundamentals. Rapid industrialisation without the accumulation of fundamental capabilities (institutions, human capital) produces spurts of growth that eventually run out of steam. But investment in fundamentals on its own produces moderate growth at best, in the absence of rapid structural change.

A modern industrial sector and structural change components of growth decomposition can boost growth significantly, and indeed have played a key role in Asian growth miracles. Their quantitative magnitudes depend crucially on the size of the modern/manufacturing sector and its rate of expansion – that is to say, the growth impact depends on the pace of industrialisation. Rapid industrialisation produces fast growth to middle-to-upper income status. In the later stages of growth, as industrial convergence runs out of steam, economic progress begins to rely disproportionately on the fundamentals, thus growth slows down. Long-term convergence requires both structural change and good fundamentals. Rapid industrialisation without the accumulation of fundamental capabilities (institutions, human capital) produces spurts of growth that eventually run out of steam. But investment in fundamentals on its own produces moderate growth at best, in the absence of rapid structural change.
6.1 Structural change and industrialisation in Africa

Has Africa achieved structural change? Here the picture is considerably less bright. While farmers have moved out of rural areas and the share of agriculture in employment and value added has dropped significantly since the 1960s, the primary beneficiary of the freed-up labour has been urban services, rather than manufacturing. In fact, industrialisation in Africa has lost ground since the mid-1970s, and not much of a recovery seems to have taken place in recent decades. Manufacturing industries’ share of employment stands at well below 8 percent, and their share in GDP is just around 10 percent, down from almost 15 percent in 1975.\(^{57}\)

Figure 6.2 provides a visual comparison with Asian countries. African countries are shown in blue, while Asian countries are in red. Not surprisingly, Africa’s observations are mostly on the lower left-hand side of the chart, at low

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\(^{57}\) Based on data from the Groningen Growth and Development Center, covering eleven African countries. But data from other sources (such as the World Bank’s World Development Indicators) tell a broadly similar story.

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**Figure 6.2** African industrialisation is lagging behind, even controlling for incomes

Note: Africa: Botswana, Ethiopia, Ghana, Mauritius, Malawi, Nigeria, Senegal, Tanzania, South Africa, and Zimbabwe. Asia: Hong Kong, Indonesia, India, Japan, Korea, Malaysia, the Philippines, Singapore, Thailand, Taiwan, and Vietnam.

Source: Author, based on data from Groningen Growth and Development Centre.
levels of income and industrialisation compared to Asia. But more importantly, and less evidently, the industrialisation-income relationship looks decidedly different in the two regions: African countries are under-industrialised at all levels of income, relative to Asia.

Comparing patterns of structural change for specific countries shows vast differences. Consider Vietnam, Ethiopia and Kenya. Vietnam exhibited the classic, growth-promoting pattern, of structural change. Labour moved away from agriculture into more productive urban occupations.

**Figure 6.3** Structural transformation in Vietnam, Ethiopia, and Kenya

Notes: Authors’ calculations based on data from the GSO. The bubble sizes indicate the share of total employment in 1990. For sector abbreviations refer to Table A.1.


Manufacturing expanded by 8 percent of the labour force over 1990-2008, as have services, which are of high comparative productivity. McCaig and Pavcnik’s (2013) work shows that these patterns of structural change account for around half of Vietnam’s impressive growth over this period. The pattern in Africa, exemplified by Ethiopia and Kenya in Figure 6.3, is much more mixed. In both cases, there has been outmigration from agriculture, but the consequences have been less salutary. In Ethiopia, where there has been some growth-promoting structural change, its magnitude is much smaller than in Vietnam. Manufacturing industry, in particular, has expanded much less. In Kenya, meanwhile, structural change has contributed little to growth. That is because the large number of workers leaving agriculture have been absorbed mainly into services where productivity is apparently not much higher than in traditional agriculture.
To generate sustained, rapid growth into the future, Africa has, essentially, four options. The first, is to revive manufacturing and put industrialisation back on track, so as to replicate as much as possible the traditional route to convergence. The second, is to generate agriculture-led growth, based on diversification into non-traditional agricultural products. The third, is to generate rapid growth in productivity in services, where most people will end up in any case. The fourth, is growth based on natural resources, in which many African countries are amply endowed. Let us say a few words about each of these scenarios.

What are the prospects for a renewed industrialisation drive in Africa? While the bulk of Chinese investment in Africa has gone to natural resources, there have been some hopeful signs of green field investment in manufacturing across the region, most notably in Ethiopia, Nigeria, Ghana, and Tanzania. Looking at some of these examples, one can perhaps convince oneself that Africa is well poised to take advantage of the rising costs in Asia so as to turn itself into the world’s next manufacturing hub. Yet, as we have seen, the aggregate data do not yet show anything like this is actually happening. The share of manufacturing has remained low in most African countries with the exception of a few (see Figure 6.4).

There is almost universal consensus on what holds manufacturing back in Africa. It is the ‘poor business climate’, a term that is sufficiently broad and all-encompassing that there is room for virtually anything to be included under its rubric. Gelb, Meyer, and Ramachandran (2014), for example, cited costs of power, transport, corruption, regulations, security, contract enforcement, and policy uncertainty among other impediments. There is little doubt that all of these challenges raise the costs of doing business in Africa for an investor interested in starting or expanding manufacturing operations.

The reasons for this common pattern of premature de-industrialisation are probably a combination of: Global shifts in demand; global competition; and, technological change. Whatever the reason, Africa finds itself in an environment where it is facing much stronger head winds. Countries with a head start in manufacturing developed a large manufacturing base behind protective walls, in Europe and Asia, making it difficult for Africa to carve a space for itself, especially as global demand shifts from manufacturing to services. Having liberalised trade, African countries have to compete today with Asian and other exporters, not only in world markets, but also in their domestic markets. Earlier industrialisers were the product not just of export booms, but also considerable amounts of import substitution. Africa is likely to find both processes very difficult, even under the best of circumstances.

The second scenario of growth in service productivity raises the largest number of questions. When being pessimistic about industrialisation to audiences familiar with Africa, invariably a litany of success stories in services are raised – mobile telephony and mobile banking are the most common. These examples seem to lead to a more optimistic prognosis for Africa. However, with few exceptions, services have not acted traditionally as an escalator in the same way as manufacturing has. The essential problem is that those services with the capacity to act as productivity escalators tend to require relatively high skills. The classic case is information technology, which is a modern, tradable service. Many years of education and institution building are required before farm workers can be transformed into programmers, or even call-centre operators. Contrast this with manufacturing, where little more than manual dexterity is required to turn a farmer into a production worker in garments or shoes, raising his/her productivity by a factor of two or three.
So raising productivity in services has typically required steady and broad-based accumulation of human capital capacity, institutions and governance. Unlike in manufacturing, technologies in most services seem less tradable and more context-specific (again with some exceptions, such as mobile phones). Achieving significant productivity gains seems to depend on complementarities across different policy domains. For example, productivity gains in a narrow segment of retailing can be accomplished relatively easily by allowing foreign entrants, such as Walmart or Carrefour. But achieving productivity gains along the entire retail sector is extremely difficult in view of the heterogeneity of organisational forms and the range of prerequisites across different segments.

**Figure 6.4** Value added as % of GDP, 2006-2014, country level

Note: Seychelles collects value added data at basic prices. The denominator (GDP) is calculated using gross value added at factor cost, which is larger than the sum of value added by the three sectors.

Source: World Development Indicators 2015
None of this is to say that the past will necessarily look like the future. Perhaps Africa will be the breeding ground for new technologies that will revolutionise services for the masses, and do so in a way that creates high-wage jobs for all. But it is too early to be confident about the likelihood of this scenario.

What about natural resource based growth? Once again, the argument against this scenario has to be the paucity of relevant examples in history. Almost all of the countries that have grown rapidly over a period of three decades (say, at 4.5% per annum or more), have done so by industrialising (Rodrik, 2013). In the post-World War II period, there were two such waves of countries, one in the European periphery (Spain, Portugal, Italy, etc.) and one in Asia (Korea, Taiwan, China, etc.). Very few countries could achieve such performance based on natural resources alone, and those that did were typically very small countries with unusual circumstances. Three of these countries were in Sub-Saharan Africa: Botswana, Cape Verde and Equatorial Guinea. What these countries demonstrate is that it is indeed possible to grow rapidly if you are exceptionally rich in minerals and fuel. But it would be a stretch of the imagination to think that these countries set a relevant or useful example for countries such as Nigeria and Zambia, let alone for Ethiopia and Kenya.

The downsides of natural resource based growth patterns are well known. Resource sectors tend to be highly capital intensive and absorb little labour, creating enclaves within economies. This is one reason why small economies can generally do better with resource windfalls. Resource booms crowd-out other tradables, preventing industries with escalator properties from getting off the ground. Resource rich economies experience substantial volatility in their terms of trade. They also have great difficulty in managing/sharing resource rents. Institutional under-development is often the price paid for resource riches. All these factors help to account for why resource based growth has not paid off for most countries.
What about the scenario of **agriculture-based growth**? Since so much of Africa’s workforce is still in agriculture, does it not make sense to prioritise agricultural development? Without question, there are many unexploited opportunities in African agriculture, whether in perishable non-traditional products such as fruits and vegetables or perishable cash crops such as coffee, cocoa or cashew nut. Relative to other regions of the world, agriculture remains prominent in Africa as it contributes a significant fraction of the total value added in many countries. Across the continent, however, the share has been declining over recent decades: Falling from about 20% of value added in 1990 to slightly less than 15% in 2013 (see Figure 6.5).

Agricultural diversification seems to be hindered by many of the same obstacles as manufacturing. The term ‘poor business climate’ applies equally well here too (e.g., Golub and Hayat, 2014). In addition, agriculture has special problems that require governments’ attention such as; extension, land rights, standard setting and input provision. Once again, the exchange rate can be an important compensatory tool.

The main argument against this scenario is the difficulty in identifying historical examples of countries that have pulled off such a strategy. Agriculture-led growth implies that countries would sell their agricultural surpluses on world markets, and that their export basket would remain heavily biased towards farm products. Yet one of the strongest correlates of economic development is export diversification away from agriculture. It is true that Asian countries, such as China and Vietnam, benefited greatly from an early spurt in agricultural productivity – and this was particularly helpful for poverty reduction. But in all cases, the subsequent and more durable growth boost came from the development of urban industries. Moreover, even if modern, non-traditional agriculture succeeds on a large scale in Africa, it is unlikely that this will reverse the process of outmigration from the countryside. More capital-, and technology-, intensive farming may even accelerate this process. So, one way or another, African countries will need to develop an array of high productivity sectors to complement traditional agriculture.

**Figure 6.5** Agriculture value added (% of GDP), by region
6.3 Special focus on the agriculture sector

6.3.1 Linking agriculture and poverty

Poverty tends to be more responsive to shifts in the sectoral composition of an economy’s growth than it is to increases in mean incomes (Shimeles, 2014). In Africa, close to 85% of poverty originates either in agriculture (54%) or services (31%). The poverty impact of growth depends on what has happened to these sectors (Figure 6.6). The figure reveals a commonly observed concentration of the poor, the intensity of poverty, among those employed in agriculture, relative to those in non-agricultural sectors. It suggests that, as extreme poverty increases, the poverty gap widens between those employed in agriculture and those in non-agricultural sectors.

This sectoral manifestation of poverty has warranted many attempts to understand poverty by focusing on the structural dynamics of African economies. Indeed Monga (2013) noted that one of the defining characteristics for most African economies is the dominance of agriculture in traditional sectors and that the modern sector is largely composed of non-agricultural sectors. He observed that these two economic systems are governed by different sets of technology, incentive structures, risks, access to resources and infrastructure.

Rodrik (2013) argues that managing the development processes of these dichotomous economic structures requires a blend of neo-classical growth models with a focus on the structural change approach to development. In his framework, countries will grow fast and sustain growth if they focus on getting the fundamentals right, while at the same time contextualising the changing structures of the economies. Focusing on one and neglecting the other would lead to a sub-optimal growth trajectory. In Rodrik’s typology, countries that focus and invest less in economic fundamentals (improved governance, macroeconomic management, openness, rule of law, property rights, better investment climate, etc.), and also less in promoting structural transformation (industrial policy, subsidies of specific sectors, infrastructure and technology investment, rural transformation, etc.) will have no growth at all (Shimeles, 2014). Likewise, addressing the fundamentals and neglecting structural transformation dynamics would yield episodic growth that is not sustainable.

The process of structural transformation is therefore important in assessing progress in poverty reduction. A structural transformation process that shifts growth towards sectors with larger participation of the poor, is likely to have a more significant influence on poverty, especially if the growth rate in this sector is relatively

58 For more on the policy sequences and implementation strategy that echo Rodrik’s framework, see Li and Monga (2011), Shimeles (2014).

Figure 6.6 Decomposition of poverty by sector of employment in Africa

Source: Shimeles (2014), based on 26 recent household surveys (2005 and later) for 18 African countries.
higher. In Africa, the co-existence of a large traditional and informal sector with a dynamic modern sector will continue to be a challenge to making headway in poverty reduction (Shimeles, 2014).

The agricultural sector in many African countries is characterised by low levels of capital per worker. This makes the sector capital poor and labour rich in most countries. As a consequence, where wages exist, they are often low. Rebalancing the capital to labour ratios can therefore increase productivity and provide decent wages for the rural poor.

Increased productivity will eventually create surplus labour in the agriculture sector. If this is further met by increased investment in non-agricultural sectors, labour exiting agriculture enters the non-agriculture sector, initially as low-cost inputs that serve to attract investment. A successful transformation process ensures that reallocation of labour from agriculture does not create food shortages due to declines in agricultural production. In fact, it requires that the increased agricultural productivity not only provide food for the rural masses, but also for the expanding urban population.

It is important to note that structural transformation does not occur with mere passage of time. It requires proactive intervention to trigger, realise and reap the benefits of the process. Until recently, structural change has not driven African growth other than some increases in productivity in the small, but dynamic, modern sectors (McMillan, 2013). In Asia, for example, increased investment in the rural agricultural sector led to productivity increases, creating excess supply. This pushed labour out of low-wage agriculture into other sectors. Initially, agro-based industries received much of the labour exiting primary agricultural activities. With time, and with the accumulation of human capital, other industrial and service sectors absorbed more of the labour. This surplus labour was the key attraction for investment in Asian economies (Chandrasekhar and Ghosh, 2013). These processes did not happen in isolation. The role of the state in coordinating the process of industrialisation was crucial. In East Asia, systematic government interventions in the form of trade protection, domestic industrial regulation and tax incentives played a vital role (Amsden, 1989; Wade, 1990).

### 6.3.2 What can agriculture achieve for Africa?

All sectors of the economy have some positive growth and poverty reduction effect. The question is therefore centred on the relative cost-effectiveness and extent of impact for a unit investment in various sectors of the economy. If Africa is to continue prioritising investment in agriculture, the development strategy should be clear about what it intends to achieve through this investment.

Agriculture-centred development strategies have often been justified by the role the sector plays in enhancing the livelihood of the poor through access to other social amenities, employment and improved food security. The role of agriculture in addressing many shortfalls in the living standard of rural dwellers, and the poor in particular, has attracted unprecedented focus on this sector. Further investment is needed to move the sector from simply providing the food needs of the poor to more market-oriented larger-scale production and improved productivity.

Another justification focuses on the limited capacity of other (non-agricultural) sectors to absorb the excess supply of labour. Agriculture continues to provide employment to the majority of the population, even though concerns of underemployment remain, due partly to the seasonal nature of employment in the sector. A third reason for policy focus on agriculture is to meet the domestic food need of the population. The achievement of this development objective is expected to insulate the continent from global price shocks that often trigger other economic and political pressures.

Though these justifications can be connected to growth and poverty reduction objectives, their focus is primarily on the direct benefits of agriculture for those involved in the sector. If addressing food security and unemployment among the poor who are directly involved in agriculture is outlined as a development objective, then the incentive to expand agricultural production and productivity to
commercial scales will generally be lacking. On the other hand, if the continent wishes to use agriculture both as a source of growth and a tool for effective poverty reduction, then food security and employment of the poor become by-products of these outcomes. Achieving growth and poverty reduction requires understanding how investment in agriculture fuels these outcomes through other, intermediate factors. Africa needs a shift in policy orientation, from one that continues to see agriculture as a tool for addressing the shortcomings of the poor, to one that treats the sector as a means of furthering growth and poverty reduction through its many direct and indirect effects.

6.3.3 Understanding how agriculture achieves welfare for all

Concerns over how to feed the world’s increasing population, the 2007-2008 global food price shocks and evidence showing agriculture as the primary source of livelihood for the majority of the poor have caused policymakers to rethink the role of agriculture in development. Yet, analytical approaches to understanding the link between agriculture and national development have led to differing views on the potential of agriculture-centred development strategies. This has generated debate as to which set of countries should focus on agriculture, and what exactly countries can achieve by prioritising this sector. Should agriculture be considered as an engine of growth, a means of poverty reduction, or, a means of attaining food security? How does growth in the agricultural sector form the basis of growth in non-agricultural sectors?

In the early stages of development, there is close association between development of the agricultural sector and both production and consumption spillovers to non-agricultural sectors. Agricultural productivity growth can yield benefits, such as higher rural incomes and lower food prices in urban areas, which increase savings in rural and urban areas. These savings can be used to finance industrialisation and expansion of the domestic market for non-agricultural goods.

In evaluating the effect of agriculture on poverty, it is important to consider the many channels through which increased agricultural growth may affect the lives of the poor and the non-poor. More investment in agriculture will generate growth in agricultural and non-agricultural sectors, with both effects contributing to poverty reduction. The World Bank (2007) outlines the link between agriculture and development. The report categorised countries into three groups based on the contribution of agriculture to overall economic growth between 1990 and 2005. Countries with a large share of agricultural growth and large agriculture-dependent rural populations are categorised as agriculture-based countries. Other categories of countries include transforming countries and urbanising countries. Transforming countries are those with relatively less contribution of agricultural growth (average of 7%). Countries such as China, India, Indonesia and Morocco appear in this category. Urbanising countries are those with the least direct contribution to total growth coming from agriculture, typically less than 5%. In these countries, poverty is more concentrated in urban areas than in rural areas.

The analysis shows that a sector’s contribution to development depends on its contribution to overall economic growth and its role as an instrument of poverty reduction. The effectiveness of a sector’s contribution to
poverty reduction also depends on the fraction of the poor employed in that sector. This means an effective development strategy which addresses both growth and inclusion concerns should pay attention to the sectoral distribution of poverty as well as to growth concerns. For countries with the majority of employment being in agriculture, investment in this sector can yield significant growth and poverty reduction. Most African countries are considered to be agriculture-based, with agriculture as an important source of both growth and employment. In addition, these countries, relative to countries listed in the other categories, are at an early stage of development: With average GDP per capita of $395 and over 50% of the population living on less than $2 per day. These countries have the most potential for gain from investing in agriculture, both in terms of the growth and poverty reduction return.

The relative share of agriculture in overall GDP, or in the growth rate of the economy, is often used to measure its contribution respectively. While this is easily observable from data, it can be much harder to distinguish individual sectoral contributions in the presence of spill-overs between sectors. Failing to account for the spill-overs that arise from the interlinked nature of economic sectors limits our understanding of sector-specific contributions. The role of agriculture in poverty reduction is therefore better evaluated by observing the direct and indirect effects of growth in this sector on the level of poverty.

The direct poverty reducing effect of agricultural growth depends on two factors: The level of participation among the poor in generating growth; and, the share of overall growth attributable to the sector. Christiaensen et al. (2010) distinguish between these two effects of sectoral growth on poverty reduction as “participation” and “share” effects. The level of poverty reduction obtained from growth in the agricultural sector, therefore, depends on the marginal effect of growth on poverty, which is largely determined by how connected the poor are to the sector’s growth process. For a sector like agriculture, where the majority of the poor are concentrated, the growth elasticity of poverty is likely to be higher than for sectors providing employment or livelihood for a relatively smaller proportion of the poor.

The second direct effect of agricultural growth on poverty reduction is the share effect. The share of overall growth attributable to a sector also influences the role of that sector in poverty reduction, since more growth is likely to benefit more people, especially when inequality is not such a big hurdle to poverty reduction. In effect, this means that the size of agriculture’s share of growth and the responsiveness of poverty to unit growth in agriculture are important in evaluating agricultural investment as an instrument for poverty reduction.

Other channels through which growth in agriculture may be linked to development outcomes are indirect. The indirect effects of agricultural growth include the many ways through which the sector fosters growth in other sectors of the economy (Jonston and Mellor, 1961; Schultz, 1964). The extent of such spill-over effects is much harder to determine, since spill-overs may also occur on agriculture, from growth in non-agricultural sectors. Generally, however, the literature suggests that these reverse effects are smaller (Haggblade, Hazell and Dorosh, 2007).

Agricultural growth enhances poverty reduction through other sectors via indirect linkages which can be based on production, consumption or wage linkages (Christiaensen et al. 2010). Agriculture creates forward linkages to agro-processing industries and backwards linkages from input markets. For both types of linkage and sector, agriculture provides the basis for growth and poverty reduction. For example, a manufacturing chain may rely on farmer output to produce its final product. In this way, sustaining agricultural productivity will also sustain employment for workers in the manufacturing firm. This indirect effect can be huge for countries (especially landlocked countries) with limited trade linkages. Typically this includes those with transportation and border restrictions. Therefore, agriculture plays a crucial role in starting and sustaining vibrant agro-based industry at the early stages of development.
Figure 6.7 shows the shares of processed and unprocessed commodity exports over the past three decades. Primary commodity exports have continued to dominate Africa’s trade with the rest of the world. Increased output over the years has been accompanied by an increase in the exports of unprocessed primary products, while the share of processed commodity exports has largely remained unchanged over the last decade.

Certainly, if Africa’s structural transformation is to be realised, it must be driven by a manufacturing sector that will add value to Africa’s primary products before exporting them to international markets. Secondly, agricultural productivity and growth that raises incomes across a wide spectrum of people, can raise demand for locally produced non-traded goods and services (Christiaensen et al., 2010). African economies, with a majority of labour employed in agriculture, can potentially trigger this demand effect by raising productivity and orientating agriculture more commercially. Finally, successful agricultural development leads to food self-sufficiency and drives general food prices down. This outcome contributes to lower real product wages in non-agricultural sectors, making these sectors more attractive for further investment.

Source: African Economic Outlook, 2013
The economic literature has often used the evolving role of agriculture to explain different stages in a country’s development. As observed in advanced countries, it is believed that countries undergo certain structural changes as they transit from one level of development to another. In Africa, one of the observable structural changes is the changing share of agriculture in both GDP and total employment, as discussed in previous sections. This resonates with development thinking that, at the early stages of development, countries tend to have a larger share of their GDP generated from agriculture. As they advance to higher levels of development, the role of agriculture tends to decline. Similarly, the majority of employment is in the agricultural sector during this early stage of development. Due partly to low productivity in agriculture, this early stage of development is characterised by a large disparity between the share of agriculture in GDP and the share of agriculture in employment (World Bank, 2007). As countries transition to higher levels of development, the role of agriculture tends to decline. Similarly, the majority of employment is in the agricultural sector during this early stage of development. Due partly to low productivity in agriculture, this early stage of development is characterised by a large disparity between the share of agriculture in GDP and the share of agriculture in employment (World Bank, 2007). As countries transition to higher levels of development, the share of agriculture in both GDP and employment shrinks. Manufacturing and service sectors take prominence as the rural labour force moves into urban areas. Agricultural productivity increases with more science-based innovation. This phenomenon has been observed in Europe, America and in some parts of Asia.

The current declining contribution of agriculture in both output and employment seems to suggest that Africa is following this traditional development path: The role of agriculture is declining and industry and service sectors will become the engines of growth. However, structural transformation in Europe and Asia saw the shift away from agriculture at a time when production and productivity in agriculture had increased due to science-based technologies. This allowed reallocation of labour to non-agricultural sectors with little or no consequences for food security. In Africa, low agricultural productivity plus an increasing population calls for ongoing improvements in this sector to sustain growth, poverty reduction and food security.

The timing of resource reallocation between sectors of the economy matters for the development outcomes of structural transformation. When resources move from one sector of the economy to another, it should improve development outcomes due to more efficient use of those resources. The current relocation of labour from agriculture to the service sector tends to imply this efficiency outcome, since labour productivity in service sectors exceed that in the agricultural sector. However, in Africa, the reallocation of labour across sectors needs to be understood not only from current efficiency measures but also in the broader development plans of the continent. How much labour can agriculture release? Has African agriculture attained production levels that permit withdrawing labour? Is this labour being replaced by mechanisation? All these concerns loom as policymakers devise strategies to address the huge migration of young people from villages to cities, and as the increasing population puts more pressure on food prices.

In 2011, food imports for Sub-Saharan Africa alone were as large as US$43.6 billion. Food imports for Sub-Saharan Africa in 2012 were US$16 billion more than those of India, even though India is much larger in terms of population. In fact, it appears that most of Africa’s rural agriculture is subsistence, producing just what is sufficient for home consumption. This seems particularly the case for rural small-holder farmers. For most Sub-Saharan African countries, more than 40% of households depend on their own produce. This means that food production is limited to consumption needs for most households. This
raises concerns about the food security consequences of the movement of labour out of agriculture, especially the young and therefore the most productive labour. Though productivity per worker in the sector has increased in some African countries, it is still far below what holds in other regions of the world.

The overall sequence of labour reallocation (implied by the developmental stage and absorptive capacity of non-agricultural sectors) needs to be considered. How much of the exiting agricultural labour can be accommodated by the service sector? And, what set of skills are expected from these people? remain vital questions. As noted in chapter 3, the labour force exiting agriculture is largely received by the services sectors. Most of it ends up in the informal service sector. This contributes to the gross underemployment statistic currently observed in Africa. Low skilled labour moving from rural agriculture to informal urban economies often find themselves with jobs that are relatively low-paying compared even to agriculture. In essence, therefore, there are a number of non-pay related factors that underline the nature of structural shifts in African economies. The concentration of social amenities in urban areas, where most of the services-related employment is found has been a major pull factor to labour. Inadequate capitalisation of agriculture in rural areas has been a major push factor away from agriculture.

Should Africa’s strategy be different in the medium and the long-term? It appears that the increasing role of the service sectors, driven mainly by the tourism, telecommunications and financial services sub-sectors, can be harnessed to fuel medium-term growth. Given that these sectors are the second highest employer of the poor, their potential for

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**Figure 6.8** Agriculture value added per worker (constant 2005 US$)

![Chart showing agriculture value added per worker for different countries](chart.png)

*Source: World Development Indicators, 2015*
Figure 6.9  Agriculture value added per worker, % change between 1991-2000 mean, and 2011-2014 mean (constant 2005 US$)

Source: World Development Indicators, 2015

Figure 6.10  Share of own-produced food in total food consumption (in dietary energy)

Source: FAOSTAT, 2015
impacting poverty are not insignificant. In the long-term however, growth sustainability will be underpinned by both what Africa produces and what it trades within the region and with international markets. Sustained demand for the continent’s traded goods, especially in international markets, will depend on its competitiveness to produce these goods at lower prices. In turn, this depends on the efficiency with which goods are produced to achieve lower costs. Relying on resources that are naturally and geographically more accessible to Africa may count a lot in its long-term development potential. A commodity based development strategy with a focus of adding value to primary commodity extraction is more likely to have a long-term pay-off by directly fostering growth in this sector and indirectly boosting other sectors of the economy. Therefore, in the short- to medium-term, Africa should not waste the opportunities presented by fast growing services sectors. In the medium to long-term, Africa should use its natural resources and human capital more efficiently to solidify a foundation that will sustain commodity-based industrialisation. In essence, therefore, whether to “keep” agriculture or to “let it go” will depend on the overall medium- to long-term development strategy of the continent, and how centrally agriculture is expected to feature in the delivery of the continent’s development goals.
Shifting agriculture from subsistence to commercial orientation requires capitalising on opportunities while laying strategies to address major challenges. The availability of farming inputs, such as land and labour, is one of the opportunities that Africa can explore. Physical capital is the most deficient input in Africa’s agriculture. Data on 21 African countries shows that only a handful of countries have experienced significant increases in agricultural mechanisation (measured by the number of tractors per 100 square kilometres of arable land, see Figure 6.11).

**Figure 6.11 Agricultural machinery, tractors per 100 sq. km of arable land**

Source: World Development Indicators, 2015
Most countries have kept almost the same level of mechanisation over the past two decades. In fact, 14 of the countries have less than 5 tractors per square kilometre of arable land. The few relatively mechanised countries are mostly in North Africa, with the exception of some Southern African countries. If Africa invests wisely to complement the current human capital input with physical capital investments in the agricultural sector, it could potentially become the most competitive producer of agricultural goods. In addition, if this increased physical investment makes it possible to reduce the export of primary products by expanding the capacity to process and add-value, it could contribute to Africa’s competitiveness in international markets for a variety of goods. The World Bank (2009), in assessing agricultural competitiveness in Mozambique, Nigeria and Zambia, noted that despite the low yield per hectare in these countries, unit production costs at farm-level are relatively low when compared to those of Brazil and Thailand.

Apart from farm-level investment gaps, storage and transportation infrastructure plus agricultural subsidy programmes in some potential export markets, have contributed to the low competitiveness of African products in international markets. A lack of adequate storage facilities and the high cost of reaching input and output markets have contributed to the sector’s low profitability. In addition, a number of countries still have substantial taxes levied on agricultural exports, an effect compounded by agricultural subsidy programmes in some developed countries. These sets of restrictions have been a major disincentive to private sector entry into agriculture. Africa cannot industrialise under these restrictive conditions. Agriculture-based industrialisation requires cheaper inputs to be able to produce products that will be globally competitive. To achieve this, Africa needs to produce most of the primary inputs locally, using its land and available labour combined with capital, raised either domestically, or, from international sources. For Africa to scale up productivity and attract further entrants to the agricultural sector, governments and the international community must be willing to act on these barriers.

Limited access to international markets does not entirely impair the development of Africa’s agricultural sector. Africa is a huge market in itself, with nearly one billion consumers: As noted above, food imports to Sub-Saharan Africa were in excess of US$40 billion in 2011. Africa’s large population and huge level of imports are indicators of within-Africa demand that is backed by purchasing power, presenting an, as yet, untapped potential for intra-Africa trade. The success of trade at subnational, national and regional levels will depend on how well the continent addresses transportation and cross-border trade restrictions.

It is unclear whether the environmental impacts of commercial agriculture in Africa will be significant, due to the absence of reliable data. While Africa should undoubtedly focus on minimising any potential environmental consequences of agricultural commercialisation, it must not lose sight of the impact of the counterfactual premise of not achieving food self-sufficiency. Commercialisation of agriculture will not only improve the incomes of producers, but it is also expected to contribute to the availability and affordability of food, and thus to improve nutrition for the large share of the population that is currently food-poor. A combination of environmentally friendly agricultural practices and sound environmental regulation can minimise any damage while maximising agricultural productivity.

Africa has a lot to do on the policy side. Removal of export taxes and arbitrary export restrictions can be achieved by regional initiative, with greater focus on harmonising standards and regulations. At national levels, countries need to address restrictions that make it difficult to transfer land titles. Land for agricultural production should be made available to those who are able and willing to invest. Traditional allocation of land has limited the access of potential investors. In many countries, as discussed in chapter 4, traditional land rights have also disfavoured women, who continue to play the major role in small-scale agricultural production.

Africa’s private sector needs governments not only to provide well designed policies, but to lead their part of the investment needed to scale-up agriculture. Governments
must play their role in shouldering the initial investment in both soft and hard infrastructure provision. Human capital investments, that ensure both a sound knowledge base and the necessary agricultural research and vocational institutions, are important factors for the sustainable commercialisation of agriculture. Secondly, the private sector often finds it difficult to invest in hard infrastructure, such as roads and energy, because of the size of the upfront investment required and the difficulty in recouping costs from user fees. Initial government investment in these areas can significantly lower entry costs and lead to greater competitiveness in the sector.

Finally, there are several reasons why private sector investment is likely to be attracted to Africa’s agriculture. The large consumer population, increasing middle-class and growing economies provide a large potential for investment in the agricultural sector. As agricultural productivities between countries equalise, nearness to output markets and input sources will account for differences in sales and profitability between producers. In addition, current trends in regional integration and Africa’s improving political and business environment will continue to payoff in terms of investment.
6.6 Implementing an agenda for agriculture

Africa needs clear identification of the objectives for further agricultural development and clarity on how it intends to go about it. This requires broad-based consultation including the participation of all relevant stakeholders such as governments, private sector actors, consumers and the international development community. A critical phase in this process involves obtaining political will and approval as well as the necessary capacity among actors. The Comprehensive Africa Agricultural Development Program (CAADP) promotes agriculture-centred development strategies across Africa. It aims to achieve agriculture-led development to eliminate hunger, reduce poverty and food insecurity, and to enable the expansion of exports. The principal focus of this agenda is growth. It focuses on better management of land and water resources, improved access to markets, ensuring food security and expanding the level of research, technological innovation and adoption in the agricultural sector. All five pillars of CAADP require additional investment from public and private funds to complement existing capacities so as to achieve the overall goals. One of the targets of the agenda is to raise public expenditures in agriculture to at least 10% of GDP. A NEPAD report in 2013, (NEPAD, 2013) shows that seven years after the CAADP was launched, only 9 out of 44 countries, for which data was available, had met the 10% expenditure target for agriculture.

Clear determination of governments to initiate the process by establishing the infrastructure and institutional environment will draw the interest of large private sector actors from both within and outside of Africa. The crucial role of the international community can be a vital complement to government efforts. If Africa can set and prioritise an agricultural agenda in partnership with the international development community, as they have done for the MDGs, this could establish momentum behind agricultural development that will potentially address many of the continent’s development bottlenecks. Clearly, this requires a significant shift in concepts, resources and focus among all participating institutions. In short, it calls for the prioritisation of agriculture. The concern has always been about the opportunity cost of such reallocations. But considering the interlinked nature between agricultural development and many of the continent’s other development challenges, the trade-off may be much smaller than one may expect. Prioritising agriculture may yield benefits for education, for health and could address gender inequity concerns through the sector’s effect on poverty and improved standards of living for all.

The heterogeneous nature of African economies suggests that a global agricultural agenda may not be sufficiently focused on specific country needs. Growth fundamentals in African economies differ in the same way that factors that limit poverty reduction differ across countries. Resource-dependent economies with significant export revenues require more emphasis on addressing incentive issues to achieve economic development. While diversification into agriculture can significantly contribute to poverty reduction, it addresses an additional vulnerability by insuring resource rich economies from potential volatility arising from global commodity price shocks. In agricultural-based economies, an agenda that focuses on growth, poverty reduction and food security can be promoted by focusing resources on enhancing agricultural productivity and production. This set of countries will need policies and institutions to increase participation and productivity in the sector, so as to maintain and enhance its role as a key source of growth.
With Africa’s advances in regional integration, as demonstrated by expanding transport networks and more regional economic and trade collaborations, a successful agricultural agenda will not only meet domestic needs, but will possibly lead to greater specialisation and trade between countries. In this way, the pursuit of African industrialisation, particularly commodity-based industrialisation and agro-industry, can be initiated and sustained by the local forward supply linkages of a vibrant agricultural sector.

An important part of the agricultural agenda is implementation. Two important ingredients, outlined by the World Bank (2007), are managing the political economy of agricultural development, and, strengthening the capacity of implementing institutions. Short-term political incentives have always made it difficult to convince politicians to invest in agricultural strategies with long-term benefits. Buying the commitment of the political system calls for addressing the lack of incentives among politicians to invest in projects with larger long-term net benefits relative to those with only short-term benefits. On the other hand, if the agricultural investment gap is to be financed from donor funds, a clear-cut plan is needed. This should include a feasible implementation schedule detailing resource requirements, their sources and the period over which those resources will be available.

The international geo-politics of agricultural subsidies is not consistent with commitment to finance large-scale agricultural development in developing countries. Delivering on promises in international development financing is crucial for the effective execution of development plans. On the other hand, the capacity of implementing parties is even more crucial in the agricultural sector. Capacity building needs are broad and can range from human resources (including policy, institutions, and farmers) to other factors such as agricultural input and technologies. Enhancing the capacity of the state in its coordination role is going to be critical in addressing many of the market failures in African economies. This would also enable the state to undertake the difficult task of reforming the agricultural sector to make it more responsive to local and continental market demands.
The developmental stage of a country determines the set of policies it should adopt to optimise progress in economic and social advancement. At the early stages of development, agriculture is often the main focus. As countries advance, labour shifts from agriculture to other sectors, such as manufacturing and services. This phenomenon has been observed in other parts of the world, such as Europe and East Asia. The push for Africa’s structural transformation is based on the vision that the continent is transitioning from one developmental stage to another and,
that achieving a successful transition requires a structural shift. In chapter 3 we explored how structural components of African economies have been changing over the past decade. As in other regions, labour is shifting away from agriculture to non-agricultural sectors. But, as earlier sections have demonstrated, there are many challenges.

Indeed, two concerns remain. First, the labour that shifts from the agricultural sector is not replaced by increased investment in agriculture, especially in terms of technological investment. We would expect that the decline in agricultural labour input would be matched by increased capital inputs. This would make it possible for the continent to sustain the level of agricultural production, if not, to increase it. Secondly, labour that moves out of agriculture has not been absorbed into manufacturing, but rather into low paid informal services. Both of these characteristics have implications for future growth potential and concomitant poverty reduction. The lack of growth in manufacturing together with the declining role of agriculture does not paint a good picture of the continent’s future development path. If Africa is aiming for economic transformation that will be driven by commodity-based industrialisation, improved production and productivity in the agricultural sector should be accompanied by expanding agro-based industrialisation.

Africa faces some sizeable challenges in its path to industrialisation. The abundance of natural resources in several countries meant that these countries could earn large amounts of revenue with little effort on the side of governments. This has generally been a source of disincentive to invest in, and develop, agriculture and agriculture related manufacturing sectors in these countries. Until recently, most mineral resource dependent countries tended to be less diversified.

Another challenge is the timing of structural transformation. The downward trend in agricultural production and its share of the labour force could well have negative implications for food security. In developed countries, the declining role of agriculture was triggered by increased mechanisation that maintained production levels in the sector even as labour moved away from the sector. The foundation for agro-based industrialisation will be fundamentally undermined if labour that is exiting agriculture is not replaced by a mechanisation level that can increase production levels or, at worst, even manage to keep levels unchanged.

Our view, therefore, is that the type of structural transformation that is most likely to be meaningful for Africa is one that first transforms the agricultural sector into a modern high productive sector and expands agriculture-based manufacturing sectors to add-value to Africa’s primary agricultural products. Achieving this requires the commitment of governments, the private sector and the international development community to dedicate resources to agriculture. These resources are most needed to address the infrastructure needs, farm level physical capital requirements and to improve access to markets. We recommend a more coordinated effort among actors in the planning and implementation of Africa’s agricultural development agenda. Chapter 8 will return to this issue, by discussing the Bank’s support to the agricultural sector.
References


